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Refugee migration, unemployment and anti-asylum attitudes: Evidence from the 1990s Yugoslav refugee crisis

Marco Pecoraro, Bruno Lanz and Didier Ruedin

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Marco Pecoraro† Bruno Lanz‡ Didier Ruedin§

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Abstract

This paper examines the short- to long-term effects of large-scale refugee inflows on labour markets and anti-asylum attitudes. Using the exogenous arrival of Yugoslav refugees to Switzerland in the 1990s and municipal-level data with an instrumental variables strategy, we find that refugee exposure increased unemployment and anti-asylum voting in the short term. Over a decade later, the refugee shock is no longer correlated with unemployment, whereas anti-asylum attitudes not only decline but reverse in areas with higher initial exposure, notably in rural municipalities. These results highlight the temporary nature of labour market disruptions and the longer-term shift in anti-asylum attitudes consistent with contact theory.

Keywords: Refugees, Forced Migration, Unemployment, Labour Market Effects, Anti-Asylum Attitudes, Voting Behaviour, Contact Theory

JEL Codes: J61, J68, D72, F22, J15

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†Department of Economics and Business, University of Neuchâtel, Switzerland; email: marco.pecoraro@unine.ch.

‡Department of Economics and Business, University of Neuchâtel, Switzerland; Center for Integrative Risk Management and Economics, ETH Zürich, Switzerland; Center for Energy and Environmental Policy Research and Joint Program on the Science and Policy of Global Change, Massachusetts Institute of Technology, USA; email: bruno.lanz@unine.ch.

§Swiss Forum for Migration and Population Studies, University of Neuchâtel, Switzerland; African Centre for Migration & Society, University of the Witwatersrand, South Africa; email: didier.ruedin@unine.ch.

1 Introduction

Asylum migration can pose significant policy challenges, especially when large groups of migrants arrive suddenly, fleeing conflict or persecution. While many studies of voluntary immigration find only modest negative, neutral or slightly positive effects on native wages and employment (Edo, 2019), refugees often arrive with skills ill-suited to the host labour market and may therefore generate more pronounced short-term labour market displacement for natives (e.g., Borjas, 2017; Borjas and Monras, 2017; Edo, 2020).[1] In turn, perceived risk of unemployment or wage stagnation may be exploited by political forces to advocate restrictive policies, and numerous studies document that large and sudden refugee inflows can lead to increased support for populist or radical-right parties (e.g., Dustmann et al., 2019; Dinas et al., 2019; Hangartner et al., 2019; Schaub et al., 2021; Steinmayr, 2021).

Whether these tensions identified in the short-term persist over time is important both for understanding political preferences and for policies. On the one hand, local labour markets may adjust over time, and contact theory (Allport, 1954) suggests that repeated interaction with newcomers can reduce prejudice and, in the longer term, diffuse tensions. Indeed, evidence from various settings indicates that negative attitudes towards asylum migration — as reflected in support for far-right parties — can soften as societies adapt and refugees integrate (Dustmann et al., 2019; Steinmayr, 2021).[2] On the other hand, with persistent economic impacts and perceived economic distress, natives may become more receptive to anti-immigrant rhetoric. In turn, this could lead to refugee events being scapegoated for political gains by exploiting anxieties associated with economic impacts.

In this paper, we build on the quasi-experimental tradition initiated by Card (1990) to study how an influx of refugees from the former Yugoslavia in the 1990s affected Swiss labour markets and anti-asylum voting in the short- and long-term. Switzerland and Austria

[1] Quantitatively, studies of voluntary immigration suggest that a 10% increase in the immigrant share reduces native wages by at most 1%, whereas forced migration can have larger effects on host populations (see, e.g., Becker and Ferrara, 2019; Verme and Schuettler, 2021, for reviews).

[2] A multidisciplinary body of literature has examined individual preferences for immigration policy and the factors that shape attitudes towards immigrants more generally (e.g., Ceobanu and Escandell, 2010; Hainmueller and Hopkins, 2014; Hatton, 2014; Pettigrew, 2016; Alesina and Tabellini, 2024, for reviews). Existing studies identifying the economic and non-economic determinants of anti-migrant attitudes often rely on measures that are prone to social desirability bias, such as survey-based opinions about political parties or stated voting behaviour, and are limited in their ability to capture longer-term behavioural responses.

were among the main destinations for refugees fleeing the Balkan conflicts; of the almost 260,000 Yugoslav refugees arriving in Western Europe, 76% settled in Austria and 17% in Switzerland (Borjas and Monras, 2017). These inflows had major socio-economic and cultural implications for receiving countries (e.g., Angrist and Kugler, 2003; Borjas and Monras, 2017; Couttenier et al., 2019). Borjas and Monras (2017), for example, revisited this refugee shock in multiple European destinations and found adverse unemployment effects on competing native workers, using an aggregated shift-share framework. Our setting differs by exploiting more granular (municipal-level) data and an alternative identification design that addresses potential endogeneity in refugees' local allocation.

Focusing on Switzerland offers a number of advantages. First, detailed census- and register-based sources allow us to construct objective measures of unemployment without relying on self-reported data. Second, the chronology of the Yugoslav refugee inflow allows us to study adjustments over two decades, capturing longer-term dynamics that cannot be captured in single cross-sections. Third, we exploit the country's direct democracy: instead of proxying anti-immigrant sentiment by votes for radical-right parties (which may reflect broader partisan shifts, see Alrababah et al., 2024) or self-reported attitudes towards migrants and foreigners (e.g., Pecoraro and Ruedin, 2016, 2020), we analyse referendum results specifically targeting asylum laws. To this end, we rely on an indicator of anti-asylum attitudes constructed from referendums on the revision of the Asylum Act, available at the municipal level for the period under study (1990-2010).

Our identification strategy leverages the fact that Swiss cantons received asylum seekers under rules limiting self-sorting at the cantonal level.[3] Within cantons, however, their placement across municipalities may have been influenced by local economic conditions or attitudes towards asylum seekers. To address this potential problem, we adopt an instrumental variable (IV) strategy following Steinmayr (2021), who exploits the quasi-random variation in the availability of public buildings for refugee accommodation. We provide evidence supporting our instrument through (i) placebo tests on pre-shock outcomes and (ii) results for an unrelated referendum, suggesting that our instrument does not confound estimates with

[3] As discussed extensively in Couttenier et al. (2019), the placement of asylum seekers is overall uncorrelated with canton characteristics. The quasi-random nature of the asylum-seeker allocation process was also exploited in Hainmueller et al. (2016) to study asylum seekers' integration in Switzerland.

other municipal-level characteristics.

Our results reveal that municipalities exposed to a larger share of Yugoslav asylum seekers experienced a short-run increase in unemployment. This was especially pronounced for less-educated workers and legal foreign residents, and became more inclined to support anti-asylum ballots, notably in rural areas. By contrast, these relationships largely dissipate over the medium to long run: a decade or more after the initial inflows, we find no clear correlation with unemployment, and anti-asylum attitudes actually reverse where the earlier refugee presence was higher. Consistent with contact theory (Allport, 1954), it appears that sustained interaction gradually mitigates initial fears and fosters more accepting attitudes towards refugees, as measured by a reduction in support for referendums to restrict asylum rights. We find no evidence that local residents moved away in response to refugee arrivals, further supporting the reliability of our estimates.

Our analysis makes several contributions. First, we add to the literature on the labour market effects of immigration and refugee inflows. Evidence from quasi-experimental studies is mixed: some find significant displacement of native workers in the short term (Glitz, 2012; Dustmann et al., 2017b), while others document only temporary effects (Edo, 2020) or no clear impact on employment (Gehrsitz and Ungerer, 2022). Our approach relates to studies using refugee shocks for identification (e.g., Foged and Peri, 2016; Borjas and Monras, 2017; Clemens and Hunt, 2019; Aksu et al., 2022), though we rely on more granular data and a different IV strategy (Steinmayr, 2021). By focusing on both short- and long-term effects, we help clarify whether labour market disruptions persist or fade over time.

In Switzerland, studies on refugees in Switzerland are scarce, but research on general immigration suggests limited or even positive effects on natives, including no wage losses (Gerfin and Kaiser, 2010) and higher employment (Basten and Siegenthaler, 2019). Reforms easing EU cross-border work also improved native employment and firm performance (Beerli et al., 2021). Unlike voluntary migrants, however, refugees flee conflict with little preparation or choice of destination (Peri, 2016; Dustmann et al., 2017a). By focusing on the Yugoslav refugee shock, we show how forced migration can create strong short-run pressures on host communities.

Second, we contribute to research on subnational political and attitudinal responses to

immigration. While existing work often relies on national-level elections or survey questions, we exploit Switzerland's referendum system to observe municipal-level voting on asylum-specific issues. This approach mitigates the risk of confounding anti-asylum attitudes with broader partisan realignments or general disaffection with incumbents (Brunner and Kuhn, 2018; Van Wijk et al., 2019). Closer to our empirical analysis, Steinmayr (2021) investigates how different forms of exposure to refugees affect voting for far-right parties, whereas Müller et al. (2018) use two popular initiatives on immigration restrictions in 2000 and 2014 — after the Yugoslav refugee shock — to examine how changes in natives' anti-immigration attitudes are related to the share of immigrants at the municipal level. We complement their work by exploiting the quasi-experimental setting induced by the conflict in the former Yugoslavia.

Third, our study contributes to the understanding of whether and how host-society responses persist or reverse after a large refugee shock. Most research documenting adverse short-run economic or political impacts has limited ability to track long-term adjustments (e.g., Dustmann et al., 2019; Gehrsitz and Ungerer, 2022). An important exception is Edo (2020), who examines native wage dynamics following the mass repatriation to France after Algerian independence. By examining roughly two decades of data, we show that while unemployment and anti-asylum attitudes initially spike, they subside or reverse in the longer run. This time profile suggests that the impact of refugee inflows is dynamic and path-dependent, reinforcing the importance of studying both immediate and delayed effects.

The rest of the paper is structured as follows. We first present the data sources and estimation strategy (Section 2). Section 3 reports estimation results. Section 4 discusses the implications of our findings and concludes with open research questions.

2 Data and empirical approach

We built a comprehensive database from various sources, covering all residents in Switzerland. In this section, we first describe the sources; subsequently we consider different regression specifications relating our main outcomes of interest — unemployment or the share of anti-asylum votes — to indicators of asylum-seeker concentration.

2.1 Data sources

The main source used in the empirical analysis are the 1980, 1990 and 2000 decennial censuses. In some analyses, we combine this with 2010 register data on the annual stock of the resident population.[4] All data sources cover the entire resident population of Switzerland (whether Swiss or foreign citizens) and allow us to construct indicators measuring the concentration of asylum seekers in Swiss municipalities.[5] The census data also contain information on buildings and dwellings, which we use to construct the instrumental variable.

From the census data, we derive the unemployment rate as our main labour market outcome. This indicator is based on the International Labour Organisation (ILO) definition: the unemployed are Swiss residents who do not have a job, who may or may not be looking for work, or who have a guaranteed future job. As the censuses include a wide range of information such as education and nationality, we can calculate municipal unemployment rates by education level for both Swiss and foreign citizens. In the absence of a population census in 2010, unemployment figures are also derived from the *Swiss insurance unemployment register*, which collects information on the registered unemployed — such as their number or nationality — who are entitled to get unemployment benefits. We then calculate the municipal unemployment rate as the ratio of the number of registered persons to the number of persons of working age in a municipality for the years 2000 and 2010.[6]

Table 1 presents summary statistics derived from the 1990–2000 censuses. During this period, the number of asylum seekers from the former Yugoslavia increased by almost 10,000 persons. In percentage terms, this represents a fourfold increase compared to their 1990 numbers. In contrast, the growth rate for Swiss nationals and legal foreigners was 1.56% and 14.11% respectively. These groups have labour market participation rates ranging from

[4] As the last decennial census was carried out in 2000, the 2010 figures for asylum seekers, or more generally for the local population, are taken from the *Annual Population Statistics* (renamed *Population and Households Statistics* starting in 2011), which are based on population registers (including the *Register of Asylum Seekers and Refugees*).

[5] Due to municipal mergers, the number of municipalities in Switzerland has declined over time, from 3,095 in 1960 to 2,202 in 2020 (Knechtl and Stutzer, 2021). Depending on the period of analysis, the number of municipalities used in this study is based on their status in either 2000 or 2010. Harmonization was carried out to account for these mergers, with municipalities grouped according to their status in these years.

[6] While widely used in Switzerland, this indicator differs substantially from the ILO unemployment rate in that it does not include in the numerator those unregistered persons who are inactive but looking for a job or those who will start a new job in the near future.

Table 1: Characteristics of 18-60 year olds in Switzerland, 1990–2000

	Swiss		Legal foreigners		Yugoslav asylum seekers	
	1990	2000	1990	2000	1990	2000
Overall						
Number (1000's)	3321.8	3373.7	863.3	985.1	2.9	11.8
Labour force participation	78.6	83.7	86.3	83.6	59.9	56.8
In the labour force						
Educational attainment						
> Compulsory	19.1	16.8	51.9	46.8	69.1	56.3
> Vocational/High school	63.6	59.6	35.2	32.7	23.2	30.1
> Tertiary education	17.4	23.6	12.9	20.5	7.7	13.6
Percent Male	58.1	54.2	66.0	58.6	76.2	62.9
Percent under 30	31.3	23.0	31.6	27.7	62.9	38.7
Mean Age	37.5	39.5	36.7	37.0	28.4	32.3
Unemplomet rate	1.9	2.8	2.6	7.2	28.1	43.5
ISCO distribution (% of Employed)						
1. Legislators, senior officials and managers	8.5	11.2	4.8	8.7	0.0	1.5
2. Professionals	10.4	14.6	5.6	11.2	0.2	1.9
3. Technicians and associate professionals	18.9	23.2	10.4	15.1	1.1	5.4
4. Clerks	14.9	14.6	7.3	10.3	1.5	4.7
5. Service workers and shop and market sales workers	11.4	12.8	12.5	17.9	13.2	33.0
6. Skilled agricultural and fishery workers	4.7	3.7	1.1	1.1	1.0	3.2
7. Craft and related trades workers	14.5	12.7	23.8	19.3	12.3	25.0
8. Plant and machine operators and assemblers	4.2	4.3	7.1	7.6	2.5	6.6
9. Elementary occupations	12.4	2.9	27.5	8.9	68.3	18.7

Source: Federal Population Census (1990-2000).
Notes: Legal foreigners are all foreign nationals without an N or F permit; Yugoslav asylum seekers are foreign nationals with either an N or F permit from a country that was part of the former Yugoslavia.

78.6% to 86.3%, which are generally among the highest rates in Europe. On the other hand, the labour market participation of asylum seekers from former Yugoslav countries is much lower (below 60%). This discrepancy is commonly attributed to the fact that they have incomplete information about the Swiss labour market and do not speak one of the national languages (German, French, Italian). Asylum seekers were also not allowed to work during the first three to six months of their stay in Switzerland (Article 43, Asylum Act - LAsi).

Compared to Swiss nationals and legal foreigners, asylum seekers from former Yugoslavia are on average more likely to be male and to be younger. They also have a much lower level of formal education: before the war in ex-Yugoslavia began in the 1990s, 69.1% of them had compulsory schooling, and in 2000 the majority still had this level of education (56.3%). Interestingly, in terms of occupational distribution, they appeared to be working in more skilled occupations in 2000 than their 1990 counterparts, more than two-thirds of whom reported working in elementary occupations. In 2000, they are particularly concentrated in medium-skills occupations such as service/sales workers (33%) or craft and related trades workers (25%). Finally, it is worth noting that the 1990s saw a significant increase in unemployment

Table 2: National referendums on asylum-related legislation reforms

Voting date	Decennial year	Asylum rights	Voting results	Approval rate
06.06.1982	1980	extended	rejected	49.6%
05.04.1987	1990	restricted	accepted	67.3%
13.06.1999	2000	restricted	accepted	70.6%
24.09.2006	2010	restricted	accepted	67.8%

Source: Brunner and Kuhn (2018), Table 1 pages 36-37.
Notes: The votes listed in this table include optional referendums on the revision of the Asylum Act (in conjunction with the 1982 revision of the Aliens Act). This list does not include the 2013 vote on the revision of the Asylum Act, as the reform package combines both restrictive and expansive measures, making it difficult to classify it as pro- or anti-asylum. For more information, visit the SwissVotes website, which lists all the federal votes since 1848.

albeit starting at a very low level, which affected legal foreigners more than Swiss nationals. Their unemployment rate (as defined by the ILO) rose by 177% between 1990 and 2000, compared to almost 50% for Swiss nationals.

The other outcome of interest is voting behaviour on asylum-related legislative reforms. Here we benefit from the political system in Switzerland, where citizens are often solicited to vote on a wide range of issues, including asylum-related matters. We use official results from national ballots at the municipal level to get a direct measure of anti-asylum attitudes. We select specific referendums on asylum-related legislative reforms from the comprehensive list of votes on immigration compiled by Brunner and Kuhn (2018), as shown in Table 2. This provides us with a distinctive framework for assessing public attitudes that is less influenced by social desirability than the more commonly used survey questions or mobilization efforts in the case of party votes. We construct an indicator of anti-asylum voting by focusing exclusively on referendums dealing with revisions to the Asylum Act, corresponding to the closest decennial years 1990, 2000 and 2010. Since there was no referendum on the revision of the Asylum Act close to 1980, we use the 1982 referendum on the revision of the Aliens Act as the reference vote for the decennial year 1980. This choice is supported by the fact that the 1982 referendum explicitly stated that the revised law would also apply to refugees (unless other federal laws contained specific provisions). Unlike the unemployment indicator, it is not possible to break down the municipal votes according to the level of education or (former) nationality of the Swiss voters. The last column of Table 2 shows that the average proportion of anti-asylum votes at the national level has increased over time, reaching around 70% in

the decennial year 2000, followed by a downward trend since then.

2.2 Empirical approach

Yugoslav asylum seekers were clustered in specific municipalities: as a result of the dispersal policy, some municipalities received large numbers, while others received none or few. This feature provides sufficient variation to identify their impact on the local unemployment rate and the anti-asylum votes at the municipal level. We adopt a *spatial approach* in the spirit of Card (1990) and Dustmann et al. (2016). By exploiting the variation in the total immigration shock from the former Yugoslavia across municipalities, we can recover the total impact on a particular skill group. As noted by Dustmann et al., approaches that calculate total effect estimates have a clearer interpretation than relative effects estimates derived from the national skill-cell approach in the spirit of Borjas (2003). Therefore, our results consider complementarities across skill cells, as well as between labour and capital.

2.2.1 Measuring the impact on unemployment

How does the spatial concentration of asylum seekers from the former Yugoslavia affect the municipal unemployment rate of the local population? To answer this question, we estimate a first difference specification that allows us to eliminate unobserved municipal fixed effects:

$$\Delta u_{ijk,t} = \alpha + \beta \Delta m_{k,t} + \delta_i + \gamma_j + \Delta \epsilon_{ijk,t}, \tag{1}$$

where u_{ijk} is the ratio of the unemployed to the active population in the municipality k, with the level of education i (three levels: compulsory, vocational/high school, and tertiary), in the national group j (Swiss vs. legal foreigners), in decennial year t. $\Delta u_{ijk,t}$ then measures the difference in the unemployment rates between two decennial years. On the other hand, m_k is the ratio of the number of asylum seekers from former Yugoslavia to the number of residents (Swiss and legal foreigners) in the municipality k. If the focus is on the years 1990 and 2000, $\Delta m_{k,2000}$ corresponds to the immigration shock that occurred in the 1990s, and β captures the overall effect on local unemployment resulting from the refugee shock. In addition, δ_i and γ_j are the fixed effects for education and national group.

2.2.2 Measuring the impact on anti-asylum attitudes

The other outcome of interest is the attitude of Swiss citizens towards asylum seekers. In this context, we look at the proportion of anti-asylum votes — i.e., referendums in favour of restricting or against extending the rights of asylum seekers (cf. Table 2). We rely on a similar specification estimated by Dustmann et al. (2019), who examined the causal effect of the municipal share of allocated refugees on the vote shares of specific political parties in Denmark. We then regress the change in anti-asylum votes on the change in the proportion of asylum seekers in the total population at the municipal level, as follows:

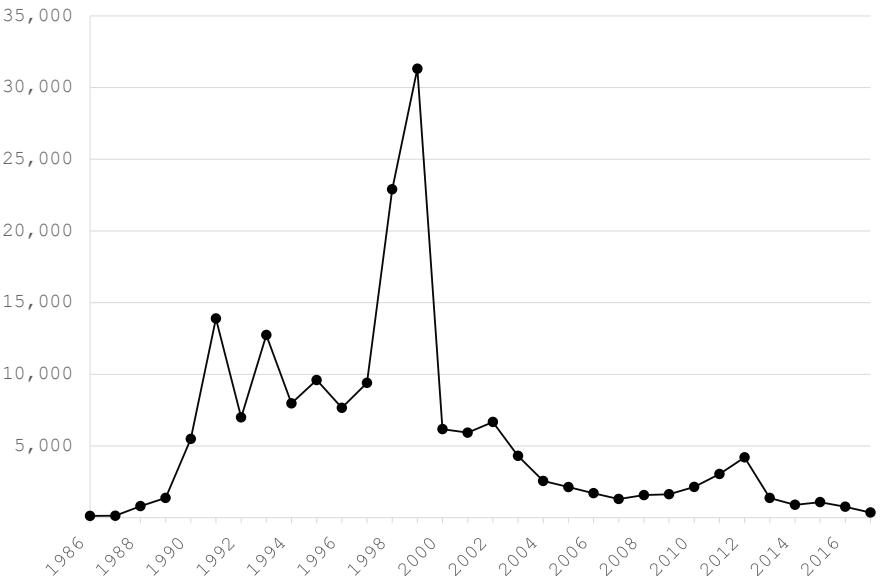
$$\Delta v_{k,t} = \xi + \theta \Delta \omega_{k,t} + D_{k,95\%} + \Delta \eta_{k,t}, \tag{2}$$

where $\omega_{k,t}$ is the proportion of Yugoslav asylum seekers to the total population of municipality k in decennial year t. $D_{k,95\%}$ is a dummy indicating whether the size of the municipality k is above the 95$^{\text{th}}$ percentile of the overall municipality size distribution, and then captures the 5% largest and most urban municipalities in the Swiss context. Distinguishing between urban and rural areas is essential, as preview research (e.g., Dustmann et al., 2019) has shown that urban residents are more likely to interact with migrants at work or in social settings, whereas rural residents may experience more involuntary exposure, which could increase perceived threat and influence anti-asylum voting. $v_{k,t}$ is measured as the proportion of votes in the municipality k for tightening (or against expanding) federal immigration/asylum policy.

2.2.3 Identification and instrumental variables

The magnitude of the asylum applications from the former Yugoslavia in Switzerland is illustrated in Figure 1. It is constructed from administrative data on the stocks of asylum seekers in Switzerland, drawn from the *Central Information System on Migration* (ZEMIS) and the *Register of Asylum Seekers and Refugees* (AUPER), both important data sources for the proposed study (see Subsection 2.1). At the beginning of the 1990s, when war broke out first in Croatia and then in Bosnia, the annual number of asylum applications from Yugoslav refugees in Switzerland fluctuated between 7,000 and 13,000. The period of war in Kosovo (1998-1999) is characterised by a distinct spike in the number of asylum applications

Figure 1: Asylum applications from former Yugoslavia in Switzerland, 1986–2017



Data sources: Central Information System on Migration (ZEMIS) and Register of Asylum Seekers and Refugees (AUPER).

(around 31,000 in 1999).

There are different legal statuses for asylum-related migrants in the Swiss context. Individuals arriving in Switzerland to seek asylum are initially granted a temporary N permit, which is valid until Swiss authorities decide on their asylum application. This process can lead to three possible outcomes Romer (2022). First, if a case does not meet the criteria for refugee or subsidiary protection, the individual loses the N permit and must leave the country. The second outcome occurs when asylum seekers meet the legal requirements for both international refugee recognition and Swiss asylum status. Recognized refugees normally receive a B permit, which gives them the right to stay in Switzerland. The third outcome is that asylum seekers do not qualify for refugee status, but they cannot be sent back to their country of origin for security reasons, e.g. fear of torture or civil war. These asylum seekers are provisionally admitted and receive an F permit, which extends their stay temporarily — although many of them stay in Switzerland for many years and even settle permanently. In the empirical analysis, we focus on Yugoslav migrants with an N or F permit because those who are granted a refugee status are indistinguishable from economic migrants in the reg-

isters of foreign citizens, as both groups have the same permit (B permit). This should not be a problem in our setting, given the *three-circle* and then *two-circle* immigration policies of the 1990s.[7] Because of these policies, which prohibit the recruitment of non-European and non-OECD nationals, asylum seekers from the former Yugoslavia were unable to convert their temporary permits into permanent residence permits at the time (Sharani et al., 2010; Iseni et al., 2014).

The unexpected influx of refugees from the former Yugoslavia in the 1990s led to a shortage of places in registration centres, where asylum seekers are accommodated while their cases are processed. As a result, most asylum seekers were temporarily accommodated in collective centres set up by cantonal authorities with the support of the federal government (Sharani et al., 2010; Parak, 2020). In this context, the cantons were responsible for assisting and housing asylum seekers, and the federal government reimbursed them for their costs. This allowed the federal government to keep expenditures under control, and it encouraged those implementing the policy (the cantons) to take greater responsibility for their financial management. Other tasks of the cantons are sometimes carried out at the municipal level. For example, employment, vocational training and children's education are the responsibility of the cantons or municipalities (Mahnig, 2005).

After their initial and quasi-random allocation at the cantonal level, asylum seekers were accommodated within the cantons under the supervision of the cantonal authorities and were not allowed to move to another canton.[8] Relocation within the canton was possible, but subject to the approval of the cantonal authorities and the availability of housing in

[7] In the 1990s, Switzerland implemented a nuanced immigration policy characterised by the interplay of two predominant models: the three-circle and two-circle systems. The three-circle policy, introduced in 1990, prioritized immigrants from European Union (EU) and European Free Trade Association (EFTA) countries, followed by those from non-EU/EFTA nations with quotas allocated based on labour market demands and humanitarian considerations. This approach evolved into the two-circle system, notably under the 1999 Bilateral Agreement on the Free Movement of Persons, which primarily focused on facilitating migration of EU/EFTA nationals while subjecting non-EU/EFTA immigration to more stringent regulations, including quotas and criteria emphasizing skilled labour needs. For further details on Swiss migration policy during the 1990s, see Mahnig (2005).

[8] The second revision of the Swiss asylum law was first implemented in 1987; for a detailed description of the revision, see Chapter F6 (in French) of the State Secretary for Migration's *Handbook of Asylum and Return* (2015).

alternative locations.[9]

To address the potential sorting bias that may occur within cantons at the municipal level, we rely on the IV strategy used by Steinmayr (2021), who took advantage of the availability of buildings suitable for accommodating larger groups. Here we use an alternative indicator as our main instrument: The presence of both state-owned buildings and service accommodation units at municipal level and for the year 1990, measured just before the Yugoslav refugee shock.[10] In fact, the cantonal authorities had to quickly convert existing public buildings to place asylum seekers in temporary accommodations, such as military barracks or civil protection shelters (Mahnig, 2005). The rationale behind our choice of instrument is as follows: These accommodations were built for purposes other than housing asylum seekers, and their existence should therefore be unrelated to changes in labour market conditions or voting patterns in relation to asylum seekers. As the indicators of asylum-seeker concentration are primarily influenced by the presence of group accommodation units, not by their number, we use a binary indicator as our instrumental variable.

2.2.4 Robustness checks

In addition to the IV analysis, we conduct a series of robustness checks. Beyond the possible endogenous sorting of asylum seekers across municipalities (within cantons), other well-documented threats in the literature could also challenge the causal interpretation of our estimation results.

The first threat is the mobility response of the local population following the Yugoslav refugee shock. It is conceivable that local residents reacted to the arrival of asylum seekers from the former Yugoslavia in their municipality by moving to another municipality. To assess how the Yugoslav refugee shock affected the mobility behaviour of local residents, we regress different indicators of emigration on the concentration of asylum seekers at the municipal level. These indicators are taken from the *Annual Population Statistics*, which are based on

[9] In some cases, such relocation might have been allowed if it had facilitated better access to services such as education, health care or legal assistance, although these decisions were made on a case-by-case basis (Wichmann et al., 2011).

[10] By definition, a service accommodation unit is located in buildings that can accommodate large groups, such as schools or hospitals, many of which are government owned (OFS, 2004).

official population registers and include key demographic characteristics such as the number of departures from the municipality of former residence to another municipality within the same canton, to another canton in Switzerland, or abroad. In the case of an increased emigration of the local population due to the settlement of asylum seekers in their municipality, the estimates of β and θ in the equations (1) and (2) would be biased, potentially offsetting the effect of asylum seeker concentration.

The second concern relates to the possibility that our estimation results are affected by pre-existing local trends in economic conditions or voting behaviour in referendums on asylum-related legislative reforms. To address this, we run placebo tests to check whether the instrumented concentration of asylum seekers across municipalities in the 1990s was not driven by past municipal unemployment growth between 1980 and 1990, before the Balkan wars. We also run IV regressions to test whether the settlement of asylum seekers is unrelated to past voting behaviour before the 1990s. Given that the inflow of asylum seekers from the Balkans took place mainly in the 1990s, it should not have had a causal effect on unemployment or anti-asylum voting in the 1980s. Still with regard to anti-asylum attitudes, we conduct additional falsification tests to examine whether the (instrumented) proportion of asylum seekers is a strong predictor of an alternative vote outcome that is contemporaneous with the decennial years 1990-2000 and is unrelated to asylum issues, such as the 1989 and 2001 popular initiatives to abolish the military launched by the *Group for a Switzerland without an Army*. In a further step, we also use placebo tests to confirm that our instrument is not correlated with changes in unemployment or vote shares against extending asylum rights before the refugee shock of the 1990s, or with contemporaneous changes in support for abolishing the military. The absence of significant associations in these placebo tests would lend credibility to our identification strategy by demonstrating that our instrument is not picking up pre-existing trends that might otherwise bias our estimates.

A third challenge, raised by Edo (2020), concerns the denominator used to calculate our indicators of asylum seeker concentration. Using the contemporaneous (post-shock) local population may raise two issues. First, it may be positively correlated with local demand shocks through changes in their wages, leading to a spurious negative relationship between asylum seeker concentration and local outcomes. Second, the local population itself may

respond to the inflow of asylum seekers, introducing measurement error in the *true* supply shock and biasing the estimates of β towards zero. Following Borjas et al. (1997) and Card and Peri (2016), Edo proposes to address this by using the pre-shock stock of local residents in the denominator (instead of the contemporaneous stock). In other words, we also run our empirical specifications using a second concentration measure based on the local population in 1990.

Finally, to further address the potential bias due to the endogenous location of asylum seekers in the unemployment analysis, we follow a strategy outlined by Edo (2020) by including a *Bartik* control that accounts for sectoral shocks affecting local labour markets. By doing so, we aim to capture economic shifts that are unrelated to the concentration of asylum seekers, thus mitigating possible endogeneity problems associated with their settlement. We only apply this approach in the context of the short-term impact regressions because detailed sectoral data are no longer comprehensively collected beyond the year 2000.

3 Results

This section has three parts. First, we examine the multi-term effects of Yugoslav asylum seekers on unemployment and anti-asylum voting. Second, we assess the validity of our identification assumptions through a series of robustness checks, including placebo tests and an analysis of potential emigration induced by the inflow of asylum seekers from the former Yugoslavia. Finally, we explore heterogeneous effects, analysing unemployment effects by education level and nationality, and voting behaviour by population density (urban versus rural municipalities).

3.1 Multi-term impact of Yugoslav asylum seekers

This subsection quantifies the effects of Yugoslav asylum seekers on local unemployment and voting responses to asylum-related legislation. We first assess the short- and medium-term effects on unemployment rates for both Swiss and legal foreign residents, identifying trends that may suggest a causal link to the presence of Yugoslav asylum seekers. We then examine anti-asylum voting behaviour, looking at shifts over short, medium and long time horizons to

understand how political preferences evolved in response to the increased presence of asylum seekers from the Balkans.

3.1.1 Labour market impact of Yugoslav asylum seekers

Table 3 presents the main results of regression analyses on how the unexpected influx of asylum seekers from the former Yugoslavia in the 1990s affected the unemployment rate of local residents (either Swiss or foreign) in the short and medium run.

The first two columns show short-term estimates of the impact on the unemployment rate. The estimates in the upper part of the table are obtained from our baseline specification, in which the asylum-seeker concentration indicator is calculated based on the *contemporaneous* local population. The OLS estimate indicates a significant and positive impact due to the shift in labour supply caused by the settlement of asylum seekers in the 1990s. A one percentage point increase in the concentration of asylum seekers increases the unemployment rate by 0.49 percentage points. This result confirms that of Borjas and Monras (2017), in particular their IV estimate based on the shift-share approach *à la* Card (2001), for which the coefficient size is similar.

Given non-random sorting of the asylum seekers across municipalities within cantons, OLS estimates may be biased. Therefore we also rely on IV estimation, with results reported in the second column. This confirms the significant and adverse impact on unemployment, as a one percentage point increase in the concentration of asylum seekers increases the unemployment rate by at least 5.71 percentage points. This effect is larger than the effect estimated with OLS, implying an underestimation of the adverse effect of asylum seekers. Given the average increase of 0.1 percentage points in the concentration of asylum seekers at the municipal level between 1990 and 2000, this implies an increase in the unemployment rate of around 0.57 percentage points. We also obtain similar results when we rely on indicators of asylum seeker concentration, where we use the pre-shock stock of local residents in the denominator. The first-stage F statistics of the excluded instruments reported in squared brackets do not suggest a problem of weak IV (cf. Stock et al., 2002).

Table 3: Short- and Medium-term effects of asylum-seeker concentration on unemployment

	Short term Changes in ILO Unemployment between 1990 and 2000		*Medium term* Changes in Registered Unemployment between 2000 and 2010	
	OLS	IV	OLS	IV
Yugoslav asylum seekers between 1990-2000				
Baseline indicators of asylum-seeker concentration	0.49**	5.71***	0.65***	2.20
	(0.16)	(1.07)	(0.17)	(1.32)
		[57.07]		[41.20]
Alternative indicators based on pre-shock locals	0.44**	5.89***	0.57**	2.25
	(0.15)	(1.11)	(0.17)	(1.35)
		[55.02]		[39.09]
Education FE	yes		no	
National group FE	yes		yes	
Cluster	106		104	
Observations	15,819		5,044	

Notes: All regressions are weighted by the population size at the municipal level in 1990. Standard errors in parentheses are presented below the coefficient estimates; they are heteroscedasticity robust and clustered by *ms*-regions (representing a wider geographical area than a municipality, in the sense of local labour markets, see the following link https://www.bfs.admin.ch/bfs/en/home/statistics/territory-environment/nomenclatures/regions-ms.html for more details). The first outcome variable is the unemployment rate, as defined by the ILO, measured as the ratio of the unemployed to the active population by national group at municipality and education level. The second outcome variable is the rate of registered unemployment, measured as the ratio of the registered unemployed to the active population by national group at the municipal level. These outcome variables are expressed in decimal form rather than as percentages. As an indicator of asylum-seeker concentration, we use the ratio of the number of asylum seekers from former Yugoslavia to the number of local residents at the municipal level. The baseline indicators of asylum-seeker concentration use the contemporaneous stock of locals in the denominator, while the alternative indicators are based on the pre-shock stock of locals (in 1990). The average value of this indicator at the municipal level is around 0.1%, whether calculated separately for the baseline and alternative definitions, or for each observation period based on different degrees of municipal aggregation due to mergers over time. IV estimation results are based on the presence of both state-owned buildings and service accommodation units as an instrument. The first-stage F statistics of excluded instruments are shown in brackets and are all significant at the 1 percent level. Three municipalities are excluded from the ILO unemployment specification due to missing information on education. Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

As shown in the last two columns of Table 3, the effects of the unexpected influx of asylum seekers from the former Yugoslavia in the 1990s on the (registered) unemployment of the local population between 2000 and 2010 show some notable differences compared to the short-term effects. It is challenging to observe lasting effects of the initial allocation of Yugoslav asylum seekers if the places to which they are allocated on arrival are a stepping stone to more permanent resettlement elsewhere in Switzerland. Therefore, a high degree of persistence is needed in the initial municipalities of settlement to see a lasting impact.

While the short-term analysis shows a statistically significant and positive impact, in the medium term this effect is still positive but insignificant. The coefficient estimates range from 0.57 (OLS) to 2.25 (IV) percentage points, the latter being statistically insignificant. This suggests that although the settlement of asylum seekers may still have some impact on the unemployment rate, its significance diminishes over time. The shift in labour supply caused by the asylum seekers settling in the 1990s likely had a more immediate impact on the unemployment rate, which appears to attenuate over time as the local economy adjusts.

3.1.2 Impact of Yugoslav asylum seekers on voting behaviour

Table 4 shows the results of the regression analyses examining the effects of asylum seekers from the former Yugoslavia in the 1990s on the the proportion of anti-asylum votes from Table 2 in the short, medium and long run, based on the revision of the Asylum Act that took place in 1987 (closest to 1990) and 1999 (closest to 2000). OLS estimates of the short-term effects suggest a negative impact of Yugoslav asylum seekers on anti-asylum attitudes: A one percentage point increase in the concentration of Yugoslav asylum seekers reduces the share of anti-asylum votes by 2.5 to 2.9 percentage points. This negative effect may be largely driven by the influence of urban municipalities, which, due to the population weighting, have a stronger impact on the overall estimates.[11]

IV estimation results do not confirm the negative relationship between the concentration of Yugoslav asylum seekers and anti-asylum attitudes, but they suggest that the OLS estimates are biased downwards, as in the case of the unemployment regression analyses. In particular, a 1 percentage point increase in the concentration of Yugoslav asylum seekers increases the proportion of anti-asylum votes by at least 33.7 percentage points. Given the average 0.1 percentage point increase in the concentration of Yugoslav asylum seekers at the municipal level between 1990 and 2000, this implies a short-term increase in the proportion of anti-asylum votes of at least 3.37 percentage points. Again, the first-stage F statistics of the excluded instruments show a strong relationship between the asylum-seeker concentration indicators and the instrument.

[11] Corresponding unweighted OLS results indicate a positive estimate (cf. Table A.1 in the appendix).

Table 4: Multi-term effects of asylum-seeker concentration on anti-asylum voting in Asylum Act Revisions

	Short term Changes in anti-asylum voting between 1990 and 2000		*Medium term* Changes in anti-asylum voting between 2000 and 2010		*Long term* Changes in anti-asylum voting between 1990 and 2010	
	OLS	IV	OLS	IV	OLS	IV
Yugoslav asylum seeker between 1990-2000						
Baseline indicators of	-2.92**	34.88***	0.87	-24.09*	-2.18	15.02
asylum-seeker concentration	(0.97)	(8.30)	(0.75)	(10.15)	(1.14)	(8.89)
		[38.48]		[25.83]		[24.62]
Alternative indicators	-2.53**	33.73***	0.97	-23.27*	-1.68	14.60
based on pre-shock locals	(0.93)	(7.81)	(0.70)	(9.64)	(1.06)	(8.64)
		[39.59]		[25.17]		[24.48]
Urban FE	yes		yes		yes	
Cluster	106		106		106	
Observations	2,833		2,502		2,502	

Notes: All regressions are weighted by the population size at the municipal level in 1990. Standard errors in parentheses are presented below the coefficient estimates; they are heteroscedasticity robust and clustered by *ms*-regions (representing a wider geographical area than a municipality, in the sense of local labour markets, see the following link https://www.bfs.admin.ch/bfs/en/home/statistics/territory-environment/nomenclatures/regions-ms.html for more details). The dependent variable is an alternative indicator of anti-asylum votes, measured as the proportion of municipal votes on the revision of the Asylum Act that took place between 1987 and 1999 (first two columns), between 1999 and 2006 (third and fourth columns), between 2006 and 1987 (last two columns). This dependent variable is expressed in decimal form rather than as percentages. As an indicator of asylum-seeker concentration, we use the proportion of Yugoslav asylum seekers to the total population at the municipal level. The baseline indicators of asylum-seeker concentration use the contemporaneous stock of locals in the denominator, while the alternative indicators are based on the pre-shock stock of locals (in 1990). The average value of this indicator at the municipal level is around 0.1%, whether calculated separately for the baseline and alternative definitions, or for each observation period based on different degrees of municipal aggregation due to mergers over time. IV estimation results are based on the presence of both state-owned buildings and service accommodation units as an instrument. The first-stage F statistics of excluded instruments are shown in brackets and are all significant at the 1 percent level. Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Between 2000 and 2010, the attitudinal effects of Yugoslav asylum seekers from the 1990s reveal significant differences compared to the estimates derived for the period 1990–2000. In particular, the positive impact on anti-asylum attitudes identified in the short-term analysis turns negative overall in the medium term (reflecting a change in sign). The IV coefficient estimates in the fourth column of Table 4 are negative and weakly significant (at the 10 percent level), reaching at least 23.3. Thus, while there was initially a significant increase in anti-asylum attitudes associated with the concentration of asylum seekers from the former Yugoslavia, this negative sentiment appears to have diminished over time, suggesting that contact with asylum seekers increases over time and may reduce anti-asylum sentiments among local residents. Nevertheless, we cannot rule out the possibility that this shift is due to other factors, such as integration efforts by asylum seekers themselves or demographic changes within the affected communities.

Finally, the last two columns of Table 4 show the long-term effects of asylum seekers from the former Yugoslavia on anti-asylum attitudes, which do not appear to be significant, confirming the reversal of short-term negative attitudes. Thus, these results suggest that the presence of Yugoslav asylum seekers in the municipalities where they settled in the 1990s led to a worsening of anti-asylum attitudes in the short run, with more favourable attitudes over time, offsetting the initial effects in the long run.

3.2 Validity of the identifying assumption

To support the relevance of our empirical strategy, we first show that neither the instrumental variable nor the instrumented concentration of Yugoslav asylum seekers in the 1990s has an effect on the *pre-shock* dependent variables — before the settlement of Yugoslav asylum seekers in Switzerland. This ensures that our instrument does not capture pre-existing trends or systematic differences in unemployment rates or anti-asylum voting prior to the inflow of Yugoslav asylum seekers.

The first row of Table 5 presents the reduced form estimates for the periods before (1980–1990) and after (1990–2000) the influx of Yugoslav asylum seekers. In the first two columns of the same table, we check that our instrument is not related to changes in unemployment or anti-asylum vote shares before the refugee shock of the 1990s. For example, we might expect

the presence of state-owned buildings and service accommodation units to be correlated with the size of municipalities and, more generally, with economic growth. As a result, the instrument may not be uncorrelated with unobserved trends in economic and employment conditions, and thus with unobserved trends in unemployment before the inflow of Yugoslav refugees in the 1990s.

In the first column, we examine whether the presence of public buildings and service accommodation units was not driven by past local unemployment trends in the 1980s. The corresponding OLS estimates, which are not statistically significant, do not suggest that past unemployment trends differed between municipalities with or without public buildings and service accommodation units in 1990. The estimates in the second and third rows confirm that the instrumented presence of Yugoslav asylum seekers is not statistically associated with unemployment in the 1980s. These findings strengthen the validity of our identification strategy regarding the causal impact of Yugoslav asylum seekers on the unemployment rate in the short run. The same conclusion applies to some extent (the coefficient estimate associated with the instrument is weakly significant at the 10 percent level in the second column) to anti-asylum attitudes as measured by votes on the 1987 Asylum Act revision (closest to 1990) and the 1982 Aliens Act revision (closest to 1980), assuming that these two votes follow similar attitudinal trends as the 1999 Asylum Act revision (closest to 2000). The estimates in the second and third rows confirm that the instrumented indicator for the concentration of Yugoslav asylum seekers is statistically unrelated to this specific vote outcome.

Last, we show in the last column of Table 5 that our instrumented concentration indicators for asylum seekers from former Yugoslavia in the 1990s fail to predict the outcome of two popular votes "for a Switzerland without an army" — unrelated to immigration — which took place close to the decennial years 1990 and 2000. These federal popular initiatives proposed to add an article to the Federal Constitution abolishing the Swiss Army and explicitly prohibiting the federal government and the cantons from maintaining an armed force. Both were rejected by the Swiss people and the cantons on 26 November 1989 and on 2 December 2001 respectively.

Table 5: Placebo tests: Pre-shock outcomes, reduced forms and IV estimates

	Changes between 1980 and 1990 in		Changes between 1990 and 2000 in		
	ILO Unemployment	Anti-asylum voting	ILO Unemployment	Anti-asylum voting	Anti-army voting
Presence of both state-owned buildings and service accommodation units in 1990					
	0.00	0.02*	0.01***	0.04***	-0.00
	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)
Yugoslav asylum seekers between 1990-2000					
Baseline indicators of	0.66	20.51	5.71***	34.88***	-1.19
asylum-seeker concentration	(0.78)	(11.49)	(1.07)	(8.30)	(4.73)
	[55.31]	[38.48]	[57.07]	[38.48]	[38.46]
Alternative indicators	0.68	19.84	5.89***	33.73***	-1.15
based on pre-shock locals	(0.80)	(11.18)	(1.11)	(7.81)	(4.57)
	[53.24]	[39.59]	[55.02]	[39.59]	[39.56]
Education FE	yes	no	yes	no	no
National group FE	yes	no	yes	no	no
Urban FE	no	yes	no	yes	yes
Cluster	106	106	106	106	106
Observations	14,801	2,833	15,819	2,833	2,836

Notes: All regressions are weighted by the population size at the municipal level in 1990. Standard errors in parentheses are presented below the coefficient estimates; they are heteroscedasticity robust and clustered by *ms*-regions (representing a wider geographical area than a municipality, in the sense of local labour markets, see the following link https://www.bfs.admin.ch/bfs/en/home/statistics/territory-environment/nomenclatures/regions-ms.html for more details). The first dependent variable is the unemployment rate (as defined by the ILO), measured as the ratio of the unemployed to the active population by national group at municipality and education level. The second dependent variable is the proportion of municipal votes on the 1987 & 1999 revisions of the Asylum Act and on the 1982 revision of the Aliens Act. The third dependent variable (in the last column) is an indicator for anti-army votes, measured as the proportion of municipal votes on the 1989 and 2001 Popular Initiative for a Switzerland without an army. All these dependent variables are expressed in decimal form rather than as percentages. We use two indicators of asylum-seeker concentration, depending on the outcome under consideration: The ratio of the number of Yugoslav asylum seekers to the number of local residents at the municipal level for the unemployment rate, and the proportion of Yugoslav asylum seekers to the total population at the municipal level for anti-asylum or anti-army votes. The baseline indicators of asylum-seeker concentration use the contemporaneous stock of locals in the denominator, while the alternative indicators are based on the pre-shock stock of locals (in 1990). IV estimation results are based on the presence of both state-owned buildings and service accommodation units as an instrument. The first-stage F statistics of excluded instruments are shown in brackets and are all significant at the 1 percent level. Three municipalities are excluded from the unemployment specification due to missing information on education. Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

A more fundamental challenge to our results lies in the possible immediate response of the local population to the settlement of asylum seekers from the former Yugoslavia, in the form of out-migration in another municipality to avoid competition or contact with them. For example, the labour market impact of asylum seekers would be underestimated if local workers moved away in response to the allocation of asylum seekers. To test whether local residents left their municipality in response to the influx of asylum seekers, we estimate specifications where the outcome variables are register-based out-migration indicators. We consider two types of out-migration: the number of inter-cantonal and the number of intra-cantonal departures for a given decennial year, each divided by the total population at the end of the previous year. These indicators are calculated at the municipal level for the Swiss nationals and the legal foreigners, bearing in mind that the level of education is not recorded in the *Annual Population Statistics*.

Table 6 presents the OLS and IV estimation results from regressions of either inter- or intra-cantonal departures on our various indicators of asylum-seeker concentration. All the coefficient estimates, regardless of the estimation method used, are statistically insignificant, which suggests that the main results are not affected by out-migration of local residents.

To account for shocks driven by the municipal industrial structure, we extend our short-term analysis of unemployment by including a Bartik indicator constructed based on national employment growth, as detailed sectoral data are no longer comprehensively collected beyond the year 2000. The results of this analysis are presented in the third and fourth columns of Table 7. This extension, proposed by Edo (2020), is designed to account for shocks related to changes in industry composition and to mitigate potential biases related to the endogenous location of asylum seekers within cantons. The corresponding estimates are not statistically different from those shown in the first two columns (taken from Table 3). This suggests that the inclusion of the Bartik indicator does not significantly alter our findings regarding the short-term impact of asylum seeker settlement on unemployment.

Table 6: Short-term effects on local out-migration

Yugoslav asylum seekers between 1990-2000	Changes in out-migration between 1990 and 2000 OLS	IV
Inter-cantonal departures		
Baseline indicators of	-0.11	1.30
asylum-seeker concentration	(0.08)	(1.46)
		[31.28]
Alternative indicators	-0.14	1.34
based on pre-shock locals	(0.09)	(1.50)
		[28.62]
Intra-cantonal departures		
Baseline indicators of	-0.10	0.74
asylum-seeker concentration	(0.25)	(2.57)
		[31.28]
Alternative indicators	-0.10	0.76
based on pre-shock locals	(0.24)	(2.63)
		[28.62]
National group FE	yes	yes
Cluster	104	104
Observations	3,997	3,997

Notes: All regressions are weighted by the population size at the municipal level in 1990. Standard errors in parentheses are presented below the coefficient estimates; they are heteroscedasticity robust and clustered by *ms*-regions (representing a wider geographical area than a municipality, in the sense of local labour markets, see the following link https://www.bfs.admin.ch/bfs/en/home/statistics/territory-environment/nomenclatures/regions-ms.html for more details). The first (resp. second) dependent variable is the number of inter-cantonal (resp. intra-cantonal) departures divided by the total population at the end of the previous year. These dependent variables are expressed in decimal form rather than as percentages. As an indicator of asylum-seeker concentration, we use the ratio of the number of Yugoslav asylum seekers to the number of local residents at the municipal level. The baseline indicators of asylum-seeker concentration use the contemporaneous stock of locals in the denominator, while the alternative indicators are based on the pre-shock stock of locals (in 1990). IV estimation results are based on the presence of both state-owned buildings and service accommodation units as an instrument. The first-stage F statistics of excluded instruments are shown in brackets and are all significant at the 1 percent level. Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table 7: Short-term effects on unemployment with a *Bartik* control

	Changes in ILO Unemployment between 1990 and 2000			
	OLS	IV	OLS	IV
Yugoslav asylum seekers between 1990-2000	w/o Bartik control		with Bartik control	
Baseline indicators of asylum-seeker concentration	0.49**	5.71***	0.46**	5.68***
	(0.16)	(1.07)	(0.15)	(1.08)
		[57.07]		[61.17]
Alternative indicators based on pre-shock locals	0.44**	5.89***	0.42**	5.82***
	(0.15)	(1.11)	(0.14)	(1.09)
		[55.02]		[58.73]
Education FE	yes		yes	
National group FE	yes		yes	
Cluster	106		106	
Observations	15,819		15,817	

Notes: All regressions are weighted by the population size at the municipal level in 1990. Standard errors in parentheses are presented below the coefficient estimates; they are heteroscedasticity robust and clustered by *ms*-regions (representing a wider geographical area than a municipality, in the sense of local labour markets, see the following link https://www.bfs.admin.ch/bfs/en/home/statistics/territory-environment/nomenclatures/regions-ms.html for more details). The outcome variable is the unemployment rate, as defined by the ILO, measured as the ratio of the unemployed to the active population by national group at municipality and education level. This dependent variable is expressed in decimal form rather than as percentages. As an indicator of asylum-seeker concentration, we use the ratio of the number of asylum seekers from former Yugoslavia to the number of local residents at the municipal level. The baseline indicators of asylum-seeker concentration use the contemporaneous stock of locals in the denominator, while the alternative indicators are based on the pre-shock stock of locals (in 1990). IV estimation results are based on the presence of both state-owned buildings and service accommodation units as an instrument. The first-stage F statistics of excluded instruments are shown in brackets and are all significant at the 1 percent level. The *Bartik* control is defined at the municipal level in the spirit of Edo (2020): it consists in the sum over J sectors (J=3) of the product between the share of local employment for each municipality in sector j and the national growth in employment of local workers in sector j, the local workforce including Swiss nationals and legal foreigners. Three municipalities are excluded from the ILO unemployment specification due to missing information on education. Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

3.3 Heterogeneous impact of Yugoslav asylum seekers

We further investigate whether the short-term results for unemployment differ across dimensions that are likely to strengthen or weaken the effects of Yugoslav asylum seekers. To do so, we first replicate OLS and IV estimates of the unemployment specification, considering separate subsamples not only by educational level but also by national group over the period for which data on education are available (1990 to 2000). The results of these estimations are presented in Table 8. For both national groups, the positive effect of asylum seekers on unemployment seems to be concentrated on those with less formal education. Indeed, the IV estimates are statistically significant for those with only compulsory education and the coefficient estimates are highest for legal foreigners, although the difference regarding Swiss nationals is not statistically significant. It should also be noted that the Swiss nationals with an upper secondary education experienced an increased risk of unemployment due to the influx of Yugoslav asylum seekers, with the estimated effects being four times lower than for their counterparts with only compulsory education. None of the other IV coefficient estimates are statistically significant at the conventional 95% level.

We also examine whether the impact of asylum seekers on anti-asylum voting differs by degree of urbanisation, as in Dustmann et al. (2019), which highlights the potential for urban and rural contexts to mediate exposure to and interactions with migrants differently. The corresponding estimates for the short, medium and long term are shown in Table 9. The short-term estimates in the first four columns confirm Dustmann et al.'s results that there is an important divide in attitudes to asylum seekers between Swiss voters in urban and rural municipalities. In particular, the results for voters in rural municipalities are in line with those in Table 4: A higher concentration of Yugoslav asylum seekers significantly increases anti-asylum attitudes. Moreover, the OLS estimates are biased downwards compared to the IV estimates, and the latter are of a magnitude similar to those in the second column of Table 4.

Table 8: Heterogeneous effects of asylum-seeker concentration on unemployment in the short run

Yugoslav asylum seekers between 1990-2000	Changes in Unemployment between 1990 and 2000					
	Compulsory education		Vocational education, High school		Tertiary education	
	OLS	IV	OLS	IV	OLS	IV
All						
Baseline indicators of	0.37	10.98***	0.58**	3.10*	0.53**	3.01
asylum-seeker concentration	(0.24)	(2.33)	(0.17)	(1.26)	(0.18)	(1.57)
		[56.98]		[56.74]		[56.67]
Alternative indicators	0.30	11.32***	0.53**	3.19*	0.49**	3.11
based on pre-shock locals	(0.23)	(2.43)	(0.17)	(1.30)	(0.17)	(1.62)
		[54.80]		[54.60]		[54.92]
Swiss nationals						
Baseline indicators of	0.86**	8.42***	0.48**	2.00**	0.39***	1.06
asylum-seeker concentration	(0.27)	(1.68)	(0.15)	(0.64)	(0.09)	(0.95)
		[60.50]		[60.57]		[59.99]
Alternative indicators	0.73**	8.65***	0.43**	2.06**	0.37***	1.08
based on pre-shock locals	(0.25)	(1.75)	(0.14)	(0.66)	(0.09)	(0.98)
		[58.74]		[58.80]		[58.19]
Legal foreigners						
Baseline indicators of	-0.12	14.00***	0.68**	4.33	0.66	5.55
asylum-seeker concentration	(0.31)	(3.97)	(0.23)	(2.49)	(0.34)	(3.38)
		[52.56]		[52.50]		[50.07]
Alternative indicators	-0.14	14.51***	0.63**	4.48	0.61	5.77
based on pre-shock locals	(0.30)	(4.14)	(0.22)	(2.57)	(0.32)	(3.49)
		[49.99]		[49.99]		[48.66]

Notes: All regressions are weighted by the population size at the municipal level in 1990. Standard errors in parentheses are presented below the coefficient estimates; they are heteroscedasticity robust and clustered by *ms*-regions (representing a wider geographical area than a municipality, in the sense of local labour markets, see the following link https://www.bfs.admin.ch/bfs/en/home/statistics/territory-environment/nomenclatures/regions-ms.html for more details). The dependent variable is the unemployment rate (as defined by the ILO), measured as the ratio of the unemployed to the active population by national group at municipality and education level. This dependent variable is expressed in decimal form rather than as percentages. As an indicator of asylum-seeker concentration, we use the ratio of the number of Yugoslav asylum seekers to the number of local residents at the municipal level. The baseline indicators of asylum-seeker concentration use the contemporaneous stock of locals in the denominator, while the alternative indicators are based on the pre-shock stock of locals (in 1990). IV estimation results are based on the presence of both state-owned buildings and service accommodation units as an instrument. The first-stage F statistics of excluded instruments are shown in brackets and are all significant at the 1 percent level. Three municipalities are excluded from the unemployment specification due to missing information on education. Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

Table 9: Heterogeneous effects of asylum-seeker concentration on anti-asylum voting in the short, medium and long run

	Short term Changes in anti-asylum voting between 1990 and 2000				*Medium term* Changes in anti-asylum voting between 2000 and 2010				*Long term* Changes in anti-asylum voting between 1990 and 2010			
Yugoslav asylum seekers	Rural Municipalities		Urban Municipalities		Rural Municipalities		Urban Municipalities		Rural Municipalities		Urban Municipalities	
between 1990-2000	OLS	IV-1	OLS	IV-2	OLS	IV-1	OLS	IV-2	OLS	IV-1	OLS	IV-2
Baseline indicators of	-0.10	34.88***	-8.69***	-13.42**	0.55	-24.09*	1.51	0.58	0.30	15.02	-7.00*	-12.49*
asylum-seeker concentration	(0.60)	(8.30)	(2.28)	(4.69)	(0.49)	(10.15)	(2.14)	(2.91)	(0.55)	(8.89)	(3.36)	(6.25)
		[38.48]		[120.75]		[25.84]		[118.77]		[24.63]		[121.32]
Alternative indicators	0.14	33.73***	-8.42***	-13.43**	0.62	-23.27*	1.74	0.58	0.61	14.60	-6.53	-12.51
based on pre-shock locals	(0.55)	(7.81)	(2.30)	(4.86)	(0.45)	(9.64)	(2.12)	(2.91)	(0.51)	(8.64)	(3.33)	(6.41)
		[39.59]		[101.80]		[25.17]		[99.43]		[24.48]		[102.24]
Cluster	104		72		104		71		104		71	
Observations	2,663		170		2,334		168		2,334		168	

Notes: All regressions are weighted by the population size at the municipal level in 1990. Standard errors in parentheses are presented below the coefficient estimates; they are heteroscedasticity robust and clustered by *ms*-regions (representing a wider geographical area than a municipality, in the sense of local labour markets, see the following link https://www.bfs.admin.ch/bfs/en/home/statistics/territory-environment/nomenclatures/regions-ms.html for more details). The dependent variable is the proportion of municipal votes on the revision of the Asylum Act that took place between 1987 and 1999 (first four columns), between 1999 and 2006 (third, fourth, fifth and sixth columns), between 2006 and 1987 (last four columns). This dependent variable is expressed in decimal form rather than as percentages. As an indicator of asylum-seeker concentration, we use the proportion of Yugoslav asylum seekers to the total population at the municipal level. The baseline indicators of asylum-seeker concentration use the contemporaneous stock of locals in the denominator, while the alternative indicators are based on the pre-shock stock of locals (in 1990). IV-1 denotes IV estimation results based on the presence of both state-owned buildings and service accommodation units as an instrument; IV-2 denotes IV estimation results based on the composition of Yugoslav asylum seekers at the *ms*-regional level as an instrument (in the spirit Dustmann and Preston, 2001). The first-stage F statistics of excluded instruments are shown in brackets and are all significant at the 1 percent level. Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

With regard to the results for voters in urban areas, we cannot rely on our instruments because each municipality in urban areas has both state-owned buildings and service accommodation units, and thus they do not provide variation to allow our IV empirical strategy to be applied in this context. As a result, we need to find another instrument that can provide enough variation in the first-stage specification.

A simple alternative instrument is an indicator of asylum-seeker concentration calculated at a geographical level higher than the municipality. This empirical strategy has been proposed by Dustmann and Preston (2001), which assumes that regional mobility within a larger area is limited; the concentration of Yugoslav asylum seekers at a more aggregated geographical level than the municipality is then considered to be beyond the control of individuals, i.e. Swiss citizens do not sort into more aggregated levels of region based on their attitudes towards asylum seekers. At the same time, we expect the share of Yugoslav asylum seekers at more aggregated levels of region to predict the share of Yugoslav asylum seekers in a municipality. Here, we aggregate the municipality level to the *ms*-region level, which represents a larger geographical area and better represents the local labour market. Interestingly, the short-term results in terms of vote shares for anti-asylum attitudes follow the opposite pattern to those for voters in rural municipalities: A 1 point percentage point increase in the concentration of Yugoslav asylum seekers reduces vote shares by at least 13.4 percentage points with the IV estimators. This reinforces the potential role of contact — which should be higher in more densely populated areas — in improving positive attitudes towards asylum seekers.

Over the medium term (2000–2010), Table 9 reveals a notable reversal in the relationship between asylum-seeker concentration and anti-asylum voting in rural areas. While higher concentrations of Yugoslav asylum seekers led to an increase in anti-asylum attitudes in the short term, the medium-term IV estimates indicate a significant shift, suggesting a decrease in anti-asylum attitudes in rural municipalities where there was a higher concentration of Yugoslav asylum seekers in the 1990s. This relationship appears to disappear in the long term (1990–2010), where the IV estimates are insignificant, suggesting that the negative medium-term effects may have offset the positive initial effects over time.

In urban municipalities, on the other hand, the medium-term results (2000–2010) show

no significant association between the concentration of asylum seekers in the 1990s and anti-asylum voting in the 2000s. Over the long term (1990–2010), this pattern persists, with most of the estimates being negative but largely insignificant, indicating that the concentration of asylum seekers in the 1990s did not strongly influence the anti-asylum attitudes of urban voters in the 2000s. A possible explanation is that Yugoslav asylum seekers who initially settled in urban municipalities may have relocated to other areas, thereby reducing urban voters' exposure to their presence.

4 Discussion and Conclusion

This study has provided novel evidence on the impact of asylum migration, focusing on the Swiss context in the aftermath of the Balkan wars in the 1990s. By employing first-difference and instrumental variables estimation, we aim to disentangle the causal effects of unexpected refugee inflows on the Swiss labour market and the voting behaviour. In contrast to more recent asylum flows, such as those from Afghanistan or Ukraine, the focus on the former Yugoslavia allowed us to distinguish between short-term and long-term effects and to examine the persistence of the effects.

In the short term, our IV estimates indicate that the sudden surge in asylum seekers led to a significant increase in unemployment rates and anti-asylum sentiments among Swiss residents, especially in the municipalities directly affected by the inflow. The unemployment effect was particularly pronounced among individuals with lower levels of formal education, underscoring the differential impact of migration on a specific segment of the labour force (Glitz, 2012).

Furthermore, our analysis of voting behaviour revealed that Swiss residents in rural areas exhibited higher anti-asylum sentiments, while those in urban areas demonstrated more favourable attitudes towards asylum-related issues. These findings underscore the importance of considering regional contexts and socio-political landscapes when examining the repercussions of asylum migration on host societies. Indeed, these results provide a possible nuance to the argument of 'defended neighbourhoods' where the initial arrival of immigrants and refugees would be strongly resisted and lead to negative attitudes. Once the first im-

migrants or refugees are settled, by contrast, natives no longer reject negatively because the neighbourhood is 'lost' (see also van Heerden and Ruedin, 2019). Given that we did not find substantial out-migration in response to the sudden arrival of asylum seekers from former Yugoslavia, contact theory (e.g. Imperato et al., 2021; Van Assche et al., 2023) and sorting into cities *before* the arrival of refugees (e.g. Maxwell, 2019) seem more plausible explanations that future research should seek to distinguish.

In the longer term, the effect on unemployment is less clear-cut, while the influence on voting behaviour shows a more persistent trajectory, with favourable attitudes towards asylum-related referendums becoming more pronounced. This divergence suggests a complex interplay of socio-economic factors and evolving societal attitudes shaping the trajectory of asylum migration's impact on host communities.

In sum, our study underscores the intricate nature of asylum migration dynamics, highlighting both the short-term labour market effects and the enduring shifts in societal attitudes towards asylum seekers. Providing empirical evidence to document the complex interplay between migration, labour markets, and socio-political dynamics in host countries can help address the challenges posed by asylum migration. And in particular design nuanced policy responses that acknowledge the diverse impacts on host communities to foster economic integration and social cohesion.

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A.1: Multi-term effects of asylum-seeker concentration on anti-asylum voting (unweighted results)

	Short term Changes in anti-asylum voting between 1990 and 2000		*Medium term* Changes in anti-asylum voting between 2000 and 2010		*Long term* Changes in anti-asylum voting between 1990 and 2010	
	OLS	IV	OLS	IV	OLS	IV
Yugoslav asylum seeker between 1990-2000						
Baseline indicators of	0.77	35.42***	0.18	-22.17*	0.85*	23.19*
asylum-seeker concentration	(0.40)	(8.71)	(0.36)	(9.32)	(0.37)	(9.03)
		[67.45]		[47.77]		[47.77]
Alternative indicators	0.91*	32.05***	0.25	-20.03*	1.06**	20.96**
based on pre-shock locals	(0.38)	(7.73)	(0.33)	(8.31)	(0.35)	(8.07)
		[74.77]		[53.99]		[53.99]
Urban FE	yes		yes		yes	
Cluster	106		106		106	
Observations	2,833		2,502		2,502	

Notes: All regressions are unweighted. Standard errors in parentheses are presented below the coefficient estimates; they are heteroscedasticity robust and clustered by *ms*-regions (representing a wider geographical area than a municipality, in the sense of local labour markets, see the following link https://www.bfs.admin.ch/bfs/en/home/statistics/territory-environment/nomenclatures/regions-ms.html for more details). The dependent variable is an alternative indicator of anti-asylum votes, measured as the proportion of municipal votes on the revision of the Asylum Act that took place between 1987 and 1999 (first two columns), between 1999 and 2006 (third and fourth columns), between 2006 and 1987 (last two columns). This dependent variable is expressed in decimal form rather than as percentages. As an indicator of asylum-seeker concentration, we use the proportion of Yugoslav asylum seekers to the total population at the municipal level. The baseline indicators of asylum-seeker concentration use the contemporaneous stock of locals in the denominator, while the alternative indicators are based on the pre-shock stock of locals (in 1990). The average value of this indicator at the municipal level is around 0.1%, whether calculated separately for the baseline and alternative definitions, or for each observation period based on different degrees of municipal aggregation due to mergers over time. IV estimation results are based on the presence of both state-owned buildings and service accommodation units as an instrument. The first-stage F statistics of excluded instruments are shown in brackets and are all significant at the 1 percent level. Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.

A.2: Short-term impact on local out-migration by national group

Yugoslav asylum seekers between 1990-2000	Changes in out-migration between 1990 and 2000					
	OLS			IV		
	All	Swiss nationals	Foreigners	All	Swiss nationals	Foreigners
Inter-cantonal departures						
Baseline indicators of	-0.11	-0.09	-0.12	1.30	-0.33	2.98
asylum-seeker concentration	(0.08)	(0.07)	(0.15)	(1.46)	(0.44)	(2.75)
				[31.28]	[31.42]	[30.95]
Alternative indicators	-0.14	-0.10	-0.17	1.34	-0.34	3.06
based on pre-shock locals	(0.09)	(0.06)	(0.16)	(1.50)	(0.45)	(2.82)
				[28.62]	[28.86]	[28.22]
Intra-cantonal departures						
Baseline indicators of	-0.10	-0.46	0.26	0.74	-2.69*	4.26
asylum-seeker concentration	(0.25)	(0.33)	(0.34)	(2.57)	(1.37)	(4.72)
				[31.28]	[31.42]	[30.95]
Alternative indicators	-0.10	-0.43	0.23	0.76	-2.76*	4.37
asylum-seeker concentration	(0.24)	(0.31)	(0.35)	(2.63)	(1.40)	(4.84)
				[28.62]	[28.86]	[28.22]
National group FE	yes			yes		
Cluster	104	104	104	104	104	104
Observations	3,997	2,025	1,972	3,997	2,025	1,972

Notes: All regressions are weighted by the population size at the municipal level in 1990. Standard errors in parentheses are presented below the coefficient estimates and are heteroscedasticity robust and clustered by *ms*-regions (representing a wider geographical area than a municipality, in the sense of local labour markets, see the following link https://www.bfs.admin.ch/bfs/en/home/statistics/territory-environment/nomenclatures/regions-ms.html for more details). The first (resp. second) dependent variable is the number of inter-cantonal (resp. intra-cantonal) departures divided by the total population at the end of the previous year. These dependent variables are expressed in decimal form rather than as percentages. As an indicator of asylum-seeker concentration, we use the ratio of the number of Yugoslav asylum seekers to the number of local residents at the municipal level. The baseline indicators of asylum-seeker concentration use the contemporaneous stock of locals in the denominator, while the alternative indicators are based on the pre-shock stock of locals (in 1990). IV estimation results are based on the presence of both state-owned buildings and service accommodation units as an instrument. The first-stage F statistics of excluded instruments are shown in brackets and are all significant at the 1 percent level. Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.10$.