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Working Paper

The long-term integration of refugee children: Swedish experiences after the Yugoslav Wars

Working Paper, No. 2023:17

Provided in Cooperation with:

IFAU - Institute for Evaluation of Labour Market and Education Policy, Uppsala

Suggested Citation: Åslund, Olof; Liljeberg, Linus; Roman, Sara (2023) : The long-term integration of refugee children: Swedish experiences after the Yugoslav Wars, Working Paper, No. 2023:17, Institute for Evaluation of Labour Market and Education Policy (IFAU), Uppsala

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ISSN 1651-1166

The long-term integration of refugee children^a

Swedish experiences after the Yugoslav Wars

by

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June 27, 2023

Abstract

We study the economic and social integration of refugee children. The analysis follows war refugees arriving from former Yugoslavia to Sweden in the early 1990s for up to 25 years. We find strong educational and economic integration, although differing by age at migration and gender. By contrast, segregation is striking in family formation. Those under 7 at migration had grades and high school completion on par with natives. Poor initial school performance among teenage refugees was partly compensated by education at higher ages. By 2019 there was on average full labor market assimilation among women while a small gap remained among men. However, refugees arriving before school start outperformed their native peers. Endogamy was common; even among preschoolers, 60–70 percent had their first child with a partner of Yugoslavian descent. Many of the partners migrated after the refugee had turned 20. Intermarriage is gendered and related to socioeconomic status. Residential and workplace segregation decreased over time but remained pronounced among people without tertiary education.

Keywords: Refugee children, migrants, economic and social integration

JEL-codes: F22, J15, J18

^a We are grateful for valuable comments from Hans Grönqvist, Dan-Olof Rooth, and seminar participants at IFAU, UCLS, and EALE 2022.

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1 Introduction

The extended war in Ukraine has triggered refugee flows at a scale not seen in Europe for a very long time. While there is much uncertainty about future developments, history suggests that many of those fleeing will remain in the destination countries. In this perspective, the economic and social integration of refugee children and youth has long-term implications for individuals as well as receiving societies. We study children growing up in Sweden as a result of the wars in former Yugoslavia in the early 1990s, following them through adolescence and into adulthood.

Compared to the vast literature on the integration of adult migrants and refugees, much less appears to be known about the long-term integration of refugee children. In particular, longitudinal quantitative approaches on progress through the education system, documenting labor market entry and characterizing experiences of segregation and family formation are lacking (Pritchard et al. 2019). From a policy perspective, studying children and youth is particularly warranted. Early experiences putting children at risk may influence outcomes over many decades. But one could also argue that prospects of younger individuals are more malleable by policy interventions in relevant areas.

We follow individuals from 1994–2019. With detailed data and up to 25 years of follow-up time, we document average performance and differentials by age-at-migration for a rich set of educational and labor market outcomes. The analysis also considers patterns and determinants of family formation, its association with gender and socioeconomic status, and its link to previous and future migration. Furthermore, we investigate the extent and development of workplace and residential segregation.

There are several reasons why outcomes among refugee children may differ relative to other groups, and many factors potentially affecting the integration process. The idea of initial human capital shortages diminishing over time is central in studies of the economic assimilation of adult migrants (Borjas 2014; Duleep 2015) and to some extent applicable also here. Formation of skills (e.g. language acquisition) is also likely to be related to age at migration (Bleakley and Chin 2010), potentially feeding into educational attainment and labor market performance (Cunha et al. 2006). Early experiences can also be formative of preferences and cultural identity (Erikson 1968), processes that are likely to be influenced by parents (Bisin and Verdier 2001) and possibly gendered (Fernández, Fogli, and Olivetti 2004). Of course, refugees are many times exposed to events and conditions possibly affecting psychological and physical well-being (Fazel et al. 2012), which may in turn affect economic and social integration.

The empirical literature on child refugees spans many disciplines and perspectives (Pritchard et al. 2019; Paradis, Chen, and Ramos 2020). But compared to the literature on adult migrants

and on child migrants and children of migrants in general, quantitative approaches using longitudinal broad data are relatively few.¹ Canadian evidence suggests small differences between refugee youth and other migrants in labor market entry, but earlier family formation among refugees (Yoshida and Amoyaw 2020). Swedish findings on unaccompanied minors indicate that prospects of labor market integration are similar to other refugee children, but with some gender differences (Celikaksoy and Wadensjö 2017). Other work suggests performance gaps in education which in a statistical sense can be explained by parental and contextual factors (Grönqvist and Niknami 2017).²

The conflicts in former Yugoslavia forced many people to leave their homes in a short period of time. Even though the absolute number of people seeking refuge was larger in other countries (e.g., Germany), the inflow of migrants to Sweden was unprecedented at this time and substantial per capita (Barslund et al. 2016). During 1993 and 1994 alone, more than 66,000 individuals were granted protection, and almost 11,000 family reunification migrants arrived.³ Although previous research has considered economic, social and health outcomes among adults and children arriving during this time (Bucken-Knapp, Omanović, and Spehar 2020; Bennich-Björkman, Kostić, and Likić-Brborić 2016; Frykman 2012; Goldin et al. 2001; Angel, Hjern, and Ingleby 2001; Ekblad 1993), we are not aware of any comprehensive descriptions of long-run outcomes.

The analysis is based on pseudonymized population-wide administrative records compiled by Statistics Sweden. These longitudinal data enable us to study outcomes at different stages of the educational system, measure labor market performance through employment and earnings, and characterize social integration in family formation and ethnic segregation. We focus on those who were granted residence permits in 1993–1994 at age 16 or younger, as well as children born before 2000 to Yugoslavia-born parents who received residence permits in 1993–1994.⁴

Educational outcomes varied substantially with age at migration. Those who came as teenagers received low grades in compulsory school, while those arriving before school start performed at least as well as natives in terms of grades and attainment. By age 30, most of the Yugoslavians had attained at least upper secondary education. Those older at migration improved their

¹ Exceptions include Jervelund et al. (2020)

² There are many studies on child migrants and children of immigrants, sometimes including individuals of refugee origin. Examples of topics include: labor market and education (Zhou 1997; Chiswick and DebBurman 2004; Algan et al. 2010; Böhlmark 2009; Hammarstedt and Palme 2012; Kalter et al. 2018), family formation (Kalmijn 1998; Furtado 2012), and identity formation and impact (Casey and Dustmann 2010; Nekby and Rödin 2010; Hällsten, Edling, and Rydgren 2018). There is also a substantial literature focusing on the role of age at migration (Beck, Corak, and Tienda 2012; Åslund, Böhlmark, and Skans 2015; Cortes 2006; Gonzalez 2003; Clarke 2018).

³ The number of asylum seekers from former Yugoslavia increased already in 1991, and peaked in 1992, but most migrants received residence permits in 1993 and 1994. In 1991 and 1992 the number of humanitarian migrants from former Yugoslavia were about 1,000 per year. All figures on the total number of asylum seekers and residence permits come from the Swedish Migration Board.

⁴ We do not differentiate by type of residence permit. The vast majority are refugees and their families, but the sample may include individuals immigrating for other reasons. We refer to the group as refugees and migrants interchangeably.

education significantly between ages 20 and 30. Although natives were higher educated on average, the Yugoslavians who migrated before the start of 1st grade were more likely than natives to have attained post-secondary education at age 30.

Upon arrival, the refugees faced a severe economic recession. Unemployment in Sweden had risen from 2 to 10 percent during the first years of the 1990s. The downturn moved from the export industry, to firms relying on domestic demand, and then to the public sector following cut-backs in spending (Bergmark and Palme 2003). But in the later years of the decade, the economy improved, and the adult Yugoslavian refugees were successful in terms of labor market integration (Åslund, Liljeberg, and Roman 2023). From age 25, we document a gradual convergence to almost full earnings and employment assimilation relative to natives among female child refugees aged 7 and above at migration. The women who arrived at lower ages outperformed same-aged natives in the labor market. For males, the gaps are more stable, but the ranking across age at migration is similar. In 2019, the raw earnings gap to natives was about 8 percent for refugees aged 12–16 at migration, and 4 percent for the age 7–11 group. Those older at arrival were also more (less) concentrated to occupations intense in routine (abstract) tasks, whereas deviations from native outcomes were small in the younger cohorts.⁵

Given the strong economic integration and the fact that this group arrived as children, the extent of endogamy is striking. Among those who had a child by age 30, around 75 percent of women and 65 percent of men formed a family with a partner with Yugoslavian background. The probability to intermarry was higher among those who migrated at younger ages, but even among those who migrated before the start of compulsory school, around 70 percent of the women and 60 percent of the men partnered with someone with Yugoslavian background. The data suggest that many of these partnerships were to some extent formed through connections outside Sweden; about 40 percent of partners migrated after the focal individual had turned 20 and when the inflow of migrants to Sweden from former Yugoslavia was quite modest.⁶

The analysis also suggests that partner choices are gendered and related to socioeconomic status. Native partners were more common among highly educated refugees, and women with a native partner had higher earnings especially earlier in the period. Late-arriving partners had lower earnings than native partners and earlier-arriving Yugoslavian partners, and were also less educated (especially females). The Yugoslavs tended to have children at a younger age than natives born in the same year. For women, forming a family early is related to higher levels of

⁵ Indicators of more severe labor market difficulties also converged to those of natives, and were related to age at migration. Differences in the share of the group not in the education system, not in employment, and not being trained to work (NEET) diminished over time, as did the level of long-term unemployment (>6 months annually).

⁶ Descendants of earlier cohorts of labor migration from Yugoslavia made up a limited share of the Yugoslavian partners.

endogamy, but there is no such pattern for men. The relatively few women who had their first child with a native man appear to have divided parental leave more equally with their partner than women whose partner had migrant background, possibly reflecting differences in gender norms. The refugee inflow increased the local supply of potential partners substantially, but this did not affect the probability of endogamy among descendants to previous Yugoslav labor migrants. The rate remained high, but still substantially lower than among the refugees youngest at arrival or born in Sweden.

Finally, we document significant but gradually declining residential and workplace segregation among the refugee youth. The Yugoslavians were more likely to live in Yugoslav-dense municipalities, but also exposed to former Yugoslavia-born co-workers and neighbors to a greater extent than expected under random allocation, conditional on municipality and individual background characteristics. This suggests that ethnic networks played a role in both workplace and residential sorting. The levels of segregation fall with increasing education, but are not as clearly related to age at migration as are the other outcomes considered.

2 Background and institutions

Sweden became a significant receiver of labor migration in the 1950s and even more so in the 1960s. The largest numbers arrived from neighboring Finland, but also from more distant European countries, including Yugoslavia. In the 1970s, the composition shifted from predominantly labor migrants to humanitarian and family migrants. During this decade and the first years of the 1980s, refugees arrived from Chile, Vietnam, Poland, Lebanon, and Turkey, among other countries.

In 1991, the number of asylum seekers from former Yugoslavia increased significantly to about 13,000 and reached almost 70,000 in 1992. Applications then decreased gradually to 29,000 in 1993 and 11,000 in 1994. Following this development, the number of residence permits granted to people born in former Yugoslavia increased dramatically to 30,000 in 1993 and 36,000 in 1994. According to statistics from the National Migration Agency, about 47,000 migrants came from Bosnia-Herzegovina and 18,000 from Serbia-Montenegro during this time. This inflow of refugees during a few years was unprecedented in Sweden, although the following decades have seen total immigration increase to much higher levels. There was a pre-existing Yugoslav-born population in Sweden at the time. However, immigration from former Yugoslavia in the early 1990s was at a different scale than the previous peaks during labor migration in the late 1960s and early 1970s.

After being granted asylum (or residence permit as reunification migrant), those who had stayed in refugee centers pending the decision were assigned to a municipality or sought housing

on their own. Since 1985, Sweden had implemented a dispersal policy for refugees, attempting to create a more even distribution across locations. While formally in place to 1994, the system gradually eroded under the inflow of asylum seekers from former Yugoslavia (Robinson and Andersson 2003; Edin, Fredriksson, and Åslund 2003). There were no restrictions regarding relocation, and refugees could take on any job in any location. In practice, language training in Swedish for immigrants (Sfi) was the first destination for many adult refugees. As we have described elsewhere, participation in labor market programs and subsidized employment was also quite common among adults (Åslund, Liljeberg, and Roman 2023).

An important aspect of the overall conditions that met these refugees was the economic turmoil during the 1990s. The economic crisis has been characterized by an “international phase” driven by an economic downturn in Western economies, then spreading to firms more dependent on domestic demand, and then affecting the public sector through cutbacks due to deficits following tax revenue losses and increases in support payments. Employment fell by 13 percent of the workforce (Bergmark and Palme 2003), unemployment increased dramatically, and active labor market programs were rapidly expanded. The refugees thereby did not have an easy landscape to navigate. However, previous work suggests that at least some of the newly arrived migrants saw possibilities in the otherwise poor conditions, e.g., through the increased availability of housing due to the fall in house prices and the fact that some firms were expanding during the crisis (Bucken-Knapp, Omanović, and Spehar 2020).

Another important fact to note is that most Yugoslavian refugees remained in Sweden. In companion work, we show that less than 5 percent of the adult refugees in the group emigrated between 1995 and 2017. In our sample of youth, 3.5 percent had emigrated in 2019.

2.1 Education for refugee children

In the early 1990s, Sweden had a decentralized public education system. This gave the about 290 municipalities some degrees of freedom in services provided to refugee children, although national regulations were present. Asylum seeking children were not generally eligible for pre-school, but older children had the right to some education. A directive in 1993 stipulated an initial 15 hours of school per week, starting when suitable for the child and typically no later than three weeks after arrival (SKOLFS 1993:21). Municipalities had the right to reimbursement for educational expenditures also before that (Utbildningsdepartementet 2000).

When granted asylum, the refugee children and their families had the same rights and responsibilities as other residents. This meant the right to publicly subsidized childcare to cover for parental work and education, and a nine-year compulsory school starting in the year children turn 7. Like other foreign-born children, the refugees had the right to “home language” training as part of the curriculum. The typical route was then to go to upper secondary school for 3 (in

some cases 2) years, where programs could either be “vocational” or “preparatory”. Higher education was also free (from fees) and students were eligible for public grants and loans.

As we will see below, most of the children from former Yugoslavia followed their birth cohort native peers through the different stages of education system, although with performance and attainment varying by age at migration and family background.

3 Data and methods

We use pseudonymized register data covering the entire working-age Swedish population (ages 16–64). The data are held by the Institute for Evaluation of Labour Market and Education Policy (IFAU) and come from several sources, including population registers, tax records, the Swedish Public Employment Service (PES) and the National Board of Education. We also have access to annual information from linked employer-employee data, including employment status, income from work, and occupational and workplace characteristics (e.g., industry and coworker composition).⁷

Our main sample includes children born in former Yugoslavia who received a residence permit in Sweden in 1993–1994 at age 16 or younger, as well as children born before 2000 to first-time immigrants born in former Yugoslavia who were granted residence permit 1993–1994. The total number of individuals in this sample is 30,560 (see Table A 1 for figures by birth cohort and gender). We do not observe the reason these children receive residence permits. This is unlikely to be a major concern since refugees and associated reunification migrants strongly dominated the inflow from former Yugoslavia in these years.⁸ We refer to this group as “Yugoslavian refugee children” or “Yugoslavs” for expositional reasons; we do not observe ethnicity. Although a person is recorded as being born in Bosnia-Herzegovina or elsewhere in former Yugoslavia, we aggregate these categories as the sample is relatively small and this information is self-reported.

Almost all the Yugoslavian refugee children migrated with at least one of their parents. Figure 1 shows that we are missing information about the father for around 13 percent of those 13–16 at migration, suggesting these children migrated with their mother only. This share diminishes across birth cohorts and is around 5 percent among those 0–3 at migration. While the gender composition of the group is no different than that among natives, parents were lower educated, as measured in 1998. The share with parents with compulsory (post-secondary) education was

⁷ Information on occupation derives from Statistics Sweden’s salary structure statistics. These data are collected annually during the fall and covers all workers in the public sector (about one third of all workers in Sweden in 2017) as well as private firms with 500 employees or more. Smaller firms are randomly sampled. All in all, data covers approximately 50 percent of private sector workers.

⁸ For example, while residence permits for refugees (family reunification) for Yugoslavia-born individuals amounted to 66,000 (11,000) 1993–1994, the number of work based permits was 19.

around 10 percentage points higher (lower) in the Yugoslavian group than among natives, while the share with at most upper secondary education was similar in the two groups. Those older at migration had less educated parents than those who arrived at a younger age.⁹

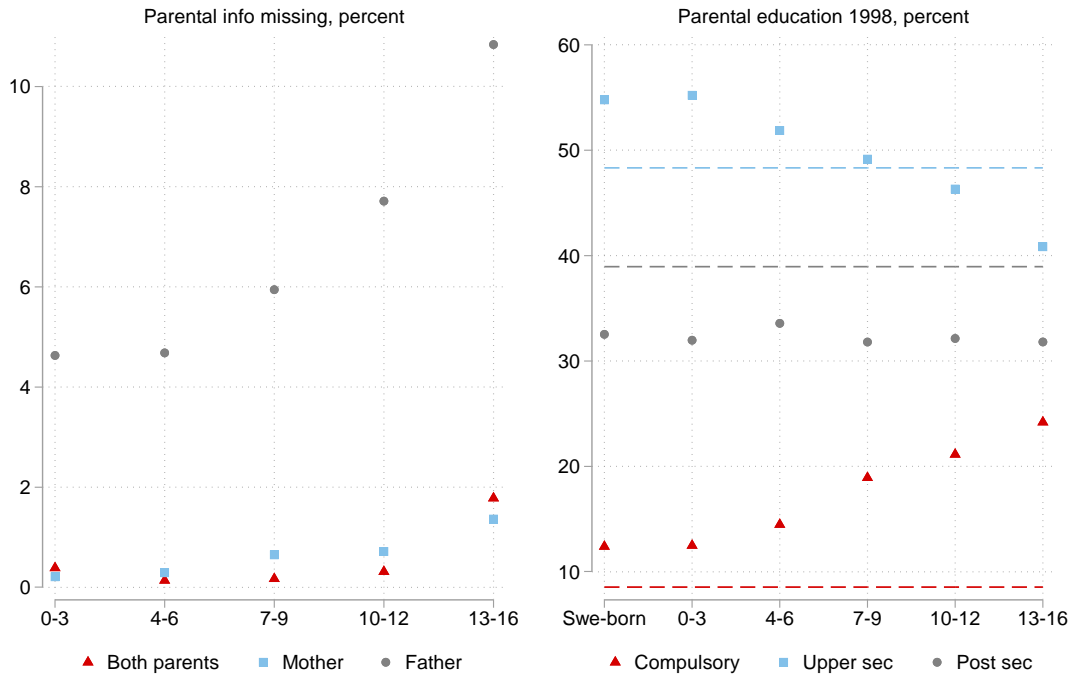


Figure 1. Percent missing information about parents and parental education in 1998 by age at migration.

Notes: Dashed lines (rightmost figure) show corresponding shares for same-aged natives. Parental education is defined as the highest level of education among parents. “Compulsory” includes those with at most compulsory education, “Upper sec” includes those with at most upper secondary education (2-3 year upper secondary), and “Post sec” includes those with any post-secondary education.

We relate the refugee children’s outcomes to the outcomes of the cross-section of all natives with at least one native parent in the birth cohort interval 1977–1999. In terms of educational outcomes, we first observe the refugee children in grade nine. We measure school performance using grade point averages (GPA) from ninth grade and upper secondary school, ranked within gender and graduation year. For the sub-sample of individuals born 1977–1989 we measure attained education the year they turn 20 and 30 (19 and 29 if data is missing), using yearly data on education level. We include in the category “upper secondary education” those with both 2 and 3-year upper secondary education and “post-secondary education” refers to any post-secondary education (including those who have less than three years and four-year technical upper

⁹ The difference between the groups with respect to the share with parents with at most compulsory education diminishes somewhat if we exclude refugee children with missing father-data, but the overall picture remains the same.

secondary schooling). Parental education is defined as the highest education among parents the year the child turned 16 (18 if data is missing), using the same data source and classification.

Labor market outcomes are measured annually and include employment, earnings rank, and days in unemployment. We use Statistics Sweden's definition of employment status, which indicates whether an individual is employed in November each year. Earnings rank is defined as the percentile rank of earnings in the overall earnings distribution of people aged 20–55, including those with zero earnings. NEET is defined as those not enrolled in the education system and not working or being trained to work (via ALMPs).

We observe the workplace annually using employer-employee data. If an individual has more than one employer during a year, we consider the employer associated with the highest earnings as the workplace. Workplaces are categorized into industries using the Swedish Standard Industrial Classification (SNI). SNI is based on the EU's recommended standards.¹⁰ We use information on occupation on one-digit level, which indicates skill level as well as working area in a broad sense. Occupations are reported according to the Swedish Standard Classification of Occupations (SSYK). We use three measures of the task content of occupations constructed by Goos et al (2009) using the American Occupational Information Network (O*NET) to compare task content of work between groups. These measures range between 1 and 5 and intend to capture the extent to which jobs can be performed by computers. As such they indicate occupational intensity in “abstract”, “service” and “routine” tasks, respectively.¹¹ We match these to occupations via the International Standard Classification of Occupations (ISCO-88/SSYK-96). We have information on occupation for a subset of the sample each year. The share missing information differs between groups, a possible source of bias in this description. In addition, the occupational classification used by Statistics Sweden changed between 2013 and 2014, from SSKY96 to SSYK2012 (ICSO88/ISCO08) and translation is complicated. Due to these issues, caution is warranted in the interpretation of the task score descriptions.

In measuring endogamy, we define a partner as the other parent of person's first child and restrict the sample to those who had had their first child by age 30. This limits the analysis to refugee children born 1977–1989. For the analysis of residential and workplace segregation, we use a method relating observed exposure to expected exposure conditional on covariates (Åslund and Skans 2009). Covariates include in this case human capital (age group, three education

¹⁰ NACE Rev. 2. Statistical classification of economic activities.

¹¹ Routine tasks require routine cognitive and non-cognitive skills, for example work that implies repetitive motions and physical strength. Such tasks can be performed by computers relatively easily. Service and abstract tasks, on the other hand, are intense in the non-routine dimension, and cannot easily be performed by computers. The latter tasks differ in skill requirement. Abstract tasks include for example complex problem solving; they are intense in non-routine cognitive skills and are mainly carried out by highly educated workers. Service tasks, on the other hand, are intense in non-routine non-cognitive skills, for example care-work. These tasks are performed by workers with different levels of education. See e.g. Adermon and Gustavsson (2015) for a study on Sweden.

categories and gender), geographic location (municipality) and industry. We study exposure to people born in former Yugoslavia and construct the following measures: 1) observed exposure, 2) unconditional expected exposure, 3) expected exposure conditional on age, gender, and education, and 4) expected exposure conditional on age, gender, education, municipality, and industry. Observed exposure is defined as the fraction of former Yugoslavia-born individuals among co-workers. We exclude workplaces with only one employee. Unconditional expected exposure is defined as the fraction of former Yugoslavia-born individuals in the population of workers. To construct the conditional expected exposure measures we first define the “group propensity” of each worker by characterizing them according to a vector of discrete characteristics. The group propensity is then defined as the ratio of the number of Yugoslavia-born individuals to the total number of individuals within each combination of characteristics, and conditional expected exposure is defined as the average group propensity among co-workers. We construct similar measures for residential segregation except we base them on households rather than individuals. In this case, we use the highest education (three levels) and age in the household, as well as municipality of residence, to define conditional expected exposure.

In many parts of the paper, we consider differences in the outcome variables with respect to age at migration. Sibling fixed effects have been used in the literature to handle the possibility that families migrating (fleeing) with children at different ages are systematically different (Böhlmark 2009; van den Berg et al. 2014; Åslund, Böhlmark, and Skans 2015). Estimating models with and without sibling fixed effects in general give qualitatively similar results (see Figure A 10 and Figure A 11 in the appendix). Therefore, we do not restrict the sample and outcomes to the cases where sibling effects can be included.

4 School performance and educational attainment

This section considers the short- and long-term educational performance of the refugee children, and how it relates to age at migration. We begin by studying compulsory and high school GPA. Then we turn to educational attainment by age 30.

4.1 Compulsory and upper secondary school

Figure 2 illustrates educational performance at compulsory and upper secondary levels, relating outcomes among the refugees to those of other students and illuminating differences by gender and age at migration. Starting with grade 9 GPA, the dashed red line shows that for all birth cohorts among the Yugoslavians, the mean gender-specific rank was 40 for girls and slightly higher for boys. As seen by the red triangles, the average hides substantial heterogeneity. Performance declines with age at migration, and for those no more than 6 years at arrival or born

in Sweden the mean rank falls close to that of the entire student population (i.e. 50). Further inspection of the GPA distributions (Figure A 1) suggests that those older at arrival have a strongly right-skewed distribution, i.e., a large share with low grades. For those arriving before age 7, there is only a slight deviation from natives manifested primarily by an underrepresentation in the top ranks. Regressions controlling step-by-step for parental education and school fixed effects (Table A 2) show that this explains some of the difference in average performance, although a statistically significant gap remains. This gap is mainly driven by children who migrated at ages 7–12 (Table A 3 and Table A 4).

The gradual and substantial differences by age at migration are also evident in the shares with a registered high school GPA.¹² As we will see below, having a GPA is not a necessary condition for upper secondary attainment in the long run, but can be seen as an indicator on “normal progression” through the education system. About half those who migrated at ages 15–16 have a registered GPA, compared to around 80 percent of natives. But those arriving before school-starting age shares are on par with natives. The mean GPA rank was lower than in grade 9, again with a gradient by age at migration.¹³

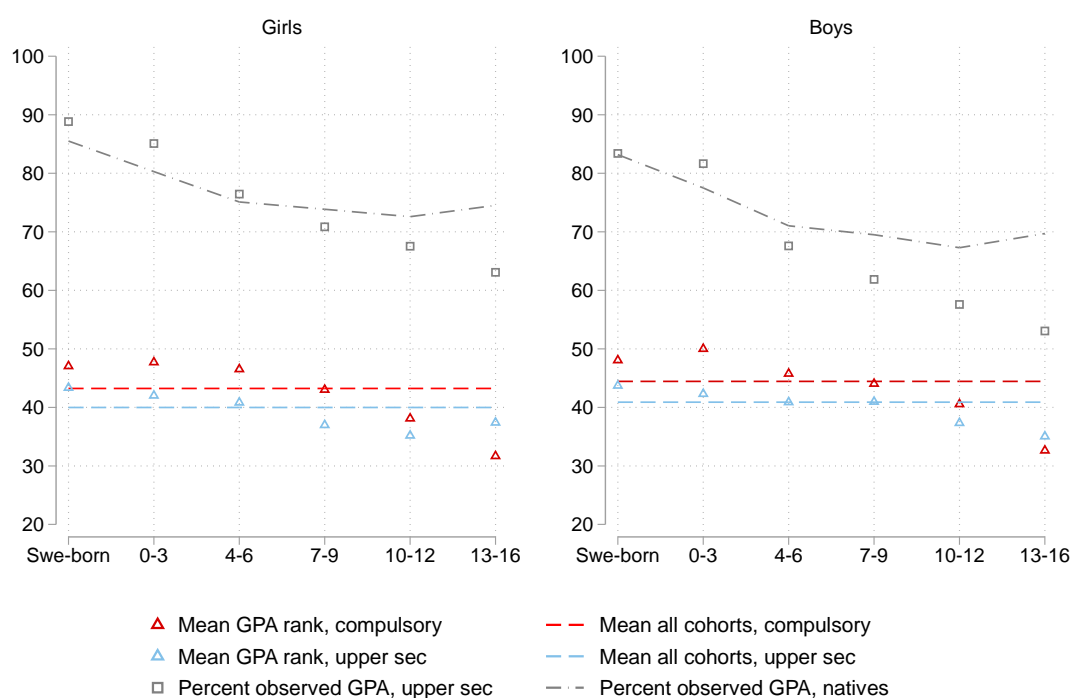


Figure 2 Compulsory and upper secondary school performance by age at migration.

¹² High school GPA is based on register information 1996–2017. There is no age criterion.

¹³ Almost all the Yugoslavian children who migrated at age 14 or younger (cohorts born 1980–1999) have a registered GPA from compulsory school. This share was only 22 percent among those who migrated at ages 15–16, suggesting many of these children proceeded straight to upper secondary education. Among children born 1979 with missing compulsory school GPA, about 70% have a registered GPA from upper secondary education. The corresponding share among children born 1978–1979 is about 50%.

Notes: Dashed lines show average GPA in the entire Yugoslavian group, symbols show average GPA by age at migration. GPA has been ranked within gender and graduation year. Individuals born 1999 have been excluded from upper secondary GPA calculations as their expected graduation is not covered in the data.

4.2 Educational attainment at age 30

We now turn to the long-term educational attainment of the refugee children and youth. The left-hand part of Figure 3 presents highest completed level of education at age 30 by age at migration. Those immigrating before age 6 by and large conform to native attainment. But the gradual decrease in the probability to pursue higher education by age at migration is again striking. However, the fraction having only compulsory education by age 30 is relatively low also among refugees arriving as teenagers. The right-hand part of Figure 3 reveals that this is driven by people obtaining (evidence of) upper secondary education between 20 and 30. The difference is generally greater for refugees than for natives, but most dramatically so for individuals 13 and older at arrival. Even though regressions suggest that a 10-percentage point gap remained vis-à-vis natives with similarly educated parents (Table A 5), it thus seems that Sweden’s extensive system of adult education had a particular impact on the refugee youth.

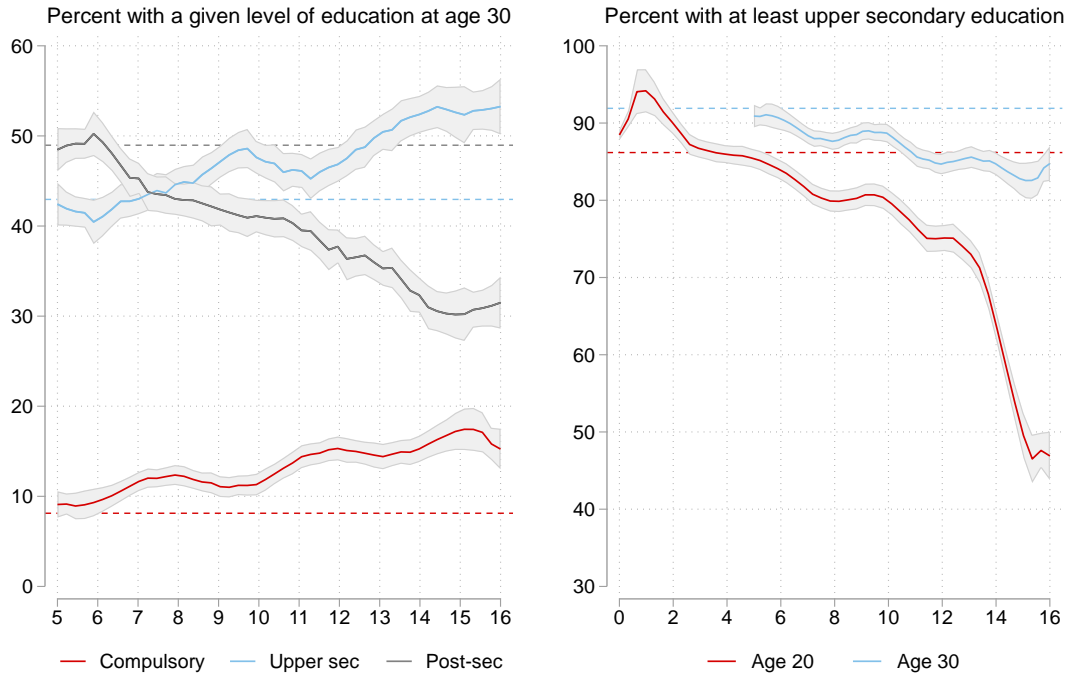


Figure 3 Educational attainment by age 30 (left) and percentage with at least upper secondary education by age 20 and 30 (right).

Notes: X-axes show age at migration. Lines show shares over age at migration conditional on observed education (local polynomial smooth), gray area shows 95 % ci. Dashed lines show shares by level of education among same-aged natives (birth cohorts weighted according to the refugees). “Upper sec” refers to 2–3-year upper secondary education. Post-sec refers to any post-secondary education (including 4-year technical upper sec).

5 Dynamics of labor market outcomes

We follow the labor market careers of the refugees from age 25. Figure 4 shows employment rates relative to same-aged natives, by gender, calendar year and age at migration. Figure 5 presents the corresponding information for earnings. We find stark differences by gender at age at migration. For women, the data suggests gradual improvements for those 7 or older at arrival, reaching parity with natives in labor market outcomes toward the end of the observation period. Girls born in Sweden or arriving at younger ages to some extent outperform their native counterparts. For men, differences to natives and within the refugee sample do not decline as much, although the ranking by age at migration is the same as for women. Narrowing down the comparisons for 2019 (Table A 6 and Table A 7) by controlling for (partly potentially endogenous) characteristics such as education, family status and geographic and industrial allocation suggests that female refugees had about 2.2 percentile ranks higher earnings than native females with similar characteristics. For males, there was no significant difference on average, but a greater disparity by age at migration: those immigrating before school start had 1.7 percentile ranks higher earnings whereas those at least 12 years old at arrival exhibited a –2.6 percentile difference.

Even though employment and earnings are outcomes with a particularly clear bearing on self-sufficiency, labor market integration can also be reflected in other dimensions. The distribution over industries of the Yugoslavs roughly followed that of natives, but with some notable gender-specific exceptions (Figure A 2). Females were more likely to work in the health sector than same-aged natives, whereas men were overrepresented in manufacturing and business services, and strongly underrepresented in construction.

Occupational task content may be particularly relevant when comparing foreign-born and natives (since e.g. linguistic ability may differ systematically). Figure 6 shows the development over time in terms of three measures of the task content of occupations, for different age at migration groups.¹⁴ Service tasks imply non-routine non-cognitive work, such as care-work or sales. Abstract tasks are also non-routinized tasks, but in contrast to service tasks, they are high in cognitive skill content and are mainly performed by highly educated workers. Yugoslavs 12–16 at migration were more likely than same-aged natives to be found in occupations intense in routine tasks – tasks requiring routine cognitive and non-cognitive skills, for example repetitive manual work – and less likely to be found in occupations intense in both service and abstract tasks, throughout the period. Differences relative to same-aged natives were considerably smaller among refugee children aged 7–11 at arrival, although these were also less likely than natives to

¹⁴ Note the strong time trends seen also among natives, reflecting life-cycle changes and possibly also structural developments. The patterns illustrate the importance of focusing on relative rather than absolute outcomes.

be found in occupations intense in abstract tasks. In the youngest group, there were few substantial differences; the task content appears similar to that of same-aged natives.

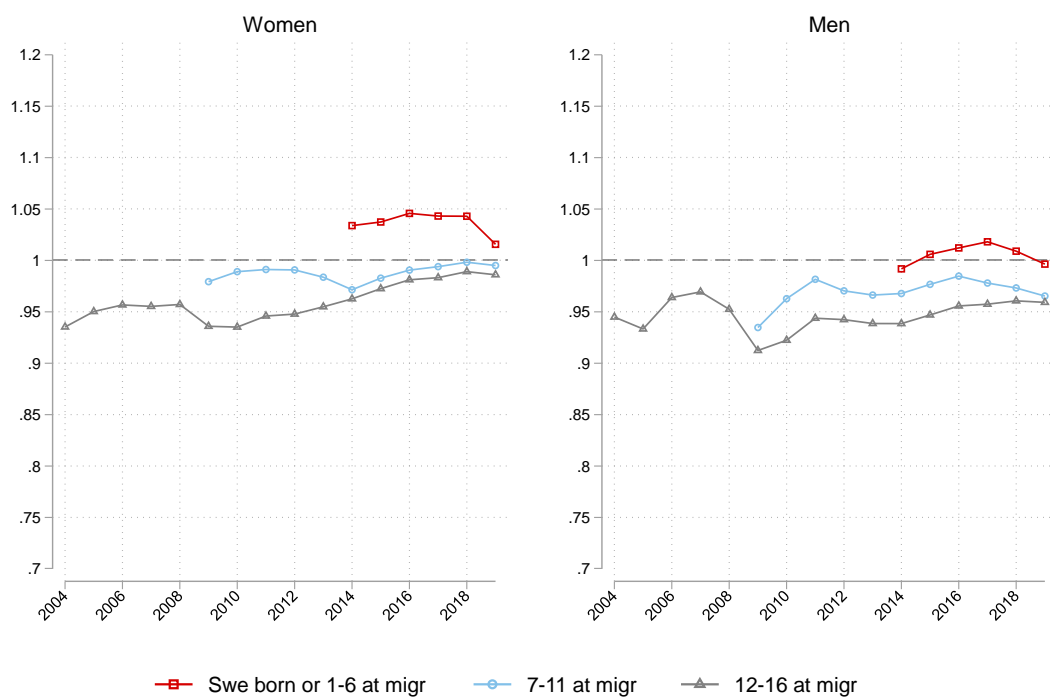


Figure 4 Employment relative to same-aged natives.

Notes: Lines show employment shares in the Yugoslavian group relative to same-aged and same-gender native shares (matched cohort composition). Restricted to those aged 25 and above each year.

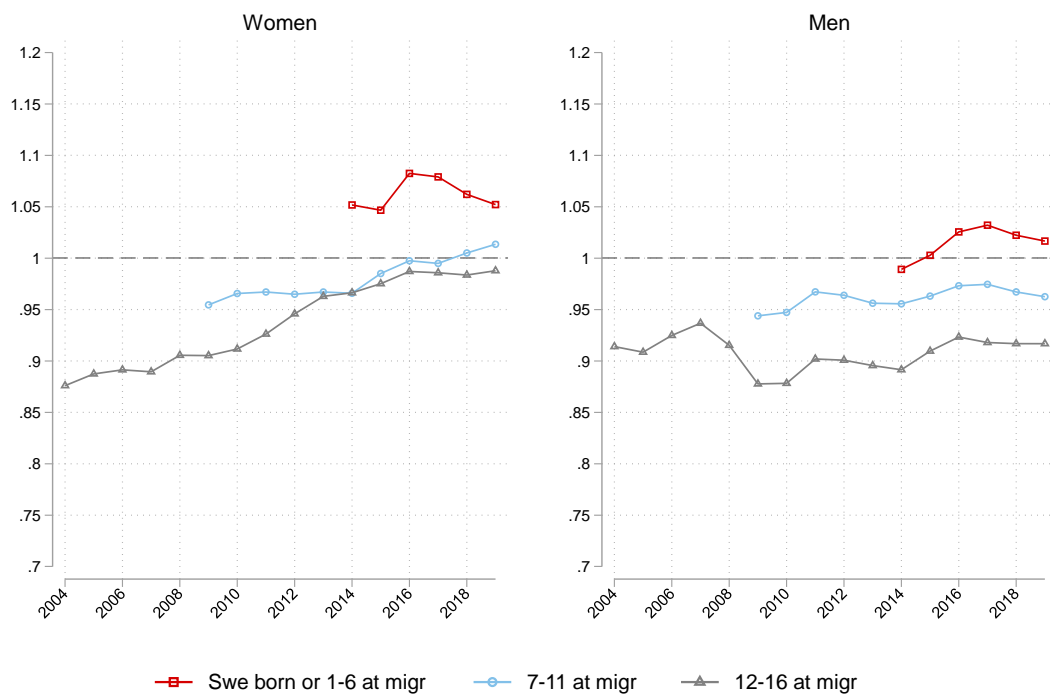


Figure 5 Earnings relative to same-aged natives.

Notes: Lines show mean percentile ranked earnings in the Yugoslavian group relative to mean percentile earnings rank among same-aged and same-gender natives (matched cohort composition). Restricted to those aged 25 and above each year.

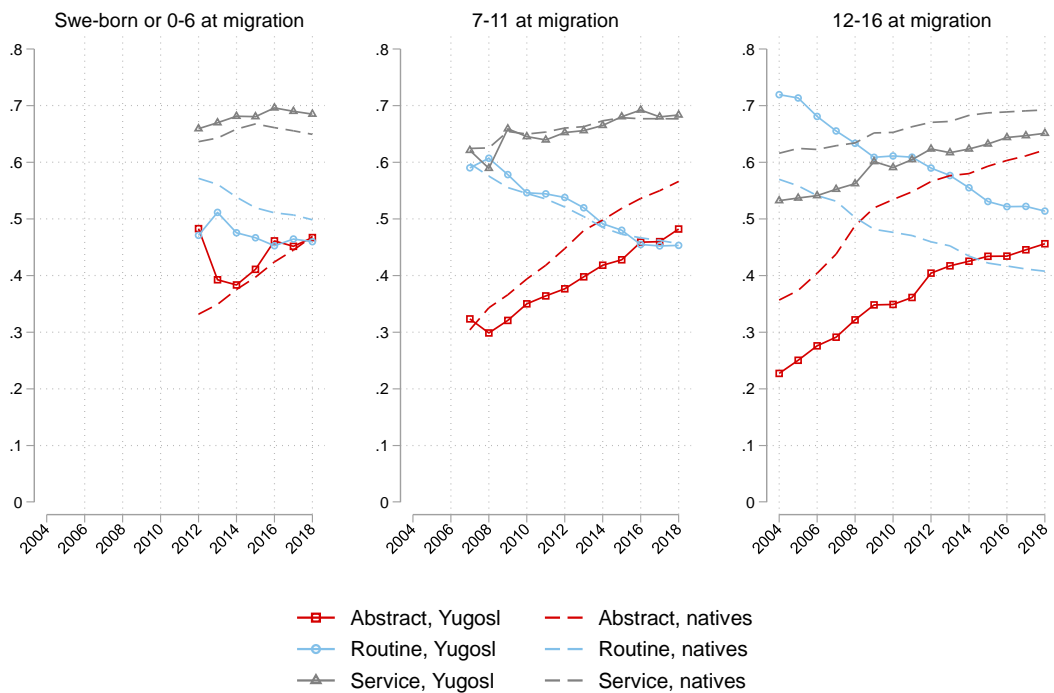


Figure 6. Share in an occupation intense in abstract, routine and service tasks, respectively.

Notes: Graphs show share of workers in an occupation with a task score that exceeds the overall mean in the population (the mean over all occupations each year, employment-weighted) over calendar time. Dashed lines show corresponding shares among natives born the same years. Based on the sub-sample for which information on occupation (“SSYK”) is available. This share differs for the Yugoslavian and native groups. The underlying task scores come from Goos et al. (2009). The cohort composition of the native group is matched to that of the Yugoslavian group.

Notwithstanding the overall successful labor market integration, there are indications of the Yugoslavian youth more frequently experiencing substantial difficulties in the labor market. First, the annual fraction of individuals spending at least 180 days as unemployed was higher among refugees than natives, but narrowed over time (see Figure A 3). This pattern holds qualitatively for both genders and by age at migration. The share of the group that was not in the education system, not in employment, and not being trained to work (NEET) was also higher in the Yugoslavian group than among natives, although differences diminished towards the end of the period. The narrowing of the gap relative to natives is to a considerable extent driven by refugees younger at arrival performing well already at labor market entry.

6 Segregation and social integration

Compared to the immigrant-native differentials often seen in Sweden and other countries, the results presented above suggest a remarkably strong economic integration of the Yugoslavian refugee youth. We now move on to see if this was accompanied by an equally strong social

integration, as captured by partner choices and exposure to Yugoslavia-born co-workers and neighbors.

6.1 Family formation: Endogamy and exogamy

Endogamy is very common among the refugee children. Figure 7 displays the background composition of partners—defined as the other parent of one’s first child—by gender and age at migration. Note that the sample is restricted to those having at least one child by age 30. Even among those no more than 4 years at arrival, somewhat more than 70 (60) percent of girls (boys) have a Yugoslavian partner. At the other end of the scale, we see that about 90 percent of the girls coming to Sweden at age 15–16, and over 80 percent of the boys, form their family with someone sharing their country of origin. The figure also shows a link to future migration flows; a large share of the partners immigrated to Sweden after the focal individual had turned 20. Yugoslavs arriving pre-1990 or their Sweden-born children were less common among the partners (see Figure A 4). Natives make up a majority of the exogamous partners across the age at migration distribution for both women and men.¹⁵

Figure 8 presents patterns of family formation in terms of age at first childbirth and gender. Compared to natives born in the same year, Yugoslavian refugees tend to have the first child at a lower age. This holds for men and women, but the association between endogamy and age at family formation is strikingly gendered. For males, about 70 percent of partners are of Yugoslavian descent independent of age at first childbirth. For women, about 90 percent of partners are Yugoslavian among those giving birth before age 27. This figure then falls to about 50 percent for those having their first child above age 30.

¹⁵ Note that the fraction without partners varies across subgroups. Investigating partner formation at age 35 for cohorts that can be followed thus far gives a qualitatively similar picture. The same is true if all observed partners are considered.

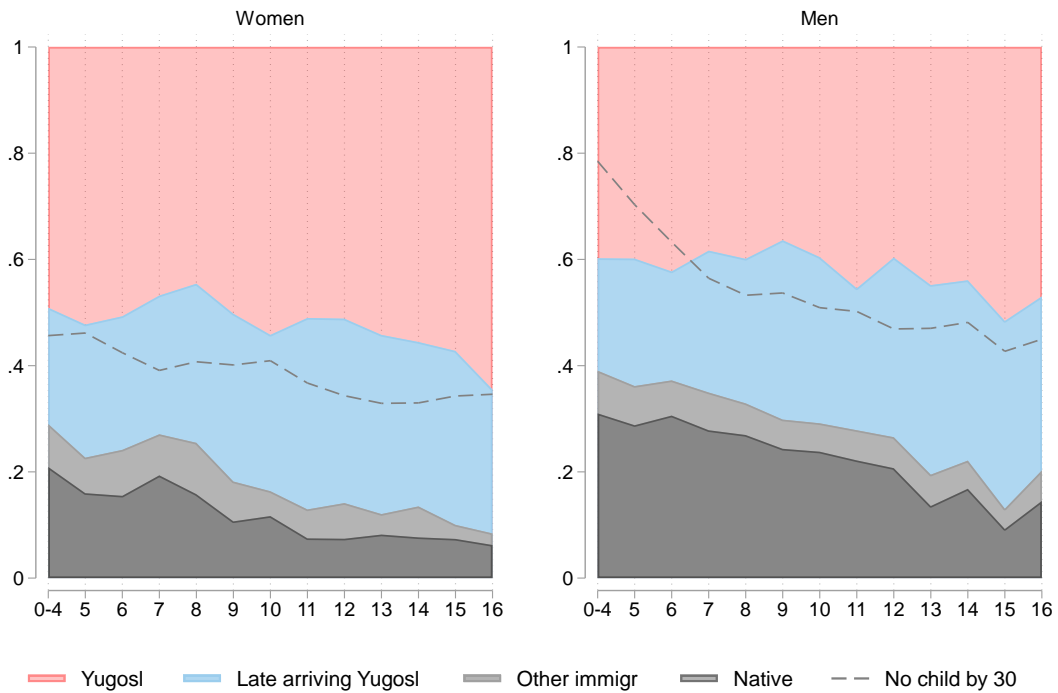


Figure 7 Background of partners by age at migration

Notes: A partner is defined as the other parent of an individual's first child. The sample is restricted to refugee children born 1977–1990 who had a child by age 30. “Yugosl” refers to former Yugoslavia-born partners or partners with at least one former Yugoslavia-born parent who were born in Sweden or migrated before the year the index person turned 20. “Late arriving Yugosl” refers to Yugoslavian partners who migrated when the index person had turned 20 or later. “Native” refers to partners who were born in Sweden to at least one Sweden-born parent (and no former Yugoslavia-born parent) Nordics are included in this category. “No child by 30” shows the share of the group that had not had a child by age 30.

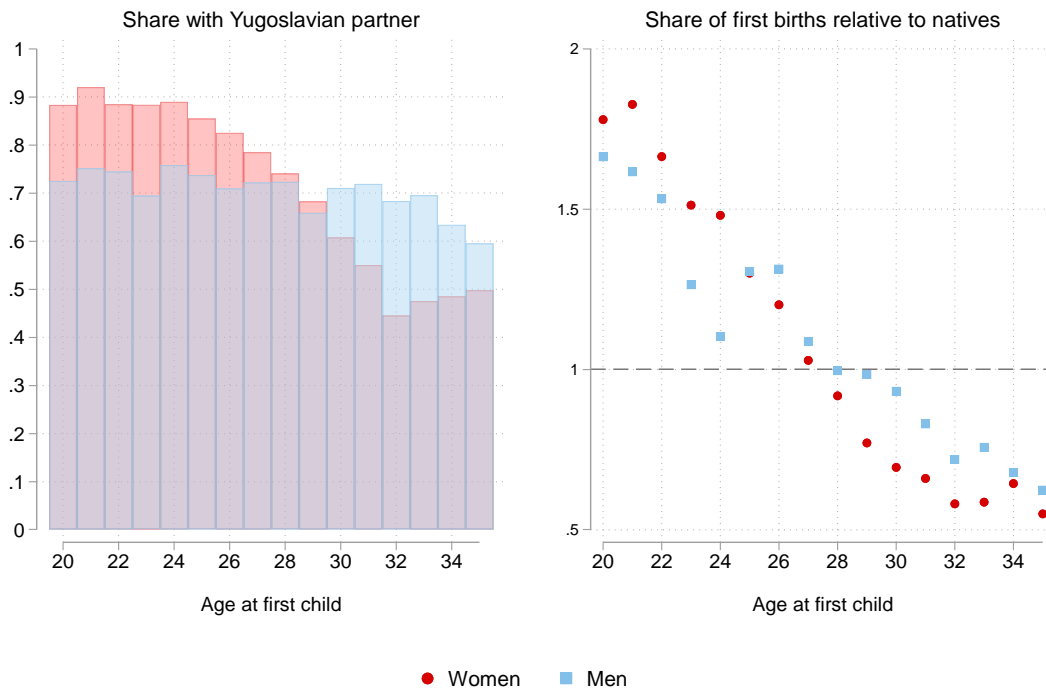


Figure 8. Endogamy by age at first child and age at first child as compared to same-aged natives.

Notes: The left-most figure shows shares of the Yugoslavian refugee children with a Yugoslavian partner by age at first child and gender. The sample is restricted to individuals born 1977–1990 who had their first child between ages 20 and 35. A partner is defined as the other parent of a person’s first child. Yugoslavian is defined as individuals who were born in former Yugoslavia-born or have at least one former Yugoslavia-born parent. The right-most figure shows share of births (in the Yugoslavian refugee group) by age at first child relative to the corresponding native share (matched birth cohort composition, 1977–1981, 1982–1986, 1987–1990) where 1 indicates equally sized shares.

Further analysis shows that partner type is associated with socioeconomic status. Especially for women, exogamy is more likely among the highly educated (Figure A 5). The fraction having a late-arriving Yugoslav partner is higher among low-educated men and women. Regressions Table A 8) confirm the independent association between exogamy and age at migration, while showing also that parental education is strongly associated with the probability of intermarriage. The fact that individuals registered as born in Bosnia (as opposed to former Yugoslavia) are in fact more likely to have a non-Yugoslavian partner speak against the hypothesis that the high rates of endogamy are driven by conservative religious norms (connected to the Muslim heritage among Bosnians).

The earnings data also suggest gender differences in marital sorting (Figure A 6 and Figure A 7). Among female refugees, those with native partners performed better in the labor market throughout the observation period (although with diminishing differences). Female partners in general had poorer labor market outcomes than male partners (contrary to the strong performance of the female refugees). Yugoslav female partners arriving late exhibit particularly low earnings (recall though that those arriving late have spent less time in Sweden than the other partners).

Intra-ethnic marriages is sometimes seen as a way to preserve a group’s cultural characteristics (Bisin and Verdier 2001). The gender difference in endogamy could possibly be seen in this light. Sweden is characterized by relatively high gender equality in the labor market, whereas e.g. the World Values Survey suggests more traditional gender roles in former Yugoslavia. The Swedish parental leave system is gender neutral, but mothers typically take a greater share of the benefit days. As a crude measure of household labor division, Table 1 shows estimates from regressions of within-couple differences in parental leave benefits, defined as “mother’s uptake minus father’s” on partner background. Conditional on earnings of both spouses in the year before the birth of the first child, women with a native partner have smaller parental leave benefit differences than those with a Yugoslavian partner. The estimate amounts to more than 20 percent of the average within-household difference. For men, the estimate in the full sample goes in the opposite direction. As seen in column (4), the difference is fully driven by families with a late-arriving partner (whose access to parental benefits may be less clear).¹⁶ The results indicate that marital sorting is likely to be related to gender norms, which could lead to choices influencing future labor market outcomes.

Table 1 Parental leave uptake and partner's background

Outcome: diff in parental leave benefits (woman's uptake–man's uptake)	(1) Women	(2) Women excl late partner	(3) Men	(4) Men excl late partner
Native partner	-47,298*** (6,803)	-43,657*** (7,056)	42,332*** (6,683)	-3,732 (7,019)
Observations	5,425	3,831	4,214	2,972
R-squared	0.19	0.16	0.13	0.14
Mean outcome	220,500	207,600	172,900	211,400

Notes: Coefficients from separate OLS-regressions on a dummy variable taking the value 1 if a person has a native partner and 0 otherwise. The outcome is the difference between the woman’s and the man’s total uptake between the birth of the index person’s first child and 2019. A partner is defined as the other parent of this child. “Native partner” is a dummy variable taking the value 1 if a person has a Nordic-born partner with at least one Nordic-born parent (excluding those with a former Yugoslavia-born parent). The sample is restricted to individuals born 1977–1989 who had their first child by age 30. Individuals who are the partners of more than one index person have been excluded. All regressions control for own and partner’s income the year before childbirth (index person’s first child), missing income of partner, own and partner’s number of children and birth year of the child. Income is measured the year before the childbirth. *** p<0.01, ** p<0.05, * p<0.1, robust standard errors in parentheses.

As a final examination of the patterns of family formation within the Yugoslavian community, we shift the perspective to study the impact of the refugee inflow on partner composition among 2nd generation Yugoslavs living in Sweden before the 1990s. As seen in the righthand part of Figure 9, the “local supply” of potential partners with Yugoslavian background (defined as the

¹⁶ Further analysis (results available upon request) suggests that there is no difference in the individual uptake among men regardless of partner type and time of arrival. The within-household difference seen in column (3) is driven by low uptake among late-arriving partners. For women with a native partner, individual (partner) uptake is consistently lower (higher) than for those with a Yugoslavian partner (independent of arrival time).

share of the age 20–30 population when the focal individual was 25), tripled between the 1965 and 1985 cohorts. This did, however, not seem to have a clear impact on the probability of endogamy. While the exact composition varied across birth cohorts, the fraction having a Yugoslavian partner remained steady around 40–45 percent in the population dominated by children to previous labor migrants. While this is indeed a substantial level, one could speculate whether the difference to the 70+ percent seen among those in our main sample born in Sweden or arriving very early, is related to experiences of war and refuge affecting the inclination to maintain ethnic ties.

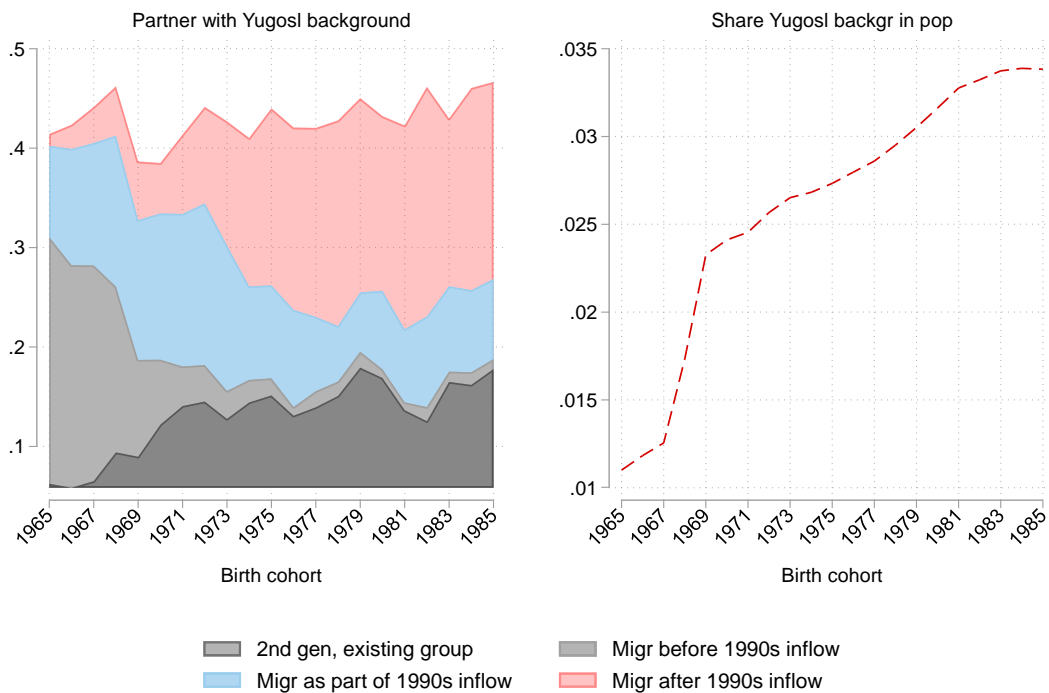


Figure 9. Endogamy among 2nd generation Yugoslavians living in Sweden before the 1990s refugee inflow

Notes: Left figure shows share with a Yugoslavian partner among individuals with Yugoslavian descent living in Sweden before the 1990s refugee wave. This group includes 2nd generation Yugoslavians born to two Yugoslavia-born parents who migrated before 1989 and former Yugoslavia-born individuals who migrated before 1989 at age 16 or younger. Restricted to those for whom we observe a child. A partner is defined as the other parent of the first child. Yugoslavian background takes the value 1 if a person was born in former Yugoslavia or have at least one former Yugoslavia-born parent. The right figure shows the share of individuals with Yugoslavian background in the population aged 20–30 the year the birth cohort in question turned 25.

6.2 Residential and workplace segregation

As in many other countries, ethnic segregation is pronounced in Sweden. This is true for the residential (Malmberg et al. 2018) as well as the workplace (Åslund and Skans 2010) dimensions. The Yugoslavian families were no exception, and exhibited significant segregation in their first years in Sweden (Åslund, Liljeberg, and Roman 2023). Figure 10 shows that the refugee youth

continued to live in neighborhoods with an excess presence of Yugoslavs also after turning 25. Contrary to what we have seen above, age at migration differences are limited, but level of education is clearly related to peer exposure. All groups experience a downward trend in average exposure over time. Part of the segregation is due to sorting across municipalities (as suggested by the conditional expectation taking this into account, shown in Figure A 8), but there is substantial sorting also within municipalities.¹⁷

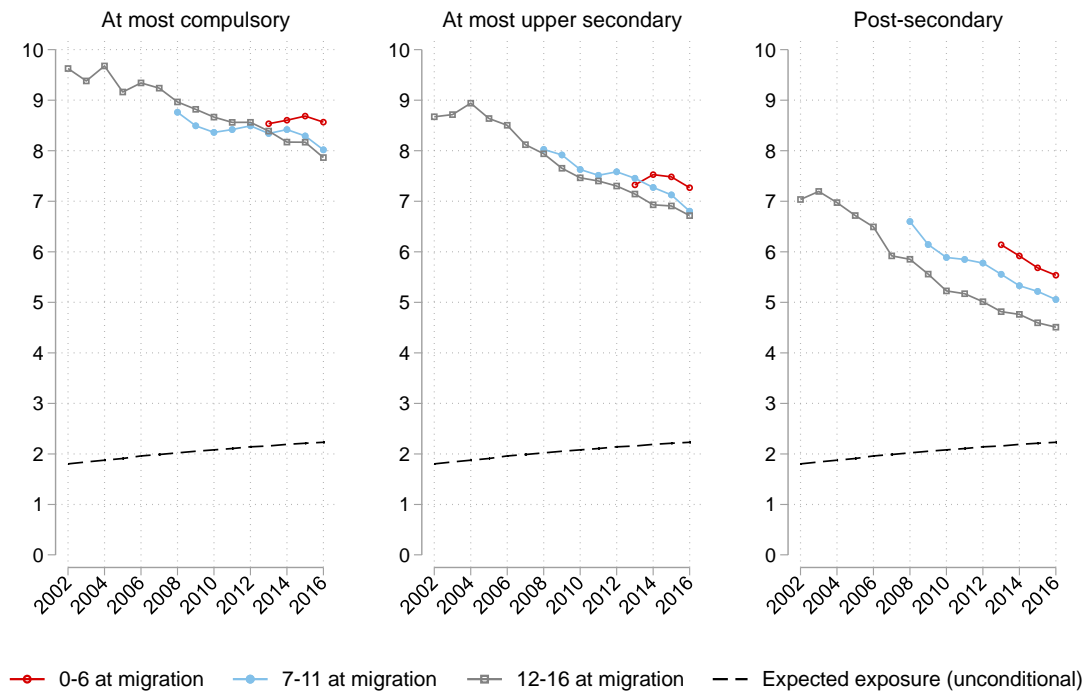


Figure 10 Percent Yugoslavia-born neighbors, by age at migration and level of education.

Notes: Based on Yugoslavian refugee children aged 25 and older born 1977–1991. Exposure is defined as the share of neighboring households in which someone was born in former Yugoslavia. Graphs show yearly mean. Expected exposure is defined as the share of all households including at least one Yugoslavian-born individual. The partition of the results into education groups is based on attained education at age 25.

Figure 11 suggests a qualitatively similar pattern for workplace segregation in the sense that exposure to Yugoslavia-born co-workers at age 30 varied substantially with level of education. Many of those who had attained at most compulsory or upper secondary education were found in workplaces where the concentration of former Yugoslavia-born co-workers was higher than expected under random allocation conditional on background characteristics. This suggests that networks may have played a role in workplace sorting in these groups. Note, however, that working in strongly “ethnic” establishments is uncommon. For example, even among those with

¹⁷ It is worth noting that time trends could reflect general age effects (moving away from certain types of neighborhoods/firms), cohort composition, as well as a secular time trend. Differences by birth cohorts were less pronounced than for other outcomes studied. Results available on request.

compulsory education, less than 10 percent had more than 20 percent Yugoslavia-born co-workers in 2019, and only about 2 percent worked in completely segregated establishments.¹⁸

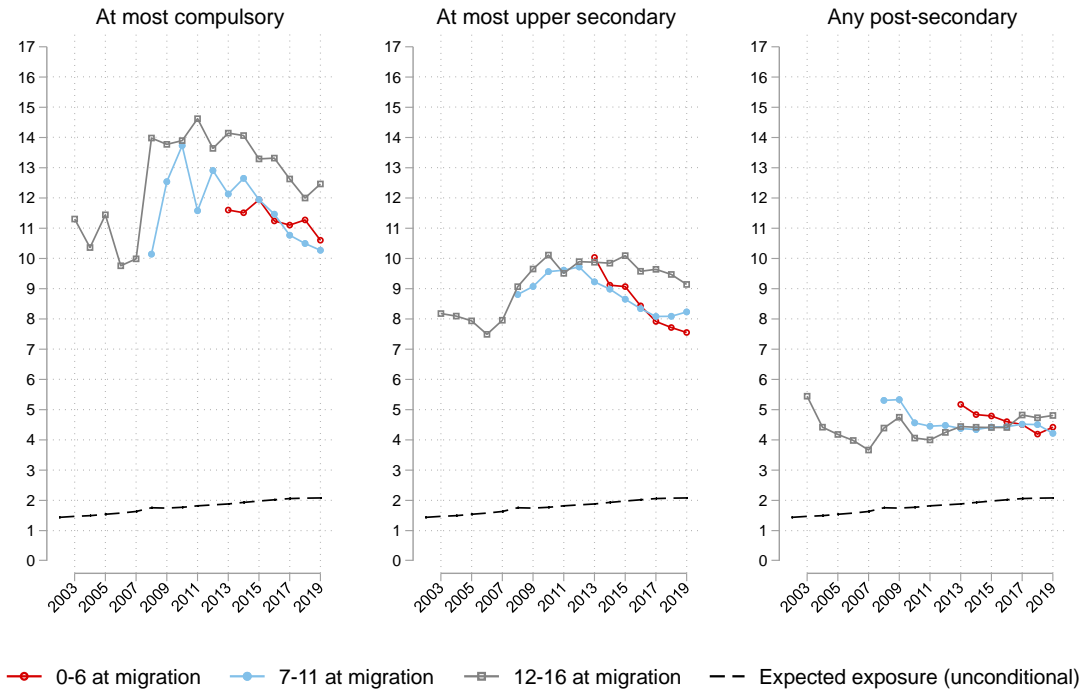


Figure 11 Exposure to former Yugoslavia-born co-workers by level of education

Notes: Based on Yugoslavian refugee children aged 25 and older in cohorts born 1977–1994. Exposure is defined as the share of Yugoslavia-born co-workers. Graphs show median exposure. Expected exposure is defined as the average “group propensity” among co-workers, where group propensity is defined as the share of individuals with a given background in classes defined by age, gender, level of education, home municipality, and industry. Refugee children’s education is measured the year they turn 30.

7 Conclusions

This paper studies the long-term economic and social integration of refugee youth. The empirical analysis considers children arriving from former Yugoslavia to Sweden in the early 1990s and follows them through the education system and into working life and family formation. These (children of) European refugees came as a result of war and initially faced an economy in decline. Most remained in the host destination and their outcomes and behavior thus have bearing on long-term social developments.

¹⁸ It can be noted that our choice to focus on median exposure (to better capture the environments typically faced by the former child refugees) in combination with the fact that we are characterizing exposure to a group that is broader than our observation sample, could be contributing to the zero (or even negative) overexposure seen among the highly educated. If the overall Yugoslav workforce is segregated, and individuals in our sample enter workplaces randomly, the median individual will be “underexposed”.

The analysis suggests that educational and economic integration was on average strong. However, we also document substantial differences by age at migration. Children arriving before school start, or born in Sweden shortly after their parents immigrated, performed almost at par with native children. Not surprisingly, those arriving in their teens performed less well in school. But after a notable recovery between age 20 and 30, most had completed at least upper secondary education.

The age at migration differentials are also visible in labor market outcomes. But gaps relative to natives declined rapidly for those older at arrival, and at the end of the observation period, women achieved full labor market assimilation whereas a smaller differential remained among men. Conditioning on background characteristics and geographic and industry sorting, the results suggest that women slightly outperformed their native counterparts while the sign of the difference varied by age at migration for men. An analysis of occupational task content suggest that older cohorts were more likely to work in routine-intense occupations and less likely to have jobs with a high degree of abstract tasks. For those arriving before school-starting age, the levels and developments of task content mirrored those of same-aged natives. The results suggest that a somewhat greater share of the refugees experienced substantial difficulties in the labor market as indicated by long-term unemployment and NEET rates, but differences were small toward the end of the observation period.

Given the strong economic integration, it is striking to see the level of endogamy in the studied population. Also among the refugee children under 6 years of age at arrival, a clear majority had a partner of Yugoslavian descent. Many of the partners arrived after the index person had turned 20, illustrating the link from the refugee cohorts to future migration flows. The decrease in endogamy over birth cohorts nevertheless suggests that identity formation and social integration is affected by age at migration. The higher endogamy rates among women and the tendency for more traditional labor division in intra-ethnic couples indicates a connection to gender norms in endogamy. Furthermore, endogamy and late-arriving partners also tend to be negatively associated with educational and labor market status.

The patterns of family formation together with the significant segregation seen across neighborhoods and workplaces suggest that some divisions between refugees are likely to persist also in a context with overall successful educational and labor market integration. Our results also show that such divisions are likely to be negatively correlated with economic status. While, e.g., endogamy could be seen as irrelevant for policy (or even untouchable), it can shape long-term social structures.

To what extent are our findings relevant for contemporary refugee children and youth? Until recently, the policy debate in this area tended to focus on the cohorts arriving to Europe from e.g.

Syria and Afghanistan around 2015. There are both similarities and differences to Yugoslav refugees, and it is too early to draw conclusions. In a Swedish context, statistics from the National board of education show that the fraction of “recently arrived” students not passing “Swedish as a second language” in compulsory school has been around 60 percent among cohorts graduating after 2018. Such challenges are shared by many other countries (Unicef 2019). Achieving a similar upgrade by and within cohorts as we saw among the Yugoslavs arriving to Sweden appears important for the long-term integration. Official statistics showing comparatively rapid labor market integration among adults in these cohorts provide some hope, although signs that the pandemic may have diminished prospects particularly for these groups cause concern in Sweden and elsewhere.

Recent developments (writing in June 2023) have of course created an even stronger parallel to the Yugoslavian case, with a very large number of war refugees fleeing a war in a European country. While uncertainty during an evolving situation urges caution in conclusions, the experience after the wars in Yugoslavia documented above suggests that the movements are likely to result in a long-term presence of refugee children and youth in receiving societies. Our findings indicate that there is likely potential for successful economic integration, but with particular attention to the educational performance among those arriving at higher ages. Also, countries can expect to see ethnic segregation with a bearing on future migration flows as the refugees enter adulthood.

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Appendix

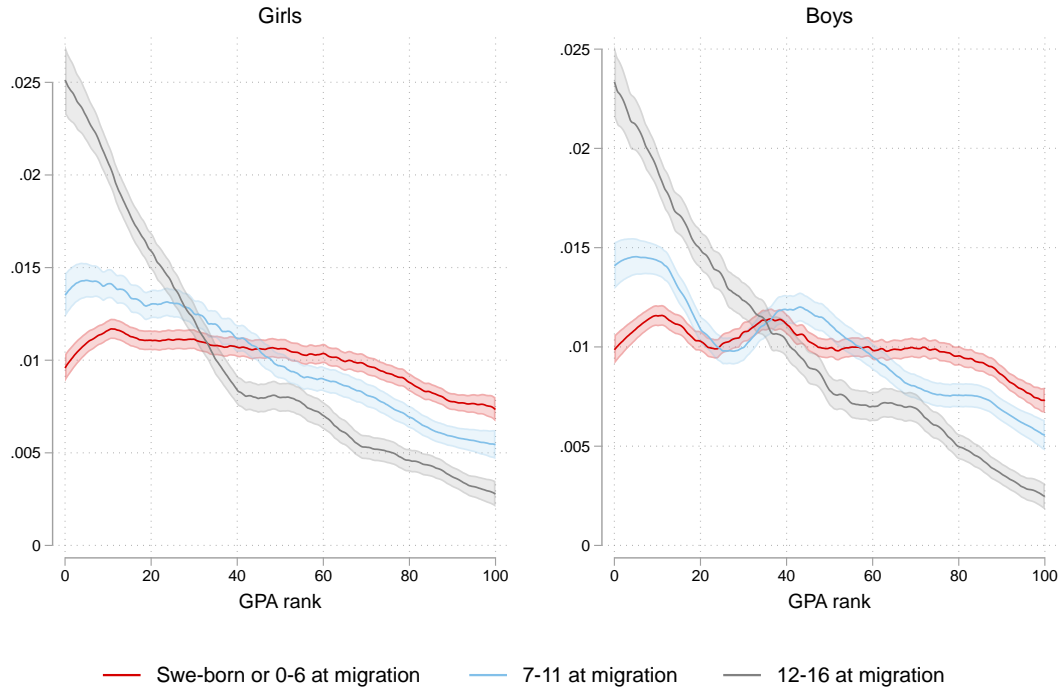


Figure A 1. Distribution of 9th grade GPA rank

Notes: Grade point average distribution among Yugoslavian refugee children born 1977–1999 by age-at-migration and gender. Kernel density plots with 95 % confidence intervals and boundary correction. GPA has been ranked within gender and graduation year (boundaries corrected to 0-100). A majority of those aged 12–16 at migration have been excluded due to missing GPA (most of these individuals likely proceeded straight to upper secondary education after migration).

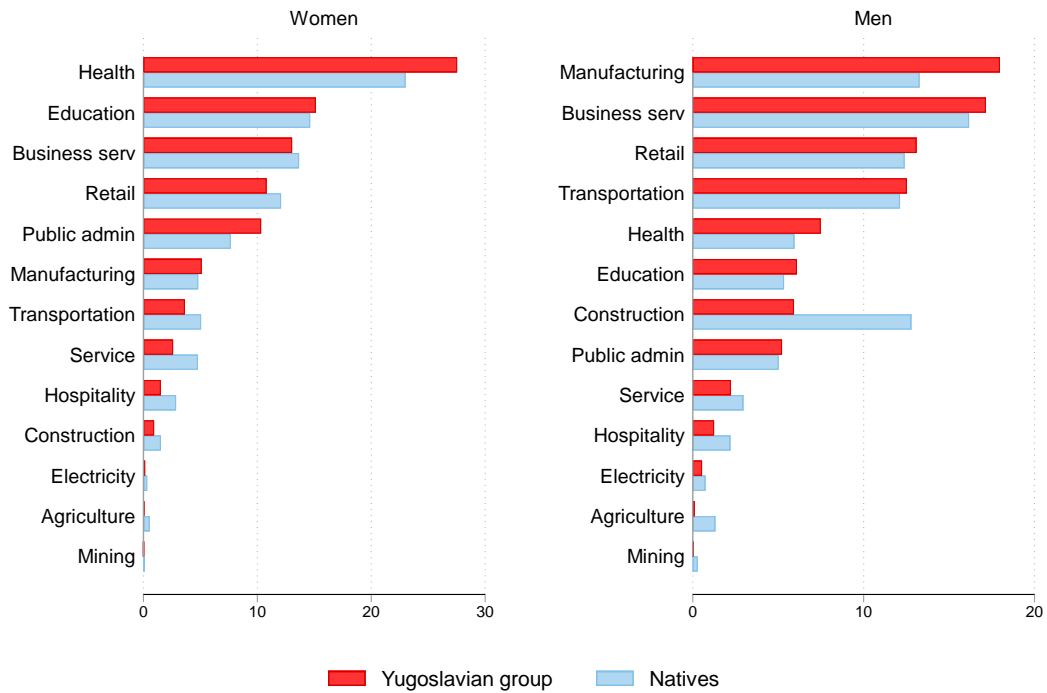


Figure A 2. Industry allocation in 2019 (percent)

Notes: Based on Yugoslavian refugee children born 1977–1994 (aged 25+ in 2019) and all natives in these birth cohorts. Those missing information on industry and earnings in 2019 have been excluded. Those information on earnings but missing industry information are included in the denominator. This is also true for individuals in the categories "Activities of extraterritorial organizations" and "Activities of households as employers". These categories are not shown as they include very few individuals.

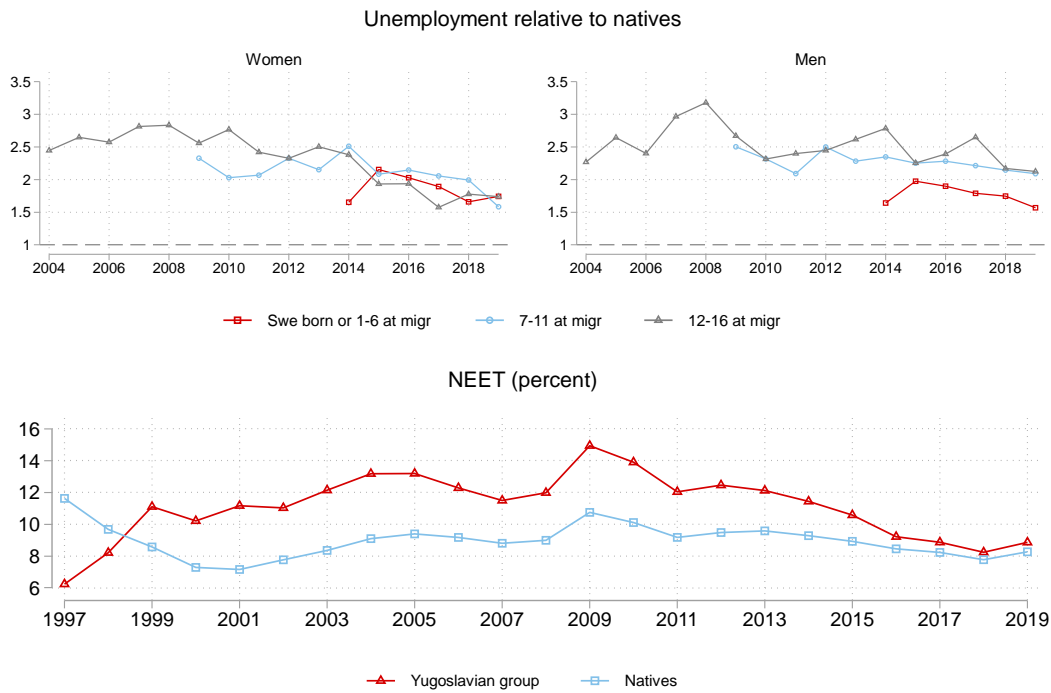


Figure A 3 Percent unemployed 180 days or more relative to natives and percent NEET

Notes: The top figures show share unemployed 180 days or more relative to the share among same-aged natives. (matched cohort composition). Restricted to those aged 25 and above each year. The bottom figure shows the percentage of individuals no longer in education, not working or being trained to work. NEET rates are calculated for those aged 20 and above each observation year (matched cohort composition).

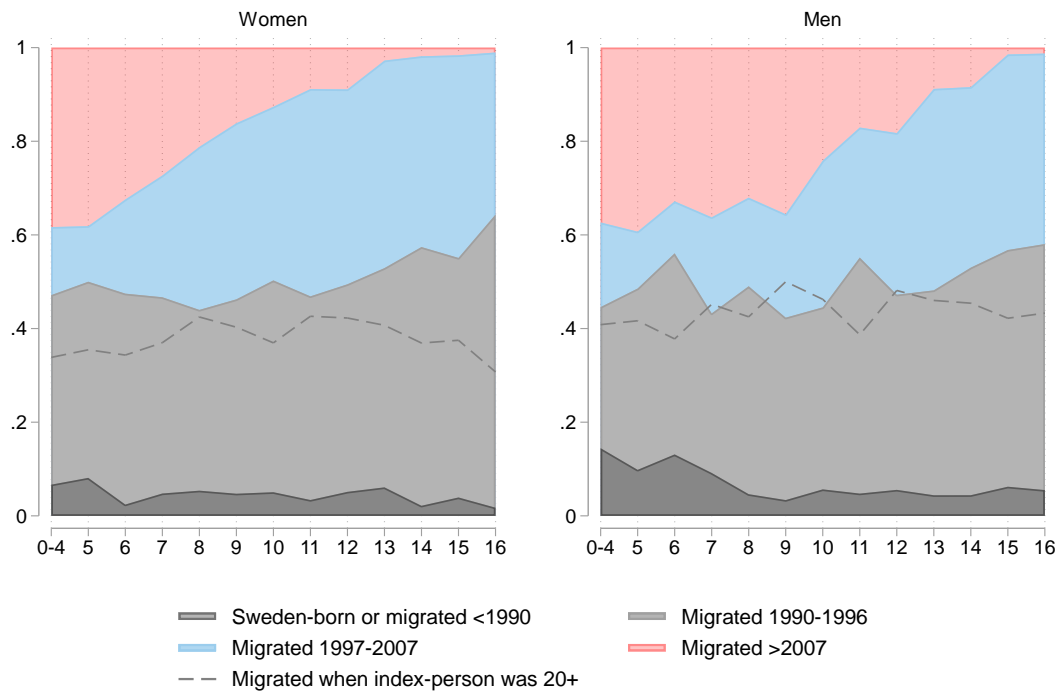


Figure A 4 Year of migration among partners with Yugoslavian background

Notes: Dashed lines show share of partners that migrated late in the index person's life. A partner is defined as the other parent of a person's first child. The sample is restricted to Yugoslavian refugee children born 1977–1990 who had had their first child by age 30 with a partner with Yugoslavian background, where the latter refers to former Yugoslavia-born partners and partners with at least one former Yugoslavia-born parent.

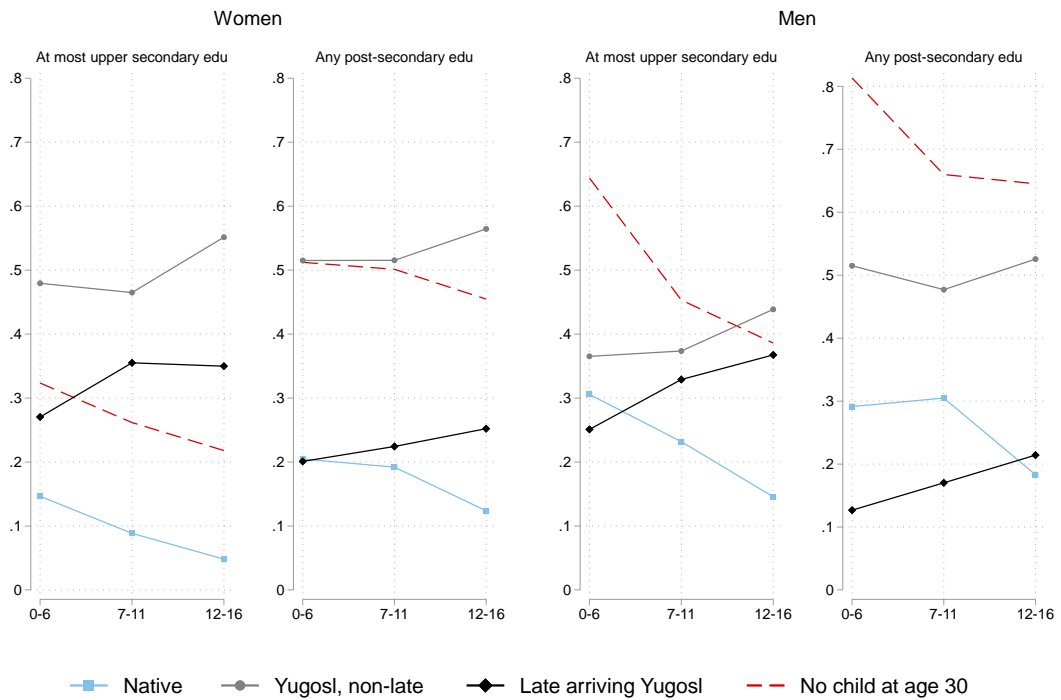


Figure A 5. Partner's background, late and non-late Yugoslavian partners by age at migration.

Notes: Graphs show shares that had a partner with a specific background, by age at migration. The sample is restricted to Yugoslavian refugee children who had their first child by age 30, cohorts born 1977–1990 (shares with an immigrant partner from other countries than former Yugoslavia not shown). A partner is defined as the other parent of the index person's first child. "Late arriving Yugosll" refers to former Yugoslavia-born partners who migrated when the index person was aged 20 or older. "Yugosl non-late" refers to Yugoslavia-born partners who migrated before the index person turned 20 or were born in Sweden to at least one former Yugoslavia-born parent. "Native partn" refers to partners who were born in Sweden (or a Nordic country) to at least one Sweden-born (or Nordic-born) parent (excluding those with one former Yugoslavia-born parent). Shares do not sum to one as shares with an immigrant partner from other counties than former Yugoslavia are not shown.

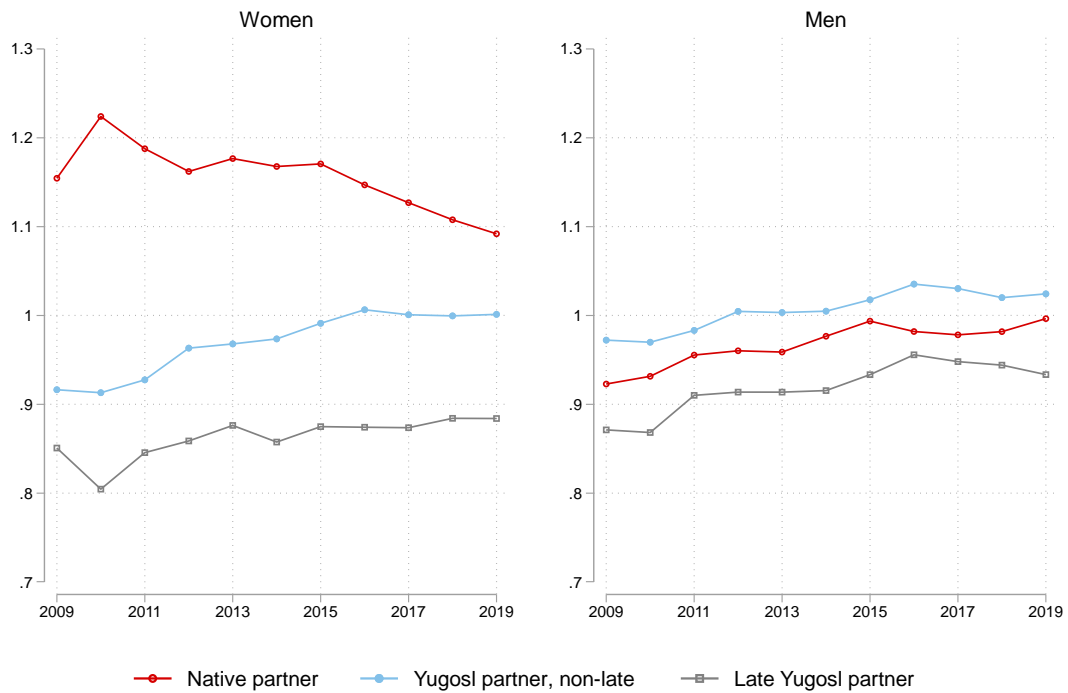


Figure A 6. Earnings relative to same-aged natives by partner type

Notes: The figure shows earnings rank average relative to that of same-aged natives (1=same average earnings rank). Restricted to those aged 30+ in each observation year. A partner is defined as the other parent of a person’s first child. “Native partners” refers to partners who were born in a Nordic country and have at least one Nordic-born parent (except for those with one former Yugoslavia-born parent). “Late Yugosl partner” refers to former Yugoslavia-born partners who migrated the year the index person turned 20 years old or later. “Yugosl partner, non-late” refers to former Yugoslavia-born partners or partner with at least one former Yugoslavia-born parent who did not migrate after the year index person had turned 19.

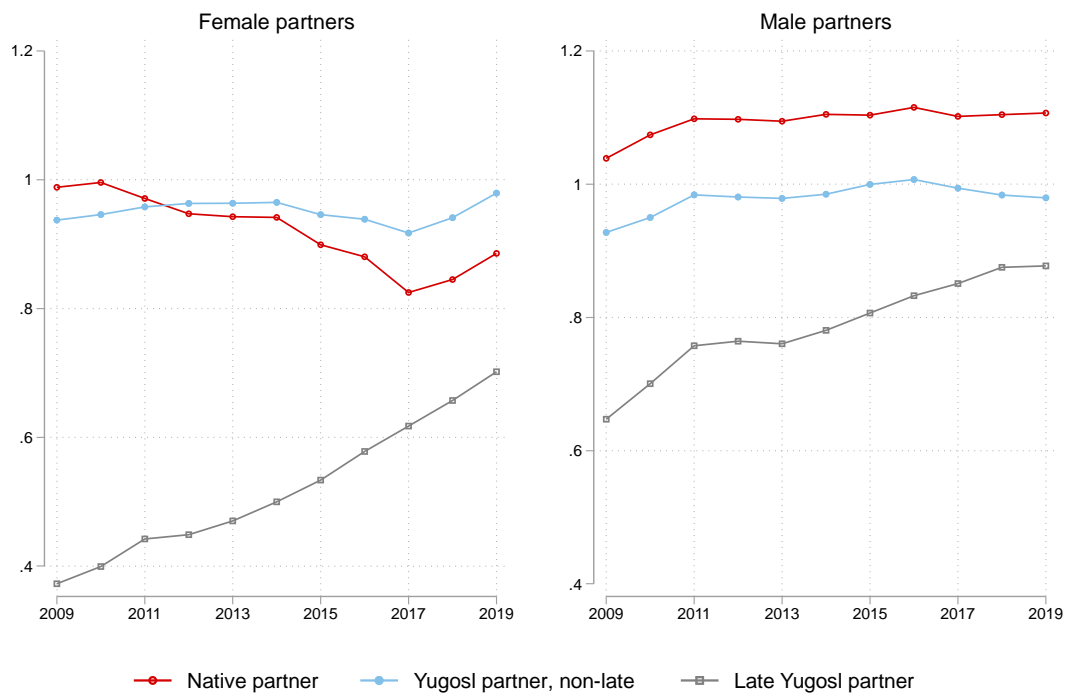


Figure A 7. Earnings of partners

Notes: The figure shows average earnings rank relative to same-aged natives. Restricted to partners of Yugoslavian refugee children born 1977–1989 aged 25 or older in each observation year. A partner is defined as the other parent of an index person’s first child. “Native partners” refers to partners who were born in a Nordic country and have at least one Nordic-born parent (except for those with one former Yugoslavia-born parent). “Late Yugosl partner” refers to former Yugoslavia-born partners who migrated the year the index person turned 20 years old or later. “Yugosl partner, non-late” refers to former Yugoslavia-born partners or partner with at least one former Yugoslavia-born parent who did not migrate after the year index person had turned 19.

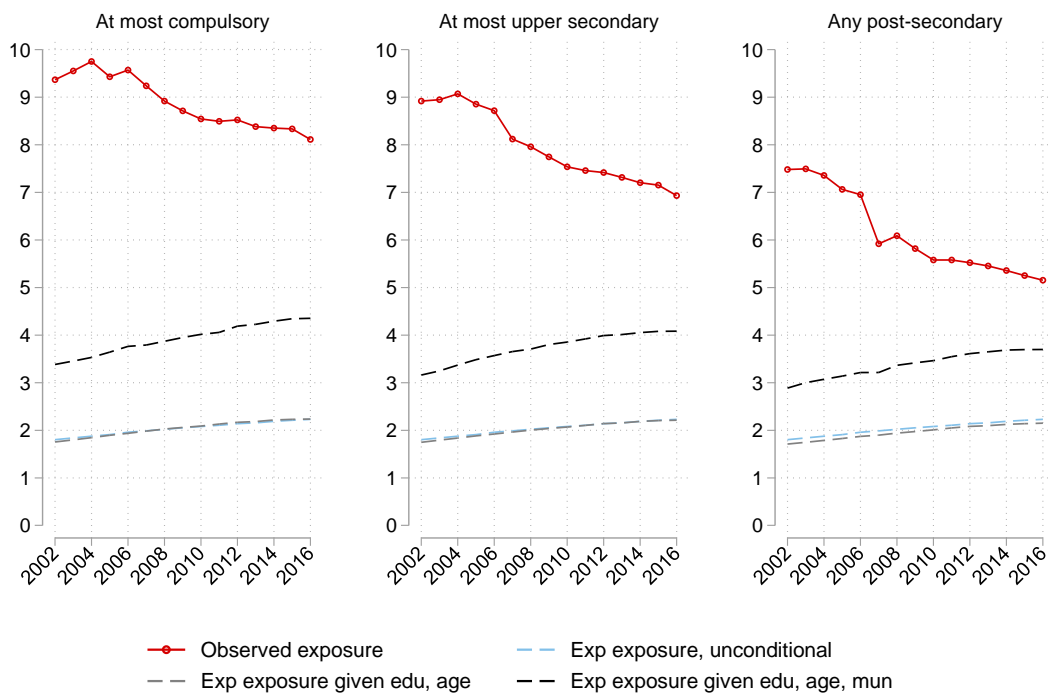


Figure A 8. Exposure and expected exposure to Yugoslavian neighbors

Notes: Based on Yugoslavian refugee children aged 25 and older born 1977–1991. Graphs show yearly mean. Exposure is defined as the share of neighboring households including at least one former Yugoslavia-born person. Expected exposure is defined as the average “group propensity” among neighboring households (same “sams”). The group propensity of each household is the share of households including at least one former Yugoslavia-born person their class, where classes are defined according to a vector of discrete characteristics. Unconditional expected exposure is defined as the share of all households including at least one Yugoslavian-born individual. The partition of the results into education groups is based on attained education at age 25.

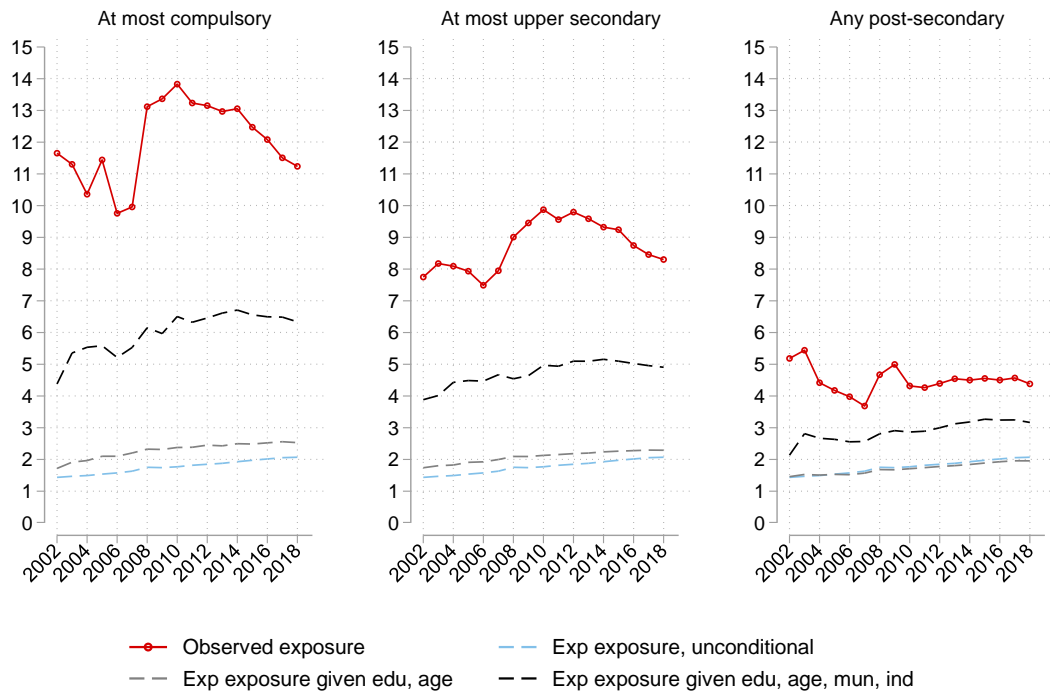


Figure A 9. Exposure and expected exposure to Yugoslavian coworkers (p 50).

Notes: Based on Yugoslavian refugee children born 1977–1994 who were aged 25 or older in each observation-year and were employed at a workplace with >1 employee. Exposure is defined as the share of Yugoslavia-born co-workers. Expected exposure is defined as the average “group propensity” among co-workers. The group propensity is the share of Yugoslavia-born individuals in each worker’s class, where classes are defined according to a vector of discrete characteristics. Unconditional expected exposure is defined as the share of Yugoslavia-born individuals in the sample of workers (workplaces with >1 worker). The partition of the results into education groups is based on attained education at age 25.

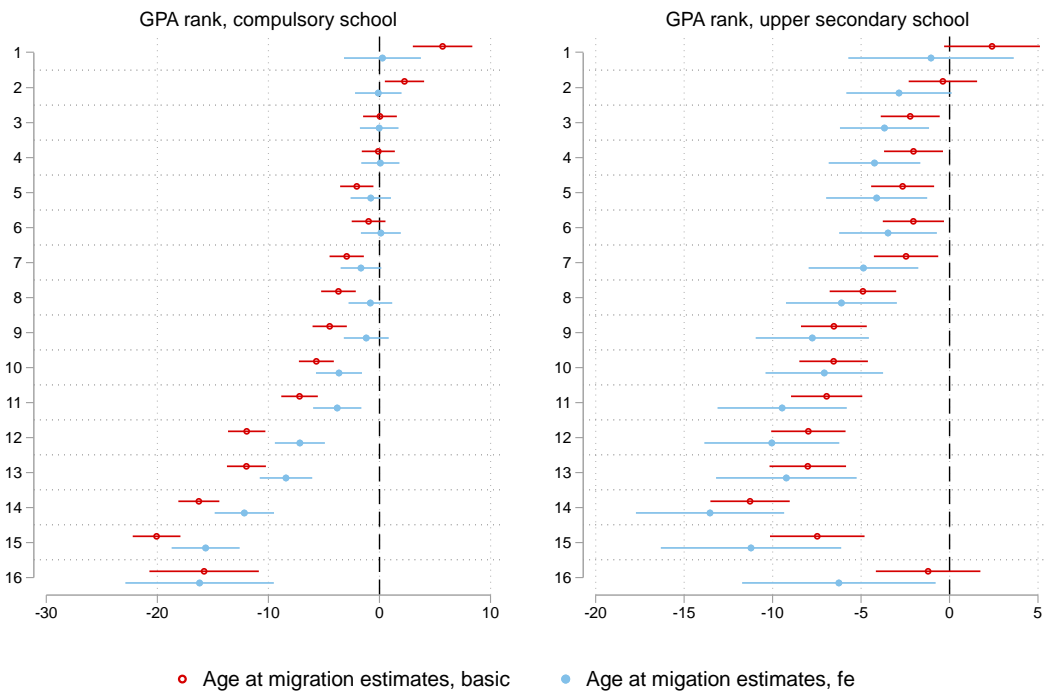


Figure A 10. Grade outcomes: age-at-migration estimates with and without family fixed effects.

Notes: Results from separate regressions of grade point averages on age at migration dummies with without controls for family fixed effects. The sample includes Yugoslavian refugee children born 1977–1999 who have >0 siblings. Individuals born 1999 have been excluded from upper secondary school analysis as their expected year of graduation is not covered in the data. Both regressions control for gender and birth order. Siblings are defined through their mother if the mother is observed, the father otherwise. Reference category is Sweden-born individuals.

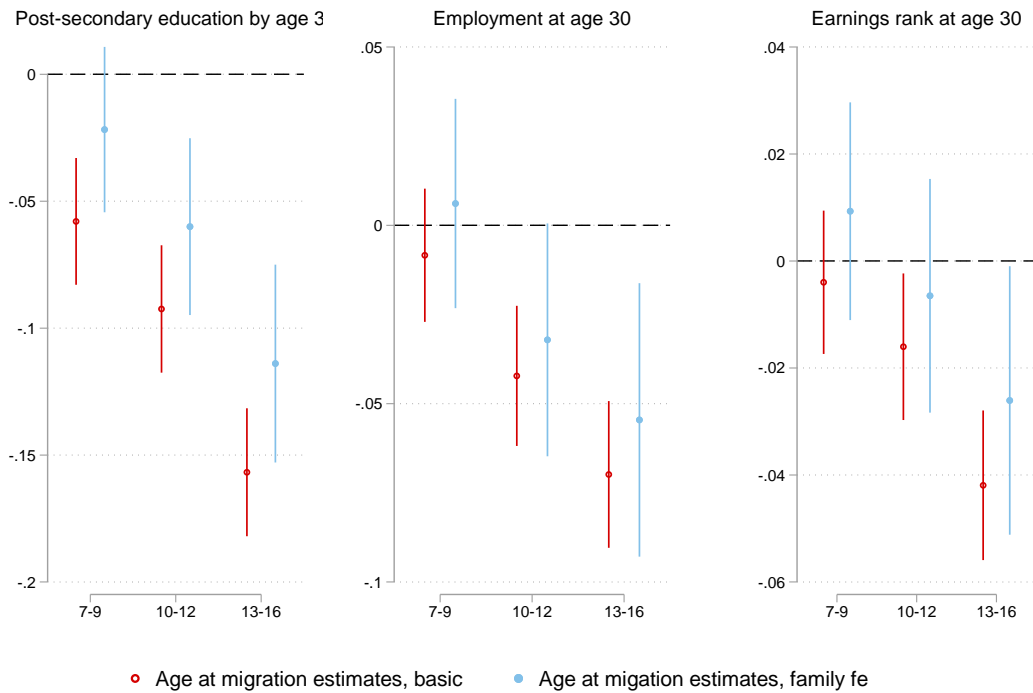


Figure A 11. Education and labor market outcomes at age 30: age-at-migration estimates with and without family fixed effects.

Notes: Results from separate regressions of educational attainment, employment, and earnings rank at age 30 on age at migration dummies with without controls for family fixed effects. The sample includes Yugoslavian refugee children born 1977–1989 (the cohorts we can observe at age 30) who have siblings. All regressions control for gender, regressions including family fixed effects also control for birth order. Siblings are defined through their mother if the mother is observed, the father otherwise. Reference category is children who migrated at ages 4–6.

Table A 1 Number of individuals by age at migration and gender

	Swe-born	0–6	7–11	12–16	Total
Women	2,879	3,782	4,116	3,994	14,771
Men	2,991	3,941	4,516	4,341	15,789
Total	5,870	7,723	8,632	8,335	30,560

Notes: The table describes the sample of Yugoslavian refugee children. The sample includes former Yugoslavia-born individuals who received residence permits in Sweden in 1993–1994 at age 16 or younger and children born before year 2000 to former Yugoslavia-born individuals who received residence permits in 1993–1994.

Table A 2 GPA in compulsory school (percentile ranked 0–100), all cohorts

	(1)	(2) Girls	(3)	(4)	(5) Boys	(6)
<i>Outcome: Percentile ranked GPA, compulsory school</i>						
Yugoslavian	-7.93*** (0.24)	-6.18*** (0.23)	-4.83*** (0.36)	-6.68*** (0.24)	-4.80*** (0.23)	-3.79*** (0.33)
Observations	1,102,201	1,102,201	1,102,201	1,156,195	1,156,195	1,156,195
R-squared	0.00	0.15	0.20	0.00	0.16	0.20
Parental edu control	No	Yes	Yes	No	Yes	Yes
School f. e.	No	No	Yes	No	No	Yes
Y mean natives	51.18	51.18	51.18	51.13	51.13	51.13

Notes: Results from separate OLS-regressions of grade point average on a dummy variable taking the value 1 if an individual is a Yugoslavian refugee child and 0 otherwise. GPA has been percentile ranked within gender and graduation year. All regressions control for graduation year. Standard errors clustered at the school level in regressions 3 and 6. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A 3 GPA in compulsory school by age at migration, girls. Full set of covariates.

	(1) Swe-born	(2) 0–3	(3) 7–11	(4) 12–16
<i>Outcome: Percentile ranked GPA, compulsory school</i>				
Yugoslavian	0.29 (0.62)	-1.04** (0.48)	-6.28*** (0.53)	-15.51*** (0.74)
Observations	216,671	387,341	275,188	223,001
R-squared	0.24	0.21	0.21	0.18
Y mean natives	51.77	51.03	51.06	51.00

Notes: Results from separate OLS-regressions of grade point average on a dummy variable taking the value 1 if an individual is a Yugoslavian refugee child and 0 otherwise. GPA has been percentile ranked within gender and graduation year. All regressions control for graduation year, parental education measured at age 16 and school fixed effects. Robust standard errors clustered at the school level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A 4 GPA in compulsory school by age at migration, boys. Full set of covariates

	(1) Swe-born	(2) 0–3	(3) 7–11	(4) 12–16
<i>Outcome: Percentile ranked GPA, compulsory school</i>				
Yugoslavian	1.69*** (0.64)	-0.75* (0.45)	-5.27*** (0.53)	-13.99*** (0.75)
Observations	227,510	405,767	289,165	233,753
R-squared	0.25	0.22	0.22	0.19
Y mean natives	51.88	51.01	50.98	50.80

Notes: Results from separate OLS-regressions of grade point average on a dummy variable taking the value 1 if an individual is a Yugoslavian refugee child and 0 otherwise. GPA has been percentile ranked within gender and graduation year. All regressions control for graduation year, parental education measured at age 16 and school fixed effects. Robust standard errors clustered at the school level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A 5 Post-secondary education by age 30

	(1) 4–6 at migration	(2)	(3) 7–11 at migration	(4)	(5) 12–16 at migration	(6)
<i>Outcome: Any post-secondary education</i>						
Yugoslavian	0.019*** (0.007)	0.034*** (0.007)	-0.044*** (0.005)	-0.026*** (0.005)	-0.123*** (0.007)	-0.105*** (0.006)
Observations	350,206	350,206	616,208	616,208	499,301	499,301
R-squared	0.025	0.151	0.024	0.156	0.020	0.155
Parental edu control	No	Yes	No	Yes	No	Yes
Y mean natives	0.46	0.46	0.46	0.46	0.45	0.45

Notes: Coefficients from separate linear probability models on a dummy variable taking the value 1 if an individual belongs to the group of Yugoslavian refugee children and 0 otherwise. The sample is restricted to the Yugoslavian group and natives born 1977–1989, for whom we observe education at age 30. All regressions control for birth cohort and gender. Age at immigration is approximated based on birth year. *** p<0.01, ** p<0.05, * p<0.1.

Table A 6 Earnings 2019 (percentile ranked 0–100), all cohorts.

	(1)	(2)	(3)	(4)	(5)	(6)
		Women			Men	
<i>Outcome: earnings rank</i>						
Yugoslavian	1.01*** (0.23)	2.06*** (0.21)	2.24*** (0.18)	-1.44*** (0.25)	-0.59*** (0.23)	0.23 (0.18)
Observations	878,704	878,704	878,704	924,363	924,363	924,363
R-squared	0.062	0.217	0.442	0.065	0.178	0.464
Edu & fam		X	X		X	X
Industry & county			X			X

Notes: Results from separate OLS-regressions of earnings on a dummy variable taking the value 1 if an individual is a Yugoslavian refugee child and 0 otherwise. The sample is restricted to individuals born 1977–1994 (aged 25 + in 2019). Education controls include 7 categories and missing data on education level, “family” is defined as having a child aged 0–17. Industry includes 15 categories and missing data on industry. County includes 21 categories. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A 7 Earnings 2019 (percentile ranked 0–100), by age at migration. Full set of covariates.

	(1)	(2)	(3)	(4)	(5)	(6)
	0–6	Women 7–11	12–16	0–6	Men 7–11	12–16
<i>Outcome: earnings rank</i>						
Yugoslavian	3.12*** (0.25)	2.13*** (0.30)	2.36*** (0.40)	1.74*** (0.27)	0.42 (0.31)	-2.64*** (0.40)
Observations	389,291	271,688	217,725	410,094	286,167	228,102
R-squared	0.44	0.39	0.44	0.44	0.44	0.47

Notes: Results from separate OLS-regressions of earnings on a dummy variable taking the value 1 if a person is a Yugoslavian refugee child and 0 otherwise. The sample is restricted to individuals born 1977–1994 (aged 25 + in 2019). All regressions control for year of birth, education level (7 categories), missing data on education level, having a child aged 0–17, industry (15 categories), missing data on industry, and county of residence. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table A 8 Exogamy

	(1) Women	(2) Men
<i>Outcome: Partner with non-Yugoslavian background</i>		
Age at migration: 7-11	-0.047*** (0.014)	-0.066*** (0.019)
Age at migration: 12-16	-0.119*** (0.014)	-0.178*** (0.020)
Parental education: upper sec	0.026** (0.013)	0.068*** (0.018)
Parental education: post-sec	0.094*** (0.016)	0.097*** (0.020)
Bosnia-born	0.052*** (0.011)	0.074*** (0.014)
GPA rank, 9th grade	0.066*** (0.022)	0.006 (0.033)
Observations	5,738	4,330
R-squared	0.038	0.038
Y mean	0.186	0.282

Notes: Results from separate linear probability models. The sample is restricted to Yugoslavian refugee children born 1977–1990 who had had a child by age 30. A partner is defined as the other parent of a person’s first child. Yugoslavian background (of partner) is defined as having been born in former Yugoslavian or having at least one former Yugoslavia-born parent. Parental education variables are dummies taking the value 1 if the highest education among parents is that denoted by the variable name, and 0 otherwise. Reference category is at most compulsory education. Age at migration reference category is 0–6 at migration. Both regressions control for year of birth. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.