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Abstract

A longstanding body of research examined causes and consequences of disparities in unemployment dynamics between migrants and non-migrants. This study takes an intergenerational perspective by exploring whether parental unemployment contributes to educational inequalities between native-born and second-generation immigrant students. While numerous studies have emphasized the role of family resources, such as parental education, income, and socioeconomic status, in shaping children's educational outcomes, relatively few have specifically focused specifically on parental unemployment. Virtually no studies have investigated its role in shaping educational gaps between natives and second-generation immigrants. Using comprehensive Swedish population register data, we link educational outcomes (grades and track placement) of all students enrolled in grade 9 (approximately age 16) between 2010 and 2016 to detailed parental characteristics, including education, origin and employment trajectories. We distinguish ten origin groups based on both theoretical relevance and demographic significance within the Swedish context. Our findings show that parental unemployment is associated with lower academic achievement and educational attainment. Although second-generation immigrants are more exposed to parental unemployment, they do not appear to suffer more severe educational consequences as a result. This challenges the 'double disadvantage hypothesis', which posits that children of immigrants experience both higher exposure to risk factors and greater vulnerability to their effects.

Keywords: parental unemployment; children education; migrants

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Introduction

A longstanding body of research has explored the causes and consequences of migration-related disparities in unemployment dynamics. Periods of unemployment can trigger cycles of weak labor market attachment, increased poverty risks, diminished well-being, and deteriorating health (Brand 2015). These challenges may be particularly pronounced for migrants, who often face barriers such as discrimination and limited access to social and familial networks in the host country (Vernby & Dancygier 2019; Behtoui 2008).

But what are the implications of unemployment for the integration of migrants' children? In this study, we shift the focus to the intergenerational consequences of unemployment by examining its role for the educational outcomes of second-generation immigrants in Sweden. Educational attainment and achievement are well-established determinants of long-term labor market success and broader social integration. Understanding the factors that shape educational inequalities between natives and second-generation immigrants is therefore essential for informing integration policy.

Extensive research has demonstrated the importance of family resources, such as parental education, income, and socioeconomic status, on children's educational outcomes. Within this broader framework, both the family investment model (FIM) and the family stress model (FSM) suggest that parental unemployment can harm children's development through reduced material resources and increased psychological strain caused by stress and deteriorating family relationships (Bradley & Corwyn 2002; Conger & Elder, 1994; Lareau, 2006). Indeed, the few studies that have examined the specific role of parental unemployment generally report negative effects on educational outcomes in adolescence (Lehti et al. 2019; Lindemann & Gangl, 2019, 2020; Jensen, 2023).

To our knowledge, no studies have directly examined how parental unemployment shapes educational success differently for natives and second-generation immigrants. Immigrants, particularly those from non-western backgrounds, are more exposed to unemployment than natives with similar education and socio-economic status, due to factors such as discrimination, limited host-country knowledge, and weaker social networks (Behtoui 2008; Damm 2014; Vernby & Dancygier 2019). On the other hand, an important question is whether parental unemployment has more detrimental effects on the educational outcomes of second-generation immigrants compared to their socioeconomically comparable non-migrant peers. If so, this would suggest a double disadvantage scenario: children of immigrants would not only be more

exposed to parental unemployment but also suffer more negative consequences from it. However, it is also possible that they exhibit greater resilience, experiencing less severe effects of parental unemployment, thereby partially offsetting the disadvantage associated with higher exposure. To date, little empirical evidence exists as to whether the 'double disadvantage hypothesis' holds (see Kalil & Wightman 2011 for an exception applied to the U.S context).

In the next section, we review the evidence on the intergenerational effects of unemployment. We then discuss how these effects may vary across migrant and non-migrant families, focusing on the mechanisms that could produce a double disadvantage or, to the contrary, mitigate the higher risk of exposure. Finally, we empirically test the 'double disadvantage hypothesis' using rich Swedish population register data, which allow us to link parental unemployment histories and background characteristics to school performance and track placement among both natives and second-generation immigrants.

The intergenerational toll of parental unemployment

Extensive research has documented both short- and long-term negative consequences of unemployment on various individual outcomes (Brand 2015), including psychological wellbeing (Brand, Levy, and Gallo 2008), health behaviors (Janlert, Winefield, and Hammarström 2015), and future employment prospects (Aradhya, Grotti, and Härkönen 2023; Cockx and Picchio 2013; Gangl 2006). Beyond these individual impacts, unemployment also affects family dynamics, increasing the risk of poverty (Fouarge and Layte 2005) and parental separation or divorce (Di Nallo et al. 2022), while negatively influencing the health and wellbeing of partners (Baranowska-Rataj and Strandh 2021).

While these individual and family consequences are well-documented, the potential intergenerational effects of unemployment have received comparatively less attention. Two theoretical frameworks, the family investment model (FIM) and the family stress (FSM) model, help explain why parental unemployment might negatively impact children's educational development. The FIM emphasizes the role of material, cultural, and social resources in shaping children's outcomes (Conger and Donnellan 2007). Economic resources and social networks, for instance, enable parents to enroll children in better schools, create enriched home learning environments, and afford private tutoring if necessary. An episode of unemployment can significantly reduce family's material resources and weaken crucial social connections, both of which are beneficial for children's academic success. In contrast, the FSM highlights the psychological and emotional consequences of adverse family events (Conger & Elder, 1994).

Economic hardship following a job loss can create distress within the family environment, potentially deteriorating parenting practices and complicating children's learning process (Bradley & Corwyn 2002; Conger & Elder).

Empirical evidence on the intergenerational effects of unemployment is limited but growing. Some studies have documented negative impacts on early child development, although findings across different countries are not always consistent. For example, Mari and Keizer (2021) found that parental unemployment in Ireland increased behavioral problems and reduced verbal ability in infants. In contrast, other studies, including recent research from Sweden, found no effect on early developmental markers such as low birth weight or preterm birth once selection into unemployment was accounted for (Högberg, Baranowska-Rataj, and Voßemer (2024).

Evidence for school-age children is more consistent. Studies generally indicate that parental unemployment negatively affects educational achievement and attainment, particularly in terms of grade point average (GPA). For instance, parental unemployment has been associated with lower GPA at age 15 in other Nordic countries, such and Norway and Finland (Lehti, Erola, and Karhula 2019; Rege, Telle, and Votruba 2011). Interestingly, maternal unemployment often appears inconsequential, although findings vary by country (Rege et al. 2011). In Sweden, for example, maternal unemployment was found to affect children's GPA; while paternal unemployment did not (Mörk, Sjögren, and Svaleryd 2020). Besides school grades, parental unemployment was found to have both short- and long-term negative effects on language test scores at both age 9 and 15 in Denmark (Jensen, 2023).

Parental unemployment also influences educational transitions. Various studies employing different analytical strategies, such as siblings fixed-effects, firm closures, and statistical matching, agree on its negative impact on children's likelihood of continuing education. In Germany, parental unemployment during adolescence reduced the probability of transitioning to tertiary education (Lindeman and Gangl, 2019). Similar patterns were observed in a comparative study on 20 European countries and the U.S., where parental unemployment during the final year of secondary school reduced post-secondary enrolment rates (Lindemann and Gangl 2020). In Finland and Canada, parental unemployment similarly hindered transitions to both secondary and tertiary education (Coelli 2011; Lehti et al. 2019). Finally, while no effect was found on exam results, Jensen and colleagues (2024) did find that parental unemployment decreased the probability to enroll to the academic track in Denmark.

A double disadvantage for migrants' children?

Existing theory and evidence suggest that an episode of parental unemployment has a negative impact on children's educational outcomes. Moreover, the longer the exposure to unemployment, the greater the overall negative effect, as the effects of each period of unemployment accumulates over time (Lehti et al. 2019). Therefore, the overall importance of unemployment for children's development depends on both the length of exposure to unemployment and the severity of the intergenerational consequences of each period spent in unemployment. To formalize this relationship, we conceptualize the importance of an adverse childhood event – in this case, parental unemployment (U) – on later school outcomes (y) as the product of the length of exposure (E) and the severity of its negative consequences (C):

$$y = f(U)$$

$$U = E \cdot C \quad (1)$$

Applying Equation 1 to the comparison between the children of migrants (M) and the children of non-migrants (N), the group-level differences in the importance of parental unemployment for later school outcomes ($U_M \neq U_N$) is function of both differential exposure ($E_M \neq E_N$) and differential consequences of the event ($C_M \neq C_N$).

Because extensive literature has consistently documented a labor market disadvantage for the migrants, we expect exposure to parental unemployment for migrant children to exceed exposure for non-migrant children ($E_M > E_N$). With respect to parental unemployment consequences, we instead recognize the possibility to observe three possible situations: $C_M = C_N$, $C_M > C_N$, and $C_M < C_N$.

Considering differential exposure and consequences jointly, give rise to three possible scenarios. First, if $E_M > E_N$ but $C_M = C_N$, then differences in the importance of parental unemployment for migrants' and non-migrant' children will depend solely on differential exposure. This scenario is referred to as *disadvantage through exposure*. Second, if $E_M > E_N$ and $C_M > C_N$, migrants' children also experience stronger negative consequences from an episode of parental unemployment. This is a scenario we call *double disadvantage*, where both higher exposure ($E_M > E_N$) and stronger negative consequences of exposure ($C_M > C_N$) contribute to migrant's educational penalties. Third, if $E_M > E_N$ but $C_M < C_N$, then the negative consequences of one episode of parental unemployment are weaker for the children of migrants relative to those of non-migrants. In this scenario, migrants' disadvantage through exposure can be partly or even completely offset by differential consequences (i.e., *disadvantage offset*).

We will empirically test which scenario applies when comparing non-migrants' children to nine different groups of second-generation immigrants from a comprehensive list of ancestries in Sweden.

Differential exposure to unemployment

Immigrants face substantial labor market challenges in the host societies. Although the degree of inequality varies across countries, immigrants generally experience higher unemployment rates than native-born populations (Drinkwater 2017). These disparities arise from both structural and individual-level factors that influence immigrants' access to the labour market and subsequent employment outcomes (Batalova & Fix, 2016). Notably, these factors increase immigrants' exposure to unemployment even when they possess strong educational qualification, relevant skills, or a history of good social standing, creating a disadvantage relative to equally qualified or socially ranked natives (Drohout & Nee, 2019).

One of the major factors contributing to these disparities is the limited transferability of human capital, particularly foreign credentials and work experience. Immigrants often struggle to have their qualifications recognized, significantly limiting their employment opportunities (Batalova & Fix, 2016). Additionally, a lack of host country-specific human capital, such as language proficiency or professional networks, further exacerbate the underutilization of their skills, leading to higher risks of unemployment and overqualification (Chiswick & Miller, 2009; Kim, 2024).

Discrimination also significantly impacts immigrant unemployment. Despite anti-discrimination laws, experimental evidence consistently shows employers' negative bias towards migrants, especially from non-Western countries (Midtbøen, 2016). This bias ranges from overt discrimination to more subtle forms, such as statistical discrimination, where foreign experience is undervalued, or assumptions about the language proficiency based on applicant's name or country of origin. Such challenges may be even more pronounced for migrants from culturally distant countries or those with education systems differing radically from that of the host country, such as the Middle-East or Africa in the case of Sweden (Quillian & Lee, 2023).

Moreover, unemployment often begets future unemployment (Arulampalam, Booth, & Taylor 2000). This dynamic effect can lead to persistent or recurrent joblessness, as periods of unemployment may erode skills or discourage job-seeking, reducing employability over time (Blanchard & Wolfers, 2000). Employers may also view periods of unemployment as indicators of lower productivity or skill levels. For immigrants, this negative signal is further intensified

by a longer average durations of unemployment compared to native-born counterparts, making re-entry into employment even more challenging.

Given that migrant parents are more likely to experience unemployment, and for longer durations, their children face longer exposure to parental unemployment compared to their peers with non-migrant backgrounds from similar socioeconomic backgrounds. This difference translates to a differential exposure ($E_M > E_N$), as conceptualized above.

Differential consequence of unemployment

Psychological distress and reduced material and social resources are key mechanisms linking parental unemployment to children's educational outcomes (Conger & Donnellan 2007; Conger & Elder, 1994). However, little empirical research has considered how consequences may vary between migrant and non-migrant families. Nonetheless, the intergenerational impact of unemployment may differ between the children of migrants and non-migrants even when comparing families of similar social standing due to processes that buffer or exacerbate the consequences of job loss.

The stigma associated with unemployment vary across cultures. Stigma and family networks are crucial in buffering the negative consequences of unemployment, not only for the unemployed individual but also for their family members, including children (Bankston, 2004; Zhou & Bankston III, 1998). Some immigrant communities may provide stronger social support networks that mitigate the psychological and financial impacts of job loss (e.g., Ryan et al. 2008). For instance, among groups with high unemployment rates, such as migrants from Turkey and the Middle-East in Sweden, communities may be more adapted to supporting unemployed members, potentially lowering stigmatization. These networks can offer both emotional and practical support, buffering children from the adverse effects of parental unemployment (Portes & MacLeod, 1996). In fact, research indicates that cohesion and support can protect children's academic performance and emotional well-being during periods of parental unemployment (Brand, 2015). This resilience is especially significant for immigrant families from non-Western countries, where children face the dual challenge of adapting to a new culture while coping with financial struggles following a job loss. These arguments suggest that migrants' children, and especially those from groups traditionally more affected by unemployment, may be partly protected from its negative consequences compared to native-born peers due to lower stigma and stronger social support systems.

However, these protective mechanisms might be counterbalanced by opposite forces that make migrants' children more vulnerable to parental unemployment, particularly when cultural distance with the host society is salient. Migrants may be less aware of available public support systems due to unfamiliarity with the host country's welfare infrastructure or discrimination by welfare authorities obstructing benefits to particular groups (Adman & Jannson, 2017; Bursell 2018; Social Insurance Inspectorate, 2016). This is particularly relevant for migrants from non-Western countries, such as those from the Middle-East and Africa residing in Sweden. Additionally, immigrants, particularly those originating from weaker welfare states, may experience heightened psychological distress during periods of unemployment, as they are more accustomed to harsher financial consequences than those typically buffered by a comprehensive welfare state like Sweden's. Furthermore, while some migrant groups may benefit from extended social networks, the quality and effectiveness of these networks may still favour non-migrants or migrants from Western countries.

In summary, compensatory mechanisms related to stigma and community support can mitigate the negative effects of parental unemployment for migrants' children, particularly those from non-western backgrounds, (pushing towards $C_M < C_N$). Conversely, exacerbating mechanisms, such as limited access to public support and greater psychological distress due to cultural distance, could reinforce the negative effects for migrants (pushing towards $C_M > C_N$), especially among non-western groups. While the net outcome of these contrasting mechanisms requires empirical investigation, we anticipate that exacerbating mechanisms may dominate, leading to greater negative impacts of parental unemployment on the children of migrants compared to those of non-migrants, especially those originating from non-western origin.

Summary of expectations

Does parental unemployment represent a double disadvantage for migrants' children compared to non-migrants' children? Our discussion indicates that immigrants' children, particularly those from non-Western countries, face higher exposure to parental unemployment ($E_M > E_N$). However, the extent to which migrants' and non-migrants' children experience differential negative consequences remains less clear-cut. While we anticipate that parental unemployment negatively impacts educational outcomes for both migrants' and non-migrants' children ($C_M > 0$ and $C_N > 0$), we propose that exacerbating mechanisms may outweigh compensatory factors. This would result in more severe negative consequences for children of migrants, especially those from non-Western groups ($C_M > C_N$). Therefore, we expect to observe a *double*

disadvantage scenario for children of migrants, particularly those from non-Western origins. Parental unemployment may be more consequential for the educational outcomes of migrants' children due to both longer exposure and potentially more pronounced negative consequences compared to the children of non-migrants.

The Swedish context

Foreign-born populations have grown significantly across Western countries, and Sweden is a prime example of this trend. Today, Sweden's foreign-born population exceeds the OECD average and surpassed that of countries such as the United States, Germany, and the United Kingdom (Åslund et al., 2014; Bengtsson et al., 2005; OECD, 2017).

Immigrants and their descendants now make up for nearly one third of the Sweden's population, forming a large and diverse group. While the 1960s and 1970s were characterized by by labor migration from Southern Europe, Poland and particularly Finland, more recent waves have been driven largely by asylum and family reunification from non-Western countries. These later waves include Chileans in the 1970s and 1980s, refugees from former Yugoslavians during the 1992-1995 conflict, and Iranians in the 1980s and 1990s. Most recently, immigration increasingly came from Syria, as well as from other parts of the Middle East (e.g., Iraq and Lebanon) and East Africa (e.g., Ethiopia and Eritrea). Today, the five largest immigrant groups in Sweden originate from Syria, Finland, Iraq, Poland and Iran (Aradhya and Mussino 2020; Bengtsson, Lundh, and Scott 2005).

Migrants in the labor market

Over the past several decades, Sweden has experienced significant disparities in unemployment rates between native-born individuals and migrants. Migrants, particularly those from non-European countries, have consistently experienced higher unemployment rates than their native-born counterparts. In 2013, for example, the unemployment rate among foreign-born individuals in Sweden was approximately 16 percent, compared to just 6 percent among the native-born. Between 2007 and 2012, unemployment among the foreign-born population rose by nearly 4 percentage points, while it increased by less than 1 percentage point among the natives. During this period, Sweden's unemployment rates among the foreign-born were among the highest in the OECD (OECD and European Union 2015).

Importantly, significant variation exists within the foreign-born population, with unemployment rates differing by country of origin. Immigrants from non-European and less developed countries typically face the highest levels of unemployment, in contrast to migrants

from Europe or other developed countries (Arai and Vilhelmsson 2004; Manhica, Östh, and Rostila 2015). A significant share of Sweden's migrants has arrived for humanitarian reasons. Between 2003 and 2012, nearly 20% of permanent migrant inflows were humanitarian migrants—the largest share among OECD countries. This group faces greater difficulties integrating into the labor market, often experiencing higher unemployment and lower employment rates than both other migrants natives (Lundborg 2013).

Several structural factors contribute to these disparities. As in many other countries, the lack of transferability of human capital acquired abroad is a key obstacle, especially for immigrants from non-Western countries. While formal recognition of foreign qualifications is positively associated with employment in Sweden, the effect is stronger for migrants from European countries and for family migrants (Tibajev and Hellgren 2019). This suggests that educational credentials obtained in non-European countries constitute a stronger barrier to labor market integration.

In addition to structural barriers, employer discrimination plays a central role in perpetuating to employment disparities. Multiple field experiments (correspondence tests) in Sweden have documented unequal call-back rates for fictitious job applicants with foreign-sounding names (Quillian et al. 2019). Discriminatory behaviour follows perceived cultural and social distance between natives and minority groups (Hagendoorn 1995; Hraba, Hagendoorn, and Hagendoorn 1989; Strabac and Listhaug 2008), often inferred from visible traits such as skin color (Fetzer 2013). Sweden ranks among the countries with the highest levels of employer discrimination (Quillian et al. 2019), a pattern likely linked to the demographic composition of its immigrant-background population. Field experiments from Sweden show a strong negative correlation between call-back rates and ethno-cultural distance (Vernby and Dancygier 2019), with applicants bearing Arabic, North African, or Middle Eastern names facing the lowest call-back rates (Arai et al., 2016; Bursell, 2012, 2014; Carlsson & Rooth, 2007). Importantly, these discriminatory patterns persist across occupational sectors regardless of the qualification level required in the job listing or whether the applicant possess the required qualification and labor market experience (Bursell, Bygren, and Gähler 2021).

The educational outcomes of second-generation migrants

The Swedish educational system is designed to promote universal access, offering pathways for both academic and vocational tracks. It provides free schooling along with support mechanisms such as subsidized meals and transportation, all aimed at fostering equal educational opportunities. The system comprises 10 years of compulsory education, spanning from age 7

to 16 years, followed by non-mandatory upper secondary education that prepares students either for direct entry into the labor market or higher education. At the upper secondary level, students choose academic or vocational tracks, both of which offer routes to further education, including university. Despite being optional, nearly 90 percent of students continue beyond compulsory education.[1]

While the Swedish system ensures equitable access to education, outcomes of the children of immigrants remain mixed. On the one hand, research consistently shown that students from immigrant backgrounds, particularly those from non-European countries, tend to underperform academically compared to native-born peers (Aradhya, Scott, and Smith 2019; Jonsson and Rudolphi 2011). On the other hand, the choice-driven structure of the system appears to benefit children of certain immigrant groups, enabling them to leverage high educational aspirations, even when their performance lags behind native-born students (Dollmann et al. 2023; Jonsson and Rudolphi 2011). For instance, students from Middle Eastern or African backgrounds often avoid vocational tracks in favor of academic pathways, indicating a strong orientation towards upward mobility (Jackson, Jonsson, and Rudolphi 2012). This pattern is particularly pronounced among certain groups, such as Iranians, who not only perform relatively well but also transition to higher education at rates that often surpass those of native-born students with similar socioeconomic background.

Data and methods

Population data

We draw on Swedish population register data from 1991 to 2016 to link adolescent's educational outcomes with their parents' employment trajectories. Our data source is the come Migrant Trajectories dataset, which integrates socioeconomic and demographic information from the Longitudinal Integrated Database for Health Insurance and Labour Market Studies (LISA) with educational data from the educational registers, including course-specific grades from both lower and upper secondary education.

Our target population comprises all students enrolled in grade 9 (approximately age 16) in Sweden between 2010 and 2016. For these cohorts, we examined two complementary indicators of educational success: Grade Point Average (GPA) in grade 9, and completion of the academic track in upper secondary education by grade 12 (approximately age 19). Due to data availability up to 2016, the completion of the academic track can only be observed for students who were

[1] https://sweden.se/life/society/the-swedish-school-system

in grade 9 between 2010 and 2013, allowing us to follow them through grade 12 in 2013-2016. We link information on students with data on their parents' characteristics and reconstruct parental employment trajectories from child's birth through grade 9 (see Figure 1). Specifically, we focused on the cumulative number of years the parents were unemployed during the first 16 years of the child's life.

Since our analyses focus on second-generation migrants, we exclude all children born outside Sweden. The final analytical sample consists of 628,413 children for the GPA analysis in grade 9, of whom 379,014 are also observed at grade 12 for the analyses of the academic track completion.

Measures

Students' GPA is measured at the end of compulsory schooling in grade 9 and is measured based on teacher-assigned grades across 16 subjects. The GPA technically reflects a grade sum ranging from 0 to 320. This outcome is particularly relevant as it plays a key role for future educational choices and career. To qualify for upper secondary education, students must obtain passing grades in English, Swedish, and Mathematics, as well as in additional 5 to 9 subjects, depending on the program type. Vocational tracks require the lowest subject requirements, while academic tracks in general demand higher GPAs. Among the academic tracks, competitiveness varies, with programs such as natural science being the most competitive. When the number of applicants exceed available places, GPA serves as a selection criterion. For our analysis, we transformed students' GPA into cohort-specific percentiles, ranging from 0 to 100, to reflect students' relative academic standing within their cohort.

Our second outcome variable indicates whether students have *completed an academic track* (Gymnasium) in upper secondary education (grade 12), as opposed to having completed a vocational track or not having completed upper secondary education at all.

Students' *migrant background* is determined based on the parental country of birth. We define students as having a migrant background if at least one parent was born abroad. In addition to natives, we distinguish 10 migrant groups based on their theoretical relevance and prevalence in the Swedish population. These includes migrants from Finland, other Nordic countries, other Western countries (both European and non-European), Eastern Europe, Yugoslavia and Bosnia, Southern Europe, Middle East, Iran, Turkey, and a residual category for all other non-European countries.

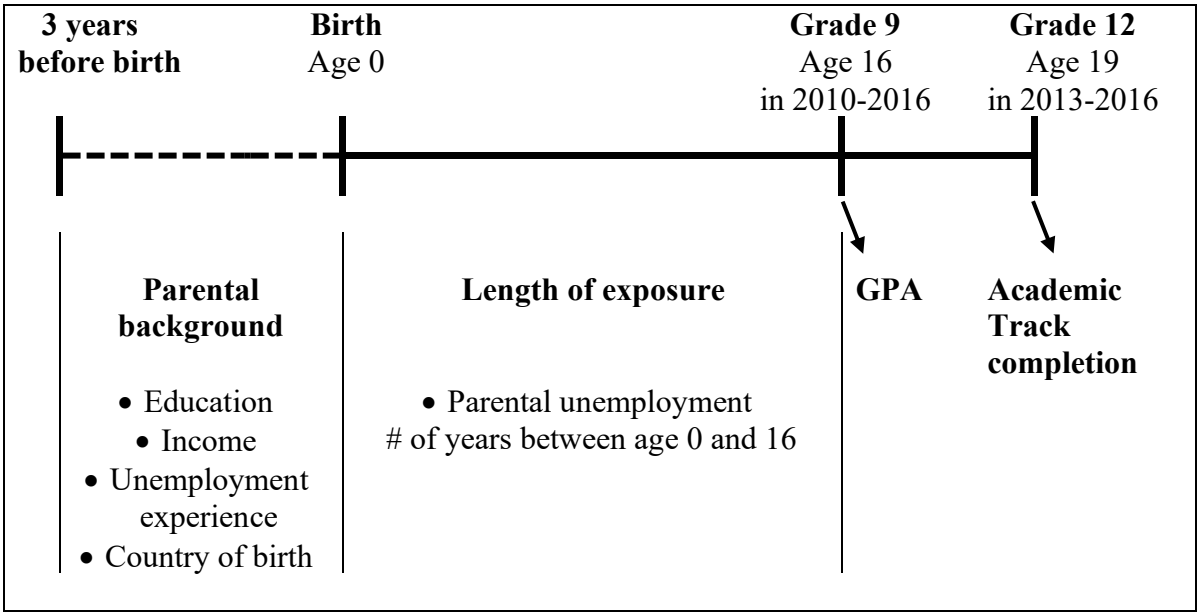
Length of exposure to parental unemployment is measured as the cumulative number of years during which the father was registered as unemployed at the public employment office for 90 days or more in a given year, from the child's birth through grade 9. This variable ranges from 0 (father never unemployed) and 17 years (father continuously unemployed) (see Figure 1). For some analyses, we use a dichotomous indicator distinguishing between students exposed to at least one year of paternal unemployment versus those never exposed. The distribution of this measure is reported in Figure 2 (left panel). On average, students in our sample experienced 1.1 years of paternal unemployment, and 33.7% experienced at least one year of paternal unemployment over the observed period. We also compute the same measure for the mother and the combined measure across parents as alternative measures of parental unemployment.

We also include key parental characteristics as covariates: parental education, family income at childbirth, and parental unemployment prior to childbirth. *Parental education* reflects the highest educational level attained by either parent, categorized in five groups: both primary, at least one secondary, both secondary, at least one tertiary, and both tertiary. *Family income* is measured as disposable income in the year of childbirth, grouped into quintiles. *Past unemployment* captures the number years spent in unemployment by the father (mother) in the three years preceding the child's birth.

These parental characteristics are, as expected, closely associated with both the experience of unemployment and students' educational outcomes. For example, as shown in Appendix Table A1, students whose parents both have only primary education experienced, on average, 2.71 years of parental unemployment, roughly six times more than those with two tertiary-educated parents (0.46 years). A similar gradient is visible across income quintiles and pre-birth paternal unemployment. These findings align with existing literature emphasizing the accumulation of disadvantages across families, including the idea that unemployment begets unemployment. Comparable patterns are observed in the grade-12 cohorts (see Appendix Table A2).

Parental characteristics are also associated with educational outcomes. We observe gradients in both GPA percentiles and the likelihood of completing an academic track by parental education, family income, and pre-birth paternal unemployment. The associations with parental education are particularly striking: students with tertiary-educated parents score, on average, more than 40 percentiles higher on GPA (from 29.6 to 71.4), and are 54 percentage points more likely to complete an academic track (from 31.5% to 85.3%).

Figure 1. Timing of measurements



Methods

The analyses presented in this paper rely on Ordinary Least Squared (OLS) regression models, both for GPA and academic track completions. For the latter, we estimate a linear probability model. In the main analyses, parental unemployment U_i refers to father's unemployment and is operationalized as a continuous variable indicating the number of years the father was unemployed between the child's birth and grade 9 (ranging from 0 and 17 years).

Our general model specification is as follows:

$$y_i = \alpha + \beta_1 U_i + \beta_2 X_i + \beta_3 X_i * U_i + \beta Z_i + e \qquad (1)$$

where y_i denotes the outcome of interest, either GPA (at grade 9) or academic track completion (at grade 12); U_i represents paternal unemployment exposure; X_i captures the child' migrant origin group; and Z_i includes a set of confounders: parental education, family income at birth, pre-birth paternal unemployment, and the year outcome measurement. Importantly, our selection of covariates is deliberately limited to characteristics measured prior to the child's birth, as we aim to avoid conditioning on potential mediators that occur between birth and outcome measurement. We also include interaction terms between migrant background (X_i) and paternal unemployment (U_i) to assess heterogeneous effects across groups.

Our methodological choices are guided by concerns regarding interpretability and generalizability of findings in existing research. Previous studies have frequently relied on

sibling fixed effects designs to assess the impact of parental unemployment on educational outcomes. While such models control for shared unobserved family-level confounders, they have limitations. Siblings models rely on within-family variation (between siblings) in the timing of exposure, comparing siblings who experienced parental unemployment at different ages, or before/after a critical educational transition. In the former case, estimates may be biased due to shared mediating processes, especially when both siblings are young at the time of exposure and subsequently share similar environments until grade 9 (the same is not the case among siblings that experience parental unemployment at later ages, where sibling fixed effects may account for more confounding than mediating factors). In the latter case, effects may be overstated as they occur directly before a critical period. Moreover, conditioning on post-treatment mediators may introduce additional bias from unobserved mediator-outcome confounding.

We acknowledge, however, that all methodological approaches involve trade-offs. Fixed effects models offer advantages in addressing unobserved heterogeneity, but may obscure the target estimand due to the implicit conditioning on post-treatment mediators and the reliance on specific within-family variation. In contrast, our approach provides a clearer interpretation of parental unemployment effects.

Results

Disadvantage due to differential exposure

Disadvantage through differential exposure refers to situations in which students with a migrant background experience greater exposure to parental unemployment than their native peers. In our study, length of exposure is defined as the average number of years of parental unemployment experienced between birth and grade 9. As shown in Table 1, students in our sample experience, on average, just over one year (1.1 years) of parental unemployment during this period. Marked differences emerge across origin group. At one end of the spectrum, children of Swedish face the lowest exposure, less than one year (0.8 years). At the other extreme, students with Middle-Eastern origin experience over four times this level, averaging 3.5 years. Students whose parents come from Yugoslavia and Bosnia, Iran, Turkey, and other countries also face higher exposure, about three times that of Swedish-origin students (2.5 years). The column $E_M - E_N$, in Table 1 summarizes the difference in length of exposure between each migrant group and the Swedish-origin group. Across all migrant groups, $E_M >$

E_N, confirming our expectations of systematic disadvantage in paternal unemployment exposure.

Table 1. Average length of exposure (in years) to paternal unemployment from birth to grade 9, by origin group. $E_M - E_N$ denotes differential exposure between each migrant group (E_M) the Swedish-origin population (E_N).

	Length of exposure (E)	$E_M - E_N$
Native	0.8	-
Finland	1.3	0.5
Other Nordic	1.1	0.3
Other Western	1.0	0.2
East-Eu	1.7	0.9
Yugoslavia and Bosnia	2.5	1.7
South-Eu	1.4	0.6
Middle-East	3.5	2.7
Iran	2.5	1.7
Turkey	2.6	1.8
Other	2.3	1.5
Overall	1.1	

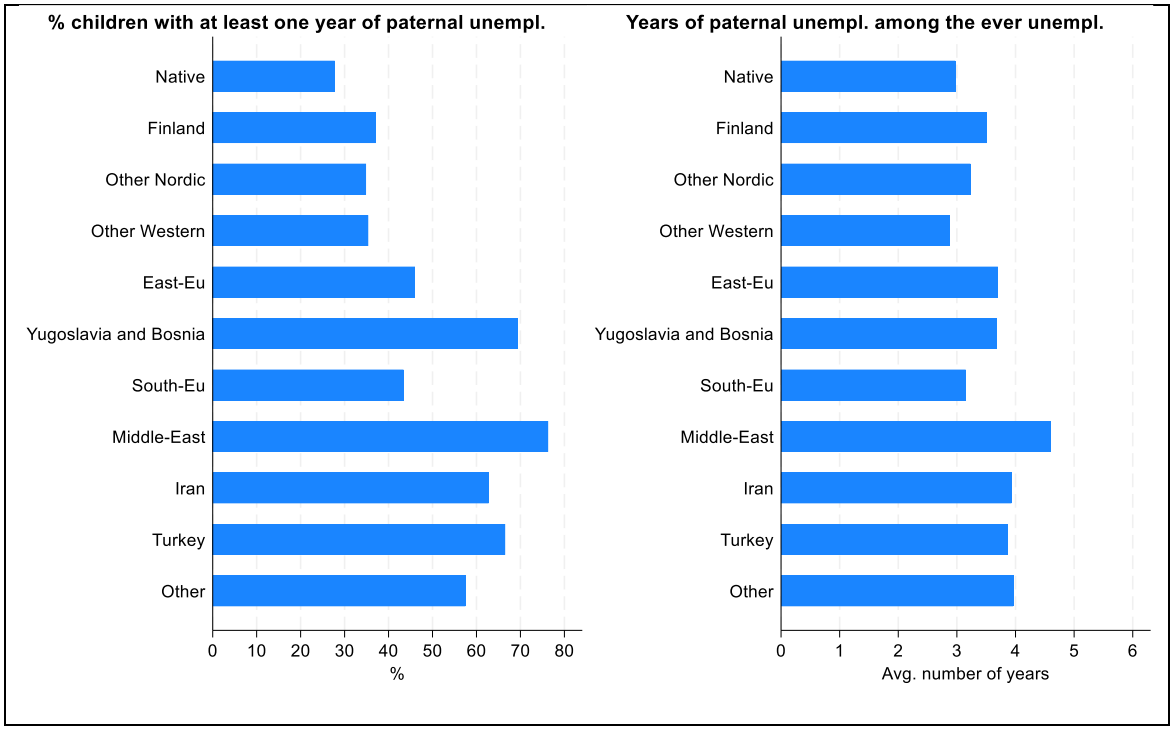
Figure 2 decomposes the length of exposure into two components: the probability of experiencing at least one year of paternal unemployment (left panel), and the average duration of paternal unemployment among students with any exposure (right panel). Overall, one in three students (33.8 percent) experience at least one year of paternal unemployment between birth and grade 9. This share is smallest among Swedish-origin students (27.7 percent) and largest among those of Middle-Eastern origin (76 percent). High rates share also observed among students of Yugoslavian/Bosnian, Turkish, Iranian and other origins, ranging from 69 to 57 percent.

Conditional on experiencing any paternal unemployment, Sweden-born students average 3.3 of exposure. Variation across groups is smaller here: Swedish-origin children and other Western-

origin students experience the fewest years (3 and 2.9, respectively), while Middle-Eastern origin students experience the most (4.6 years).

Patterns are consistent when examining grade-12 cohorts (Appendix Table A2), though average exposure levels are slightly higher.

Figure 2. Length of exposure to paternal unemployment.



Note: Statistics refer to the grade-9 cohort. Statistics for the grade-12 cohort are reported in Appendix Table A2.

Taken together, these findings reveal a clear disadvantage in exposure to paternal unemployment for second-generation students relative to their native-born peers. The decomposition suggests that most of the group differences in total exposure are driven by the likelihood of experiencing any paternal unemployment rather than by differences in the duration of unemployment among the exposed.

In the next step, we examine whether this disadvantage is compounded by differential consequences of exposure, that is, whether migrant-origin students not only face greater exposure but also suffer larger negative effects of paternal unemployment on GPA and academic track completion ($C_M > C_N$), consistent with a *double disadvantage* scenario.

Disadvantage due to differential consequences

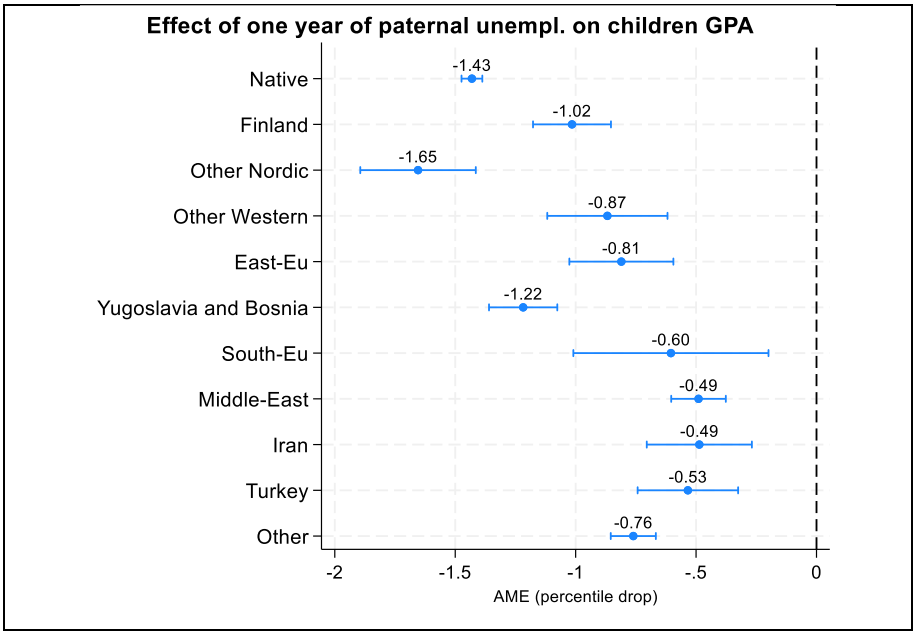
Turning to group differences in the consequences of paternal unemployment, Figure 3 presents the estimated effects of father's unemployment (measured in years) on GPA across origin groups. These results are based on OLS regressions controlling for parental education, family income, parental unemployment before birth, and year dummies.

For Swedish-origin students, each additional year of paternal unemployment is associated with a GPA decrease of 1.43 percentile ranks (C_N). This implies that moving from no paternal unemployment to the maximum possible exposure (17 years) would result in a drop of about 25 percentile ranks (1.43*17). In more realistic terms, this translates into a penalty of more than 4 percentile ranks (-1.43*2.97 ≈ −4.2) when comparing natives with no paternal unemployment to those with the average exposure among ever-affected natives (2.97 months). These penalties are not negligible, especially given that students are otherwise identical in terms of parental education and family income.

Nine out of ten second-generation groups, other Nordics being the exception, experience statistically significant smaller negative effects compared to Swedish-origin students. Among second-generation migrant students, the largest detrimental effect is observed among those with Yugoslavian and Bosnian origin (-1.22 percentile ranks), while the smallest is found among students of Middle-Eastern and Iranian origin (both -0.49). Although smaller than for natives, these penalties remain non-negligible. For example, among Middle Eastern-origin students (the least affected) this gradient translates to a drop of more than 2 percentile ranks (−0.49 × 4.61 ≈ −2.3) when comparing no exposure to the average exposure of those ever affected (4.61 years).

Overall, these results point to greater resilience among second-generation students relative to the majority group, contrasting the hypothesized *double disadvantage* scenario ($C_M > C_N$). A tentative pattern emerges in which groups that are socially and culturally closer to the host population (e.g., Finland, Other Nordic) display consequences more similar to those of Swedish-origin students, whereas groups more distant, including Middle-Eastern, Iranian and Turkish, experience markedly smaller negative effects.

Figure 3. Estimated coefficients for one year of father's unemployment on GPA in grade 9.

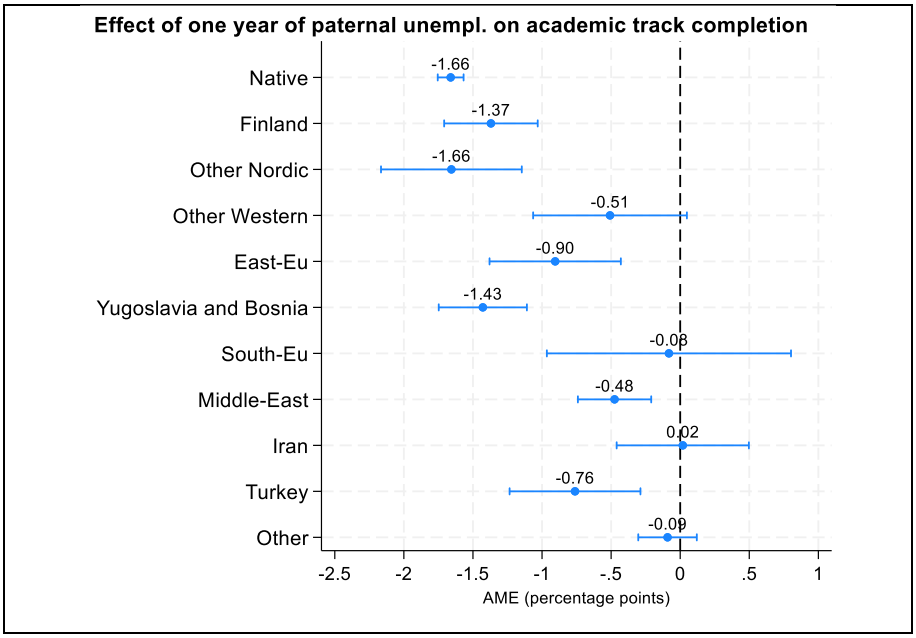


Note: All estimated effects for G2 groups are statistically different from majority children at the 0.01 level excluding Other Nordic (statistically significant at the 0.1 level).

Figure 4 reports the average marginal effects (AME) of one year of paternal unemployment on the probability of completing an academic track across origin groups. Swedish-origin students exhibit the largest reduction (-1.66 percentage points), with similar negative effects for students from neighboring countries: Finland (-1.37) and Other Nordic countries (-1.66). For natives, this translates to a maximum penalty of 28 percentage points when comparing those with no parental unemployment to those with the maximum possible exposure (-1.66×17), and a gap of almost 5 percentage points when comparing those with no exposure to the average exposure among the ever-exposed ($-1.66 \times 2.97 \approx -4.93$).

Most other second-generation groups display either smaller, e.g., Turkish (-0.76) and Middle-Eastern (-0.48), or null effects (Southern-European, Iranians, Other countries). The main exception is again the Yugoslavian/Bosnian group, with a significant negative effect of -1.43. While the patterns for academic track completion broadly mirror those for GPA, the "origin hierarchy" is less clearly defined. Nevertheless, countries that are culturally and socially closer to Sweden still tend to show larger negative effects also for this outcome.

Figure 4. Estimated coefficients for one year of father's unemployment on the completion of an academic track (grade 12).



Note: estimated effects for G2 groups are statistically different from majority children at 0.01 level excluding Finland, Other Nordic and Yugoslavia and Bosnia origin children.

To sum up, for both GPA and academic track completion, we find that although most second-generation groups face higher exposure to paternal unemployment, the negative effects are generally smaller than those experienced by Swedish-origin students, except those for those from neighboring Nordic countries and Yugoslavia/Bosnia. This pattern points to resilience rather than a *double disadvantage*. For many groups, rather than compound, the effects of parental unemployment tend to offset the disadvantage due to higher exposure (*disadvantage offset*). In contrast, students from neighboring countries (Finland, Other Nordic) and especially from Yugoslavia/Bosnia experience a *disadvantage through exposure*, as their somewhat higher unemployment exposure coincides with negative effects similar to those for Swedish-origin students.

Further robustness analyses

To test the robustness of our findings, we conduct several complementary analyses. First, we replicate the main models using maternal unemployment and the combined unemployment exposure (the sum) of both parents. As shown in Appendix Figure A1 and A2, the estimated effects closely mirror those found using paternal unemployment for most migrant groups. One important exception is found among students of Southern-European origin, for whom the

maternal unemployment appears to have stronger negative effects than paternal unemployment. These patterns hold across both outcome measures.

Second, we examine potential non-linear effects by categorizing parental unemployment into four intervals: 0 years, 1-3 years, 4-6 years, and 7 or more years. Results using this measure (Appendix Table A4), when interpreted in light of the median years of unemployment within each category, are consistent with those based on the continuous measure, across both GPA and academic track completion.

Third, to further validate our estimates, we employ propensity score matching (PSM) following recent literature on the educational consequences of parental unemployment. Here, we treat exposure dichotomously (0 = no unemployment; 1 = at least 1 year of unemployment) and match treated and untreated children using several matching algorithms (nearest-neighbor, exact matching, and coarsened matching). As shown in Appendix Table A5, OLS estimates using the continuous measure suggest that one additional year of paternal unemployment reduces GPA by 1.19 percentile ranks. The dichotomous version yields a reduction of 4.72 percentile ranks. Given that the average duration of paternal unemployment among treated students is 3.3 years, these results are highly consistent. The same patterns hold for academic track completion.

Discussion and Conclusions

This study examined how parental unemployment shapes two key educational outcomes—9th grade GPA and academic track completion in high school—across students of Swedish-born parents and ten second-generation migrant groups. These groups reflect the size and diversity of Sweden's immigrant population, varying in geographic, cultural, and socioeconomic backgrounds as well integration into Swedish society. To our knowledge, this is one of the first studies to compare the educational consequences of parental unemployment for second-generation migrants and the majority population, while also distinguishing detailed migrant-origin groups.

We hypothesized a *double disadvantage* scenario in which second-generation migrants suffer both from higher exposure to parental unemployment and stronger negative effects of that exposure. However, we found no evidence to support this expectation. Our results reveal a clear gap in exposure: children of immigrants, especially those from non-Western origins, are substantially more likely to experience parental unemployment, often for longer periods than their Swedish-origin peers. Yet, in most second-generation groups, greater exposure is coupled

with smaller negative effects–what we called *disadvantage offset*–where higher exposure to an adverse event is counterbalanced by resilience to its consequences. By contrast, students from neighboring Nordic countries and especially Yugoslavia/Bosnia appear to suffer from a *disadvantage through exposure*, in which somewhat higher exposure coincides with negative effects similar in magnitude to those experienced by Swedish-origin students.

Broader research on the educational outcomes of second-generation migrants may help us framing this finding. Explanations for why immigrants' children may suffer less from parental unemployment point to high parental educational aspirations, selective migration, strong community ties, and cultural norms emphasizing persistence and resilience (Pomianowicz 2024; Feliciano, 2020; Lee & Zhou, 2015). Such resources may buffer the negative educational consequences of adverse events like parental unemployment.

Immigrant parents may hold particularly strong educational aspirations, often viewing education as the most reliable route to upward mobility in the host society (Tjaden & Hunkler, 2017). These aspirations are frequently transmitted to their children, who may in turn develop a compensatory motivation to succeed, even when facing family-level economic disadvantage (Plenty and Jonsson, 2021; Rudolphi and Salikutluk, 2021; Salikutluk, 2016). Thus, parental unemployment may not erode educational ambition to the same extent as it does among children of non-migrants, whose expectations are more tied to conditions in the home environment.

For children of immigrants, particularly those raised in tight-knit communities, the negative effects of parental unemployment may be buffered by social networks, extended family ties, and culturally embedded norms that emphasize resilience and community support. Such "cultural capital" can serve as a protective force in the face of adversity, fostering academic success even under structural constraints (Tran, 2016). In Sweden, empirical research has shown that some immigrant-origin youth—particularly from Asia or Southeast Europe—possess equal or even greater access to social capital than natives. Importantly, the returns to this social capital in terms of school performance are similar across groups, helping to shield students from the educational consequences of structural disadvantage (Nygård & Behtoui 2020).

In contrast, for children of Swedish-born parents and their families, unemployment may carry greater psychological, social, and symbolic costs. Employment is not only an economic resource but also a marker of social standing, and its loss can erode parental involvement, increase household stress, and diminish children's academic performance. With fewer extended

family networks and informal support structures to draw on, the disruption may be more acutely felt.

Another explanation may be rooted in the idea of relative deprivation. Swedish-origin children and their families may perceive parental unemployment as a sharper break from expected stability and security, particularly when surrounded by peers and families where parents remain employed. This contrast can heighten feelings of loss or downward mobility, amplifying the impact on children's well-being and school outcomes. For some migrant families, by contrast, economic insecurity may be more normalized or anticipated, creating different reference points and thereby reducing the psychosocial impact of such events (Lindemann and Gangl, 2019), similar to patterns observed when unemployment occurs among other vulnerable groups, such as single mothers (Brand and Simon Thomas, 2014).

Our findings parallel research on other adverse events in the family, such as parental divorce, that has examined differences between migrant groups and majority Swedes in its educational consequences (e.g., Erman and Härkönen, 2017). Evidence from these studies show that children from migrant backgrounds, particularly those for whom parental divorce is more prevalent, tend to experience smaller negative academic impacts. Härkönen and Erman (2017) suggest that lower levels of social stigma associated with such events in certain migrant communities may help buffer their effects, especially when these experiences are more common and thus more socially normalized within the group. Our results point into the same direction. We encourage future research to investigate the specific mechanisms that protect against the negative consequences of adverse socioeconomic and family events in migrant families.

Our findings also raise important theoretical and policy considerations. First, they challenge the assumption that children of immigrants are a universally vulnerable group. While migrant-origin youth may be more exposed to disadvantage, our results suggest that their sensitivity to specific stressors—such as parental unemployment—may be lower, due to protective cultural, familial, and community-based resources. This does not imply that natives should receive more support than migrants. Rather, it underscores the importance of distinguishing between stressors than impose a genuine educational disadvantage for migrants and those that do not. Such distinctions are crucial for designing integration policies that target the sources of disadvantage of second-generations more effectively. Policies aimed at buffering children from the psychological or the economic consequences of parental unemployment may indeed help the affected families, but are unlikely to significantly reduce the educational gaps for second-generation migrant groups who lag behind natives.

Second, and related to the first point, our results indicate that a more balanced policy approach would focus on reducing exposure to unemployment in the first place. This would not only benefit native families and their children, who appear the most harmed by such conditions, but also migrant families, who are disproportionally exposed.

Third, our findings tentatively suggest that parental unemployment may contribute more strongly to educational inequalities *within* some groups than *between* them. Parental unemployment impacts more strongly children with Swedish-born parents than children of immigrants. Although group differences in the likelihood of experiencing parental unemployment are large, the consequences are often offset among migrant-origin students. This heightened sensitivity among majority-group children to economic shocks such as parental unemployment points to an underexplored source of stratification within the native-born population.

Fourth, we extend the previous research by documenting substantial heterogeneity in the educational consequences of parental unemployment within the population. Prior studies that have typically reported average effects that are similar in size to those we find, but they have overlooked the extent to which these effects vary across subgroups. Our migration-focused perspective reveals that these average negative effects are largely driven by the majority population, not minority groups. We encourage further research to examine such heterogeneities across other social cleavages, to better guide targeted policy interventions and advance theoretical debates on the consequences of adverse family events.

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Appendix

Table A1. Descriptive statistics for the grade 9 cohorts: Grade Point Average (GPA)

	%	GPA	Rank GPA	Length of exposure	Any unempl.	Unempl. years among the ever unempl.
Origin groups						
Native	78.49	217.71	50.69	0.82	27.76	2.97
Finland	2.72	204.47	45.68	1.30	37.15	3.51
Other Nordic	1.56	207.44	46.56	1.13	34.90	3.24
Other Western	1.81	227.29	56.83	1.02	35.38	2.88
East-Eu	1.26	217.70	52.05	1.70	45.88	3.70
Yugoslavia and Bosnia	2.68	206.93	45.98	2.55	68.65	3.71
South-Eu	0.51	214.33	50.62	1.37	43.44	3.15
Middle-East	3.08	201.55	43.16	3.52	76.34	4.61
Iran	1.06	222.52	53.72	2.47	62.79	3.94
Turkey	1.16	201.02	42.61	2.58	66.48	3.87
Other	5.67	210.66	47.56	2.28	57.40	3.97
Grade 9 cohort						
2010	16.65	209.26	50.03	1.35	38.13	3.53
2011	15.42	211.41	50.03	1.25	36.43	3.44
2012	14.23	213.29	50.01	1.16	34.98	3.33
2013	13.34	215.66	50.02	1.07	33.63	3.19
2014	13.45	217.98	50.03	0.98	31.19	3.15
2015	13.27	221.82	50.02	0.95	30.49	3.13
2016	13.64	225.08	50.02	0.91	29.32	3.09
Parental education						
Both primary	5.61	167.28	29.58	2.71	63.34	4.28
Primary/secondary	18.23	188.19	36.88	1.74	47.36	3.68
Both secondary	42.28	213.05	47.66	0.94	31.48	2.99
One tertiary	22.48	235.3	59.41	0.84	27.73	3.02
Both tertiary	11.40	257.45	71.35	0.46	17.03	2.72
Family income quintiles						
1	20.00	200.75	43.54	2.34	60.52	3.87
2	19.99	207.11	45.92	1.36	40.86	3.33
3	20.02	212.38	47.93	0.84	28.59	2.95
4	19.99	219.67	51.15	0.60	21.92	2.74
5	19.99	240.19	61.58	0.40	16.44	2.42
Paternal unemployment before birth						
0	73.70	222.40	52.88	0.58	21.88	2.65
1	12.68	203.61	44.47	1.93	56.28	3.43
2	8.22	195.68	40.96	2.76	70.67	3.90
3	5.40	188.92	37.86	3.89	85.16	4.57
Total		**216.02**	**50.02**	**1.11**	**33.67**	**3.29**

Table A2. Descriptive statistics for the grade 12 cohorts: academic track completion

	%	% completed academic track	Length of exposure	Any unempl.	Unempl. years among the ever unempl.
Origin groups					
Native	78.6	53.82	0.92	30.04	3.06
Finland	2.96	47.01	1.42	39.26	3.61
Other Nordic	1.60	49.76	1.25	36.81	3.39
Other Western	1.76	65.88	1.12	37.75	2.95
East-Eu	1.23	63.13	1.90	49.22	3.87
Yugoslavia and Bosnia	2.93	58.5	2.80	74.34	3.76
South-Eu	0.53	58.68	1.47	45.63	3.21
Middle-East	2.84	61.87	3.90	79.94	4.88
Iran	1.04	73.48	2.80	66.96	4.18
Turkey	1.12	60.57	2.83	69.84	4.05
Other	5.38	63.16	2.53	61.34	4.13
Grade 9 cohort					
2013	27.82	48.79	1.36	38.33	3.54
2014	25.77	56.12	1.26	36.64	3.44
2015	23.82	58.10	1.17	35.18	3.34
2016	22.59	58.34	1.08	33.74	3.19
Parental education					
Both primary	5.81	31.48	2.80	64.18	4.37
Primary/secondary	19.01	37.02	1.85	49.20	3.77
Both secondary	42.61	50.79	1.05	34.13	3.08
One tertiary	21.89	70.52	0.94	29.83	3.15
Both tertiary	10.68	85.27	0.52	18.27	2.86
Family income quintiles					
1	20.00	50.82	2.48	62.68	3.95
2	20.02	48.21	1.50	43.84	3.43
3	20.05	49.88	0.96	31.36	3.06
4	19.95	55.11	0.69	24.01	2.85
5	19.98	71.28	0.49	18.60	2.66
Paternal unemployment before birth					
0	71.07	58.69	0.61	22.76	2.69
1	13.85	49.40	2.05	58.92	3.48
2	9.25	43.90	2.92	72.85	4.00
3	5.83	41.90	4.03	86.23	4.68
Total		**55.05**	**1.22**	**36.10**	**3.39**

Table A3. Regression estimates, father's unemployment

	GPA	Academic track completion
Years of paternal unemployment	-1.431***	-0.0168***
	(0.0221)	(0.000477)
Origin (ref. natives)		
Finland	-2.391***	-0.0252***
	(0.230)	(0.00509)
Other Nordic	-2.544***	-0.0180**
	(0.301)	(0.00684)
Other Western	1.729***	0.0497***
	(0.281)	(0.00658)
East-Eu	1.126**	0.0828***
	(0.351)	(0.00826)
Yugoslavia and Bosnia	1.752***	0.111***
	(0.279)	(0.00635)
South-Eu	1.592**	0.0679***
	(0.544)	(0.0123)
Middle-East	-0.539	0.154***
	(0.286)	(0.00705)
Iran	4.253***	0.188***
	(0.426)	(0.0101)
Turkey	3.501***	0.222***
	(0.417)	(0.00999)
Other	2.048***	0.135***
	(0.183)	(0.00439)
Interaction origin × paternal unempl. (ref. natives)		
Finland × paternal unempl.	0.416***	0.00293
	(0.0845)	(0.00177)
Other Nordic × paternal unempl.	-0.224	0.0000705
	(0.124)	(0.00263)
Other Western × paternal unempl.	0.562***	0.0118***
	(0.129)	(0.00286)
East-Eu × paternal unempl.	0.621***	0.00751**
	(0.112)	(0.00245)
Yugoslavia and Bosnia × paternal unempl.	0.213**	0.00188
	(0.0752)	(0.00163)
South-Eu × paternal unempl.	0.826***	0.0157***
	(0.208)	(0.00450)
Middle-East × paternal unempl.	0.941***	0.0121***
	(0.0612)	(0.00141)
Iran × paternal unempl.	0.944***	0.0172***
	(0.113)	(0.00247)
Turkey × paternal unempl.	0.897***	0.00901***
	(0.108)	(0.00245)
Other × paternal unempl.	0.670***	0.0158***
	(0.0515)	(0.00116)
Grade 9 cohort (ref. 2010)		
2011	-0.126	
	(0.117)	
2012	-0.388**	
	(0.119)	
2013	-0.837***	
	(0.122)	
2014	-1.489***	0.0706***
	(0.121)	(0.00207)
2015	-2.066***	0.0865***
	(0.122)	(0.00211)
2016	-3.963***	0.0821***

	(0.122)	(0.00214)
Parental education (ref. both primary)		
Primary/Secondary	6.231***	0.0763***
	(0.162)	(0.00362)
Both secondary	15.56***	0.211***
	(0.154)	(0.00346)
One tertiary	25.95***	0.375***
	(0.162)	(0.00364)
Both tertiary	35.91***	0.497***
	(0.180)	(0.00408)
Family income quintiles (ref. 1st. quintile)		
2nd. quintile	-0.130	-0.0169***
	(0.109)	(0.00247)
3rd. quintile	-0.0575	-0.0185***
	(0.112)	(0.00254)
4th. quintile	1.371***	0.00890***
	(0.114)	(0.00258)
5th. quintile	6.774***	0.0972***
	(0.120)	(0.00266)
Parental unemployment before birth (ref. no unemployment)		
1 year	-2.413***	-0.0262***
	(0.105)	(0.00232)
2 years	-3.299***	-0.0480***
	(0.129)	(0.00281)
3 years	-3.970***	-0.0542***
	(0.160)	(0.00355)
Constant	33.89***	0.246***
	(0.183)	(0.00400)
Observations	628413	379014

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure A1. Estimated coefficients for one year of father's, mother's and the sum of father's and mother's unemployment on GPA.

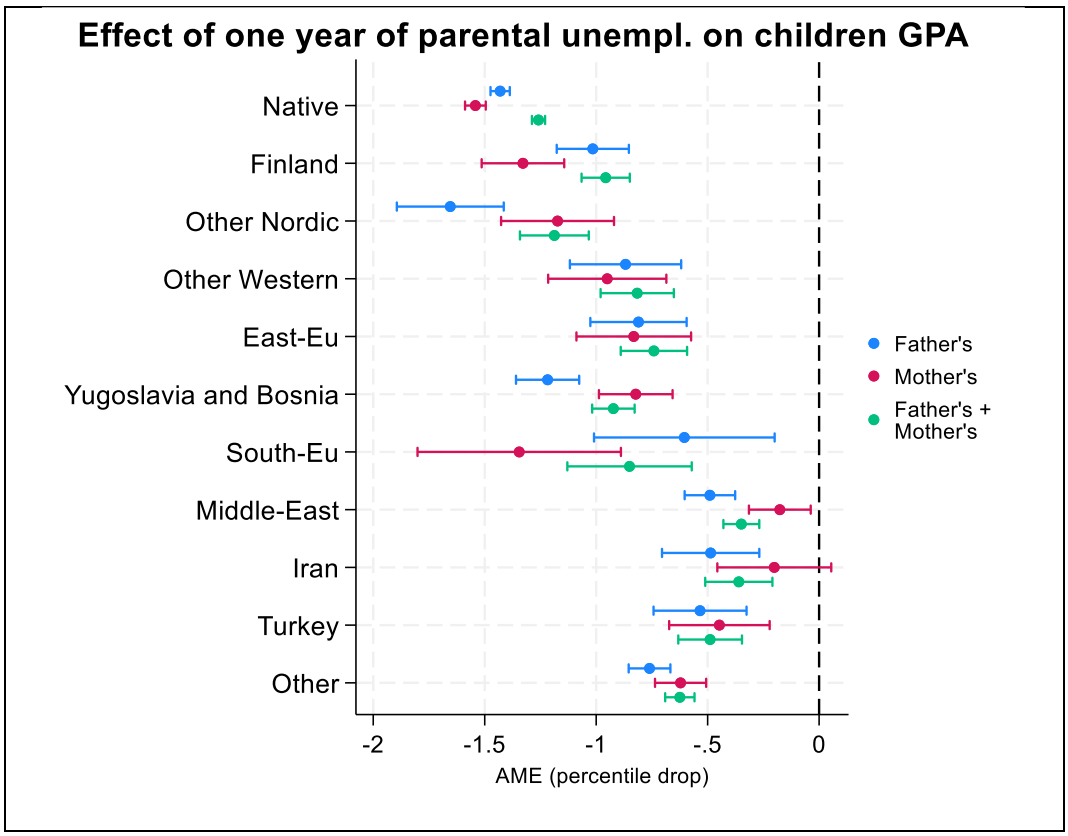

Figure A2. Estimated coefficients for one year of father's, mother's and the sum of father's and mother's unemployment on the probability to complete an academic track.

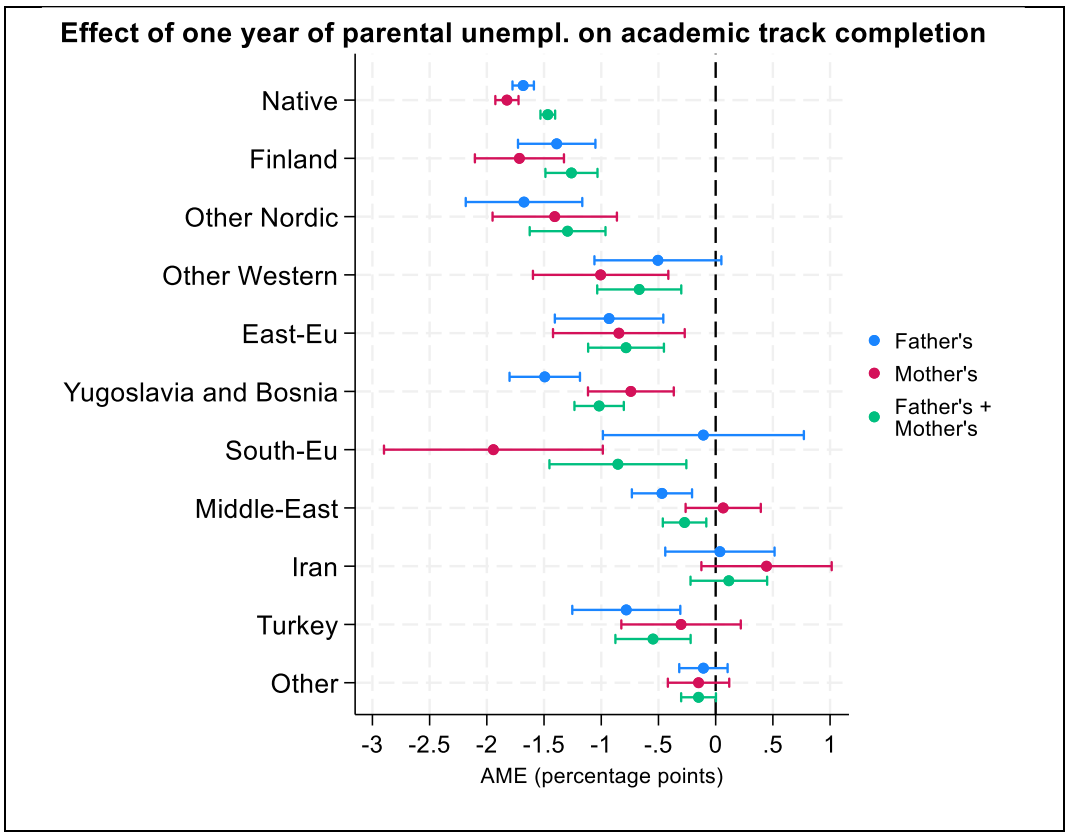

Table A4. OLS coefficient for father's unemployment, interval exposure

	GPA	Academic track completion
Length of exposure (ref. 0 years)		
1/3 years	-3.573***	-3.66***
	(0.0873)	(0.199)
4/6 years	-7.127***	-7.55***
	(0.139)	(0.309)
7+ years	-9.762***	-10.90***
	(0.181)	(0.394)

Median number of years across categories: 1/3: median 2 years; 4/6: median 5 years; 7+: median 8 years.

Table A5. Coefficient for father's unemployment – model comparison

	Metric	Dichotomous – 1 year or more			
	OLS	OLS	Nearest-neighbour matching	Exact matching	Coarsened matching
GPA	-1.19	-4.72	-4.40	-4.40	-4.40
Academic track	-1.3	-5.0	-4.6	-4.6	-4.7

Control/matched covariates: parental education, parental income, parental unemployment before childbirth, origin group.

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