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Birthplace Urbanicity and Lifetime Labor-Market Outcomes: Evidence from Forced Migration Due to World War II

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Abstract

During and after World War II, West Germany absorbed around eight million refugees and displaced persons. We use the resulting forced migration as a natural experiment to examine whether birthplace characteristics retained long-run relevance after the spatial link between birthplace and workplace had been disrupted. Using administrative labor-market biographies for the 1935–1950 birth cohorts combined with geocoded information on birthplaces and workplaces, we show that birthplace urbanicity remained strongly associated with later labor-market outcomes. Individuals from urban regions earned systematically higher wages than those from rural regions, even after controlling for workplace region, education, and occupation. The effects are substantially stronger for women and particularly pronounced among expellees from the Czech lands.

JEL classification

R12, R23, J24, J61, N34

Keywords

urban origins, forced migration, birthplace effects, lifetime earnings, labor-market outcomes, regional mobility, gender differences, intergenerational transmission

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1 Introduction

Our study examines whether characteristics of the place of birth exert persistent influences on individuals' later labor-market outcomes. Identifying such effects is challenging because birthplace and workplace are often closely linked over the life course. Geographic mobility is limited for a substantial share of the population, implying that individuals born in urban regions frequently spend much of their working lives in the same or similar labor-market environments. Consequently, estimated birthplace effects may partly reflect continued exposure to urban labor markets rather than lasting influences of family background, socialization, or early-life conditions.

Evidence on the long-run relationship between birthplace, mobility, and labor-market success remains scarce. An important exception is Bosquet and Overman (2019), who document substantial lifetime immobility in the United Kingdom: almost 44 percent of workers spend their entire working lives in their region of birth. To address the identification problem, they adopt an instrumental-variables approach. In contrast, we exploit a large-scale natural experiment created by forced migration during and immediately after World War II. West Germany absorbed approximately eight million refugees and displaced persons from the former Eastern Territories, the Sudetenland, and parts of the Soviet Union, including nearly two million children younger than fifteen years of age in 1950. Forced displacement severed the spatial continuity between birthplace and later workplace, providing a unique opportunity to examine whether birthplace characteristics continue to shape labor-market outcomes even after the direct link between birthplace and workplace has been disrupted.

Using administrative labor-market biographies covering all individuals from the 1935–1950 birth cohorts who held at least one job subject to social-security contributions between 1975 and 2014, we combine detailed employment and earnings histories with geocoded information on birthplaces and workplaces. The sample accounts for roughly 80 percent of the corresponding birth cohorts, as civil servants, self-employed workers, and family workers are not covered by the data.

Comparable to the results of Bosquet and Overman (2019), we find for the average German native-born population a lifetime immobility rate of roughly 51%, i.e. more than half of the population found their main workplace in a distance of less than 25 kilometers from their birthplace. The degree of persistence in the type of region over the life course is even higher. This is especially the case for those who were born in an urban environment. For instance, about 80 percent of individuals from the cohorts under consideration who were born in an urban area in West Germany also find their primary place of employment in a similar type of region. For displaced persons, this proportion is with just over 50 percent significantly lower.

The relationship between birthplace urbanicity and later labor-market outcomes may operate through several distinct channels. Since typically the expellees considered in this study spent only a small part of their childhood in their birthplace region before flight and forced displacement, persistent urban-origin effects are unlikely to reflect direct exposure to local labor-market conditions alone. Instead, they are more likely to capture characteristics of family background and social milieus that survived the massive disruption caused by wartime displacement.

A first channel may operate through spatial mobility and destination sorting. Families originating from urban environments may have possessed superior information about economically dynamic regions and labor-market opportunities, thereby influencing the later mobility decisions of their children. Urban-origin individuals may therefore have been more likely to relocate toward productive labor-market regions after resettlement.

A second channel concerns educational attainment and human-capital formation. Becker et al. (2020), for example, document a lasting increase in educational orientation among displaced Polish populations from territories annexed by the Soviet Union after World War II. In our context, urban family environments may have reinforced this mechanism. Urban-origin households were likely to exhibit stronger educational aspirations already before displacement, and these

orientations may have been transmitted to subsequent generations.

A third channel concerns occupational orientation and occupational sorting. Urban family backgrounds were more strongly connected to non-agricultural and urban occupations and may therefore have transmitted occupational aspirations, information, and preferences that shaped later career choices of their children.

A fourth channel relates to family culture and socially embedded forms of social capital. Persistent differences in norms, aspirations, and labor-market orientation may have survived displacement and continued to shape economic behavior over the life course. In particular, gender-specific role models and attitudes toward female labor-force participation transmitted within families may have played an important role.

Our empirical strategy seeks to obtain indirect evidence on the relevance of the first three channels by successively introducing additional controls for destination labor-market regions, educational attainment, and occupations. To account for the potentially important role of family culture and gender-specific social norms, we conduct the analysis separately for men and women.

The analysis yields three main findings. First, birthplace urbanicity continues to matter even after forced migration in early childhood. Individuals born in urban or partly urbanized areas earn persistently higher wages later in life, despite the disruption of spatial continuity caused by displacement. We can show that the wage premium increases monotonically with the degree of urbanization of the birthplace. Second, the effects differ substantially by gender. Women benefit more strongly from urban origins than men, and these differences can only partly be explained by regional sorting or educational attainment. Third, the magnitude of the effects varies across origin groups, suggesting that the economic and social environments of the regions of origin shaped the long-run consequences of displacement in distinct ways.

2 Related Literature

This paper contributes to several strands of literature at the intersection of urban economics, labor economics, economic history, and the economics of forced migration.

First, the paper relates to the literature on birthplace effects, spatial persistence, and urban wage premia. A growing body of research has emphasized that the place of birth exerts a persistent influence on later labor-market outcomes. The most closely related contribution is Bosquet and Overman (2019), who show for the United Kingdom that birthplace size is strongly associated with later wages and that a substantial share of this relationship reflects lifetime immobility. Their results highlight the importance of intergenerational transmission and spatial sorting in explaining regional earnings differentials. More broadly, the paper is related to the literature on agglomeration economies and urban productivity advantages (Glaeser and Maré (2001); Moretti (2012); Duranton and Puga (2004)). In contrast to most existing studies, however, we analyze individuals whose life trajectories were disrupted in times of large-scale forced migration, thereby substantially weakening the link between birthplace and later workplace.

Second, the paper contributes to the literature on forced migration and the long-run adjustment of displaced populations. The postwar expulsion of ethnic Germans from Eastern Europe constitutes one of the largest episodes of forced migration in European history. What the expellees have in common is that, as a consequence of the eviction, they typically lost their entire real estate holdings as well as a large part of their other property.¹ Even if displaced people were able to transfer financial assets, these were largely devalued by the currency reform at the end of the 1940s. Unlike other large refugee movements, however, the German refugees and displaced persons shared a common language and culture with the local population in their destination region.

¹For example, according to Beneš Decree 108 of 25 October 1945, all movable and immovable property (real estate and property rights) of the German inhabitants was confiscated and placed under state administration, see e.g. Brandes (2005).

Previous research has studied the integration of expellees into West German regional labor markets, their educational adjustment, and the long-run economic effects of displacement (Bauer et al. (2013); Braun and Kvasnicka (2014); Poutvaara and Steinhardt (2018)). While the literature cited primarily focuses on people who were displaced or fled as adults, we focus here on the generation that was forced to leave their homeland during childhood. More generally, our study also relates to the broader literature examining the long-run labor-market consequences of forced migration and refugee movements (Ruist (2015); Becker and Ferrara (2019)). Our contribution differs from this literature by focusing not primarily on displacement itself, but on how pre-displacement urbanicity of the family origin shaped subsequent labor-market trajectories over the life course.

Third, the paper is related to the literature on intergenerational transmission and family background. Our results suggest that birthplace urbanicity partly captures persistent family-specific advantages transmitted across generations through education, occupational sorting, and social environments. In this respect, the paper contributes to the broader literature on intergenerational mobility and the transmission of human capital (Becker and Tomes (1979); Corak (2013); Chetty et al. (2014)). Our findings are particularly consistent with the view that family background and social milieu continue to exert long-run effects even after severe geographic displacement.

Fourth, the paper contributes to the literature on gender differences in labor-market outcomes and employment trajectories over the life course. The results reveal substantial gender heterogeneity in the relationship between birthplace urbanicity and later labor-market outcomes. Urban-origin premia are generally stronger and more persistent among women, especially with respect to lifetime earnings. This finding connects our analysis to the literature on female labor-force participation, gender wage differentials, and long-run career trajectories (Goldin (2021); Blau and Kahn (2017)).

Finally, the paper broadens the literature using administrative labor-market biographies to study long-run earnings trajectories and employment dynamics. By combining detailed employment histories over several decades with geocoded birthplace information, the analysis is able to distinguish between effects on daily wages, cumulative lifetime earnings, and the utilization of potential working days. This multidimensional perspective allows us to identify differences not only in wage levels, but also in employment continuity and labor-market attachment over the life course.

3 Data and Descriptives

3.1 Data

We can use extensive administrative labor market microdata from the Institute for Employment Research of the German Federal Employment Agency (*Institut für Arbeitsmarkt- und Berufsforschung*, IAB). The data contains all persons born between January 1, 1935 and December 31, 1950 who were employed in the Federal Republic of Germany and subject to social security contributions for at least one day between January 1, 1975 and December 31, 2014. The raw version of the labor market data contains more than 21 million data records and includes a number of features like earnings, employment spells, education, profession and the place of work. The data was combined with data from the German Pension Funds (*Deutsche Rentenversicherung*), which includes information on the individuals' places of birth.² Of the approximately 1.5 million different place names, only those that appeared at least 20 times were included. The remaining approximately 65,000 place names were edited to remove spelling variants and mergers, and then

²Since the data on place of birth was derived from individuals' handwritten entries, a labor-intensive editing process was necessary to account for spelling errors, changes in place names, and municipal mergers (see Möller (2026)).

geocoded. Suburbs and surrounding municipalities located less than 5 km from a main place were assigned to that place. Only those places located in West Germany and in the main regions of origin of refugees and displaced persons were kept. For an visual overview of the birthplace locations used in our study, see Figure A3 in the appendix. Based on their countries of origin, we distinguished the following groups:

DE: those born in West Germany,

CZ: those born on the territory of the former Czechoslovakia (Sudeten, Bohemia and Moravia),

PL: those born on the former German eastern territories that today belong to Poland (Pomerania and parts of East Prussia),

USSR: those born on the territories that were incorporated into the former Soviet Union (parts of East Prussia, but also the settlement areas of the Germans, e.g. on the Volga and the Black Sea coast or even further east republics of the former Soviet Union.

We excluded records where key items were missing, as well as some duplicates. In addition, we eliminated data on individuals who first appeared in the labor market data after December 31, 1980, in order to avoid potential contamination of the sample by later waves of ethnic German immigrants (*Spätaussiedler*) or East Germans migrants after German re-unification. This leaves us with the number of observations as shown in Table 1.³

In total, our dataset contains information on approximately 4.2 million men and 2.8 million women who were born in West Germany. The largest group of displaced persons, numbering about 542,000, consists of those born in places that are now part of Poland. Next are those born in the territory of the former Czechoslovakia, numbering about 174,000. Those born in the territory of the Soviet Union make up the smallest group, with just under 100,000. The proportion of women over the entire period is 39.5 percent among those born in West Germany and is slightly higher in the displaced persons groups, ranging from 40.6 (PL) to 41.1 (CZ) and 41.2 (USSR).

As can be seen from the Table 1, the number of cases among displaced persons dropped dramatically after the end of World War II. Therefore, our main analysis focuses on cohorts born between 1935 and 1946, while the younger cohorts born between 1947 and 1950 are used in the descriptives and for some robustness checks only.

Table 1: Number of Persons in the Sample by Country of Birth and Gender

Birth Year	Males				Females			
	DE	CZ	PL	USSR	DE	CZ	PL	USSR
1935-46	3,113,720	99,757	311,545	55,607	1,943,123	69,095	212,037	38,790
1947-50	1,136,523	2,978	10,451	2,288	833,555	2,616	8,181	1,730
1935-50	4,250,243	102,735	321,996	57,895	2,776,678	71,711	220,218	40,520
1947-50 in %	26.7%	2.9%	3.2%	4.0%	30.0%	3.6%	3.7%	4.3%

Notes: See text.

The original administrative data contain employment spells recorded on a daily basis. For the purposes of our analysis, we aggregated employment periods and earnings to the annual level⁴. Annual earnings were deflated and adjusted for aggregate productivity growth to ensure intertemporal comparability. We then cumulated annual earnings and employment periods over the observed working lives of individuals.

³For a more detailed overview, including case counts for individual years, see Table A1 in the appendix.

⁴Earnings from marginal employment are not consistently recorded over the full sample period and are therefore excluded.

Our observation window extends from 1975 to 2014. Consequently, for individuals born in 1935, employment histories can be observed approximately from age 40 until retirement, whereas for the younger cohorts born in 1946 or 1950 the data cover employment histories roughly between ages 29 to 64 or 25 and 64, respectively. Cumulative real earnings over the entire observation period are used as a proxy for lifetime earnings. Average real daily earnings were calculated by dividing cumulative real earnings by the total number of days in employment. In addition, we constructed a measure of the “exhaustion of potential working time” by relating actual days worked to the maximum feasible number of working days during the observation period, taking into account cohort and gender-specific statutory retirement ages. Because observation windows as well as labor market conditions vary systematically between birth cohorts, all estimations include birth-cohort fixed effects.

We calculate geodesic distances between locations using the Haversine formula⁵ applied to latitude and longitude coordinates. For the classification of urbanity we use the Global Human Settlement Layer (GHSL) here.⁶ The classification distinguishes between rural regions, regions with urbanization tendencies as an intermediate case, and urban regions.

3.2 Average distance between birthplace and main workplace for the native-born population

For workers who were born in (West)-Germany between 1935 and 1950 we calculated the distance between the place of birth and the (main) place of work.⁷ We used a narrower and a wider definition of immobility. In the first case, immobility was assumed if the distance between the place of birth and the main place of work did not exceed 25 kilometers. In the second case, the distance was extended to a radius of 50 kilometers.

The results in Table 2 show a high degree of lifetime immobility among the native-born population. Slightly more than the half of employees had a main place of work within a 25-kilometer radius around their birthplace. More than 60 percent of the workforce of had their main workplace no more than 50 kilometers from their place of birth. The differences between the sexes are marginal.

Table 2: Distance between Birthplaces and Main Workplaces of Native-Born German Workers, Cohorts 1935–1950

	N	Distance between main workplace and birthplace			
		≤ 25 km		≤ 50 km	
		Cases	Percent	Cases	Percent
All	7,026,921	3,618,158	51.49	4,296,603	61.14
Males	4,250,243	2,191,561	51.56	2,616,874	61.57
Females	2,776,678	1,426,597	51.38	1,679,729	60.49

Notes: Own calculations. The main workplace refers to the municipality in which the employer is located for whom the person worked most frequently over their observed working life. See text.

⁵See, for example, Sinnott 1984.

⁶See Pesaresi et al. (2024) This classification also exists backwards for the past. We use the version here that also refers to the year 1950.

⁷Our analysis covers the labor market biography of all employees subject to social security contributions in the period from 1975 to 2014. The modal value of the places of work was taken as the main place of work if the person concerned was employed at different places of work during this period.

3.3 Spatial concentration and destination sorting of forced migrants compared to the native-born population

In a next step, we analyze the distribution of the different groups of displaced persons among the places of work in Germany in comparison to the native-born population. As an indicator, we first calculated the proportion of people in the 10 most important labor market regions for the respective group. Second, we calculated group-specific local Gini coefficients. The results are summarized in Table 3.

Forced migrants exhibit substantially stronger spatial concentration across labor market regions than the native-born population. Within specific origin groups, around three quarters of workers are located in the ten largest destination labor market regions, whereas the corresponding values for native-born males and females are about 69% and 71%, respectively. However, the groups of forced migrants do not exhibit the same spatial distribution. Therefore, the corresponding values are markedly lower for the totality of expellees (about 53%). The locational Gini coefficient corroborates the group-specific findings. It is especially high for the group of expellees from former Czechoslovakia.

Table 3: Share of 10 biggest labor market regions and locational Gini coefficient by group of origin and gender

	DE	CZ	PL	USSR	all expellees
Share of 10 biggest labor market regions					
Males	68.8	77.9	74.9	75.3	52.8
Females	71.0	78.1	75.3	75.7	53.1
Locational Gini					
Males	0.662	0.738	0.708	0.709	0.768
Females	0.668	0.721	0.699	0.683	0.752

Notes: See text.

To illustrate origin/destination patterns we compute population-weighted geographic centroids of birthplace and main workplace locations for each origin group and connected them by arrows (see Figure 1). Confidence intervals around the estimated centroids are extremely small due to the very large sample sizes and are therefore not visually informative. We instead decided to use ellipses around workplace centroids that indicate one standard deviation in longitude and latitude and therefore describe spatial dispersion, not statistical uncertainty. Arrows connect group-specific birthplace centroids to main-workplace centroids.⁸ We do not differentiate by gender here, because the results for men and women are largely identical.

Figure 1 highlights several interesting patterns. First, the workplace centroids of the PL and USSR groups are almost identical. Second, both are located slightly north to that of the native-born West German population. Third, the CZ group displays a clearly distinct settlement pattern. Its workplace centroid is located approximately 120 kilometers southeast of that of the native-born population.

3.4 Transitions between region types in comparison of place of birth and place of work

Another aspect is to what extent there is a change in *region type* over the course of life. Based on the the Global Human Settlement Layer we calculated transition matrices for the individuals in our sample who were born in West Germany (DE) and separately for the expellees of German nationality from Czechoslovakia (CZ), today’s Poland (PL) or the former Soviet Union (USSR).

⁸Note that The centroid for the USSR group is not located in the center of former East Prussia, but is shifted to the southeast. This reflects the fact that the expellees and refugees from the USSR group also includes persons from other parts of the former Soviet Union (such as the Volga and Black Sea Germans).

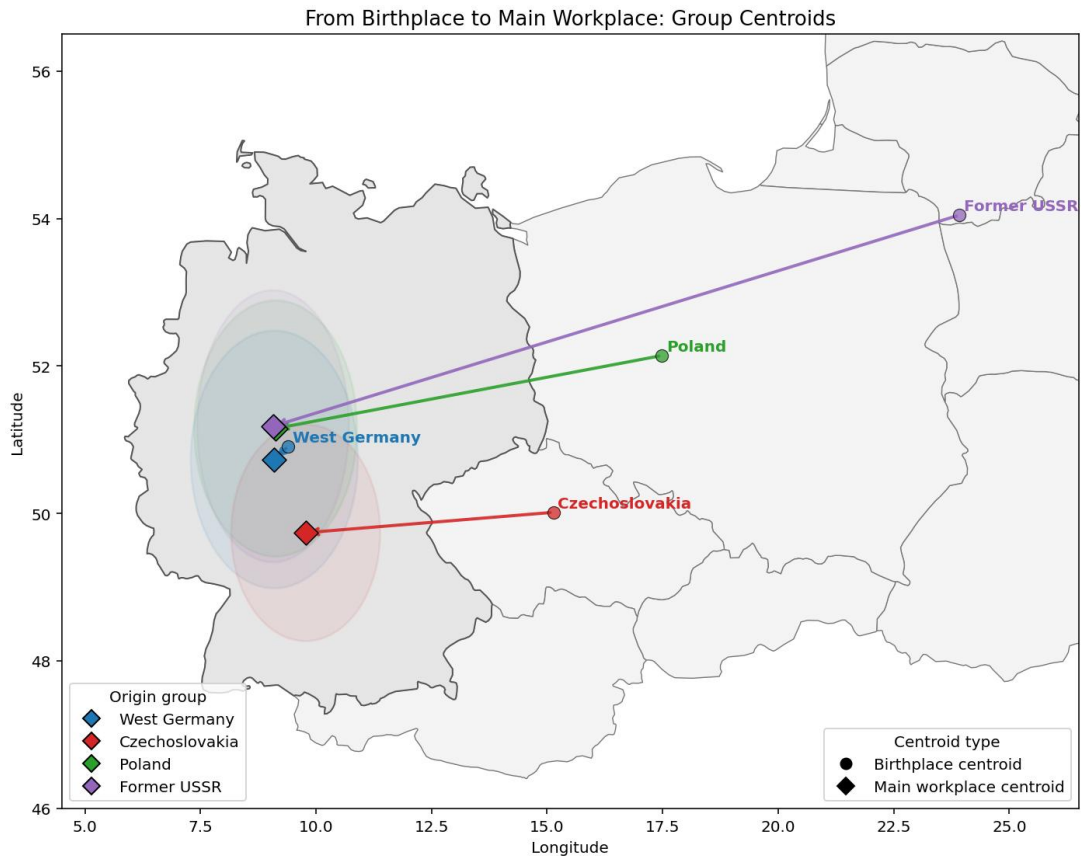


Figure 1: Birthplace and workplace centroids by origin group and gender

Notes: Own presentation. See text.

First, we compare persons in the DE group with the aggregated group of forced migrants from the three mentioned origins. The results for the DE group are shown in the left panel of Figure 2. While more than 80 percent of individuals born in urban regions remained in an urban environment over their working lives, the corresponding shares amount to 62 percent for those born in intermediate regions and 45 percent for those born in rural regions. In general, the transition matrix proves the preponderance of the "stayers". At the same time, the trend towards greater urbanization in working life is evident, as the fields to the right above the diagonal are more filled.

Consider now the transition matrix for refugees or forced migrants in the right panel of Figure 2. The deviations from the matrix in the left panel are remarkable. The values on the main diagonal are significantly lower for displaced persons than for those born in West Germany, hence there are far fewer stayers. For example, only about 17 percent of those born in a rural environment spent their working life also in a rural type of region. The corresponding proportion of stayers born in a intermediate or urban environment is 38 and 54 percent, respectively. Overall, changes in the region type are much more frequent in the group of expellees.

Moreover, we compared the transitions between forced migrants of different origins. As shown in in the upper panel of Figure A1 in the appendix, the differences in transition rates between expellees from CZ and PL are rather small. Gender differences are slightly more pronounced, but remain modest in magnitude. As an example we report the gender differences in transition rates for forced migrants from Czechoslovakia in the lower panel of Figure A2. For men, the transitions to the urban labor market regions are more frequent than for women. For example,

the main labor market region is an urban region for 54 per cent of men born in an urban region, while this is only the case for 50 per cent of women. The results for those expelled from today's Poland or the former Soviet Union are remarkably similar (see appendix).

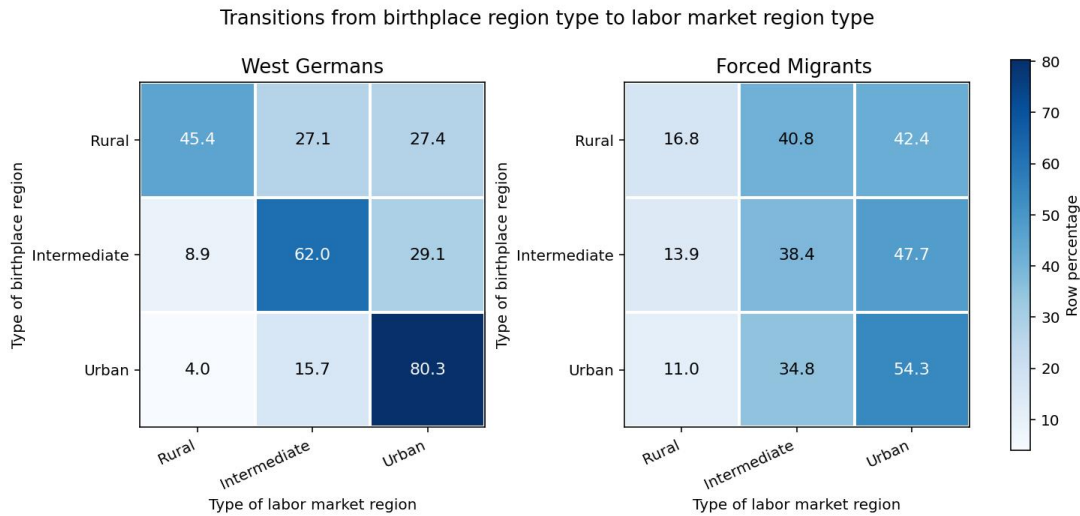


Figure 2: Transitions from region type of birthplace to region type of workplace - Persons born in West Germany vs. forced migrants

Notes: The figure shows the transition rates from rural, intermediate and urban regions of birth to the corresponding regions of the main workplace for birth cohorts 1935 to 1950.

3.5 Urbanicity and educational attainment

Educational attainment represents one of the most important channels through which birthplace urbanicity may influence later labor-market outcomes. Figure 3 displays average years of education by birth cohort, birthplace urbanicity, gender, and region of origin.

A clear and remarkably consistent pattern emerges. Across almost all origin groups and birth cohorts, educational attainment increases systematically with the degree of urbanization of the birthplace region. Individuals born in urban regions exhibit the highest educational levels, those from intermediate regions occupy an intermediate position, and rural-origin individuals attain the lowest levels of education. This urbanicity gradient is particularly pronounced among displaced persons from the Czech lands, where the difference between urban- and rural-origin individuals frequently approaches one additional year of schooling. Similar, albeit somewhat weaker, patterns are observed among displaced persons from Poland and the former USSR as well as among the native West German population.

The figure also reveals important gender differences. Urbanicity gradients are at least as strong among women as among men and are in several cases even more pronounced. This is noteworthy given the more limited educational and labor-market opportunities available to women in postwar Germany. Women from urban-origin families consistently attained higher educational levels than their rural-origin counterparts, suggesting stronger educational aspirations and a greater orientation toward formal labor-market participation within urban households.

The results are particularly informative for the displaced populations. Many individuals in the younger cohorts spent only a limited part of their childhood in their birthplace regions before forced migration and resettlement in West Germany. The persistence of substantial educational differences by birthplace urbanicity despite this disruption suggests that the observed gradients primarily reflect intergenerational transmission within families rather than direct exposure to local urban environments. Urban-origin families may have differed in pre-war educational attainment, familiarity with formal schooling, access to information, and preferences

for educational investment. These characteristics appear to have remained influential even after displacement and the loss of local economic and social structures.

Some caution is warranted for cohorts born after approximately 1945. The stronger fluctuations observed for these cohorts, particularly among displaced persons from the former USSR, likely reflect declining sample sizes and compositional changes. The most reliable patterns are therefore found among cohorts born between roughly 1935 and 1945, where sample sizes are large and the urbanicity gradients remain highly stable.

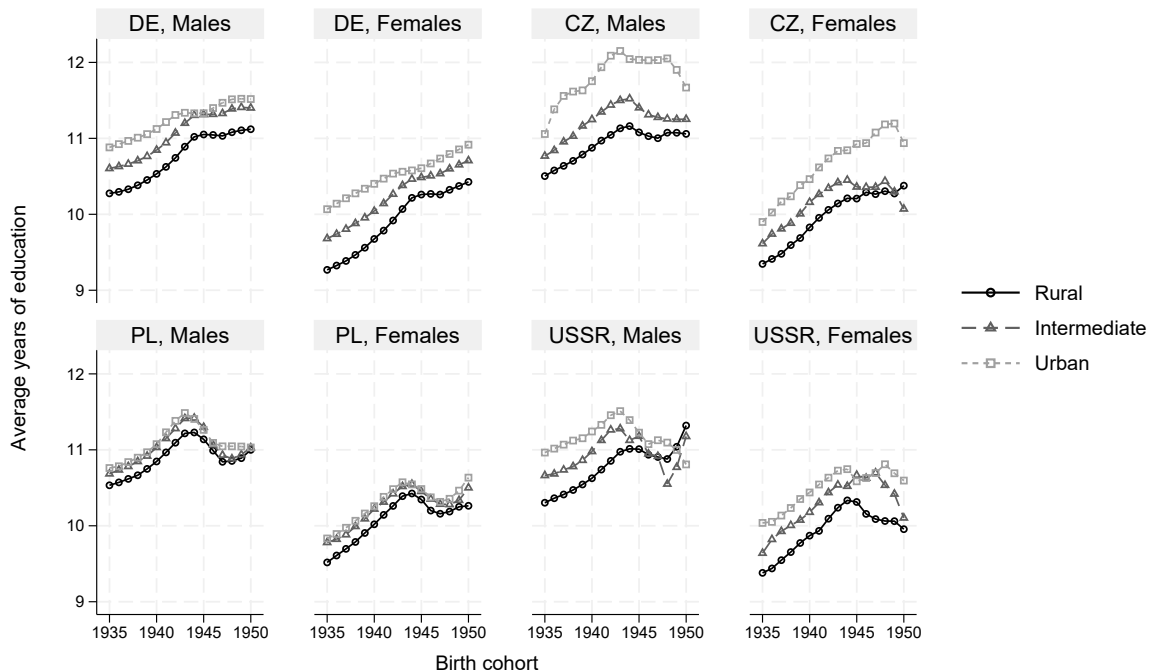


Figure 3: Average years of education by birthplace urbanicity, country of origin, gender and birth year

Notes: The figure shows the average number of years of education by group. The figures were calculated as follows: 8 years for individuals with only a basic school education, 11 years for those who successfully completed an apprenticeship, 15 years for those with a degree from a university of applied sciences, and 18 years for those with a university degree. The greater fluctuations observed after 1945 in the groups of displaced persons can be attributed to the small sample sizes.

3.6 Urbanicity and relative female labor market participation

Forced migration may have altered traditional gender roles and accelerated female labor-market integration, especially among urban-origin families.

The results on the female share in employment records provide additional evidence on the relationship between birthplace urbanicity and long-run labor-market attachment. Figure 4 reports the share of women in employment records by birth cohort, origin region, and birthplace urbanicity, where the measure is weighted by the cumulative number of employment days over the observation period. Since labor-force participation among men in these cohorts was generally very high, the female share can be interpreted as an informative proxy for the relative labor-market attachment of women across groups.

Several patterns emerge. First, across almost all origin groups and birth cohorts, the female share tends to increase with the urbanicity of the birthplace region. Women originating from urban areas are generally more strongly represented in employment biographies than women from rural regions, while women from intermediate regions occupy an intermediate position. This urbanicity gradient is particularly pronounced among displaced persons from the Czech lands

and, to a lesser extent, among those originating from Poland.

Second, the differences across urbanicity groups are remarkably persistent for cohorts born between the mid-1930s and the mid-1940s. Among expellees from the Czech lands, the female share among urban-origin cohorts substantially exceeds that among rural-origin cohorts throughout most of the observation period. Similar, although somewhat weaker, patterns can be observed for displaced persons from Poland and for the native West German population.

The evidence suggests that urban-origin families differed not only with respect to education and occupational outcomes, but also in terms of female labor-market attachment. Women from urban-origin families appear to have participated more continuously in formal employment relationships and to have accumulated longer employment biographies over the life course. Since the measure is weighted by employment days, it captures not merely labor-force participation but also the intensity and continuity of labor-market attachment.

One possible interpretation is that urban-origin families were characterized by stronger female labor-market orientation and greater attachment to formal employment. The persistence of these differences after forced migration suggests that such family-specific norms, aspirations, and labor-market orientations may have survived displacement and continued to shape economic behavior in postwar West Germany.

Again, some caution is warranted for the youngest cohorts of forced migrants, especially those born after 1945 because of small sample size. In contrast, the most reliable patterns are observed for cohorts born between approximately 1935 and 1945, where sample sizes remain large and the urbanicity gradients appear highly systematic.

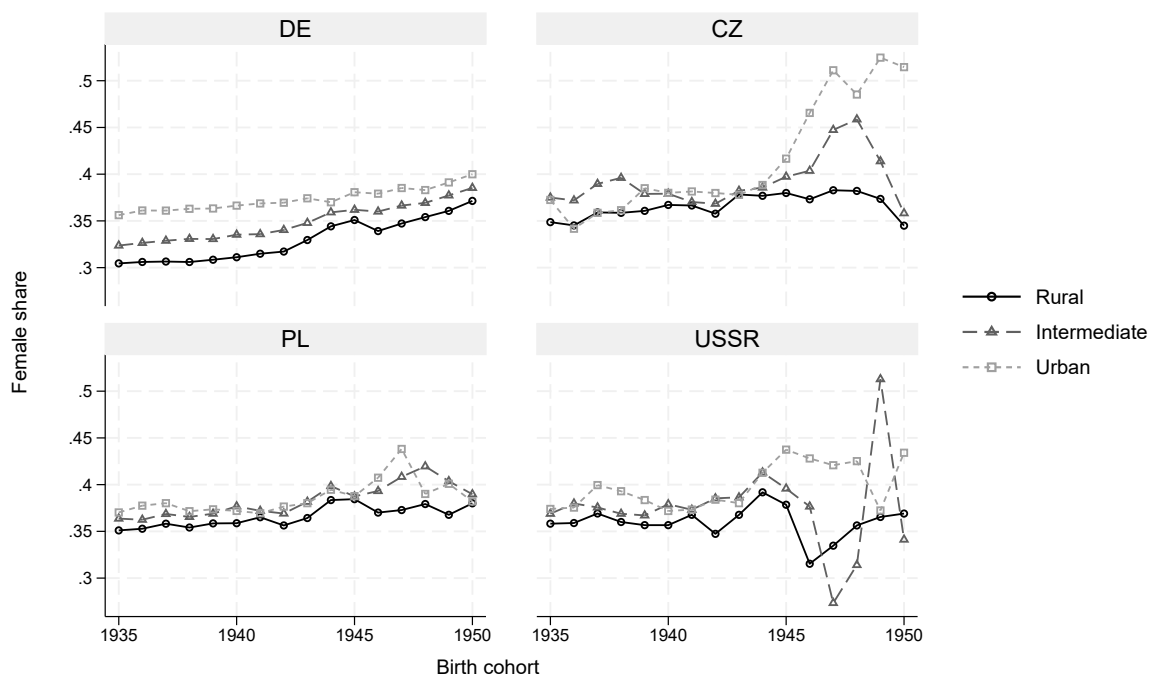


Figure 4: Weighted female share in total working days by urbanicity and country of origin

Notes: The figure shows the share of females in total working days over the observation period 1975-2014. The strong fluctuation for birth cohort after 1945 for expellees are due to small sample size.

4 Econometric estimates

4.1 The estimation approach

We estimate the following baseline specification:

$$\ln(y_i) = \alpha + \beta_1 \text{IBP}_i + \beta_2 \text{UBP}_i + \lambda_c [+ \mu_r + \delta_e + \omega_o] + \varepsilon_i \quad (1)$$

where y_i denotes the outcome variable for individual i . IBP_i and UBP_i are indicator variables capturing the urbanicity of the birthplace region. IBP_i identifies individuals born in intermediate regions, while UBP_i identifies individuals born in urban regions. Individuals born in rural regions constitute the omitted reference category.

All specifications include birth-cohort fixed effects (λ_c). To examine the channels through which birthplace urbanicity affects later labor-market outcomes, we successively introduce fixed effects for the labor-market region of the individual's main workplace (μ_r), educational attainment (δ_e), and main occupation (ω_o). The latter is measured using the two-digit occupational classification of the German Federal Employment Agency.⁹ The sequential inclusion of these fixed effects provides information on the extent to which the location of economic activity, educational attainment, and occupational sorting account for the estimated urban-origin premia. In all estimations standard errors were clustered at the labor-market-region level.¹⁰

As outcome variables we used:¹¹

- (the log of) average real daily earnings over the observed working life,
- the percentage exhaustion of potential working days over the observed life cycle.
- (the log of) total real life-time earnings,

The results are presented in the following subsections.

4.2 Results for average daily wages

The estimates reported in Table 4 and shown in Figure 5 reveal a strong and systematic association between birthplace urbanicity and later real daily wages. Across all origin regions and for both genders, individuals born in intermediate or urban regions earn higher daily wages than individuals born in rural regions, which constitute the omitted reference category. The estimated coefficients generally increase with the degree of urbanization of the birthplace, indicating a clear urbanicity gradient rather than a simple urban-rural divide.

The magnitude of the estimated premia is economically substantial. Moreover, the estimates reveal pronounced gender differences. Birthplace urbanicity is generally more strongly associated with higher daily wages in later life among women than among men. In the baseline specification (FE1) with cohort fixed effects only, the urban-birthplace premium ranges from about 7 to 12 log points among men and from about 12 to 18 log points among women. Intermediate-birthplace premia are smaller but remain sizable. For men, they range from about 5 to 8 log points; for women, from about 4 to 11 log points.

The successive introduction of additional fixed effects provides information on the mechanisms underlying these differences. Adding fixed effects for the labor-market region of the main workplace (FE2) reduces the coefficients only moderately, indicating that the urban-origin premium is not

⁹See Bundesagentur für Arbeit 2011.

¹⁰The fixed-effects regressions were performed using the `reghdfe` package for Stata, which efficiently absorbs multiple high-dimensional fixed effects (Correia 2016).

¹¹Note that all logarithmic variables were multiplied by a factor of 100, so the corresponding coefficients can be interpreted as log percentages.

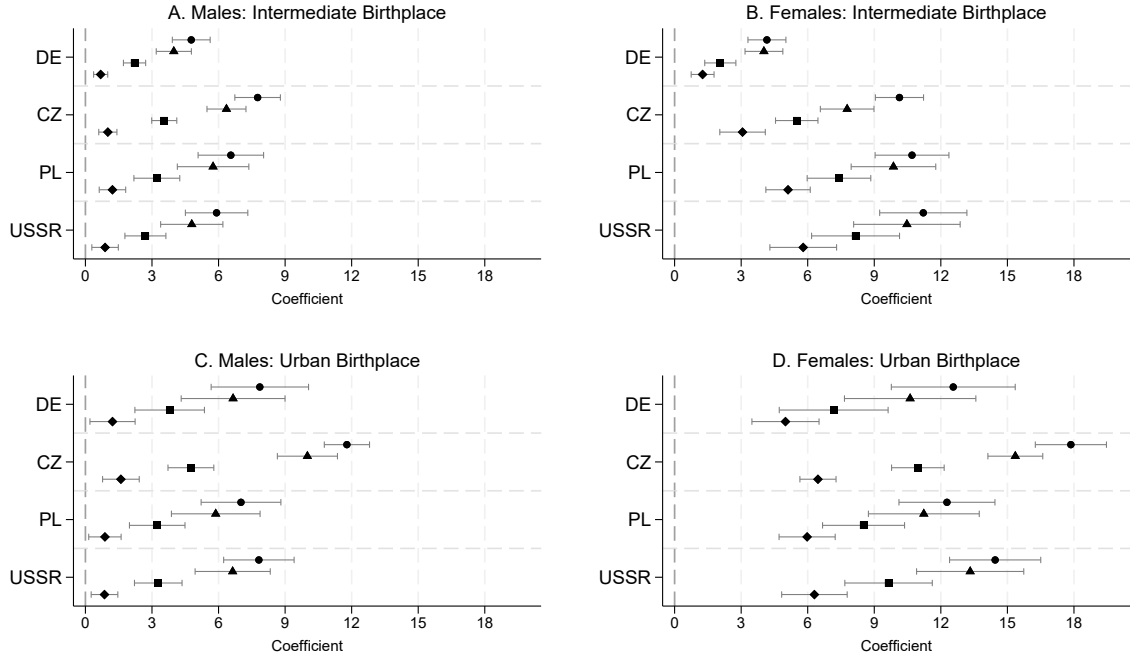


Figure 5: Birthplace urbanicity and wage premium

Notes: Coefficients and 95% confidence intervals from regressions of log daily real wages on intermediate and urban birthplace; rural birthplace is the omitted category; markers denote alternative fixed effects specifications: (FE1) circle: cohort fixed effect only; (FE2) triangle: cohort + labor market region fixed effects; (FE3) square: cohort + labor market region + education fixed effects; (FE4) diamond: cohort + labor market region + education + main profession fixed effects.

Table 4: Effect of Birthplace Urbanicity on Daily Real Wages

	Intermediate birthplace				Urban birthplace			
	FE1	FE2	FE3	FE4	FE1	FE2	FE3	FE4
<i>Panel A: Males</i>								
DE	4.769*** (0.424)	3.984*** (0.395)	2.213*** (0.250)	0.687*** (0.159)	7.861*** (1.093)	6.656*** (1.165)	3.797*** (0.780)	1.221* (0.507)
CZ	7.762*** (0.511)	6.357*** (0.437)	3.553*** (0.281)	1.010*** (0.204)	11.786*** (0.508)	10.005*** (0.674)	4.754*** (0.515)	1.599*** (0.411)
PL	6.555*** (0.735)	5.754*** (0.802)	3.218*** (0.515)	1.218*** (0.297)	7.012*** (0.895)	5.874*** (0.995)	3.236*** (0.623)	0.879* (0.364)
USSR	5.912*** (0.700)	4.793*** (0.699)	2.703*** (0.460)	0.886** (0.297)	7.818*** (0.790)	6.637*** (0.843)	3.283*** (0.534)	0.860** (0.299)
Observations	3,584,001	3,584,001	3,584,001	3,477,534	3,584,001	3,584,001	3,584,001	3,477,534
<i>Panel B: Females</i>								
DE	4.161*** (0.426)	4.027*** (0.425)	2.060*** (0.349)	1.262*** (0.257)	12.560*** (1.390)	10.617*** (1.474)	7.171*** (1.221)	4.998*** (0.753)
CZ	10.135*** (0.540)	7.778*** (0.602)	5.505*** (0.476)	3.062*** (0.510)	17.861*** (0.798)	15.357*** (0.616)	10.966*** (0.590)	6.462*** (0.405)
PL	10.701*** (0.828)	9.864*** (0.949)	7.409*** (0.714)	5.113*** (0.498)	12.276*** (1.077)	11.234*** (1.244)	8.517*** (0.920)	5.974*** (0.630)
USSR	11.209*** (0.979)	10.471*** (1.195)	8.157*** (0.987)	5.798*** (0.749)	14.448*** (1.023)	13.323*** (1.203)	9.644*** (0.981)	6.302*** (0.735)
Observations	2,265,181	2,265,181	2,265,181	2,199,409	2,265,181	2,265,181	2,265,181	2,199,409

Notes: The table reports coefficients from regressions of the respective outcome variable on indicators for intermediate and urban birthplace regions. Rural birthplace is the omitted reference category. Standard errors clustered at the labor-market-region level are reported in parentheses. For the fixed effect specification FE1 to FE4 see the notes to Figure 5. Coefficients are log points for wage and earnings outcomes and percentage-point effects for the employment-days outcome. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

merely a consequence of later sorting into more productive labor-market regions. The inclusion of education fixed effects (FE3) leads to a substantially larger reduction, suggesting that educational attainment is an important channel through which birthplace urbanicity affects later wages. Finally, the most demanding specification (FE4) additionally controls for two-digit occupation fixed effects. The sharp decline in the estimated coefficients between FE3 and FE4 indicates that occupational sorting explains a large part of the remaining wage premium. This is particularly evident among men, where the urban-birthplace coefficients fall to roughly one to two log points in FE4. For women, however, the coefficients remain substantially larger even after controlling for education and occupation. In the full specification, the urban-birthplace premium remains around 5 log points for native-born women and about 6 log points for women born in the Czech lands, Poland, or the former USSR.

These patterns suggest that the effect of birthplace urbanicity operates through several channels. Part of the effect reflects later regional sorting, part operates through educational attainment, and a further substantial component is related to occupational allocation. Individuals from more urban-origin families appear more likely to obtain higher levels of education and to enter occupations associated with higher wages. The persistence of statistically significant positive coefficients in the full specification suggests that additional mechanisms beyond education and occupation may also be relevant.

For displaced individuals, the interpretation differs from that for the native-born population. The forced migrants in our sample spent only part of their childhood, and in younger cohorts often only a very limited period, in their birthplace region. The estimated urban-birthplace premium is therefore unlikely to reflect only direct exposure to the local urban environment. Rather, birthplace urbanicity should be interpreted as a proxy for parental background, family-specific human capital, occupational traditions, and the broader social milieu from which families originated before displacement. The results are consistent with persistent intergenerational advantages associated with urban-origin families that were transmitted through education, occupational choice, and other forms of social, informational, and cultural capital.

Overall, the findings indicate that educational attainment and occupational choice represent the most important mediating channel linking birthplace urbanicity to later wage outcomes. At the same time, the persistence of positive effects after extensive controls suggests that broader forms of intergenerationally transmitted advantage also contributed to long-run labor-market success. These could include familiarity with bureaucratic institutions, stronger labor-market orientation, transferable occupational skills, or norms favoring educational advancement and female labor-force participation. The particularly large effects observed for women are consistent with this interpretation. Our findings suggest that urban-origin families may have provided daughters not only with greater educational support but also with stronger labor-force attachment and better access to non-agricultural occupations.

4.3 Utilization of potential working days

The results reported in Table 5 reveal a markedly different pattern from that observed for daily wages. Across most origin groups and specifications, birthplace urbanicity is associated with *lower* utilization rates of potential working days. The negative effects are particularly pronounced among men and tend to increase with the degree of urbanization of the birthplace.

For men, the results are remarkably consistent across origin groups and model specifications. Individuals born in intermediate and especially urban regions accumulated fewer employment days over their working lives than comparable individuals born in rural regions. The negative effects become even more substantial after controlling for labor-market-region, education, and occupation fixed effects and are particularly strong among displaced persons from Poland and the former USSR. These findings suggest that urban-origin men followed less continuous or shorter employment trajectories despite earning higher wages when employed.

For women, the pattern is more nuanced. In the baseline specification (FE1), the coefficients

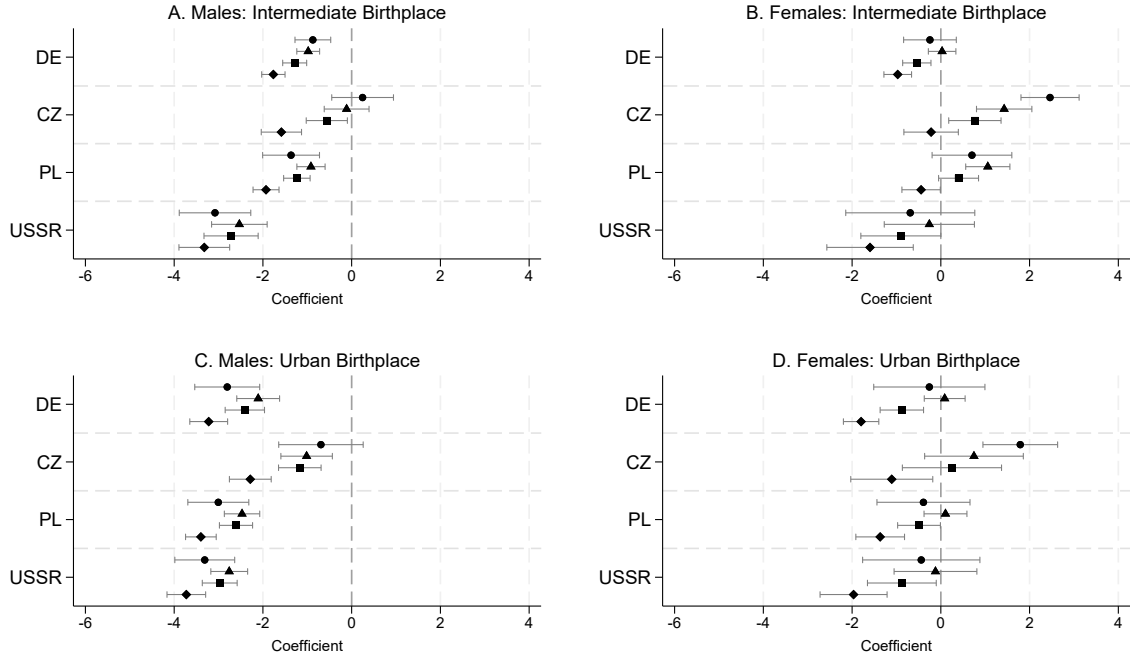


Figure 6: Birthplace Urbanity and relative utilization of potential working days

Notes: Coefficients and 95% confidence intervals from regressions of the percentage exhaustion of potential working days over the observed life cycle on intermediate and urban birthplace; for further notes see Figure 5.

Table 5: Effect of Birthplace Urbanicity on Utilization of Potential Working Days

	Intermediate birthplace				Urban birthplace			
	FE1	FE2	FE3	FE4	FE1	FE2	FE3	FE4
<i>Panel A: Males</i>								
DE	-0.875*** (0.200)	-0.979*** (0.128)	-1.284*** (0.134)	-1.764*** (0.131)	-2.804*** (0.364)	-2.106*** (0.240)	-2.408*** (0.221)	-3.221*** (0.212)
CZ	0.246 (0.346)	-0.113 (0.252)	-0.561* (0.231)	-1.584*** (0.226)	-0.692 (0.474)	-1.015** (0.289)	-1.169*** (0.239)	-2.284*** (0.234)
PL	-1.366*** (0.319)	-0.917*** (0.158)	-1.235*** (0.149)	-1.930*** (0.146)	-3.005*** (0.342)	-2.470*** (0.199)	-2.607*** (0.186)	-3.398*** (0.172)
USSR	-3.080*** (0.401)	-2.531*** (0.312)	-2.718*** (0.304)	-3.321*** (0.284)	-3.311*** (0.336)	-2.759*** (0.206)	-2.973*** (0.196)	-3.726*** (0.217)
Observations	3,584,001	3,584,001	3,584,001	3,477,534	3,584,001	3,584,001	3,584,001	3,477,534
<i>Panel B: Females</i>								
DE	-0.245 (0.295)	0.029 (0.155)	-0.541** (0.159)	-0.972*** (0.155)	-0.259 (0.624)	0.087 (0.229)	-0.879** (0.243)	-1.797*** (0.199)
CZ	2.461*** (0.326)	1.428*** (0.311)	0.768* (0.294)	-0.219 (0.306)	1.790*** (0.419)	0.747 (0.554)	0.250 (0.556)	-1.106* (0.460)
PL	0.702 (0.447)	1.059*** (0.248)	0.400 (0.224)	-0.445* (0.215)	-0.391 (0.522)	0.105 (0.241)	-0.491* (0.240)	-1.367*** (0.273)
USSR	-0.689 (0.724)	-0.259 (0.506)	-0.901 (0.449)	-1.595** (0.485)	-0.441 (0.658)	-0.121 (0.465)	-0.878* (0.386)	-1.966*** (0.376)
Observations	2,265,181	2,265,181	2,265,181	2,199,409	2,265,181	2,265,181	2,265,181	2,199,409

Notes: The table reports coefficients from regressions of the exhaustion of potential working days in percent on indicators for intermediate and urban birthplace regions. For further notes see Table 4.

for urban and intermediate birthplaces are generally small and statistically insignificant for both the native-born population and most displaced groups. Women originating from the Czech lands constitute an important exception. For this group, an urban birthplace is associated with a significantly higher utilization rate of potential working days of approximately 2.5 percentage points.

The estimated effects become less favorable once labor-market-region, education, and occupation fixed effects are introduced. In the fully controlled specification (FE4), all coefficients associated with urban birthplaces are negative and statistically significant. However, the magnitude of these effects remains considerably smaller than for men. While an urban birthplace reduces the utilization rate by roughly 2 to 4 percentage points among men, the corresponding effects for women are typically only around 1 to 2 percentage points.

Overall, the evidence suggests that birthplace urbanicity was associated with less continuous or shorter employment biographies for both genders, but the relationship is substantially weaker among women. Consequently, the positive urban-origin wage premia observed for women were much less offset by differences in employment continuity than was the case for men. In general, these findings highlight the importance of distinguishing between wage-based and career-based dimensions of labor-market success.

4.4 Life-time earnings

The results for lifetime earnings provide an important complement to the findings on daily wages and the utilization of potential working days. While the estimates for daily wages reveal a clear and systematic urbanicity gradient, the evidence for lifetime earnings highlights how differences in wages and employment continuity interact over the life course.

For women, the lifetime-earnings results broadly mirror those for daily wages and are economically substantial. The most striking example is provided by displaced women from the Czech lands. In the baseline specification (FE1), women born in urban regions accumulated lifetime earnings that exceeded those of women born in rural regions by more than 21 percent. Even after controlling for the labor-market region of the main workplace (FE2), the estimated premium remains close to 16 percent. Introducing education fixed effects (FE3) reduces the coefficient further to approximately 10.5 percent, while the inclusion of occupation fixed effects (FE4) lowers the estimate to about 3 percent. Thus, roughly five percentage points of the initial premium can be attributed to subsequent sorting into labor-market regions, another five percentage points to differences in educational attainment, and approximately eight percentage points to occupational allocation.

A similar, although somewhat weaker, pattern can be observed among women originating from Poland and the former Soviet Union. Across virtually all origin groups, women born in intermediate or urban regions accumulated substantially higher lifetime earnings than women from rural birthplaces. These findings indicate that the wage advantages of urban-origin women were generally reinforced rather than offset by their employment histories. In contrast to men, the utilization of potential working days among women differed only modestly by birthplace urbanicity, allowing higher daily wages to translate more directly into higher cumulative earnings over the life course.

For men, however, the picture differs markedly. Although men from urban and intermediate birthplaces generally earned higher daily wages, these advantages did not translate into higher lifetime earnings in most cases. In several specifications, especially for urban birthplaces, the estimated effects on cumulative lifetime earnings are negative, especially if additional controls are introduced. This pattern is particularly pronounced among men originating from the former Soviet Union. The results for displaced men from the Czech lands stand in an instructive contrast to those for women. In the baseline specification (FE1), men born in urban regions accumulated lifetime earnings that exceeded those of rural-origin men by almost 7 percent. However, this advantage declines rapidly as additional controls are introduced. Controlling for the labor-market region of the main workplace reduces the coefficient by more than two percentage points, while the inclusion of education fixed effects eliminates almost the entire remaining premium. Once occupation fixed effects are added, the estimated coefficient becomes significantly negative.

This pattern suggests that the lifetime-earnings advantage of urban-origin men from the Czech lands operated almost entirely through educational attainment, occupational allocation, and

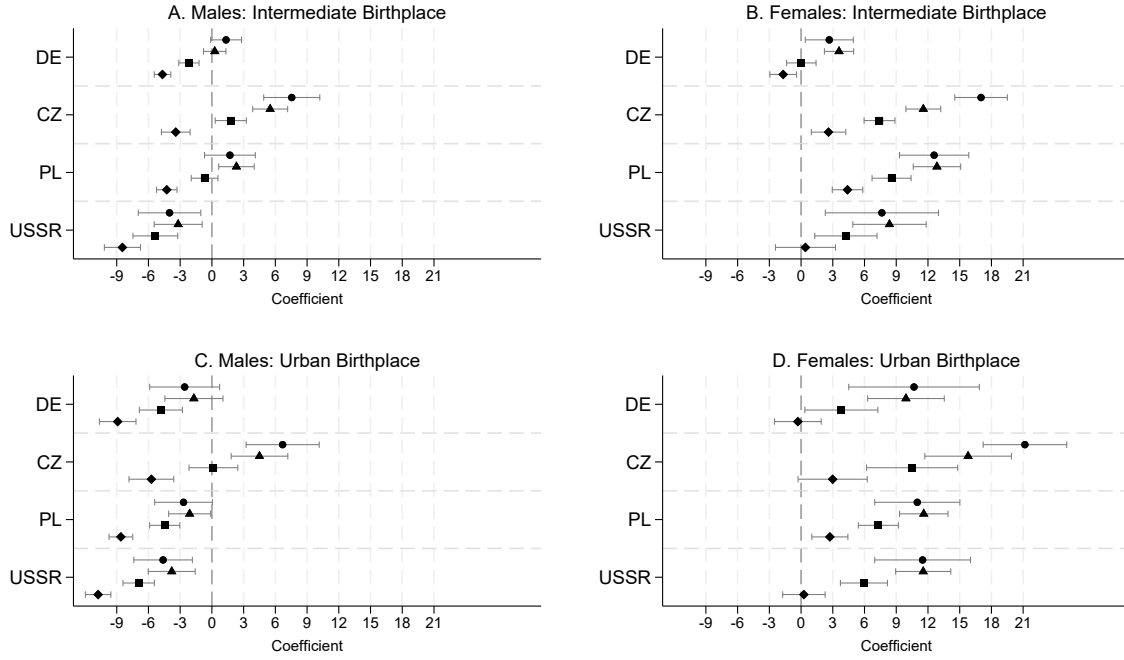


Figure 7: Birthplace urbanicity and life-time earnings

Notes: Coefficients and 95% confidence intervals from regressions of log life-time earnings on intermediate and urban birthplace; for further notes see Figure 5.

Table 6: Effect of Birthplace Urbanicity on Real Lifetime Earnings

	Intermediate birthplace				Urban birthplace			
	FE1	FE2	FE3	FE4	FE1	FE2	FE3	FE4
<i>Panel A: Males</i>								
DE	1.341 (0.728)	0.269 (0.527)	-2.171*** (0.478)	-4.672*** (0.390)	-2.574 (1.645)	-1.700 (1.368)	-4.825*** (1.012)	-8.909*** (0.863)
CZ	7.552*** (1.320)	5.512*** (0.823)	1.783* (0.732)	-3.414*** (0.674)	6.691*** (1.721)	4.501** (1.333)	0.145 (1.148)	-5.722*** (1.055)
PL	1.706 (1.195)	2.324** (0.838)	-0.690 (0.629)	-4.266*** (0.481)	-2.681 (1.360)	-2.103* (0.987)	-4.462*** (0.712)	-8.605*** (0.557)
USSR	-4.003** (1.472)	-3.190** (1.129)	-5.348*** (1.053)	-8.461*** (0.850)	-4.614** (1.379)	-3.798** (1.105)	-6.921*** (0.739)	-10.755*** (0.599)
Observations	3,584,001	3,584,001	3,584,001	3,477,534	3,584,001	3,584,001	3,584,001	3,477,534
<i>Panel B: Females</i>								
DE	2.668* (1.131)	3.590*** (0.688)	0.024 (0.694)	-1.688* (0.630)	10.683** (3.074)	9.918*** (1.803)	3.810* (1.718)	-0.305 (1.100)
CZ	17.020*** (1.236)	11.562*** (0.822)	7.416*** (0.726)	2.599** (0.811)	21.170*** (1.968)	15.793*** (2.038)	10.503*** (2.145)	2.989 (1.629)
PL	12.584*** (1.630)	12.851*** (1.117)	8.558*** (0.917)	4.393*** (0.718)	10.992*** (2.005)	11.602*** (1.140)	7.310*** (0.943)	2.725** (0.848)
USSR	7.641** (2.664)	8.361*** (1.727)	4.239** (1.465)	0.414 (1.414)	11.493*** (2.255)	11.550*** (1.298)	5.945*** (1.108)	0.267 (1.000)
Observations	2,265,181	2,265,181	2,265,181	2,199,409	2,265,181	2,265,181	2,265,181	2,199,409

Notes: The table reports coefficients from regressions of log real lifetime earnings on indicators for intermediate and urban birthplace regions. For further notes see Table 4.

subsequent sorting into labor-market regions. Unlike the corresponding results for women, there is little evidence of an additional urban-origin premium beyond these observable characteristics. If anything, the fully controlled estimates indicate that urban-origin men accumulated fewer lifetime earnings than comparable rural-origin men with similar education, occupation, and workplace location.

The results are consistent with the findings on employment continuity. Urban-origin men exhibited lower utilization rates of potential working days than rural-origin men, implying less continuous employment biographies over the life course. Consequently, the higher daily wages associated with urban birthplaces were largely offset by shorter cumulative employment careers. The contrast with women from the Czech lands is particularly striking: while urban-origin women benefited from higher wages and relatively stable labor-force attachment, urban-origin men appear to have converted their educational and occupational advantages into higher wages but not into proportionally higher lifetime earnings.

Taken together, the results demonstrate that birthplace urbanicity influenced both earnings capacity and employment continuity over the life course. For women, urban-origin advantages are reflected in a consistent pattern of higher wages, stronger labor-market attachment, and higher lifetime earnings. For men, by contrast, higher wages were typically counterbalanced by less continuous employment biographies. More broadly, the findings highlight the importance of distinguishing between wage-based and career-based dimensions of labor-market success. Analyses focusing solely on wage levels would overlook important differences in employment continuity that ultimately shape cumulative lifetime earnings.

Taken together, these findings suggest that rural-born men experienced more continuous and possibly longer employment careers over the life course, which partly compensated for their lower daily wages. Conversely, urban-origin men appear to have experienced more fragmented employment trajectories despite receiving higher wages when employed. Several mechanisms may contribute to this pattern. Urban-origin men may have spent longer periods in education and vocational training, entered occupations with more cyclical employment risks, or experienced more frequent career interruptions associated with occupational mobility. Since the data cover employment subject to social-security contributions, differences in self-employment, civil-service careers, or transitions into non-covered employment may also contribute to the observed patterns.

For women, by contrast, the positive urban-origin premia in daily wages translate much more consistently into higher lifetime earnings. This suggests that urban-origin women combined higher wages with relatively stable labor-force attachment over the life course. The persistence of positive effects even after controlling for education and occupation further indicates that urban-origin families may have transmitted advantages extending beyond formal human capital alone.

More generally, the combined evidence from daily wages, lifetime earnings, and employment utilization points to the importance of distinguishing between wage levels and the continuity of employment careers. Birthplace urbanicity appears to influence not only earnings per working day, but also the structure and stability of employment biographies over the life course. The results therefore suggest that the long-run consequences of forced migration and family background operated through several interconnected channels, including education, occupational sorting, labor-force attachment, and career continuity. The increased use of early retirement schemes may also be contributing to the observed pattern.

5 Robustness Checks

5.1 Possible heterogeneity between older and younger cohorts

The oldest cohorts in our sample were about 10 years old at the end of World War II — that is, at the time of the main waves of flight and expulsion. In most cases, they had therefore already completed four years of elementary school in their home country (and typically their birthplace). In contrast, individuals born in 1941 or later were not yet of school age at the time of their flight or expulsion. If birthplace urbanicity primarily operated through direct exposure to local economic and social environments during childhood, one would expect substantially stronger urban-origin effects among the older cohorts.

To examine this potential source of heterogeneity, we divided the sample into the older cohorts (born between 1935 and 1940) and the younger cohorts (born between 1941 and 1946). Again separately by gender, the models were then estimated with interaction dummies for both cohort groups and all regions. Table A2 in the appendix shows the results of a formal test on equality of coefficients for average daily wages.

The results provide little support for the importance of a specific exposure to an urban economic and social environment during the first years of life. Perhaps somewhat surprisingly, the only significant differences in the coefficients are found among the native-born population. But even here, the effects are relatively small, on the order of about 1 log percentage point or less. Across the displaced populations originating from Czechoslovakia, Poland, and the Soviet Union, the estimated urban-origin premia remain remarkably stable across cohort groups. The differences are statistically insignificant and quantitatively small. This suggests that the effects of birthplace urbanicity did not primarily depend on the number of years in early childhood spent in the birthplace region before displacement.

Instead, the findings are more consistent with the interpretation that urban-origin advantages were transmitted through family-specific characteristics and social milieus that survived forced migration. Educational aspirations, occupational orientation, labor-market norms, and other forms of social and cultural capital appear to have remained influential even after geographic displacement had severed the direct connection between birthplace and later workplace.

5.2 Restriction to Persons Observed Beyond Age 40

The administrative data used in this study cover only periods of social-security-covered employment. Individuals may therefore leave the observation window for a variety of reasons. Some permanently exit the German labor market due to disability, emigration, or death. Others continue working but are no longer subject to social-security contributions, for example because they become civil servants or enter self-employment.¹² If such transitions differed systematically across origin groups or birthplace urbanicity, the estimated effects could partly reflect selective attrition from the social-security records rather than genuine differences in labor-market outcomes.

For the cohorts considered here, transitions into civil-service careers typically occurred relatively early in the working life. Entry into the civil service after age 40 was uncommon, and the probabilities of switching to self-employment or emigrating also tend to decline with age. We therefore repeated the main analysis for the subsample of individuals who remained observed in social-security-covered employment beyond age 40.

As shown in Table 7, more than 90 percent of individuals satisfy this criterion in every gender and origin group. Tables A3, A4, and A5 in the appendix demonstrate that the resulting estimates are virtually identical to those obtained for the full sample. In particular, the urban-origin premia in daily wages, the effects on the utilization of potential working days, and the gender-specific patterns in lifetime earnings remain largely unchanged.

Table 7: Share of Individuals Remaining in Social-Security-Covered Employment Beyond Age 40

Men		Women	
Origin	Percent	Origin	Percent
DE	92.3	DE	90.9
CZ	94.5	CZ	93.2
PL	94.9	PL	93.7
USSR	94.8	USSR	93.5

Notes: The table reports the share of individuals who are still observed in social-security-covered employment after age 40.

¹²The same applies to assisting family members, a group that is relevant in certain sectors such as agriculture but quantitatively of little importance in the aggregate.

These findings suggest that the main results are not driven by selective early exits from social-security-covered employment. Instead, they appear to reflect genuine differences in wages, employment continuity, and lifetime earnings over the working life.

5.3 Restriction to persons with a high utilization of potential working days

As an additional robustness check, we restricted the sample to individuals who utilized at least 70 percent of their potential working days over the observation period. This restriction removes individuals with highly fragmented employment biographies and focuses the analysis on persons with relatively stable labor-market attachment.

The results remain remarkably similar to the baseline estimates (see Figures A4, A5 and A6 in the appendix). The magnitude and ordering of the urban-origin premia across origin groups and genders are largely unchanged. In particular, the positive effects of birthplace urbanicity on daily wages and lifetime earnings continue to be observed among both native-born individuals and displaced populations. This suggests that the main findings are not driven by selective labor-market participation or by individuals with unusually weak labor-market attachment.

Overall, the robustness check strengthens the interpretation that birthplace urbanicity captures persistent differences in human capital, occupational orientation, and family-specific social and cultural capital rather than merely differences in employment continuity.

5.4 Restriction to persons with a main workplace in an urban area

As an additional robustness check, we restricted the analysis to individuals whose main workplace was located in an urban region. This specification holds constant an important dimension of labor-market exposure later in life and therefore provides a particularly demanding test of the urban-origin hypothesis.

The results (see Figures A7, A8 and A9 in the appendix) remain remarkably similar to those obtained for the full sample. Positive urban-origin premia in daily wages persist across most origin groups and are especially pronounced among women. Likewise, the negative association between birthplace urbanicity and the utilization of potential working days among men remains visible, while the corresponding effects for women remain substantially smaller. Finally, the lifetime-earnings results continue to display the same gender-specific pattern observed in the baseline estimations: large and persistent advantages for women, particularly among expellees from the Czech lands, and much weaker effects for men.

Taken together, these findings suggest that the estimated urban-origin effects are not primarily driven by subsequent sorting into urban labor markets. Even among individuals who spent their working lives in urban regions, birthplace urbanicity remains strongly associated with later labor-market outcomes. This supports the interpretation that the observed effects largely reflect persistent family-specific, educational, occupational, and social characteristics transmitted across generations rather than differences in later workplace environments alone.

6 Conclusions

This paper examined whether birthplace urbanicity exerted persistent effects on labor-market outcomes over the life course. Using administrative labor-market biographies for birth cohorts 1935–1950 combined with geocoded information on birthplaces and workplaces, we exploited the large-scale forced migration associated with World War II as a natural experiment that disrupted the spatial link between birthplace and later workplace.

The historical setting helps overcome a fundamental identification problem in the literature on birthplace effects. In countries such as Germany and the United Kingdom, a large share of individuals spend most of their working lives close to their place of birth. Estimated birthplace effects may therefore simply reflect prolonged exposure to the same local labor-market environment.

Forced displacement largely severed this connection and makes it possible to assess whether birthplace characteristics retained an independent long-run influence.

Our results show that birthplace urbanicity remained strongly associated with later labor-market outcomes despite this disruption. Individuals originating from urban regions earned systematically higher daily wages than individuals from rural regions, even after controlling for destination labor-market regions, education, and occupations. The findings therefore suggest that birthplace urbanicity primarily captures persistent family-specific advantages rather than continued exposure to urban labor markets.

At the same time, the effects differ substantially across gender and origin groups. Urban-origin premia are consistently larger among women than among men. For women, higher daily wages are generally accompanied by higher lifetime earnings and relatively stable employment biographies. Among men, by contrast, wage advantages are partly offset by lower utilization of potential working days, resulting in much weaker effects on cumulative lifetime earnings.

The results point to several interconnected transmission mechanisms. Educational attainment emerges as the most important channel, but occupational sorting and broader forms of social and cultural capital also appear to play a significant role. The persistence of substantial effects after extensive controls suggests that urban-origin families transmitted advantages extending beyond formal human capital alone. The particularly strong effects observed among women are consistent with the importance of gender-specific labor-market orientations and family norms.

More broadly, the findings demonstrate that the long-run consequences of forced migration depended not only on displacement itself but also on the socioeconomic environments from which displaced families originated. Flight and expulsion disrupted local economic structures and severed spatial ties, yet they did not eliminate differences in educational aspirations, occupational orientations, and family-specific resources. In this sense, the paper highlights the remarkable persistence of intergenerational influences even under conditions of extreme geographic and institutional disruption.

Some limitations should be acknowledged. The administrative data do not contain direct information on parental education, wealth, or occupational status before displacement, so the underlying transmission mechanisms can only be examined indirectly. Nevertheless, the evidence consistently shows that birthplace urbanicity remained an important determinant of labor-market success long after the direct connection between birthplace and workplace had disappeared.

References

- Bauer, T. K., S. Braun, and M. Kvasnicka (2013). “The Economic Integration of Forced Migrants: Evidence for Post-War Germany”. In: *Economic Journal* 123.571, pp. 998–1024.
- Becker, G. S. and N. Tomes (1979). “An Equilibrium Theory of the Distribution of Income and Intergenerational Mobility”. In: *Journal of Political Economy* 87.6, pp. 1153–1189.
- Becker, S. O. and A. Ferrara (2019). “Consequences of Forced Migration: A Survey of Recent Findings”. In: *Labour Economics* 59, pp. 1–16.
- Becker, S. O., I. Grosfeld, P. A. Grosjean, N. Voigtlander, and E. Zhuravskaya (2020). “Forced Migration and Human Capital: Evidence from Post-WWII Population Transfers”. In: *American Economic Review* 110.5, pp. 1430–1463.
- Blau, F. D. and L. M. Kahn (2017). “The Gender Wage Gap: Extent, Trends, and Explanations”. In: *Journal of Economic Literature* 55.3, pp. 789–865.
- Bosquet, C. and H. G. Overman (2019). “Why does birthplace matter so much?” In: *Journal of Urban Economics* 110, pp. 26–34.
- Brandes, D. (2005). *Der Weg zur Vertreibung 1938–1945: Pläne und Entscheidungen zum “Transfer” der Deutschen aus der Tschechoslowakei und aus Polen*. 2., überarb. und erw. Aufl. Veröffentlichungen des Collegium Carolinum, Bd. 94. Vorwort von Hans Lemberg. DNB: 966568974. München: Oldenbourg. ISBN: 3-486-56731-4.
- Braun, S. T. and M. Kvasnicka (2014). “Men, Women, and the Ballot: Gender Imbalances and Suffrage Extensions in the United States”. In: *Explorations in Economic History* 64, pp. 1–13.
- Bundesagentur für Arbeit (2011). *Klassifikation der Berufe 2010 – Band 1: Systematischer und alphabetischer Teil mit Erläuterungen*. Nürnberg: Bundesagentur für Arbeit.
- Chetty, R., N. Hendren, P. Kline, and E. Saez (2014). “Where is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States”. In: *Quarterly Journal of Economics* 129.4, pp. 1553–1623.
- Corak, M. (2013). “Income Inequality, Equality of Opportunity, and Intergenerational Mobility”. In: *Journal of Economic Perspectives* 27.3, pp. 79–102.
- Correia, S. (2016). “Linear Models with High-Dimensional Fixed Effects: An Efficient and Feasible Estimator”. Working Paper.
- Duranton, G. and D. Puga (2004). “Micro-Foundations of Urban Agglomeration Economies”. In: *Handbook of Regional and Urban Economics* 4, pp. 2063–2117.
- Glaeser, E. L. and D. C. Maré (2001). “Cities and Skills”. In: *Journal of Labor Economics* 19.2, pp. 316–342.
- Goldin, C. (2021). *Career and Family: Women’s Century-Long Journey toward Equity*. Princeton University Press.
- Möller, J. (2026). *Geocoding of Mass Data on the Basis of Fuzzy Information*. Discussion Paper. University of Regensburg.
- Moretti, E. (2012). *The New Geography of Jobs*. Houghton Mifflin Harcourt.
- Pesaresi, M., M. Schiavina, P. Politis, S. Freire, K. Krasnodebska, J. H. Uhl, A. Carioli, C. Corbane, L. Dijkstra, P. Florio, H. K. Friedrich, J. Gao, S. Leyk, L. Lu, L. Maffenini, I. Mari-Rivero, M. Melchiorri, V. Syrris, J. V. D. Hoek, and T. Kemper (2024). “Advances on the Global Human Settlement Layer by joint assessment of Earth Observation and population survey data”. In: *International Journal of Digital Earth* 17.1, p. 2390454. DOI: 10.1080/17538947.2024.2390454. eprint: <https://doi.org/10.1080/17538947.2024.2390454>. URL: <https://doi.org/10.1080/17538947.2024.2390454>.
- Poutvaara, P. and M. F. Steinhardt (2018). “Bitterness in Life and Attitudes towards Immigration”. In: *European Journal of Political Economy* 55, pp. 471–490.
- Ruist, J. (2015). “The Fiscal Cost of Refugee Immigration: The Example of Sweden”. In: *Population and Development Review* 41.4, pp. 567–581.
- Sinnott, R. W. (1984). “Virtues of the Haversine”. In: *Sky and Telescope* 68.2, p. 158.

A Additional Tables and Figures

Table A1: Number of persons in the sample by origin, birth year and gender

Birth Year	Males				Females			
	DE	CZ	PL	USSR	DE	CZ	PL	USSR
1935	260,574	7,027	28,503	5,230	154,833	4,633	18,823	3,567
1936	266,038	6,973	28,775	5,389	159,845	4,565	19,249	3,698
1937	271,660	6,941	28,381	5,485	163,758	4,713	19,220	3,950
1938	288,941	7,280	30,737	6,059	175,645	5,065	20,345	4,221
1939	307,009	10,896	32,022	6,615	187,176	7,456	21,496	4,498
1940	310,715	12,439	32,661	6,173	191,185	8,709	21,927	4,215
1941	287,372	11,400	34,221	6,113	178,214	7,810	23,133	4,201
1942	231,036	8,833	26,837	4,931	145,965	5,910	18,224	3,432
1943	235,458	9,458	29,939	5,089	150,994	6,715	20,655	3,574
1944	228,696	10,092	28,854	3,470	149,072	7,309	21,162	2,677
1945	183,164	6,372	7,921	584	122,929	4,664	5,821	447
1946	243,057	2,046	2,694	469	163,507	1,546	1,982	310
1947	267,314	827	2,231	515	186,401	742	1,803	354
1948	282,058	695	2,431	535	200,830	629	1,884	377
1949	296,533	724	2,790	587	220,251	643	2,184	464
1950	290,618	732	2,999	651	226,073	602	2,310	535
1935-46	3,113,720	99,757	311,545	55,607	1,943,123	69,095	212,037	38,790
1947-50	1,136,523	2,978	10,451	2,288	833,555	2,616	8,181	1,730
1935-50	4,250,243	102,735	321,996	57,895	2,776,678	71,711	220,218	40,520
1947-50								
in %	26.7%	2.9%	3.2%	4.0%	30.0%	3.6%	3.7%	4.3%

Notes: See text.

Table A2: Cohort Heterogeneity in Urban-Origin Premia

Origin	Urbanicity	Diff.	t-stat
Males			
DE	Intermediate	-0.438***	-2.81
DE	Urban	-1.046***	-4.22
CZ	Intermediate	-0.330	-1.54
CZ	Urban	0.380	0.84
PL	Intermediate	0.013	0.06
PL	Urban	0.181	0.85
USSR	Intermediate	0.924	1.84
USSR	Urban	0.317	0.76
Females			
DE	Intermediate	-0.084	-0.38
DE	Urban	-0.911**	-3.04
CZ	Intermediate	-0.255	-0.45
CZ	Urban	0.572	0.59
PL	Intermediate	-0.043	-0.09
PL	Urban	-0.110	-0.30
USSR	Intermediate	2.032	1.61
USSR	Urban	1.210	1.23

Notes: Reported coefficients measure the difference in the estimated urban-origin premium between cohorts born in 1941–1946 and cohorts born in 1935–1940. Estimates are based on specifications including fixed effects for birthyear, labor-market region, education and profession. Standard errors are clustered at the labor-market-region level. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Table A3: Effect of Birthplace Urbanicity on Daily Real Wages, Long-Employment Sample

	Intermediate birthplace				Urban birthplace			
	FE1	FE2	FE3	FE4	FE1	FE2	FE3	FE4
<i>Panel A: Males</i>								
DE	4.788*** (0.427)	3.994*** (0.394)	2.268*** (0.253)	0.732*** (0.158)	8.071*** (1.087)	6.815*** (1.164)	3.941*** (0.786)	1.324* (0.497)
CZ	7.653*** (0.521)	6.171*** (0.447)	3.473*** (0.291)	0.935*** (0.231)	11.763*** (0.477)	9.906*** (0.632)	4.667*** (0.474)	1.523*** (0.361)
PL	6.549*** (0.742)	5.709*** (0.817)	3.223*** (0.530)	1.231*** (0.297)	6.984*** (0.904)	5.799*** (1.001)	3.203*** (0.634)	0.854* (0.359)
USSR	5.911*** (0.691)	4.743*** (0.676)	2.684*** (0.446)	0.851** (0.285)	7.935*** (0.789)	6.713*** (0.836)	3.342*** (0.535)	0.917** (0.296)
<i>Panel B: Females</i>								
DE	4.235*** (0.423)	4.102*** (0.409)	2.220*** (0.343)	1.439*** (0.268)	12.785*** (1.326)	10.804*** (1.434)	7.466*** (1.198)	5.298*** (0.745)
CZ	10.147*** (0.560)	7.835*** (0.608)	5.727*** (0.492)	3.337*** (0.516)	17.669*** (0.922)	15.204*** (0.765)	11.064*** (0.676)	6.599*** (0.476)
PL	10.763*** (0.831)	9.920*** (0.965)	7.599*** (0.725)	5.299*** (0.522)	12.387*** (1.094)	11.318*** (1.267)	8.769*** (0.947)	6.247*** (0.651)
USSR	11.233*** (0.995)	10.505*** (1.259)	8.283*** (1.043)	5.958*** (0.798)	14.587*** (0.980)	13.449*** (1.167)	9.908*** (0.977)	6.646*** (0.743)

Notes: The table reports coefficients from regressions of log daily wages on indicators for intermediate and urban birthplace regions. The sample is restricted to observations for persons observed before and after the age of 40. For further notes see Table4 in the main text.

Table A4: Effect of Birthplace Urbanicity on Utilization of Potential Working Days, Long-Employment Sample

	Intermediate birthplace				Urban birthplace			
	FE1	FE2	FE3	FE4	FE1	FE2	FE3	FE4
<i>Panel A: Males</i>								
DE	-0.583** (0.209)	-0.668*** (0.120)	-1.134*** (0.130)	-1.644*** (0.126)	-2.306*** (0.414)	-1.601*** (0.258)	-2.266*** (0.230)	-3.098*** (0.218)
CZ	0.376 (0.268)	-0.090 (0.207)	-0.780*** (0.218)	-1.774*** (0.207)	0.120 (0.452)	-0.309 (0.224)	-1.294*** (0.224)	-2.357*** (0.214)
PL	-1.107** (0.337)	-0.662*** (0.177)	-1.254*** (0.171)	-1.959*** (0.169)	-2.699*** (0.364)	-2.170*** (0.219)	-2.687*** (0.204)	-3.471*** (0.179)
USSR	-2.936*** (0.408)	-2.406*** (0.287)	-2.853*** (0.308)	-3.474*** (0.299)	-2.647*** (0.343)	-2.127*** (0.212)	-2.825*** (0.220)	-3.590*** (0.216)
<i>Panel B: Females</i>								
DE	0.107 (0.280)	0.305* (0.138)	-0.328* (0.144)	-0.746*** (0.141)	0.176 (0.582)	0.470 (0.245)	-0.627* (0.243)	-1.543*** (0.180)
CZ	2.497*** (0.301)	1.521*** (0.297)	0.810** (0.290)	-0.175 (0.298)	2.474*** (0.427)	1.412* (0.568)	0.490 (0.535)	-0.941* (0.424)
PL	0.793 (0.450)	1.141*** (0.239)	0.398 (0.213)	-0.484* (0.203)	-0.270 (0.548)	0.188 (0.259)	-0.546* (0.221)	-1.448*** (0.244)
USSR	-0.386 (0.719)	0.031 (0.520)	-0.680 (0.477)	-1.390** (0.504)	0.033 (0.630)	0.340 (0.477)	-0.656 (0.429)	-1.751*** (0.410)

Notes: The table reports coefficients from regressions of the exhaustion of potential working days in percent on indicators for intermediate and urban birthplace regions. The sample is restricted to observations for persons observed before and after the age of 40. For further notes see Table4 in the main text.

Table A5: Effect of Birthplace Urbanicity on Real Lifetime Earnings, Long-Employment Sample

	Intermediate birthplace				Urban birthplace			
	FE1	FE2	FE3	FE4	FE1	FE2	FE3	FE4
<i>Panel A: Males</i>								
DE	2.664*** (0.749)	1.705** (0.525)	-1.178* (0.445)	-3.647*** (0.357)	0.664 (1.691)	1.261 (1.486)	-3.137** (1.028)	-7.116*** (0.806)
CZ	7.926*** (0.890)	5.457*** (0.541)	1.096* (0.469)	-3.615*** (0.425)	9.984*** (1.454)	7.374*** (0.917)	0.010 (0.957)	-5.263*** (0.847)
PL	3.082* (1.154)	3.498*** (0.931)	-0.375 (0.636)	-3.758*** (0.507)	-0.851 (1.347)	-0.518 (1.150)	-4.223*** (0.760)	-8.040*** (0.527)
USSR	-2.920* (1.427)	-2.405** (0.859)	-5.453*** (0.961)	-8.352*** (0.881)	-0.909 (1.397)	-0.436 (1.141)	-5.321*** (0.835)	-8.871*** (0.596)
<i>Panel B: Females</i>								
DE	4.074*** (1.036)	4.648*** (0.646)	1.153 (0.643)	-0.392 (0.589)	12.733*** (2.744)	11.574*** (1.855)	5.466** (1.691)	1.586 (1.045)
CZ	16.675*** (1.132)	11.733*** (0.879)	7.807*** (0.766)	3.243*** (0.788)	22.941*** (1.697)	17.820*** (1.992)	11.486*** (1.854)	4.033** (1.262)
PL	12.947*** (1.653)	13.007*** (1.151)	8.792*** (0.866)	4.697*** (0.661)	11.775*** (2.054)	12.015*** (1.382)	7.628*** (0.931)	3.141*** (0.650)
USSR	9.174** (2.628)	9.666*** (2.016)	5.627** (1.750)	2.011 (1.497)	13.859*** (2.152)	13.704*** (1.551)	7.683*** (1.396)	2.305 (1.213)

Notes: The table reports coefficients from regressions of lifetime earnings on indicators for intermediate and urban birthplace regions. The sample is restricted to observations for persons observed before and after the age of 40. For further notes see Table4 in the main text.

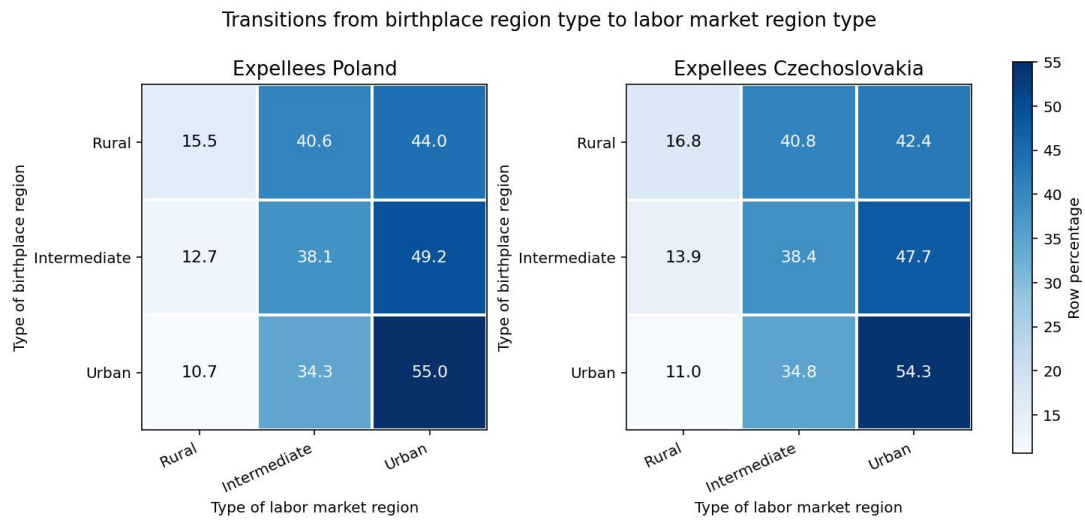


Figure A1: Transitions from region type of birthplace to region type of workplace - Males and Females born in the former CZ Republic

Notes: See figure2

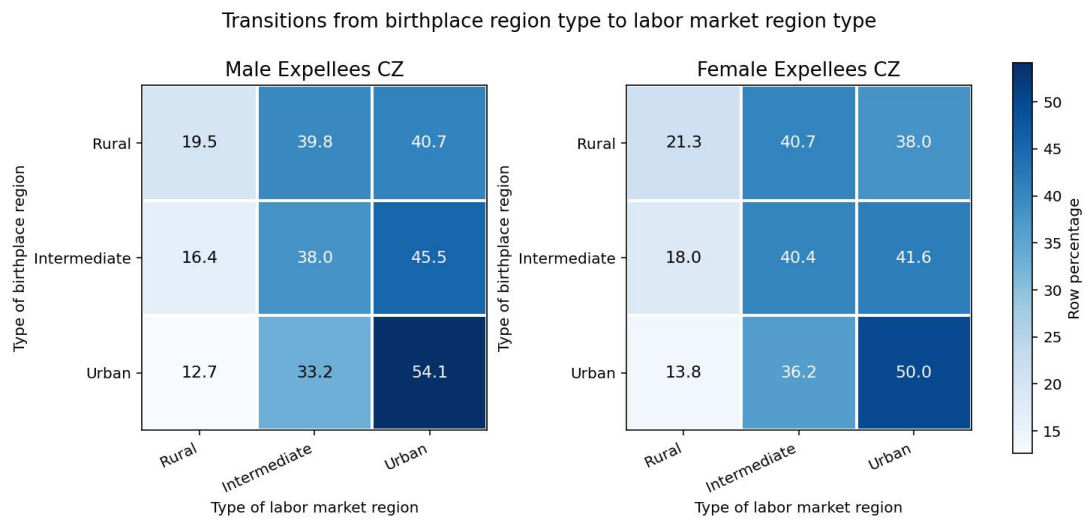


Figure A2: Transitions from region type of birthplace to region type of workplace - Males and Females born in the former CZ Republic

Notes: See figure2.

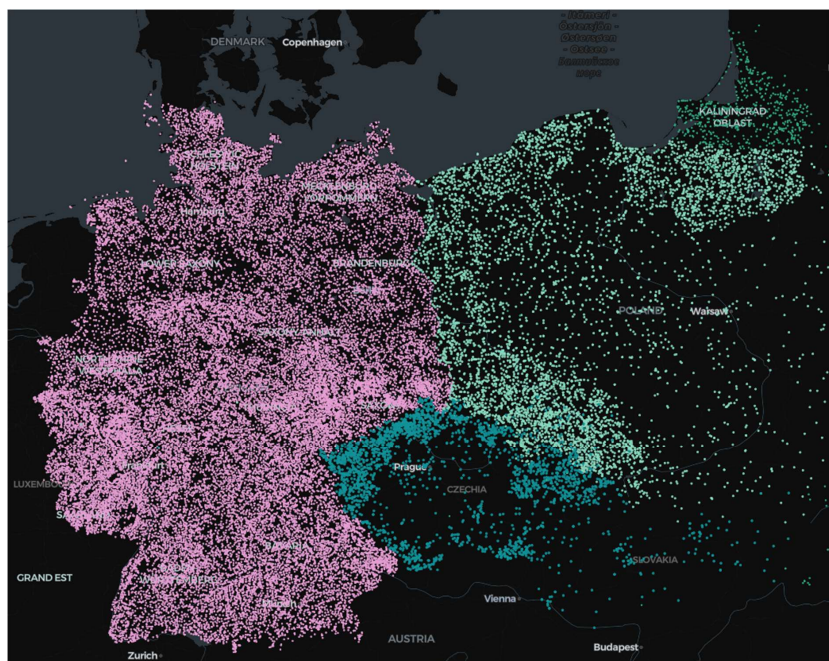


Figure A3: Birthplaces of cohorts 1935-1950 from Germany, Germany's former Eastern Territories, Poland, CZ Republic and former USSR

Notes: Geographic visualization produced using the data described in the main text and Kepler.gl, an open-source geospatial visualization platform (Kepler.gl Contributors, 2024); every point represents a birthplace of at least 20 persons in the sample.

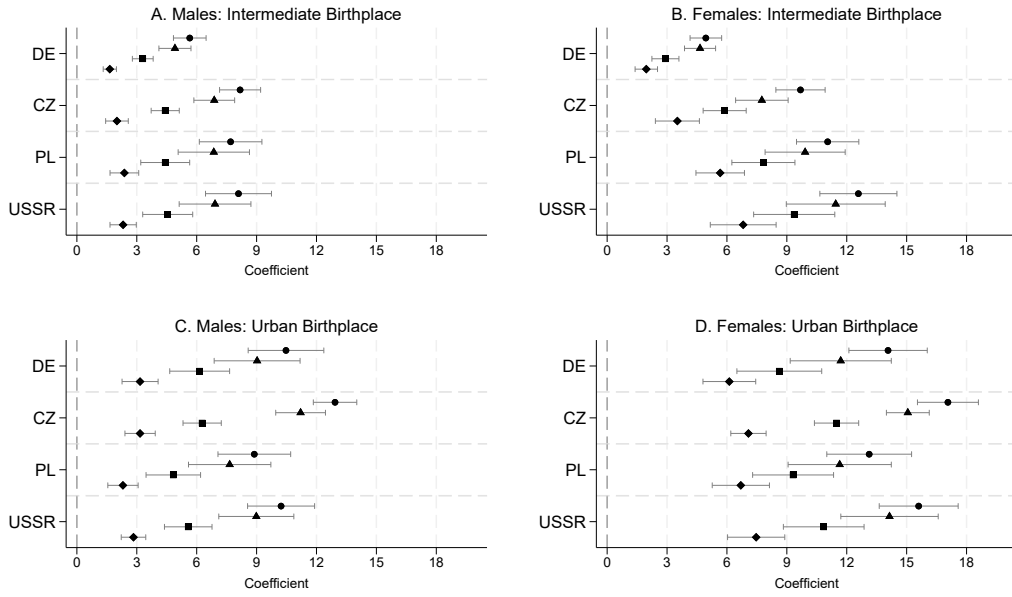


Figure A4: Birthplace urbanicity and wage premium for persons with a high attachment to employment

Notes: Coefficients and 95% confidence intervals from regressions of log daily real wages on intermediate and urban birthplace; rural birthplace is the omitted category; markers denote alternative fixed effects specifications: (i) circle = cohort fixed effect only; (ii) triangle = cohort + labor market region fixed effects; (iii) square: cohort + labor market region + education fixed effects; (iv) diamond: cohort + labor market region + education + main profession fixed effects; the sample is restricted to persons with at least 70 percent of exhaustion of their potential working days in our observation period.

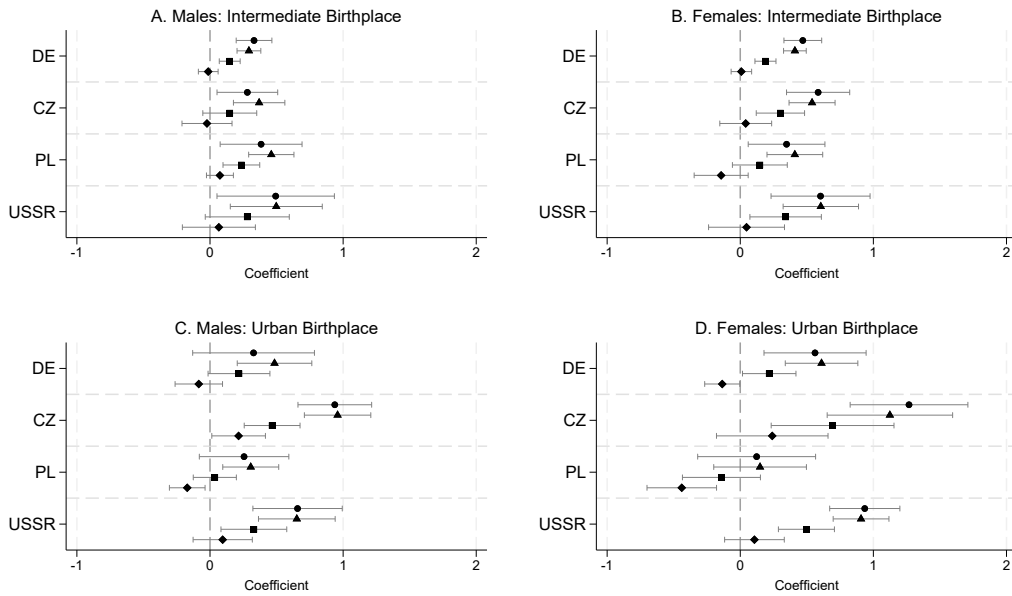


Figure A5: Birthplace urbanicity and relative utilization of potential working days for persons with a high attachment to employment

Notes: Coefficients and 95% confidence intervals from regressions of relative utilization of potential working days in percent on intermediate and urban birthplace; for further notes see Figure A4.

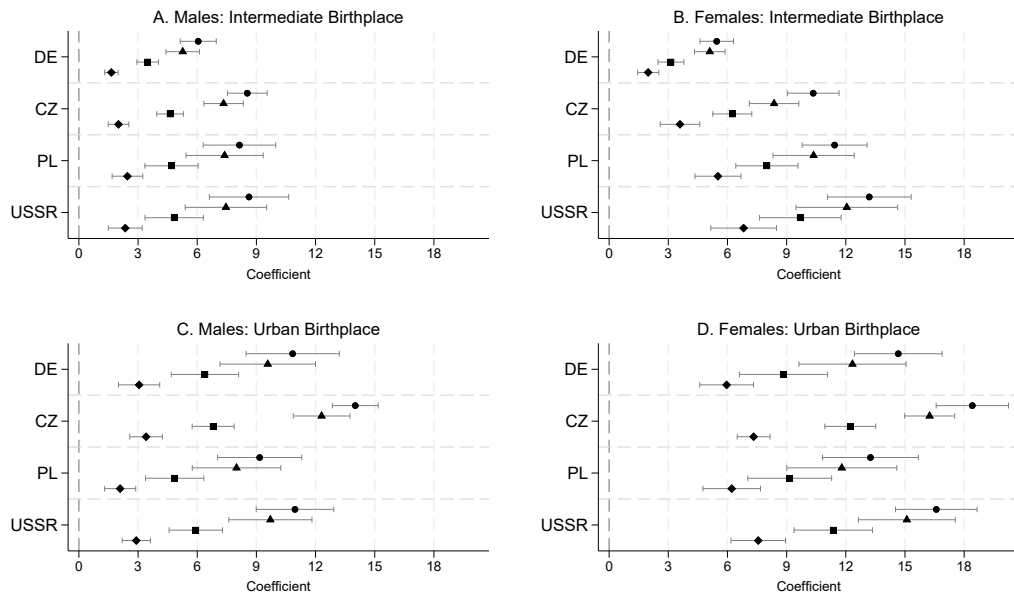


Figure A6: Birthplace urbanity and lifetime earnings for persons with a high attachment to employment

Notes: Coefficients and 95% confidence intervals from regressions of log lifetime earnings on intermediate and urban birthplace; for further notes see Figure A4.

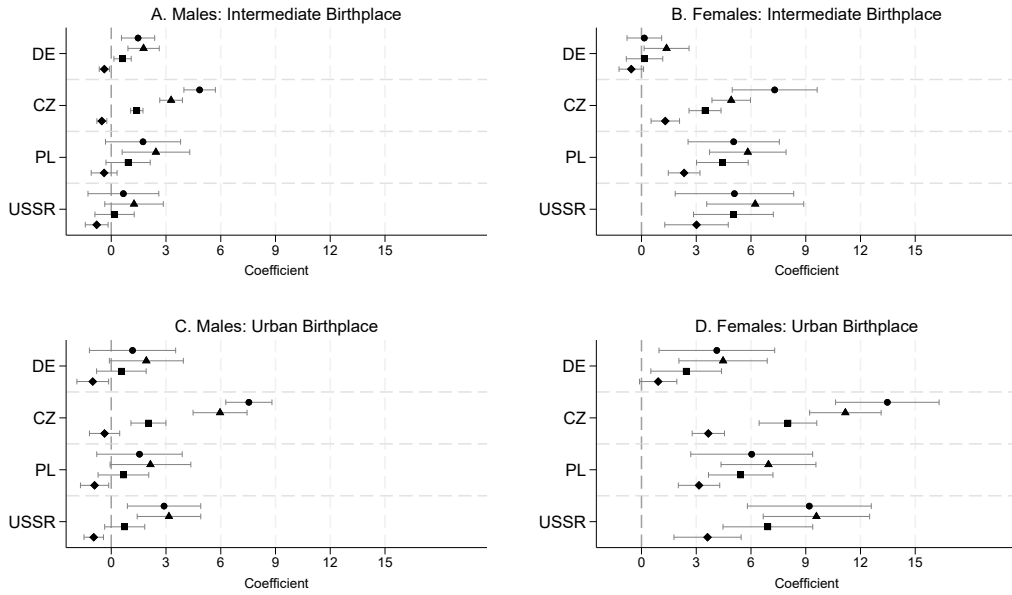


Figure A7: Birthplace urbanicity and wage premium for persons with a main workplace in an urban area

Notes: Coefficients and 95% confidence intervals from regressions of log daily real wages on intermediate and urban birthplace; markers denote alternative fixed effects specifications: (i) circle = cohort fixed effect only; (ii) triangle = cohort + labor market region fixed effects; (iii) square: cohort + labor market region + education fixed effects; (iv) diamond: cohort + labor market region + education + main profession fixed effects; the sample is restricted to persons whose main workplace was located in an urban region;

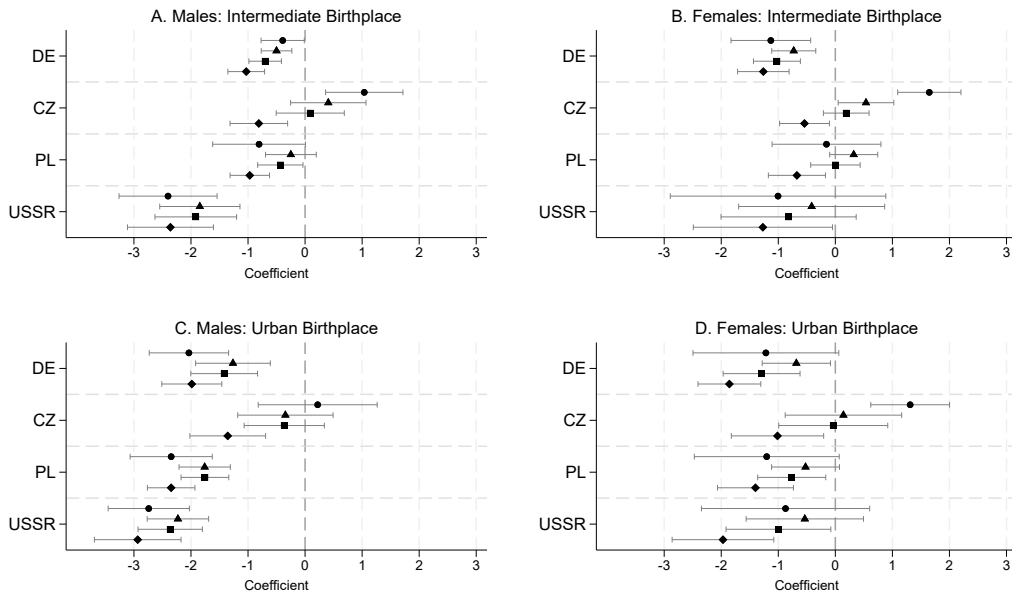


Figure A8: Birthplace urbanicity and relative utilization of potential working days for persons with a main workplace in an urban area

Notes: Coefficients and 95% confidence intervals from regressions of relative utilization of potential working days in percent on intermediate and urban birthplace; for further notes see Figure A7.

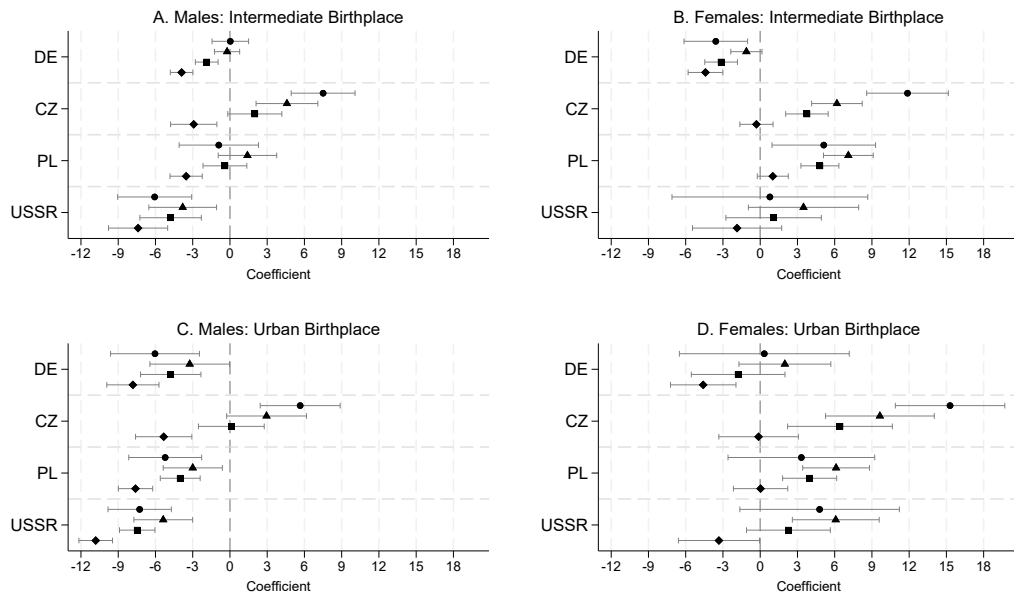


Figure A9: Birthplace urbanicity and lifetime earnings for persons with a main workplace in an urban area

Notes: Coefficients and 95% confidence intervals from regressions of log lifetime earnings on intermediate and urban birthplace; for further notes see Figure A7.