

Forced Migration and Human Capital: Evidence from Post-WWII Population Transfers[†]

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We study the long-run effects of forced migration on investment in education. After World War II, millions of Poles were forcibly uprooted from the Kresy territories of eastern Poland and resettled (primarily) in the newly acquired Western Territories, from which the Germans were expelled. We combine historical censuses with newly collected survey data to show that, while there were no pre-WWII differences in educational attainment, Poles with a family history of forced migration are significantly more educated today than other Poles. These results are driven by a shift in preferences away from material possessions toward investment in human capital. (JEL I25, I26, J24, N34, R23)

And so it happened that ... the marshall came: “Leave.”—“But where should I go?”—“To Poland.” And I say: “I am in Poland.” And he says: “This is not Poland anymore.”¹

Forced migration is a life-changing experience. It leaves deep scars in the memory of expellees. Does the experience also affect subsequent generations? In his bestselling autobiographical novel *A Tale of Love and Darkness*, Amos Oz

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¹Testimony cited in an exhibition of the Polish History Museum devoted to forced migration from Kresy. See online Appendix Section I for detail and sample photographs.

wrote, “It was always like that with Jewish families: they believed that education was an investment for the future, the only thing that no one can ever take away from your children, even if, Heaven forbid, there’s another war ... another migration” (Oz 2005, p. 172). The idea that being uprooted by forced migration increases the demand for education has been put forward in economics (e.g., Brenner and Kiefer 1981), but the hypothesis has proven difficult to test.² It is hard to identify the link between forced migration and investment in education. Forced migrants typically differ from locals along other socioeconomic and cultural characteristics such as ethnicity, language, and religion. In addition, labor-market competition with locals could have a direct effect on educational choices of migrants.

In this paper, we explore a unique historical setting to study the effect of forced migration on human-capital investment, absent the typical confounding factors. In the aftermath of WWII, over 2 million Poles were expelled from their homes when Polish frontiers were moved westward. Figure 1 illustrates Poland’s redrawn borders. Poland’s Eastern territories (*Kresy*) became part of the Union of Soviet Socialist Republics (USSR), while the former German areas (*the Western Territories*) became Polish. Before WWII, the Western Territories had been home to about 8 million Germans who were forced to resettle after the war, leaving land and capital stock behind. In the east, Poles were forced to leave *Kresy*; and the vast majority resettled in the now sparsely populated Western Territories. We compare the descendants of Poles who were forced to migrate with all other Poles of the same ethnicity, language, and religion.

We worked with the nationally representative Polish social survey, *Diagnoza*, to include, in their 2015 wave, questions about respondents’ ancestors from *Kresy*. Among the almost 30,000 respondents, more than 11 percent had ancestors from *Kresy*. We find that descendants of forced migrants have significantly higher educational attainment today, as compared to all other Poles. The educational advantage that descendants of forced migrants have is quantitatively important: they have on average one extra year of schooling, driven by a higher propensity to finish secondary or higher education. By contrast, before WWII, when Poland consisted of the *Kresy* territories and Central Poland (CP), Poles in *Kresy* had lower literacy rates. Figure 2 illustrates the reversal in education of Poles originating from *Kresy* versus Poles from Central Poland comparing education levels of these groups before and after WWII.

The *Diagnoza* survey allows us to compare descendants of forced *Kresy* migrants with all other Poles. However, the survey contains no information about ancestors other than from *Kresy*. To address this, we conducted an additional survey, *the Ancestry Survey*, in 2016, in the Western Territories (WT), where the majority of *Kresy* migrants were transported after WWII. We asked a representative sample of about 4,000 respondents about the origin location of *all* their ancestors in the generation of the youngest adults in 1939. We obtained the detailed locations of origin of almost 12,000 ancestors from all over present-day Poland, as well as from *Kresy*. In addition, the *Ancestry Survey* allows us to compare the education levels of

²Stigler and Becker (1977, footnote 1) attribute the idea to Reuben Kessel (undated). Regarding the most prominent case, that of the Jews, Botticini and Eckstein (2012) have convincingly challenged the idea that forced migration and discrimination are the main drivers of their educational lead. They argue that Jewish preferences for education can be explained by historically rooted religious motives.

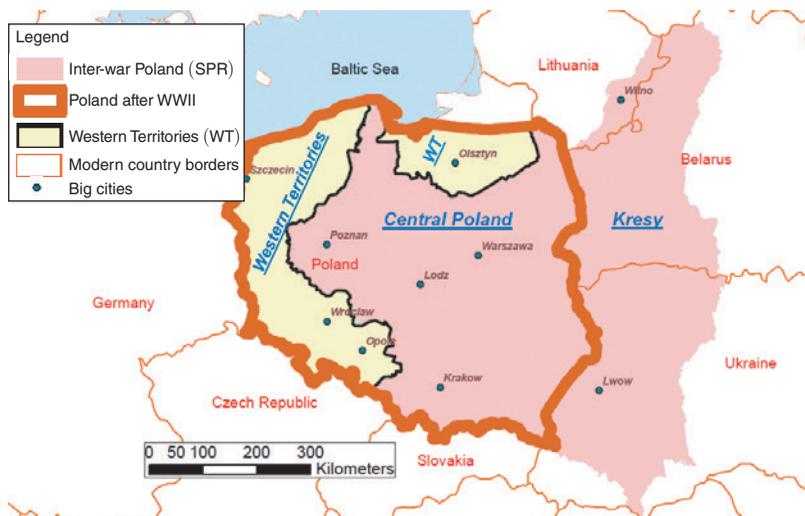


FIGURE 1. POLAND BEFORE AND AFTER WWII

Notes: This map illustrates the redrawing of Poland's borders after WWII. The former eastern Polish territories (Kresy) became part of the USSR, while the former German areas in the west and north (Western Territories) became part of Poland. Poles from Kresy were forced to leave: the vast majority were resettled to the emptied Western Territories.

Sources: Map generated by the authors from MPIDR and CGG (2011) and GADM (2008)

the descendants of forced migrants from Kresy, of voluntary migrants from CP, and of Poles who had already lived in WT before the war (autochthons). We find that descendants of migrants from Kresy are the most educated, followed by descendants of voluntary migrants. Descendants of autochthons are the least educated group in Poland's WT today.

Our Ancestry Survey also allows us to confirm our main results in a border-sample analysis. We restrict the sample to people whose ancestors in 1939 lived less than 150 kilometers from either side of the Kresy border. We find that among respondents who live in the same town or village today, those whose ancestors lived in Kresy have significantly higher education today than those whose ancestors lived in CP, within our Kresy border sample.

We examine two potential threats to identification. First, preexisting differences: people from Kresy may have already had higher educational attainment or different preferences for education before WWII. Second, selection: people from either Kresy or from other parts of the country may have differentially selected into specific locations. We use a combination of historical data, survey data, and border discontinuity analyses to address these concerns. We then examine several possible mechanisms behind our results. Using both historical sources and empirical analysis, we document that Kresy migrants did not have differential access to resources, schooling, or employment opportunities at their destination locations. Nor is there any indication that congested labor markets, differential fertility, out-migration, or economic conditions at destinations confound our results. We conclude that a shift in preferences toward investment in human capital is the most likely explanation for our findings.

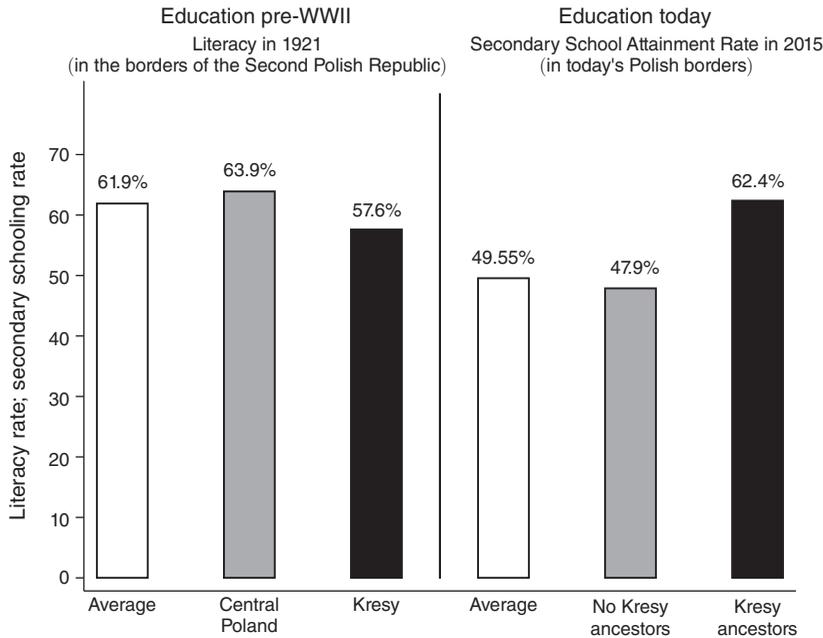


FIGURE 2. HISTORICAL AND CONTEMPORANEOUS PATTERNS IN EDUCATION

Notes: This figure shows the reversal in educational attainment for forced migrants and their descendants. Kresy residents, who were forced to migrate, had lower literacy before WWII than residents of Central Poland, while today descendants of the Kresy migrants have higher educational attainment. The data are from the 1921 Polish census and the 2015 *Diagnoza* survey. For 1921, the figure displays literacy rates of Roman Catholics (i.e., ethnic Poles) in the Second Polish Republic, which consisted of Kresy and Central Poland. For contemporary Poland, the figure shows the average secondary-school attainment rate, for people without Kresy ancestors (25,122 respondents), and for people with Kresy ancestors (3,221 respondents). We use the share of people with a secondary degree because it is comparable to the 1921 literacy rates in terms of its nationwide average.

We support this interpretation with survey evidence, showing that descendants of forced migrants value material goods less, and more strongly aspire to educate their children. They also possess fewer physical assets compared to what they can afford. Historical narratives from the time of the expulsions corroborate our survey evidence, suggesting a change in preferences toward education. For example, a memoir by a forced migrant from Kresy, who came from a simple peasant family, reads:

In Western Territories, there was a specific situation. People did not attach great importance to material wealth. After all, nobody had it at that time ... Most of the people who came here were still living in the memories of places of their origin and of material things that had belonged to their families for generations. In a new life situation, the cult of new values emerged, i.e., values that are indestructible, that cannot be lost, and that die with the man—the cult of knowledge, of skills, which can resist cataclysms.

—Bieniasz (1987), as cited in Halicka (2015, p. 262)

Our interpretation is consistent with recent evidence revealing how preferences can adjust to shocks to environmental or institutional conditions. A robust body of evidence describes how individual preferences change in response to exposure

to violence, natural disasters, or economic shocks.³ Recent evidence suggests that these effects persist in future generations (Galor and Özak 2016, Zhang 2019). Our work is also related to the literature that studies the economic effects of migration. This research typically focuses on two broad topics: the effect of migrants on short-run and long-run economic outcomes at their destinations, and socioeconomic effects on migrants themselves and on their descendants.⁴ A large body of work has examined *forced migration*, driven by natural disasters, international wars, and civil wars.⁵

Our focus is on the long-term effects of forced migration after WWII, in the generations of children, grandchildren, and great-grandchildren of adult expellees. In the context of forced migration due to WWII, two related papers are Bauer, Braun, and Kvasnicka (2013) and Sarvimäki, Uusitalo, and Jäntti (2019). Bauer, Braun, and Kvasnicka (2013) study the economic integration of Germans expelled from Poland's Western Territories into West Germany. They find that migrant children tend to acquire more education than their native peers. The main mechanism behind this finding is congestion: former farming families had to look for work outside agriculture because agricultural land in West Germany was already held by native Germans. We show below that this mechanism is unlikely to be at play in the largely emptied Western Territories. Sarvimäki, Uusitalo, and Jäntti (2019) study the effect of forced migration of 11 percent of the Finnish population after the Soviet invasion in 1939 on income of migrants.

Relative to the existing literature, we make several contributions. First, we test the prominent hypothesis, untested by the previous literature, that uprootedness leads to investment in human capital. Uprootedness is arguably a contributing factor to numerous studies on forced migration, such as Bauer, Braun, and Kvasnicka (2013); Nakamura, Sigurdsson, and Steinsson (2017); and Sarvimäki, Uusitalo, and Jäntti (2019), though their contexts did not allow them to prove that it was the main factor at play. Second, we analyze the hitherto unstudied mass population movements in post-WWII Poland, where Poles expelled from Kresy were resettled into the largely empty ex-German Western Territories. This unique setting allows us to bypass common confounding factors associated with forced migration, such

³See Blattman and Miguel (2010) for a review of the literature on exposure to violence, and Voors et al. (2012); Bauer et al. (2014); Cassar, Grosjean, and Whitt (2013); or Jakiela and Ozier (2019) for more recent contributions. On natural disasters, see Cameron and Shah (2015); Cassar, Healy, and von Kessler (2017); and Hanaoka, Shigeoka, and Watanabe (2018). On economic shocks, cf. Giuliano and Spilimbergo (2014); Fisman, Jakiela, and Kariv (2015); and Malmendier and Nagel (2016).

⁴See the comprehensive discussions in Borjas (2014); Card and Peri (2016); and Dustmann, Schönberg, and Stuhler (2016) for short-run effects. For evidence of the long-run effects of migrants at their destinations, see Hornung (2014), Peters (2017), and Murard and Sakalli (2018). Dustmann, Frattini, and Lanzara (2012) provides an overview of the literature on second-generation immigrants. Katz and Rapoport (2005) builds a model that formalizes how forced migration can lead to a shift away from investing in physical capital toward investing in human capital.

⁵Becker and Ferrara (2019) survey the literature on the effects of forced migration. Card (1990); Braun and Mahmoud (2014); Bharadwaj, Khwaja, and Mian (2015); and Borjas and Monras (2017) use forced migration to identify the effect of migration on economic outcomes at the destination. Several papers examine relatively short-run effects of natural disasters. Sacerdote (2012) looks at the effects on test scores of students displaced from New Orleans after Hurricane Katrina. Nakamura, Sigurdsson, and Steinsson (2017) study the labor market outcomes of families displaced by the eruption of a volcano off the coast of Iceland in 1973. Jacob (2004) and Chyn (2018) exploit exogenous variation in mobility caused by public-housing demolitions in Chicago. While neither paper finds effects on educational attainment, displaced children have better labor market outcomes as adults. The literature has also examined the effects of voluntary migration (Abramitzky, Boustan, and Eriksson 2014; Sequeira, Nunn, and Qian 2020; Bazzi et al. 2016).

as different ethnicity, language, or religion, as well as congested labor markets. Third, we break new ground by studying the long-run effects of forced migration on the descendants of migrants over several generations. This is relevant to policymaking in a world with large waves of forced displacement. Finally, our results suggest that caution is warranted in the prominent approach that uses forced migration as an instrument to estimate the effect of migration: this instrument may directly affect outcomes via a change in preferences.

The rest of the paper is organized as follows. Section I provides historical background. Section II describes the data. Section III shows the main results using the two surveys. Section IV examines threats to identification, such as (potential) selection of migrants. Section V presents evidence on mechanisms. Section VI concludes.

I. Historical Background

A. *The Change of Poland's Borders*

Redrawing Poland's Borders in the Twentieth Century.—During the period known as the Partitions of Poland, Poland did not exist as an independent state. The Second Polish Republic (SPR) was created in 1918. In September 1939, Nazi Germany and the Soviet Union invaded the SPR, splitting it according to the Molotov-Ribbentrop Pact, and Poland once again ceased to exist as an independent state. At the end of World War II, an independent Poland reemerged within redrawn borders that “moved” Poland 200 kilometers to the west. These new borders were established during the Tehran, Yalta, and Potsdam Conferences. Poland gained the former German territories of Silesia, Pomerania, and East Prussia, collectively known as the Western Territories. At the same time, Poland lost the Eastern Borderlands, known as *Kresy*. The *Kresy* territory was divided among the Soviet Republics of Lithuania, Belorussia, and Ukraine. Figure 1 illustrates the change in Polish borders.⁶

We refer to the part of Poland that belonged to the SPR before WWII and continued to be Polish after WWII as Central Poland. Thus, the territory of Poland before WWII comprised Central Poland and *Kresy*, whereas the Polish territory after WWII comprised Central Poland and the Western Territories. The 1931 Polish census, the last census of the SPR, counts about 3 million ethnic Poles in *Kresy*. Before WWII, according to the 1939 German census, 8.8 million people lived in areas that after WWII became the Polish Western Territories. Almost 90 percent declared themselves to be German, 10 percent Poles, and about 1 percent Jews (Dziewanowski 1977).

Arbitrariness of the Kresy Border of 1945.—The *Kresy* border was established roughly along the so-called Curzon Line after many discussions between Josef Stalin and the Allies. The Curzon Line had earlier been suggested as an armistice line by the British Foreign Secretary, Lord Curzon, during the 1920 Polish-Soviet

⁶The eastern border of the SPR was established by the 1921 Treaty of Riga which marked the end of the Soviet-Polish war of 1919–1921. The borders of the SPR around Silesia and East Prussia were adjusted as a result of several referenda in 1920–1922. Throughout the analysis and on the map, we consider the final SPR border as of 1922.

conflict: a suggestion that was then disregarded by both Poland and the USSR. The 1921 Treaty of Riga instead provided Poland with land that, on average, was about 250 kilometers eastward of the Curzon Line. The Curzon Line also did not correspond to the border Germany and the Soviet Union established in their Molotov-Ribbentrop Pact. After the military defeat of Poland in September 1939, the USSR annexed territories extending well to the west of the Curzon Line, as far as Lublin and Warsaw. Nor did the Curzon Line separate geographically different areas: there is no discontinuity in geo-climatic characteristics such as precipitation, temperature, elevation, terrain ruggedness, or in suitability for various crops (see online Appendix Section V.A).

After recapturing eastern Poland from Germany in 1944, the Soviets unilaterally declared the new border between Poland and the USSR approximately along the Curzon Line, to which the Allies ultimately conceded at the Yalta Conference.⁷ Historians of Poland agree that the post-WWII border between Poland and the USSR, which we henceforth refer to as the Kresy border, was arbitrary. For example, Davies (1981, p. 493) writes: “All decisions regarding the Polish frontiers were taken ad hoc [...] No attempt to trim the frontiers to the wishes of the population ever succeeded [...] It was decided in 1944–5 to trim the population to the requirements of arbitrary frontiers.”

Poles in Kresy and Central Poland before WWII.—In the context of our study, a relevant question is whether Poles from Kresy were exposed to radically different experiences than Poles from other regions already before WWII. In the two periods when Poland was a sovereign state, the Polish-Lithuanian Commonwealth (1569–1795) and the SPR (1918–1939), Poles had the same rights in all parts of the country. In particular, Poles who lived in what later became Kresy and Poles who lived in what later became Central Poland had exactly the same status (Davies 1981). By contrast, during the Partitions of Poland, the living conditions and the rights of Poles differed across the three empires (e.g., Davies 1981, Grosfeld and Zhuravskaya 2015). The Russian and the Austro-Hungarian Partitions stretched over parts of Kresy and parts of Central Poland. *Within* these two partitions, Poles had the same rights whether they lived in Kresy or elsewhere.⁸ Overall, Poles in Kresy faced differential treatment (as compared to Poles in other parts of Poland) only once: when they were forced to move from Kresy at the end of WWII.

B. Post-WWII Mass Population Movements

In conjunction with the redrawing of Poland’s borders after WWII, mass migration occurred. At the end of WWII, an estimated 2.5 million to 3.4 million Germans (who had not fled as the Red Army advanced), and 1 million Poles were still living in WT

⁷In online Appendix Section I.C, we give more detail on variants of the Curzon Line that were under consideration. We show that our results hold when we restrict our sample to counties that different versions of the Curzon Line placed on different sides of the border, i.e., counties that could have become Polish or Soviet territories, depending on the different variants of the Curzon Line (Table A.12).

⁸In Section IV, we show that our results hold when we restrict the sample to ancestors who lived within the former Russian Partition of Poland (which covered about three-quarters of Kresy and one-half of CP). The Prussian Partition did not include any part of Kresy, and the Austro-Hungarian Partition covered about one-quarter of Kresy (Grosfeld and Zhuravskaya 2015). We also show that exposure to violence during WWII does not drive our results.

(Dziewanowski 1977). The remaining Germans were expelled from WT and had to resettle in Germany, west of the Oder-Neisse Line. Poles from Kresy were forced to resettle within the new Poland, while Ukrainians, Belorussians, and Lithuanians had to leave Poland and resettle in the USSR. These mass migrations began in 1944 and were largely completed by 1948 (e.g., Schechtman 1962, Eberhardt 2003).

Historians agree that the members of these groups had essentially no alternative but to move: Polish and Soviet authorities sought to quickly create irreversibility, by moving populations according to the new frontiers (see Davies 1981, Kersten 1986).

Forced Migration from Kresy.—By 1950, 2.1 million Poles had been forced to move from Kresy. The Polish State Repatriation Bureau tried to ensure an orderly movement of Poles from Kresy directly to WT; but war-related devastation, destruction of infrastructure, and lack of adequate transport made this task difficult. Approximately one-quarter of Kresy migrants, many of whom had family ties in CP, settled there. Polish authorities sought to resettle Kresy deportees in those places in WT that had soil and climatic conditions most closely resembling the conditions at the origin locations, which in practice meant that trains brought people to WT from Kresy along the same latitude. Each family was allowed to bring up to two tons of belongings, including livestock; thus, they had to leave most of their possessions behind (Ciesielski 1999).

Not everybody left during the postwar population exchange. In 1945–1946, authorities in the Lithuanian and Belorussian SSR were concerned that agricultural production could be halted by a drop in agricultural labor and tried to prevent Poles in rural areas from leaving. In contrast, Ukrainian authorities did not attempt to prevent rural Poles from leaving due to the high levels of animosity between Poles and Ukrainians at the end of WWII (e.g., Ciesielski 1999). In all three Soviet republics, pressure on the urban Polish population to leave was high. We exploit the urban versus rural and Ukraine versus rest-of-Kresy variation below.

Voluntary Migration from Central Poland.—Despite WWII-related destruction, WT offered abundant land, housing, infrastructure, and capital stock. Before the war, these territories had been densely populated, making them an attractive destination for voluntary migrants from CP, who were seeking a better fortune. Deprivation and poverty were the main drivers of migration from CP (Zaremba 2012, p. 97). The flow of migrants from CP started in the spring of 1945. Some of this early voluntary migration was spontaneous (mostly from the neighboring Polish areas, sometimes on foot, or by horse carts and trucks), and some was triggered by an advertising campaign organized by the Polish authorities that promoted a move to WT to populate the newly acquired land as quickly as possible.

Aggregate Statistics on Mass Population Movements.—The first full post-WWII population census in Poland, in 1950 (GUS 1955), gathered information about the mass movements of the Polish population by asking about the place of residence before September 1, 1939.⁹ Table 1 reports aggregate statistics from the 1950 census

⁹In particular, respondents indicated whether they had lived within the post-WWII Polish borders, and if so, in which region (voivodeship). If in 1939, respondents had lived outside the borders of post-WWII Poland, they had

TABLE 1—POLISH POPULATION IN 1950 (IN THOUSANDS)

	Western Territories (WT)	Central Poland (CP)	Share of Western Territories
Total population, 1950	5,602	19,012	22.8%
By region of origin			
Lived in Central Poland in 1939	2,785 (49.7%)	18,355 (96.5%)	13.2%
Lived in USSR (Kresy) in 1939	1,554 (27.7%)	583 (3.1%)	72.7%
Lived in Western Territories in 1939	1,112 (19.9%)	19 (0.1%)	98.3%
Lived abroad (not USSR) in 1939	152 (2.7%)	53 (0.3%)	74.0%

Notes: This table shows the population of Poland in 1950 by area of residence, as well as by area of origin. Data are from the 1950 Polish census. The three major origins are Kresy (which became part of the USSR after WWII), Central Poland (which had been and remained Polish), and the Western Territories (which had been German and became Polish).

about the origin of the Polish population, separately in the Western Territories and in Central Poland. In 1950, the Polish population was 24.6 million, 23 percent (5.6 million) of whom lived in WT. Within WT, about 50 percent (2.8 million) came from CP, 28 percent (1.6 million) came from Kresy, and 20 percent (1.1 million) were autochthons, i.e., Poles who had lived in WT when they belonged to Germany before the war. The remaining 2.7 percent came from other countries, mostly from France. Within CP, 96.5 percent (18.4 million) of the population came from CP and only 3 percent (about 583,000) came from Kresy. Very few inhabitants of CP came from WT or from abroad (0.1 percent and 0.3 percent, respectively).

Ethnically and religiously, post-WWII Poland was largely homogeneous, composed of ethnic Poles of Roman Catholic faith who differed only in their pre-WWII region of residence. In 1950, Poles constituted 97.8 percent of the total Polish population. The remainder were Germans, Ukrainians, Belorussians, and Jews, with each group accounting for less than 1 percent of the population (Eberhardt 2000, p. 76).

The Arrival of Migrants in the Western Territories.—Upon arriving in the Western Territories, Poles (whether they came from Kresy or Central Poland) were allocated land, housing, and capital that expelled Germans had left behind. In rural areas, this primarily meant houses, land plots, and agricultural machines. In urban areas, apartments, townhouses, shops, and office buildings. Initially, the Polish administration was very weak and operated under conditions of chaos, confusion, and lack of rules. There was no register of available properties, and people were more or less free to find and claim a place. During this first period, the capital goods left by Germans were distributed on a first come, first serve basis (Halicka 2015, p. 203). When institutions and the Polish administration became stronger, authorities began to organize the distribution of land and capital. The arrival of migrants in WT coincided with the land reform in 1944–1948. Migrants to rural areas typically got lots of 8–10 hectares

to indicate the country in which their 1939 place of residence was located in 1950. Thus, forced Kresy migrants indicated that they lived in the USSR before the war.

per family; larger estates were parceled out among several families (Davies 1981, p. 559). The peasants became owners of their land for an equivalent of a one-year harvest payable in several installments. Large farms of more than 100 hectares in WT (and more than 50 hectares in CP) were transformed into State Collective Farms. The houses and flats left by Germans were nationalized, and settlers got lifetime rental contracts.

Forced Kresy migrants and voluntary migrants from Central Poland arrived in the Western Territories at the same time. They were treated equally upon arrival (Schechtman 1962, p. 213). The Ministry of Recovered Territories collected statistics on the rates of arrival of migrants by month during 1946 and 1947. Online Appendix Figure A.6 visualizes these data, showing that the share of migrants arriving in WT from Kresy was about 40–50 percent of all incoming migrants throughout this two-year window. By the end of 1947, the Kresy migration of the first repatriation wave came to an end.¹⁰

C. Uncertainty Perceived by Kresy Migrants and Its Connection with Education

Historical and journalistic accounts of resettlement in WT suggest that forced migrants perceived a higher degree of uncertainty than other settlers or autochthons. Inhabitants viewed the fate of WT as uncertain because of the lack of a legal guarantee for the Polish-German border.¹¹ The prominent Polish sociologist Zdzisław Mach described this in an interview with the leading Polish newspaper *Gazeta Wyborcza*:

Settlers did not feel that the land they found was given to them forever. Until the 70s it was not certain that the Western Territories would remain part of Poland ... Władysław Gomułka [the first Communist Party secretary] ... did not invest in the Western Territories because at heart he was not sure what would happen to them ... It is not a random expression that the first generation of resettlers were living on suitcases. They never felt sure and secure ...

—*Gazeta Wyborcza*, December 29, 2010

Settlers from Kresy, traumatized by their expulsion, worried that Germany would take over WT (e.g., Zaremba 2012). Magdalena Grzebałkowska, a journalist and the author of *1945: War and Peace*, a book based on the testimony of descendants of resettlers to WT, was herself born in WT; her grandparents had been forced to move from Kresy. In her book, she reflects on her own experiences: “As a child, I was worried that if something is postgerman, at some point it may become postpolish. Unconsciously, I inherited the fear of my ancestors-settlers that the place where I live is given to us just for a moment” (Grzebałkowska 2015, p. 72). In an interview with the authors of this paper (conducted on May 9, 2018), Grzebałkowska

¹⁰In online Appendix Section VII.B, we discuss the so-called second repatriation of Poles from the USSR in 1955–1959, which amounted to about 10 percent of all Kresy migrants.

¹¹Until 1950, a mere memorandum from the Potsdam Conference guided the demarcation of the border along the Oder-Neisse Line; in 1950, East Germany and socialist Poland signed the first bilateral treaty legalizing it. In 1970, West Germany and Poland signed a similar treaty. The final treaty was signed by Poland and reunified Germany in 1990; it was ratified by the Polish Sejm and the German Bundestag in 1991.

confirmed that the experience of forced migration had an important effect on her perception of uncertainty, which in turn is related to education decisions:

Unlike migrants from Central Poland who always had an option of going back to Central Poland (and some actually did go back) ... forced Kresy migrants got the 'one-way ticket' and lost everything ... When you lost everything, it seems worth investing in yourself, getting more education.

II. Data

We use several datasets for modern-day and historical Poland in our analysis. To capture modern-day educational attainment at the individual level, we use two surveys that also ask questions about the history of migration of respondents' ancestors in the aftermath of WWII.¹² We complement these surveys with aggregate (regional- and county-level) data from historical censuses that describe population characteristics in Poland before and after WWII. We describe each of these data sources in turn.

A. Diagnoza Survey

The Diagnoza (“Social Diagnosis”) survey from the Council for Social Monitoring (2015) is a large-scale household survey comparable to similar surveys in the United States (Panel Study of Income Dynamics) or the United Kingdom (“Understanding Society”). It is a representative sample of the Polish population with eight waves between 2000 and 2015 (see <http://diagnoza.com/index-en.html>). We commissioned the addition of several questions to the 2015 wave, which inquired whether any of the ancestors of the respondent came from Kresy and if so, from which exact location.¹³ The 2015 wave, with approximately 30,000 observations, allows us to compare education and other outcomes for respondents with *any* ancestors from Kresy to those without ancestors from Kresy. We focus on the education of respondents, using years of education as our main variable of interest. We also use two dummies for educational attainment: (i) having (at least) secondary education and (ii) having (at least) completed higher (tertiary) education. We also use a number of questions about the attitudes of respondents toward the education of their children and toward the accumulation of material wealth.

A drawback of the Diagnoza survey is that it includes only information on ancestors from Kresy but not on ancestors from other areas, such as from CP. In addition, the survey does not report the exact ancestor who lived in Kresy (e.g., mother, father, grandmother). Our Ancestry Survey fills these gaps.

¹²In online Appendix Section IV.D, we also use a third survey, the Life in Transition Survey (LiTS), which has a substantially smaller sample than the other surveys, but nevertheless confirms our results.

¹³The main question added was: “Is there anybody in your household who himself or his parents or grandparents were living before WWII in the Eastern Borderlands (Kresy)?” If the answer was “yes,” respondents were asked to indicate up to three localities where their relatives lived in Kresy in the summer of 1939. We geocoded these places.

B. Ancestry Survey

To complement the Diagnoza survey, we conducted our own survey in 2016 in the Western Territories, which saw the largest inflow of Kresy migrants after WWII. In our Ancestry Survey (Becker et al. 2016), we asked a professional survey company to draw a representative sample of the population in WT (3,169 respondents), as well as an additional representative sample of people in WT with Kresy origin (900 respondents).¹⁴ We asked detailed questions about the place of living of respondents' ancestors for each ancestor in the generation of the youngest adults in 1939 (see online Appendix Section IV.5). For instance, if the youngest adult generation was the respondent's parents, we asked where the mother and the father of the respondent lived on September 1, 1939. If the generation of the youngest adults in the family in 1939 was the respondent's grandparents, we asked where each of the four grandparents lived. Similarly, if the generation of the youngest adults in 1939 was the respondent's great-grandparents, we solicited information for all eight great-grandparents. Overall, the 4,069 respondents gave information about 13,223 ancestors. Most respondents knew the exact name of the locality of origin of their ancestors (not just the broad region of origin), even when the generation of youngest adults in the family was the great-grandparents. This highlights the salience of the mass population movements in the family histories of Poles.¹⁵ Overall, we were able to identify and geocode the place of residence for 11,928 of the 13,223 ancestors.

We report summary statistics for the Diagnoza survey and for our Ancestry Survey in Tables A.1 and A.2. Online Appendix Figure A.7 displays the origin of ancestors in our Ancestry Survey.

C. Historical Censuses

Post-WWII Polish Census: 1950.—The Polish census in 1950 (GUS 1955) contains information on population movements. It asked which Polish region or which country people lived in before WWII (according to post-WWII borders, thus, people who lived in Kresy in 1939 had to answer “USSR”). In WT, this information is available by county (powiat) of residence; in CP, it is available by region (voivodeship) of residence, and for Kresy there is no further detail (since all of Kresy falls under the USSR). Online Appendix Section III benchmarks the surveys' responses against the information on post-WWII migration given by the 1950 Polish census.

Interwar Polish Censuses: 1921 and 1931.—We use two censuses conducted in the SPR (GUS 1928, 1938). The census closer to WWII was conducted in 1931; it

¹⁴This oversample of 900 additional respondents with Kresy origin was done via “random route” sampling, i.e., after interviewers had interviewed one of the randomly drawn 3,169 respondents, they would go from door to door in the neighborhood until they found a respondent with Kresy origins. Our baseline regressions are unweighted, following the advice from Solon, Haider, and Wooldridge (2015) against the indiscriminate use of sample weights. However, our survey results are nearly identical when using weights that account for the oversampling of respondents with ancestors from Kresy (shown in online Appendix Section IV.B).

¹⁵In our survey, we were able to monitor the interview process. We were impressed by how survey respondents engaged with the questionnaire. Most respondents were so fascinated by our questions about their ancestry that they tried earnestly to respond accurately. Many checked family archives to make sure that they answered as precisely as possible. Some even called back to tell us their family stories.

gives information on literacy rates and shares of population with different languages and religions by locality, but without cross-tabulations of the data. The 1921 census, in contrast, has literacy rates by religious denomination, allowing us to measure the literacy rates among Roman Catholics. This is a close proxy for the literacy of ethnic Poles because, in the SPR, Poles were by far the largest Roman Catholic group. The only other Roman Catholic group was a Lithuanian minority (accounting for 0.12 percent of the population in Kresy in 1931). Other groups had different religious affiliations, such as Orthodox Christians, Greek Catholics, and Jews.

Pre-WWI Russian Empire Census: 1897.—The 1897 Census of the Russian Empire (Troynitsky 1899) provides information on literacy rates in Russian as well as in the native language if different from Russian. For our purposes, we extract the literacy rate of native Polish speakers.

Pre-WWI German Empire Census: 1900.—We use the share of Polish speakers in 1900 across localities in WT (from Kaiserliches Statistisches Amt 1903) as a proxy for the autochthon population.

III. Results: Forced Migration from Kresy and Education Outcomes

Our analysis relates modern-day education outcomes to the place of origin of respondents' ancestors. We use our two individual-level datasets: the Diagnoza survey and our Ancestry Survey. Diagnoza has two advantages: it covers all of today's Poland, and it has a large number of respondents. On the downside, Diagnoza includes information only on whether respondents had *any* ancestors from Kresy territories; it lacks information on how many ancestors were from Kresy, as well as the origin of ancestors from regions other than Kresy. Our Ancestry Survey fills this gap, by collecting information on all ancestors from the generation that was affected by the post-WWII population transfers. One caveat: we conducted our Ancestry Survey only in WT (where most Kresy migrants resettled), which could raise concerns about selection of voluntary migrants to WT. We discuss this in detail in Section IV. Overall, the Diagnoza survey and our Ancestry Survey can be seen as complements: the former allows us to compare descendants of forced Kresy migrants to all other Poles, so that selection of the control group is not an issue. The latter includes more detailed information on ancestors by focusing on the area that saw the largest inflow of migrants. The main results in both surveys are nearly identical, suggesting that neither missing detail on non-Kresy ancestors in Diagnoza, nor selection of voluntary migrants in the Ancestry Survey confound our results.

In both surveys, we estimate the following regression at the respondent level i :

$$(1) \quad Y_i = \beta Kresy_i + \phi' \mathbf{X}_i + \eta_{Locality(i)} + \varepsilon_i,$$

where Y_i denotes different outcomes of respondent i , such as measures of i 's education and attitudes. In the Diagnoza survey, $Kresy_i$ is a dummy variable that takes the value 1 if *any* ancestor was from Kresy. When using our own Ancestry Survey, we can also compute $Kresy_i$ as the *share* of i 's ancestors from Kresy. The term \mathbf{X}_i is a vector of the respondent's demographics: gender, age, and age² interacted with birth-decade

dummies, and indicators for whether the respondent lives in a rural area or in an urban county. Finally, $\eta_{Locality(i)}$ represents fixed effects for the locality of respondents' residence. These absorb differences in the local socioeconomic environment (such as labor market conditions) and in geography (such as whether respondents live in WT). In particular, we use fixed effects for counties (*powiat*) or municipalities (*gmina*). The Diagnoza sample covers 377 counties and 1,726 municipalities, while our Ancestry Survey covers 115 counties and 407 municipalities. In Diagnoza, we cluster the error term ε_i at the household level because several respondents may come from the same household in this survey.¹⁶

A. Diagnoza Survey Results

Using the Diagnoza survey, Table 2 shows that individuals whose ancestors were expelled from Kresy territories have significantly higher levels of education today. Panel A presents our main results for *years of education*. In columns 1 and 2 we examine the full sample, with approximately 28,300 respondents (of whom more than 3,200 had Kresy ancestors). Column 1 reports results without any controls, showing that Kresy ancestry is associated with 0.97 additional years of schooling (relative to an average of 11.91 years). When we include county fixed effects and our set of baseline controls in column 2, the coefficient on Kresy ancestry remains similar and highly significant (0.82 extra years of schooling). This suggests that our results are not affected by spatial sorting of migrants, or by local characteristics such as labor markets or land quality. We refer to column 2 (i.e., including county fixed effects) as our baseline specification. Column 3 shows that results are nearly identical when we control for municipality fixed effects. Next, columns 4 and 5 restrict the sample to respondents in rural and urban areas, respectively. The coefficient on Kresy is somewhat larger in urban areas. Finally, the results are similar for respondents in CP and WT (columns 6 and 7).

In panels B and C of Table 2, the dependent variable is an indicator for secondary and higher education, respectively. In our baseline specifications in column 2 we find that descendants of Kresy migrants are 11.2 percentage points more likely to finish secondary education (relative to a mean of 50 percent), and 8.8 percentage points more likely to graduate from college (relative to a mean of 20 percent). Thus, in *relative* terms, the association between Kresy origin and education is strongest for higher education.¹⁷

Figure 3 presents the Kresy effect on years of education by birth cohorts. If anything, Kresy migrants in the pre-1930 birth cohort (i.e., individuals who had finished their secondary education by the time they were displaced) have somewhat *lower* education than other Poles. This addresses the concern that Kresy migrants

¹⁶We exclude all respondents in the Diagnoza survey who are younger than 16 years old, the age of completing secondary education. In our Ancestry Survey, all respondents are adults. All our results hold in more restrictive specifications that exclude respondents with "student" status.

¹⁷To benchmark these estimates, we compare them to the effect of well-known interventions. In the US context, quasi-experimental evidence on federal financial aid by Dynarski (2003) shows that an additional \$2,000 in aid increased college attendance by about 8 percentage points. Bettinger et al. (2012) finds very similar effects of a "combined assistance and information treatment" for federal student aid among low-income families. High-school seniors whose parents received this treatment were 8 percentage points more likely to attend and continue college over the subsequent three years. Our estimates for the Kresy effect are similar in size.

TABLE 2—FORCED MIGRATION FROM KRESY AND EDUCATION: DIAGNOZA SURVEY RESULTS

Sample:	Individual-level education, as indicated in each panel						
	All (no controls) (1)	All (2)	All (3)	Rural (4)	Urban (5)	Central Poland (6)	Western Territories (7)
<i>Panel A. Dependent variable: years of education</i>							
Ancestor from Kresy	0.969 (0.080)	0.819 (0.074)	0.801 (0.080)	0.670 (0.123)	0.900 (0.094)	0.933 (0.112)	0.705 (0.100)
Mean dependent variable	11.91	11.91	11.91	11.13	12.70	11.94	11.83
Observations	28,341	28,176	28,158	14,111	14,065	21,121	7,055
<i>Panel B. Dependent variable: secondary education dummy</i>							
Ancestor from Kresy	0.145 (0.011)	0.112 (0.011)	0.110 (0.012)	0.105 (0.020)	0.118 (0.013)	0.112 (0.016)	0.109 (0.015)
Mean dependent variable	0.50	0.50	0.50	0.37	0.62	0.50	0.49
Observations	28,343	28,179	28,161	14,120	14,059	21,114	7,065
<i>Panel C. Dependent variable: higher education dummy</i>							
Ancestor from Kresy	0.106 (0.010)	0.088 (0.010)	0.090 (0.011)	0.061 (0.016)	0.101 (0.014)	0.115 (0.016)	0.063 (0.013)
Mean dependent variable	0.20	0.20	0.20	0.12	0.28	0.20	0.20
Observations	28,343	28,179	28,161	14,120	14,059	21,114	7,065
<i>Controls (all panels)</i>							
Baseline controls [‡]		✓	✓	✓	✓	✓	✓
Respondent county FE		✓		✓	✓	✓	✓
Respondent municipality FE			✓				

Notes: This table shows that individuals whose ancestors were expelled from the Kresy territories have significantly higher levels of education today. We ran regressions at the respondent level using data from the 2015 Diagnoza survey; standard errors are clustered at the household level.

[‡] Baseline controls include respondents' gender, age, and age² interacted with birth-decade dummies, and indicators for rural places and urban counties.

may have had higher education already when they were displaced (either due to preexisting differences or due to selection). But among the 1930 birth cohort (i.e., school-age children in 1945), respondents with Kresy origin have about 1.3 extra years of schooling, suggesting that forced migration had an immediate effect on education. Also later generations, the descendants of Kresy migrants, still display an education advantage.¹⁸

In online Appendix Table A.4, we show that higher education due to forced migration translates into better labor market outcomes. We find that respondents with ancestors from Kresy earn higher income, are more likely to work in white-collar occupations, and are less likely to be unemployed.

B. Ancestry Survey Results

We now turn to our Ancestry Survey, which has information on the origin of *all* ancestors in a respondent's family tree, for the generation of the youngest adults at the beginning of WWII. We use this information to compare the descendants of

¹⁸ In online Appendix Section IV.A, we discuss these results in more detail, present similar findings for secondary and higher education as an outcome (see Table A.3), and reflect on the role of intergenerational transmission.

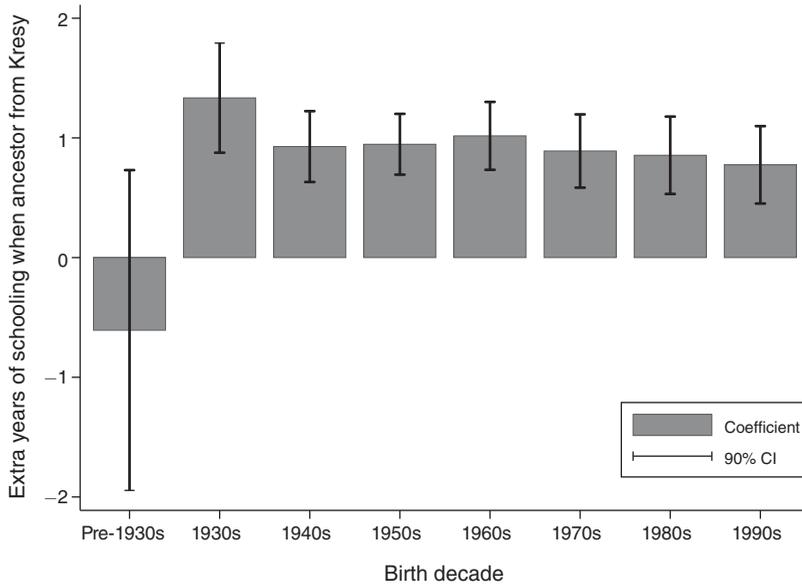


FIGURE 3. THE KRESY EFFECT ON YEARS OF EDUCATION, BY BIRTH COHORT

Notes: This figure visualizes the results of regressing years of education on Kresy ancestry for different birth cohorts. The underlying regressions include our standard controls (see Table 2 notes) and respondent county fixed effects, absorbing potential local differences in the education system and in the labor market environment. Each bar corresponds to the coefficient on *Ancestor from Kresy*. The pre-1930 birth cohort was at least 16 years old at the end of WWII and was above schooling age at the time of forced migration. We ran the regressions using the Diagnoza sample for 2015 (online Appendix Table A.3 presents regression results for years of schooling as well as completion rates of secondary and higher education). Respondents who were still students during the 2015 survey are excluded.

forced migrants from Kresy with descendants of voluntary migrants from Central Poland, and with autochthons.

Respondent-Level Analysis in the Ancestry Survey.—We use the detailed information on ancestor origins in our Ancestry Survey to compute each respondent's *share* of ancestors from Kresy, *share* of ancestors from CP, *share* of ancestors who are autochthonous to the Western Territories, and *share* of ancestors who lived outside of Poland in 1939 (see summary statistics in online Appendix Table A.2). Columns 1 and 2 in Table 3 (panel A) present the simplest specification in the Ancestry Survey, using a dummy for “any respondent from Kresy,” thus replicating the specification from the Diagnoza survey. The coefficients are similar to the first two columns of Table 2. Next, column 3 uses the *share* of ancestors from Kresy as the main explanatory variable in equation (1). This coefficient reflects the change in education outcomes when moving from 0 to 1 in the share of ancestors from Kresy. The magnitude is similar to the results in columns 1 and 2, where we used a dummy for *any* ancestor from Kresy. In column 3 we also control for the share of ancestors from WT (autochthons) and of Poles who lived abroad in 1939. Note that the share of ancestors from CP is thus the reference group. In addition, we control

TABLE 3—FORCED MIGRATION FROM KRESY AND EDUCATION IN WESTERN TERRITORIES: ANCESTRY SURVEY

Sample:	Years of education						Secondary	Higher
	All (1)	All (2)	All (3)	All (4)	Rural (5)	Urban (6)	All (7)	All (8)
<i>Panel A. Respondent-level regressions</i>								
Ancestor from Kresy	0.769 (0.107)	0.911 (0.099)						
Share of ancestors, Kresy			0.744 (0.125)	0.721 (0.131)	0.629 (0.239)	0.760 (0.150)	0.104 (0.020)	0.053 (0.017)
Share of ancestors, WT			-0.980 (0.179)	-1.005 (0.194)	-0.588 (0.302)	-1.240 (0.241)	-0.169 (0.029)	-0.128 (0.023)
Share of ancestors, abroad			-0.608 (0.623)	-0.493 (0.596)	-1.917 (1.397)	-0.261 (0.679)	-0.004 (0.098)	-0.038 (0.090)
Share of ancestors, rural			-0.847 (0.135)	-0.849 (0.138)	-0.995 (0.330)	-0.793 (0.150)	-0.107 (0.021)	-0.072 (0.019)
Mean dependent variable	12.70	12.70	12.71	12.71	11.55	13.22	0.52	0.23
R ²	0.01	0.27	0.28	0.36	0.32	0.25	0.20	0.20
Observations	3,716	3,716	3,668	3,668	1,110	2,558	3,668	3,668
<i>Panel B. Ancestor-level regressions</i>								
Ancestor from Kresy	0.641 (0.096)	0.648 (0.088)	0.497 (0.092)	0.456 (0.090)	0.342 (0.174)	0.526 (0.107)	0.071 (0.015)	0.045 (0.014)
Ancestor from WT			-0.898 (0.136)	-0.857 (0.133)	-0.711 (0.228)	-0.971 (0.175)	-0.154 (0.024)	-0.126 (0.020)
Ancestor from abroad			1.017 (0.976)	1.293 (0.859)	-0.040 (0.711)	2.056 (1.182)	0.152 (0.137)	0.107 (0.179)
Ancestor from rural area			-0.505 (0.098)	-0.517 (0.093)	-0.692 (0.227)	-0.447 (0.106)	-0.071 (0.016)	-0.045 (0.015)
Grandparent	1.438 (0.119)	0.331 (0.163)	0.394 (0.162)	0.351 (0.163)	0.602 (0.284)	0.348 (0.198)	0.029 (0.026)	0.039 (0.021)
Great-grandparent	2.508 (0.159)	0.911 (0.229)	1.023 (0.229)	0.873 (0.231)	0.937 (0.401)	1.021 (0.276)	0.165 (0.038)	0.109 (0.035)
Mean dependent variable	13.03	13.03	13.04	13.04	11.95	13.54	0.55	0.26
R ²	0.07	0.28	0.29	0.38	0.32	0.27	0.22	0.23
Observations	11,928	11,928	11,548	11,548	3,617	7,931	11,548	11,548
<i>Controls (all panels)</i>								
Baseline controls ^a		✓	✓	✓	✓	✓	✓	✓
Respondent county FE		✓	✓		✓	✓	✓	✓
Respondent municipality FE				✓				

Notes: This table uses data from our 2016 Ancestry Survey in the Western Territories, showing that a larger share of ancestors from Kresy in a respondent's family tree is associated with higher levels of education. We ran regressions at the respondent level in panel A, and at the ancestor level in panel B; robust standard errors (in panel B clustered at the level of respondents corresponding to each ancestor) are indicated in parentheses. Dependent variable in columns 1–6 is respondent's education in years; in column 7, dummy for secondary and, in column 8, dummy for higher education.

^a Controls include respondents' gender, age, and age² interacted with birth-decade dummies, as well as indicators for respondents living in rural places and urban counties. Excluded category in columns 3 to 7 is ancestors from Central Poland.

for the share of each respondent's ancestors who came from rural *origin* locations to capture possible differences between migrants from rural and urban areas. The negative coefficient on the share of ancestors from WT shows that autochthons have

lower education levels as compared to descendants of migrants from CP.¹⁹ Overall, the ranking of respondents (from highest to lowest) in terms of education by the origin of ancestors is Kresy, Central Poland, Western Territories, or: forced migrants, voluntary migrants, autochthons.

Column 4 shows that our results are nearly identical when we include fixed effects for municipalities (*gminy*), which are typically smaller than local labor markets. In columns 5 and 6 we find that point estimates, while not different in terms of statistical significance, are again marginally higher for urban *destinations* of migrants; in line with the Diagnoza results from Table 2. Finally, columns 7 and 8 show that the share of Kresy ancestors is also significantly related to the probability of finishing secondary and higher education.

Ancestor-Level Analysis in the Ancestry Survey.—We now turn to the data at the ancestor level, where each ancestor a of each respondent i is a separate observation. This allows us to control for characteristics of individual ancestors, and to exploit the origin location of ancestors around the Kresy border. We estimate the following equation:

$$(2) \quad Y_i = \gamma Kresy_{a(i)} + \psi' \mathbf{A}_{a(i)} + \varphi' \mathbf{O}_{a(i)} + \phi' \mathbf{X}_i + \eta_{Locality(i)} + \varepsilon_{a(i)},$$

where Y_i is respondent i 's education, as above, and $Kresy_{a(i)}$ indicates whether ancestor a of respondent i came from Kresy. In addition to all standard controls for respondents' demographics (\mathbf{X}_i) and destination fixed effects $\eta_{Locality(i)}$, we control for ancestor characteristics $\mathbf{A}_{a(i)}$: dummies for whether ancestor a is a parent (21.5 percent of the sample), grandparent (54.5 percent), or great-grandparent (24.0 percent) of respondent i . The term $\mathbf{O}_{a(i)}$ denotes characteristics at the origin location of ancestor a , such as whether a came from a rural area. We also include dummies indicating whether the ancestor was an autochthon or came from abroad, which leaves origin from CP as the comparison group. We cluster error terms by respondents to account for two facts: all ancestry information for a given respondent comes from the same source, and education of the respondent does not vary across ancestors.²⁰ Panel B of Table 3 presents results at the ancestor level. Throughout, we find positive and significant coefficients on the indicator for ancestors from Kresy.

¹⁹Note that in column 3 the comparison group is Poles with ancestors from CP, while in column 2, the comparison group is ancestors from all of Poland. When running the same specification as in column 2 (i.e., without controlling for other ancestor shares), the coefficient on Kresy share is 0.917, which is nearly identical to the indicator for any ancestor from Kresy in column 2. We explain the similarity of these coefficients in online Appendix Section IV.B: we show that having a majority of ancestors from Kresy does not have a differential effect on descendants' education above and beyond having *any* ancestor from Kresy (Table A.6). This result suggests that Kresy ancestry is salient within families. That is, in families with mixed ancestor origins, those from Kresy may dominate the transmission of values related to education.

²⁰Econometrically, respondent-level and ancestor-level regressions are not equivalent. In online Appendix Section IV.C we present Monte Carlo simulations comparing the results of ancestor-level and respondent-level regressions. First, we show that the point estimate of the parameter of interest in the ancestor-level regression, γ , is smaller than the point estimate of the parameter of interest in respondent-level regressions, β from equation (1). The difference between the two parameters depends on the correlation between indicator variables for Kresy origin of different ancestors of the same respondent. Second, we show that the level of significance in the respondent-level and ancestor-level regressions is similar irrespective of the correlation among ancestor origins of the same respondent, as long as this correlation is positive (as is the case in our data). In other words, statistical inference in both types of regressions is the same.

C. Identification: Kresy Border Samples

The higher educational attainment of Kresy descendants could be driven by pre-existing differences in Kresy. For example, attitudes toward education may have been different in Kresy and CP before WWII, even if literacy rates were similar (see Figure 2). In what follows, we exploit the discontinuity around the Kresy border to identify causal effects of forced migration.²¹

Kresy Border Sample Based on the Diagnoza Survey.—We begin with the Diagnoza survey, restricting the sample to the area less than 150 km on each side of the border between Kresy and Central Poland. Arguably, this provides a culturally more homogeneous area. At the same time, we face a challenge in constructing this sample. No Diagnoza respondents are living on the Eastern side of the border today. We thus use information on the location of ancestors that is provided in Diagnoza to identify respondents with ancestors within 150 km east of the Kresy border, using the maximum distance to the Kresy border among all Kresy ancestors. As for the area within 150 km *west* of the Kresy border (i.e., in today's Poland), we assume that respondents without Kresy ancestors who live there today also have family roots in the area. We discuss the limitations of this assumption below.

We first check whether there were preexisting differences in education between the two sides of the Kresy border. The left panel of Figure 4 shows that this is not the case: literacy among Poles (identified by their Roman Catholic religion in the 1921 census) was similar on both sides of the Kresy border. There is also no significant trend in distance on either side of the border. In contrast, the right panel of Figure 4 shows that there is a sharp discontinuity at the border, with today's education jumping by about one year. This confirms that Kresy descendants have substantially higher education levels, even among a subset of individuals with ancestors from locations close to the Kresy border. Online Appendix Table A.10 complements Figure 4, presenting results based on a spatial regression discontinuity design (RDD) on the Diagnoza border sample.

The Diagnoza border sample analysis has an important shortcoming: individuals with Kresy roots now largely live in the Western Territories, far away from the historical Kresy border. Our border analysis compares them to individuals who still live close to the Kresy border today (to its west). That is, we compare respondents who live far apart today, rather than within the same location. We address this limitation, using the more detailed data from our Ancestry Survey.

Border Sample Based on the Ancestry Survey.—Our Ancestry Survey allows us to perform a border sample analysis. The survey includes information on ancestors from *both* sides of the Kresy border. This enables us to compare people who live in the same town or village in the Western Territories today, but have ancestors from the different sides of the Kresy border.

²¹In online Appendix Section V (Figures A.11 and A.12), we show that there are no jumps at the Kresy border in geo-climatic characteristics or agricultural suitability. This complements the historical discussion on the arbitrariness of the Kresy border in Section IA.

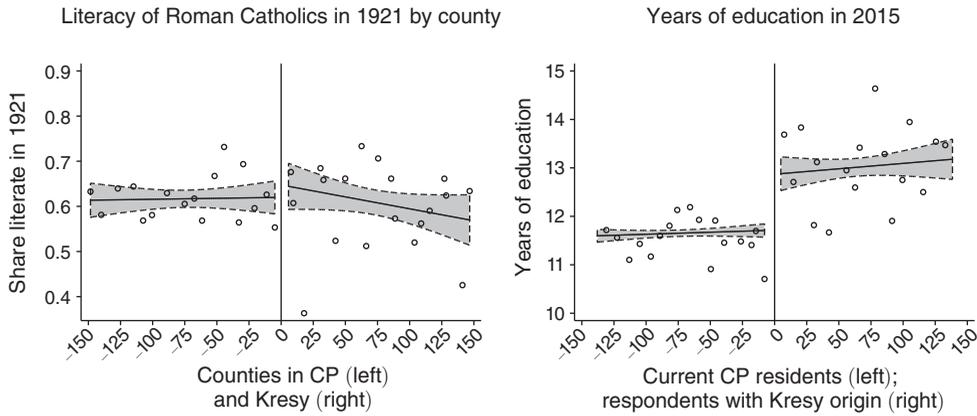


FIGURE 4. KRESY BORDER SAMPLE: 1921 CENSUS AND 2015 DIAGNOZA SURVEY

Notes: This figure uses only respondents (from the 2015 Diagnoza survey) with roots in the area less than 150 km from the border between Kresy and Central Poland. The left panel shows that there is no difference in literacy in 1921 around the Kresy border. The right panel tracks individuals with roots near the Kresy border by including (i) individuals from the Diagnoza survey with ancestors from Kresy who lived less than 150 km to the east of the border, and (ii) individuals without Kresy ancestors who live (today) less than 150 km to the west of the border. Dots correspond to data aggregated into 8-km (5-mile) bins for visualization, while the lines are based on all underlying observations, with the shaded areas representing 90 percent confidence intervals.

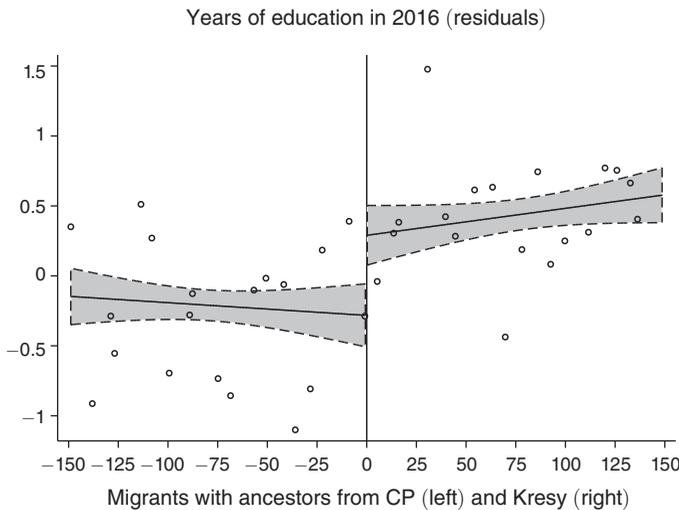


FIGURE 5. KRESY BORDER SAMPLE: ANCESTRY SURVEY

Notes: This figure uses respondents from our Ancestry Survey, i.e., individuals who live in the Western Territories today. Among these, we restrict the sample to people with ancestral roots in the area less than 150 km around the border between Kresy and Central Poland. Underlying the figure is an ancestor-level regression, as in specification (2), of years of education on our standard controls (see Table 3 notes) and on respondents' municipality fixed effects. Dots correspond to residuals from this regression aggregated into 8-km (5-mile) bins for visualization, while the lines are based on all underlying observations, the shaded area representing 90 percent confidence intervals. See online Appendix Table A.11 for the corresponding regression results.

Figure 5 illustrates the border effect for years of education. We restrict the sample to people with ancestor origin within less than 150 kilometers of the Kresy border.

However, in contrast to the Diagnoza analysis, we include fixed effects for the current municipality of respondents in addition to our standard controls. When comparing people who live in the same municipality in WT today, those whose ancestors were expelled from just a few kilometers east of the Kresy border have significantly higher education than those whose ancestors lived a few kilometers west of the Kresy border. Online Appendix Table A.11 provides the corresponding spatial RDD results as well as robustness checks.

A limitation of the border analysis in our Ancestry Survey is that migrants from west of the Kresy border (i.e., from CP) may have been selected. To address this concern, the two border analyses from Diagnoza and our Ancestry Survey complement each other: they show that the descendants of forced migrants from east of the Kresy border are more educated than *both* “stayers” in the area west of the Kresy border (Figure 4) and “movers,” i.e., the descendants of (voluntary) migrants who left this area (Figure 5). The magnitude of the Kresy coefficients is also similar in both analyses (see online Appendix Tables A.10 and A.11). Thus, in combination, the two border samples suggest that selection of voluntary migrants is unlikely to confound our results.

Contested Border Sample Based on Ancestry Survey.—In Section IA we discussed that the Kresy border was arguably drawn at random, without accounting for local conditions. We address possible skepticism about this issue by exploiting the fact that the location of the Kresy border was debated, with seven different versions being discussed in 1943 at the Tehran Conference. In online Appendix Section V.D, we further restrict the border sample to areas that were contested during the negotiations about the Curzon Line. In this analysis, we use only ancestors who lived in an area that could either have become part of Poland or of the USSR, depending on the variant of the Curzon Line. Even within this highly restrictive subsample we find a statistically significant effect, with Kresy ancestry implying 0.94 extra years of schooling.

IV. Threats to Identification: Preexisting Differences and Selection

This section addresses potential threats to our identification of an effect of forced migration on education. We discuss preexisting differences between Kresy and the rest of Poland as well as selection of migrants.

A. Preexisting Differences?

Could our results be driven by differences of Poles from Kresy, in education, in preferences for schooling, in socioeconomic or geographic characteristics, before they were forced to migrate? We show that these are unlikely to affect our findings.

Were Poles in Kresy Already More Educated before WWII?—An obvious concern is that Poles expelled from Kresy may already have been more educated before WWII. We have presented evidence that allays this concern. Figure 2 shows that in 1921, Roman Catholics (i.e., Poles) in Kresy had a literacy rate of 57.6 percent, compared to 63.9 percent in CP. This pattern also holds when we differentiate

between rural areas (Kresy: 53.9 percent; CP: 60.0 percent) and urban areas (Kresy: 74.2 percent; CP: 74.7 percent). Thus, if anything, Poles from Kresy were less educated on average before they were forced to migrate, as compared to Poles from the rest of the SPR.

Did Poles in Kresy Already Have Higher Preferences for Education before WWII?—Preexisting differences in preferences for education are unlikely to drive our results. As discussed in Section IA, there were no differences in access to education in Kresy compared to CP before WWII (all belonged to Poland then), and there was also no discrimination of Poles in Kresy. Thus, if Poles from Kresy had preexisting preferences for education, these should have materialized in higher literacy rates before WWII. In addition, since the Kresy border was arbitrary (see Section IA and online Appendix Section V), it is unlikely that preexisting cultural differences would jump at the border.

Socioeconomic and Geographic Characteristics.—To what extent do characteristics of migrants' origin locations affect the relationship between Kresy origin and education? To analyze this, we use our Ancestry Survey and augment specification (2) by adding a host of socioeconomic and geographic controls (all measured at ancestor origin locations), as well as their interaction with the Kresy origin dummy. Specifically, using the 1931 Polish census, we interact Kresy origin with the share of Roman Catholics, the shares of native Polish, Ukrainian, and Russian speakers, the literacy rate, and the urbanization rate. We also use the share of literate Roman Catholics from the Polish census of 1921. Going beyond the population characteristics, we look at climate variables at the place of origin from FAO/IIASA (2012) and Jarvis et al. (2008). A large share of the population was working in agriculture pre-1939. Thus, land suitability, temperature, the precipitation-evapotranspiration ratio, and ruggedness were key features of the economic environment. Online Appendix Tables A.13 and A.14 show that neither the variables' levels nor their interaction terms with Kresy origin are statistically significant. In addition, the coefficients (all based on standardized variables) are typically an order of magnitude smaller than the coefficient on Kresy origin, while the latter maintains its magnitude and significance from our baseline ancestor regressions in panel B of Table 3. We interpret this as evidence that the effect of uprootedness is driven by forced migration itself, and not by specific circumstances at the place of origin.²²

Differential War Exposure or Victimization?—Could differential WWII experience of ancestors from Kresy offer an alternative explanation for our findings? Since there are no comparable administrative data from Polish or Soviet sources, we use the Life in Transition Survey (LiTS) from the European Bank for Reconstruction and Development (2016). LiTS asked respondents in 2016 whether anybody in their family was killed or injured as a result of WWII. In

²² Among the interaction results, the following are worth highlighting: columns 1–5 of Table A.13 show that our main result is not affected by the share of Poles (measured either as Roman Catholics or as Polish speakers), Ukrainians, or Russians at the ancestors' origin locations. Moreover, the interaction between Kresy and each of these shares is small, negative, and insignificant. This suggests that neither Kresy being a multiethnic area nor a possible animosity between Poles and other ethnicities affects our results.

online Appendix Section VI.B, we show that while Kresy ancestors are more likely to have experienced injuries or death, a family history of victimization in WWII is not associated with education of descendants, and the coefficient on Kresy origin is not affected by controlling for WWII victimization.

B. *Selection of Migrants from Kresy?*

Could selection of forced migrants from Kresy drive our results? We discuss the possibilities of selection at the origin and selection into destinations.

Were Forced Migrants from Kresy Selected at the Origin?—Selection at the origin is highly unlikely among Kresy migrants, given the large-scale efforts to expel Poles from Kresy. However, some historical sources suggest that forced migration out of Kresy was not fully homogeneous. In Ukraine, strong animosity between Poles and Ukrainians at the end of WWII led to the (almost) complete exodus of Poles from both urban and rural areas. By contrast, the pressure on Poles to leave was lower in rural areas in the Belorussian and Lithuanian parts of Kresy. We explore this variation by first restricting the sample to urban areas in Kresy, and then to the Ukrainian part of Kresy.

If selection of Poles from Kresy affects our results, the coefficient on Kresy origin should vary depending on how much scope for selection a given ancestor's region of origin offered. In Table 4, we create different subsamples depending on ancestors' locations of origin. Regressions are run at the ancestor level as outlined by equation (2). Column 1 replicates our main result using all Kresy ancestors (Table 3, panel B, column 3). In columns 2 and 3 we present results for ancestors from urban and rural origin locations, respectively. The point estimates are slightly higher for the urban origin sample than for the rural origin sample. In other words, our results are stronger for locations from which the exodus of Poles was nearly universal. One potential concern is that the estimate in the urban origin sample (column 2) could be inflated if more-educated urban migrants from Kresy were displaced to rural areas in WT; according to the 1921 Census, the literacy rate among Roman Catholics in Kresy was 74.2 percent in urban areas and 53.9 percent in rural areas. If these (former) city dwellers passed on their taste for education, we would compare their well-educated descendants to the less-educated rural population in WT. We address this possibility in column 4, restricting the sample to those cases in which *both* ancestors and descendants are from urban areas. The effect of Kresy is almost unchanged.

In columns 5–8 in Table 4, we restrict the sample to ancestors from the Ukrainian part of Kresy, where exodus was universal. The coefficient in column 5 (for both urban and rural origin locations) is similar to the one when using all Kresy regions (column 1). In addition, columns 6 and 7 show a pattern similar to columns 2 and 3: coefficients are highly significant for both rural and urban ancestors, and they are somewhat larger in the urban origin subsample. Finally, results hold when restricting the subsample to ancestors from urban areas in Ukraine whose descendants also live in urban areas today (column 8). In sum, the results in Table 4 render it unlikely that selection of Kresy migrants at the origin drives our findings.

TABLE 4—MAIN RESULTS FOR KRESY MIGRANTS FROM RURAL VERSUS URBAN AREAS, AND FROM UKRAINE ONLY

“Ancestors from Kresy” includes:	Years of education in 2016, at the respondent level							
	All Kresy ancestors				Only Kresy ancestors from Ukraine			
	All (1)	Ancestor urban (2)	Ancestor rural (3)	Anc. and resp. all urban (4)	All (5)	Ancestor urban (6)	Ancestor rural (7)	Anc. and resp. all urban (8)
Ancestor from Kresy	0.497 (0.092)	0.637 (0.160)	0.429 (0.109)	0.559 (0.172)	0.440 (0.110)	0.588 (0.182)	0.345 (0.131)	0.449 (0.197)
Baseline controls ^a	✓	✓	✓	✓	✓	✓	✓	✓
Ancestor controls ^b	✓	✓	✓	✓	✓	✓	✓	✓
Respondent county FE	✓	✓	✓	✓	✓	✓	✓	✓
Mean dependent variable	13.04	13.64	12.84	13.87	12.98	13.52	12.80	13.73
R ²	0.29	0.31	0.33	0.31	0.29	0.32	0.34	0.34
Observations	11,548	2,950	8,598	2,417	10,237	2,568	7,669	2,080

Notes: This table uses data from our 2016 Ancestry Survey in the Western Territories, showing that the coefficient on Kresy ancestors is, if anything, larger for ancestors from urban areas. The results are also robust to using only the Ukrainian part of Kresy. In these subsamples, expulsions were nearly universal, leaving essentially no scope for selection at the origin locations. We ran regressions at the ancestor level; standard errors are clustered by individual respondents.

^a Baseline controls include respondents' gender, age, and age² interacted with birth-decade dummies, and indicators for respondents living in rural locations and urban counties.

^b Ancestor controls include indicators for ancestors from the Western Territories, from abroad, and from rural areas, as well as indicators for the ancestor generation. Reference category is ancestors from Central Poland.

Selection of Forced Kresy Migrants into Destinations?—Even if selection from origin locations in Kresy is unlikely, there may have been selection of Kresy migrants or their descendants *into destinations*. As Table 1 shows, while the majority of Kresy migrants settled in WT, about one-quarter moved to CP. For example, if the most capable Kresy migrants moved to WT, our results within WT would be biased. In addressing this concern, we begin by noting that the results from Table 2 (columns 6 and 7) show that the coefficients on Kresy ancestry are, if anything, larger in CP than in WT. Next, we present an additional check: we restrict the Diagnoza sample to respondents with Kresy origin. Within this subsample, we can compare the level of education of those who live in CP (1,268 respondents) with those who live in WT (1,930 respondents). Online Appendix Table A.16 shows that respondents with Kresy origin are somewhat *less* educated in WT than in Central Poland.²³ Overall, these results suggest that selection of Kresy migrants into different areas of Poland is not driving our results.

²³The reason for this difference is probably more recent migration of highly-skilled individuals with Kresy background to large urban centers such as Warsaw and Cracow in CP. People with Kresy origin have a particularly high education advantage in these areas (see online Appendix Table A.16).

C. Selection of Voluntary Migrants?

In our results for Poland overall (i.e., using the Diagnoza survey), selection of the *control group* (i.e., voluntary migrants) is not an issue: the control group comprises “all other Poles.” However, our Ancestry Survey was conducted only in WT, which was the destination not only of forced migrants from Kresy, but also of voluntary migrants from CP. This raises the potential issue of selection of voluntary migrants. In particular, our Ancestry Survey coefficients on Kresy origin would be biased upward if the control group of less-educated individuals was more likely to migrate from CP to WT after WWII. We perform several analyses to show that this is unlikely to confound our findings. We differentiate between regional and individual selection of the control group, briefly presenting the methodology and results in the main text, supported by further detail and tables in the online Appendix.

Regional Selection of Voluntary Migrants from Central Poland to the Western Territories?—We first examine the possibility of regional selection: migrants from CP coming from areas with historically lower education. For each respondent in our Ancestry Survey, we know the place of origin of each of their ancestors; and from the historical censuses, we know the literacy rates at the counties of their origin. This allows us to compare the historical literacy rates in the counties of origin of ancestors from Kresy and from CP. We perform this exercise in online Appendix Section VI.D; we find that Kresy ancestors came on average from counties with a 3 percentage point *lower* pre-WWII literacy rate (see the results in online Appendix Table A.17), confirming the aggregate pattern shown in Figure 2.

Individual Selection of Voluntary Migrants from Central Poland to the Western Territories?—While we have shown that regional (county-level) selection is unlikely to affect our results, *individual* selection of voluntary migrants remains a possibility. In particular, uneducated Poles from CP may have decided to seek a better fortune in WT, whereas educated Poles *from the same origin counties* stayed in CP. Negative selection of Central Polish migrants into WT would imply that the control group in our Ancestry Survey has too little education, biasing the coefficient on Kresy origin upward. To examine directly whether there was negative individual selection, we would need historical individual-level data on the education of voluntary migrants and stayers in CP. These are not available. However, we can check whether the (potential) selection concern matters *for our results*: if one were worried about negative selection of migrants from CP, then this would be in the context of persistent lower education of their descendants *today* (i.e., of our control group). Building on this argument, we can use contemporaneous education to show that individual selection is unlikely to affect our results. In online Appendix Table A.18 we show that respondents in WT with ancestors from CP (i.e., voluntary migrants) are actually slightly *more* educated than a reasonable comparison group: today’s respondents in those counties in CP where the voluntary migrants’ ancestors originated from. In other words, descendants of voluntary migrants who live in WT today are somewhat more educated than their “cousins” whose (grand)parents stayed in CP. Thus, if anything, our Ancestry Survey results tend to *underestimate* the effect for Kresy

origin in WT. Overall, we find no indication that preexisting differences or selection of migrants drive our results.

V. Mechanisms

In this section, we discuss several potential mechanisms that may drive the education premium of descendants of forced migrants from Kresy. We begin by showing evidence in favor of the most likely mechanism: a shift in preferences toward investment in education as opposed to physical capital (“uprootedness hypothesis” for short). We then continue by discussing alternative possible mechanisms such as congested labor markets, differential out-migration, fertility, recall bias, or returns to schooling. None of these appear to play an important role. At the end of the online Appendix, we provide a “Guide to Identification and Mechanisms” that summarizes our findings for each potential identification threat and each potential mechanism, with references to tables and sections in the text.

A. *Preferences for Education versus Ownership of Physical Assets*

In Table 5, we examine attitudes toward education and material possessions. In the first two columns, we use a question from the Diagnoza survey about respondents’ aspiration for the education of their children. The outcome variable is an indicator that takes the value 1 for respondents with the highest aspiration.²⁴ People with Kresy ancestors score 8 percentage points higher, relative to a mean of 59 percent. Remarkably, this result remains similar even after we control for the respondent’s own education (column 2). Among people with the same number of years of schooling (who also live in the same county), those with Kresy ancestors have significantly stronger preferences for the education of their children.

In columns 3–6 of Table 5, we examine answers to the question, “What is the main condition for success in life?” We focus on two outcomes: “possession of material goods” and “freedom.” We define dummies equal to 1 for respondents answering “definitely yes,” “yes,” or “rather yes.” Columns 3 and 4 show that respondents with Kresy ancestors are significantly less likely to believe that material goods determine a successful life; columns 5 and 6 show that descendants of Kresy migrants value freedom more than the rest of the Polish population. In columns 7 and 8, we explore whether the lower value placed on material wealth among descendants of Kresy migrants translates into actual choices about accumulating assets. The Diagnoza survey asks about the possession of 20 different assets (e.g., house, apartment, vacation home, garden land plot, e-book reader, home theatre, boat). For those assets *not* owned, respondents were asked if this was for financial reasons. The dependent variable in columns 7–8 is the number of assets *not* owned for nonfinancial reasons (i.e., assets that the household could afford, but chooses not to purchase), divided by

²⁴The survey question was “What level of education would you like your children to attain?” The answer included five categories, and we create a dummy for the highest category. Results are robust to using the full categorical variable instead of the dummy for the highest score. Note that the sample is smaller because respondents do not answer this question if their children have already finished their education.

TABLE 5—ATTITUDES TOWARD EDUCATION AND MATERIAL POSSESSIONS

	Individual-level outcomes, as indicated in table							
	High aspiration for education of own children ^a		Main condition for success in life?				% Assets not owned for nonfinancial reasons ^b	
			Material goods		Freedom			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ancestor from Kresy	0.080 (0.032)	0.067 (0.032)	-0.076 (0.013)	-0.063 (0.013)	0.017 (0.006)	0.016 (0.006)	0.042 (0.009)	0.034 (0.009)
Years of education		0.047 (0.004)		-0.015 (0.001)		0.001 (0.001)		0.011 (0.001)
Baseline controls ^c	✓	✓	✓	✓	✓	✓	✓	✓
Respondent county FE	✓	✓	✓	✓	✓	✓	✓	✓
Mean dependent variable	0.59	0.59	0.56	0.56	0.05	0.05	0.69	0.69
R ²	0.26	0.29	0.11	0.12	0.05	0.05	0.18	0.19
Observations	3,800	3,800	22,050	22,050	21,586	21,586	28,019	28,019

Notes: This table shows that descendants of Kresy migrants have stronger preferences for the education of their children, value material goods less, value freedom more, and chose to own fewer assets (even if they could afford them). We ran regressions at the respondent level using data from the 2015 Diagnoza survey; standard errors are clustered at the household level.

^aThe Diagnoza survey asks respondents to rank their aspiration for education of their children on a scale from 1 to 5. The dependent variable is an indicator for the highest category. The sample is smaller because respondents do not answer this question if their children have already finished their education.

^bThe Diagnoza survey asks about the possession of 20 assets (e.g., apartment, vacation home, garden land plot, e-book reader, home theatre, boat). For each asset not owned, respondents are asked whether this is for financial reasons. The dependent variable in columns 7 and 8 is the number of assets not owned for nonfinancial reasons, divided by the number of all non-owned assets.

^cBaseline controls include respondents' gender, age, and age² interacted with birth-decade dummies, and indicators for rural places and urban counties.

the number of all non-owned assets.²⁵ Consistent with the results on stated preferences from columns 3 and 4, we find that Kresy migrants own fewer assets, relative to what they could afford. In sum, the results in Table 5 lend support to the interpretation that forced migration shifted preferences toward investment in education, and away from material possessions.²⁶

B. Other Potential Channels

Here, we examine whether our findings may be affected by different local characteristics or different behavior of Kresy migrants *after* migrants arrived at their destinations. Online Appendix Section VII.B provides additional detail.

Congestion.—Previous literature (as discussed in the introduction) has shown that migrants who lack access to local land resources (which are held by entrenched

²⁵Unsurprisingly, Kresy migrants on average own a larger number of assets, as they earn higher incomes due to their higher levels of education. Controlling for the overall number of assets owned by each household does not change our results.

²⁶The shift in preferences in Table 5 could be founded on a number of underlying reasons: a shift in the subjective probability individuals attach to being forced to migrate in the future; an increase in the subjective probability that bad things may happen, so that education serves as insurance; a shift in the willingness to take risks; a shift in discount rates; and a shift in the valuation of education per se. We discuss those in online Appendix Section VII.A.

locals) often opt for education in order to get access to non-agricultural jobs. This is unlikely to affect our results for several reasons. First, the Western Territories were largely empty after WWII, and the idea of the resettlement was to populate this “empty space.” Second, as we described in Section IB, migrants from Kresy and CP arrived to WT at the same time (see online Appendix Figure A.6). Third, if local congestion drove up the incentives to invest in education, this would be captured by county or municipality fixed effects. Thus, a differential congestion effect for Kresy and CP migrants is a priori unlikely.

While destination fixed effects in our previous regressions capture any direct effect of congestion on education, it is still possible that congestion affected Kresy migrants differentially. We test for this channel by using interactions between Kresy ancestry and the population of autochthons in the respondent’s county of residence. Autochthons were a minority in WT, but their share varied across localities (6.5 percent in the median county and 15 percent in the average county). We use the share of autochthons in 1950 from the Polish census. Online Appendix Figure A.15 shows that this measure is highly correlated with the share of Polish speakers recorded in the 1900 German Empire census.

Column 1 in Table 6 reports the results using data from the Diagnoza survey, adding an interaction term between the Kresy origin of respondents and the county-level autochthon share to specification (1). We find that the interaction effect between Kresy origin and the historical presence of autochthons is relatively small and insignificant. To facilitate the interpretation of coefficient sizes, we standardized the share of autochthons. The interaction coefficient implies that a 1 standard deviation higher share of autochthons is associated with only 0.14 extra years of schooling among people with Kresy ancestors (relative to a direct Kresy coefficient of 0.73). These results suggest that differential congestion effects for Kresy migrants are unlikely to drive our findings.

Returns to Schooling.—Could our results be driven by differential returns to schooling for Kresy migrants? We shed light on this question in columns 2 and 3 in Table 6. Using log household income as a dependent variable, we are interested in the interaction term between Kresy origin and years of education. A significantly positive coefficient would imply higher returns to schooling for Kresy migrants. We find that the interaction term is small and insignificant in both the full Diagnoza sample and WT subsample. This suggests that differential returns to schooling do not affect our results. At the same time, the coefficient on Kresy itself becomes smaller when we control for years of education, suggesting that the effect of Kresy origin on income works via education.

Out-Migration.—Emigration from Poland was very small before its accession to the EU.²⁷ Columns 4 and 5 in Table 6 examine whether differential migration from Poland to other countries (after Poland’s accession to the EU in 2004) may affect our results. For example, if uneducated people with Kresy origin (or educated

²⁷The shares of people leaving Poland throughout the second half of the twentieth century were: 1951–1960: 0.14 percent; 1961–1970: 0.07 percent; 1971–1973: 0.06 percent; 1975–1980: 0.07 percent; 1981–1990: 0.07 percent; 1991–1998: 0.06 percent (Gawryszewski 2005, pp. 472–73).

TABLE 6—OTHER POTENTIAL CHANNELS: CONGESTION, RETURNS TO SCHOOLING, OUT-MIGRATION, DIFFERENTIAL FERTILITY

Analysis:	Congestion?		Return to schooling?		Out-migration?		Fertility?	
	Years of education	log(HH income)	Intend to go abroad		Share of children in HH			
Dependent variable:								
Sample:	WT	All	WT	All	All	All	No. children ≥ 1	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Ancestor from Kresy	0.732 (0.089)	0.080 (0.040)	0.037 (0.047)	−0.001 (0.006)	0.007 (0.010)	−0.004 (0.005)	0.004 (0.008)	
Sh autochthons (std) × Kresy	0.137 (0.092)							
Years education (std)		0.179 (0.010)	0.210 (0.021)		0.002 (0.003)			
Years edu (std) × Kresy		−0.039 (0.025)	0.003 (0.033)		−0.008 (0.008)			
Baseline controls ^a	✓	✓	✓	✓	✓	✓	✓	✓
Respondent county FE	✓	✓	✓	✓	✓	✓	✓	✓
Mean dependent variable	11.83	8.45	8.40	0.06	0.09	0.11	0.32	
R^2	0.27	0.22	0.21	0.06	0.07	0.19	0.23	
Observations	7,055	18,262	4,422	22,090	14,026	28,122	9,184	

Notes: This table examines four alternative mechanisms that may explain the education advantage of people with Kresy ancestors: congestion due to the presence of autochthons (column 1); differential returns to education (columns 2 and 3); differential out-migration (columns 4 and 5); and differential fertility (columns 6 and 7). None of these appear to confound the coefficient on Kresy. We ran regressions at the level of respondents in the Diagnoza survey; standard errors are clustered by county. Data from Diagnoza.

^aControls include respondents' gender, age, and age² interacted with birth-decade dummies, and indicators for rural places and urban counties.

people without Kresy origin) were more likely to leave Poland, then this could bias the coefficient on Kresy upward. We use the fact that the Diagnoza survey asked respondents whether they “plan to go abroad within the next two years, in order to work?” We find no relationship between Kresy ancestry and the intent to emigrate (column 4). The interaction term between education and Kresy origin is also small and insignificant (column 5). If the respondents who intend to emigrate have similar characteristics as those who had left already, these results make it unlikely that education and Kresy origin drove emigration in a fashion that would confound our results. As we do not directly observe the people who emigrated, we provide indirect evidence in support of this underlying assumption. The Polish census in 2011 included the question: “How many members of your household have emigrated?” The responses are publicly available at the regional level (Statistics Poland 2011). In online Appendix Figure A.16, we show a strong positive relationship between the actual out-migration and the intent to emigrate reported in Diagnoza. This validates our use of the latter as a proxy for emigration from Poland.

Differential Fertility.—Columns 6 and 7 in Table 6 study the possibility that differential fertility may confound our results. For example, Kresy migrants may have chosen lower fertility to remain more flexible in an environment that they perceived as highly volatile (see Section IC). Fewer offspring could then have enabled higher

investment in each child's human capital. Over time, this may have translated into stronger preferences for education. We find that Kresy origin is uncorrelated with the number of children per household member, which is the closest proxy for measuring fertility in our data. While this does not exclude the possibility that differential fertility played a role initially, it makes it unlikely that this channel is at play for the younger generations in our data. In addition, in the differential-fertility interpretation, preferences for education would develop later on, with lower fertility being the initial driver. In contrast, the historical evidence discussed in Section IC suggests that preferences shifted immediately, as a direct result of uprootedness.

Economic Development at Destination Locations.—The ex-German territories were more developed than Kresy before WWII. Could our results be driven simply by a move to a place with more developed infrastructure? Economic opportunities were open to both forced and voluntary migrants, so they should be captured by location fixed effects. In addition, we observe a similar Kresy effect among respondents in CP, which was relatively poor (see Table 2, columns 6 and 7). This renders it unlikely that economic development at the destination confounds our results. Nevertheless, we provide further checks in online Appendix Section VII.B, using three measures of economic development: (i) the density of railways in 1946 (at the county level), (ii) log industrial production per capita in 1954 (at the regional level), and (iii) the intensity of wartime destruction, separately in rural and urban areas in 1945 (at the county level). Using these measures, online Appendix Table A.22 shows that while education is strongly associated with measures of development in WT on average, the effect of Kresy origin on education does not depend on the level of development: the interaction term in columns 2–5 is small and insignificant for all measures of economic development, with the exception of railway density (which is driven by one county: Warsaw). This makes it unlikely that economic conditions at the destination of migrants confound our results.

Moving as Communities and Other Population Movements.—Another potential confounding factor is that Kresy migrants might be more likely to have moved in groups from the same location of origin. If moving in groups was beneficial to their descendants' education, this may have reinforced the education effect. While we do not have census-type data on the number of migrants in a destination who are from the same origin, our Ancestry Survey allows us to generate a proxy for migrants moving as whole communities (which we describe in online Appendix Section VII.B). Online Appendix Table A.23 shows that controlling for whether ancestors moved as a community does not affect our main results. On two other issues related to population movements, Table A.24 shows that our results are not affected by (i) the share of Ukrainian and Belorussian minority groups that were expelled from Poland to the USSR in 1945–1946 or by (ii) the “second repatriation” of Poles from the USSR in 1955–1959 (which made up only about 10 percent of overall migration from Kresy).

Recall Bias: Missing Information about Ancestor Origin Locations.—A potential worry in using survey data about ancestral origin is recall bias. For example, more-educated respondents may have more information on the location of origin

of their ancestors. This is a particularly important issue in the Diagnoza survey, which asks only about Kresy origin. If education leads to a higher probability of remembering ancestors (and thus, ancestors from Kresy), then our results would be biased. In the Diagnoza survey, we cannot control for this potential bias. In contrast, in our Ancestor Survey, recall bias is less of a concern, because it should affect both our “treatment group” of Kresy ancestors as well as the “control group” of ancestors from other areas. Furthermore, we can use our Ancestry Survey to check for differential recall bias among people with ancestors from Kresy, i.e., whether remembering (any) ancestor location is correlated with Kresy origin. We construct, for each respondent, the share of ancestors with missing information on their location of origin (which is low; only 12 percent on average). We then show that (i) the share of ancestors with missing information is uncorrelated with Kresy origin, and (ii) controlling for this share does not affect our results. We describe how we built this variable in online Appendix Section VII.B and present the results in Table A.25.

VI. Conclusion

Forced migration is an important issue in both historical and modern times. The United Nations High Commissioner for Refugees estimates that more than 65 million people are currently displaced from their home regions as a result of interstate wars, civil conflict, and natural disasters. While the immediate experience of forced migration is dramatic, the long-run effects on the displaced and their descendants are less clear. Such long-term effects of forced migration are difficult to distinguish from confounding factors. We collected novel individual-level data to study the long-run education effects of post-WWII population movements of Poles expelled from Kresy, which were taken over by the USSR. We find that the children, grandchildren, and great-grandchildren of forced Kresy migrants have significantly higher average education levels than all other Poles. This result holds in border samples around the Kresy border and is robust to a host of controls. We also show that descendants of forced migrants value the education of their children more and assign a lower importance to material possessions than other Poles. In examining several possible interpretations of these results, we conclude that the most likely is that uprootedness shifted forced migrants’ preferences away from investment in physical assets and toward investment in portable human capital.

We interpret this result as evidence for the classical uprootedness hypothesis. We believe that this is an important mechanism in many contexts of forced migration, but it is often hard to isolate empirically. The Polish context is particularly well suited to identify the uprootedness effect. The results by Bauer, Braun, and Kvasnicka (2013) and Nakamura, Sigurdsson, and Steinsson (2017) have a similar flavor, showing education effects of forced migration. However, in the context of these studies, it is not possible to separate the uprootedness mechanism from other explanations (such as congestion or lack of access to local assets, which the Polish context allows us to rule out).

The observed emphasis on education offers a glimmer of hope for descendants of those who are forced to migrate. Given the large refugee flows in many parts of the world, a policy recommendation emerging from our study is that governments in countries receiving forced migrants foster their access to education. While

the international aid community does consider education as important in reducing economic and social marginalization of refugees (G20 2017, UNICEF 2017), our results show that the benefits of providing schooling for forced migrants and their children may be even greater, and more persistent, than previously thought.

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