PERSECUTION AND MIGRANT SELF-SELECTION:
EVIDENCE FROM THE COLLAPSE OF THE COMMUNIST BLOC

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<u>**ABSTRACT**</u>

How does persecution affect who migrates? We analyze migrants' self-selection out of the USSR and its satellite states before and after the collapse of Communism using census microdata from the three largest destination countries: Germany, Israel, and the United States. We find that migrants arriving before and around the time of the collapse (who were more likely to have moved because of persecution) were more educated and had better labor market outcomes in the destination than those arriving later. This change is not fully explained by the removal of emigration restrictions in the Communist Bloc. Instead, we show that this pattern is consistent with more positive self-selection of migrants who are motivated by persecution. When the highly educated disproportionately forgo migrating to enjoy the amenities of their home country, persecution can induce them to leave.

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Men love their country, not because it is great, but because it is their own.

—Seneca the Younger, *Letters from a Stoic*

1 Introduction

In the decade after the sudden collapse of Communism in Eastern Europe in 1989, more than seven million people left the former Soviet Union and its satellite states[1] for the West (Zaionchkovskaya, 1996, Pytliková, 2006). This migration wave followed a long period of political and ethnic repression and severe restrictions on emigration. While economic motives for migration have been studied extensively, the question of who migrates under conditions of persecution, conflict, or natural disaster—that is, who migrates as a refugee—remains less well understood. This question is of particular importance given the 1–2 million refugees who need resettlement each year (UNHCR, 2022).

This paper studies the effect of persecution on the self-selection of migrants from the Soviet Union and its satellite states (henceforth, *Communist Bloc*) around the collapse of Communism. We analyze census microdata from the three countries that received the greatest number of Communist Bloc immigrants—Germany, the United States, and Israel—which together comprise about 90% of total Communist Bloc migrant flows between 1989 and 2000. A major challenge in comparing the self-selection of refugees to that of other migrants is that refugees typically come from different sending countries, or migrate in different time periods, relative to other migrants. This makes it difficult to separate the effect of persecution or violence from other factors that vary over origin countries and time periods, such as immigration policies and labor market characteristics. Our context permits a rare opportunity to study a migration episode featuring substantial flows of both refugees and other migrants from the same origin countries over a relatively short time. We exploit this opportunity to estimate self-selection differences between refugees and other migrants from the Communist Bloc.

To separate the effect of persecution from the effect of emigration restrictions imposed by

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[1]We use the term *Satellite states* to refer to Poland, Hungary, Romania, Czechoslovakia, and Bulgaria. Those who traveled from East Germany to West Germany are not counted as immigrants in the German census. Yugoslavia and Albania broke off from the Soviet sphere of influence decades before the collapse of Communism.

Communist Bloc governments, we focus on the period after emigration restrictions were relaxed. Because the collapse of Communism was unanticipated and immigration policy reacted slowly in destination countries, asylum channels for persecuted groups remained open for several years after emigration barriers were removed. This allows us to compare cohorts that migrated for different reasons but that faced similar emigration restrictions. To study the role of emigration restrictions, we compare cohorts that moved before and shortly after the collapse of Communism.

Specifically, we focus on three cohorts of migrants. The first cohort left in or before 1986, when emigration was difficult and dominated by escapees and ethnic minorities migrating through international agreements. We refer to these as *early refugees*. The second left between 1987 and 1992, when emigration was relatively unrestricted but continued to be dominated by refugees and ethnic minorities.[2] We refer to these as *late refugees*. The third left in or after 1993, after most ethnic and refugee migration had ceased.[3] We refer to these as *economic migrants*. We estimate differences in educational attainment and socioeconomic outcomes at the destination across each cohort.

To account for general changes in immigration policy (for example, a skill-biased shift in visa category allocations), trends in labor demand for skilled compared to unskilled workers, and secular trends in the educational attainment of prospective migrants, we use immigrants from Western Europe as a comparison group. Demographic trends in Western and Eastern Europe were broadly similar during our study period, and German, US, and Israeli immigration policies toward Western European immigrants did not change significantly during this period.[4] This comparison group allows us to isolate changes due to the collapse of Communism and the subsequent policy responses

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[2]Before 1993, the German Constitution guaranteed an absolute right to asylum for individuals who could demonstrate evidence of persecution. The Asylum Compromise—a political response to the unprecedented number of refugees seeking to enter Germany—categorically denied the right to asylum to those originating from or traveling through a list of "safe countries," which included all the former Satellite states. The Asylum Compromise also imposed a binding numerical cap on the number of ethnic Germans approved for resettlement from the former Soviet Union.

[3]Although migration flows increased dramatically starting in 1987, asylum channels for Communist Bloc refugees were not closed in Germany until the controversial Asylum Compromise, enacted through constitutional amendment in 1993. In the US and Israel, refugee flows decreased more gradually after 1993, but with the bulk arriving between 1987 and 1992. In the US, this was precipitated partly by an increase in the burden of proof applied to refugees from certain ethnic and religious groups beginning in 1989 (see Section 3.4.2).

[4]One major exception is the easing of immigration restrictions in Germany as new countries were admitted to the European Union. Excluding immigrants from countries that were admitted during our study period does not alter our main results (see Table A7).

from broader demographic and economic trends.

We find that economic migrants were less educated than refugees, earned less, were less likely to find high-skill work, and were less likely to speak the destination language. We consider three possible explanations for this finding. First, it may be that Communist Bloc restrictions on emigration disproportionately affected less-educated workers. Second, the collapse of Communism may have influenced which types of people wanted to migrate (we refer to differences between those who want to migrate and the general population as *self-selection*). Third, destination-country immigration policies may have changed to favor lower-skill migrants during this time.

We argue that the third explanation is highly unlikely, as immigration policies in destination countries became more skill-biased for migrants from the Communist Bloc post-collapse. Specifically, the closure of asylum channels between 1989 and 1993 in Germany and the US meant that prospective migrants had to rely on standard visa categories, which in both countries favor skilled migrants more than asylum channels do. In the US, cash and medical assistance payments to refugees were reduced in 1991.[5] In Germany, support for ethnic German resettlers was reduced in 1992 and 1993, and a language proficiency test requirement was imposed starting in 1990. In Israel, immigration policy has remained largely unchanged since 1971, with the Law of Return stipulating that all Jews have the right to migrate to Israel.

To distinguish between the first and second explanations, we exploit the fact that emigration restrictions had largely been lifted by the beginning of the late refugee period, so that a comparison of the late refugee period to the economic migrant period will vary the reason for migration but hold constant the lack of emigration restrictions.

We find that, in all three destination countries, late refugees were on average more educated and obtained better labor market outcomes than did economic migrants. This finding points to the collapse of Communism affecting the self-selection of migrants: specifically, Communist Bloc refugees were more positively self-selected than were the later economic migrants.

Why might persecution increase the average educational attainment of those who decide to migrate? We offer an explanation using a simple model in which people enjoy living in their home

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[5]Additionally, employment preference visas grew in importance in the US, rising from 5% in 1989 to 13% in 2000 (INS).

country and move only if they are offered a wage premium that is more valuable than the amenities specific to their home. In this simple model with utility enjoyed from residing in one's home country (the *home amenity*), only workers with high human capital can "afford" to stay in their home country and forgo the higher wages in destination countries. More precisely, diminishing marginal utility of consumption implies that workers with the greatest human capital will be more willing to forgo a given income premium from migrating in favor of a given home amenity. Persecution, which we model as reducing the home amenity, mitigates this force, pushing high human capital workers to migrate. Unless other forces dominate the selection process—for example, if the returns to migrating are sufficiently higher for high human capital workers—persecution will increase the average human capital of migrants. We formalize this argument in Section 4, and discuss the conditions under which persecution is likely to increase or decrease the self-selection of migrants. We also present evidence from combined origin-country and destination-country census data that those with the highest level of education were less likely to migrate, unless they were a member of a persecuted minority group.

Comparing migrants arriving during the early refugee period with those arriving during the late refugee period allows us to isolate the role of emigration restrictions in influencing migrant selection out of the Communist Bloc. We find that late refugees were on average less educated than early refugees, consistent with emigration barriers imposing relatively greater costs on the less well-off, as in Chiquiar and Hanson (2005).[6] However, these differences between early and late refugees are arguably small given the enormous increase in the number of people traveling to the West during this period. Our interpretation of this is that Soviet-style emigration restrictions interacted only modestly, on average, with education.

Our findings have important implications for the debates surrounding immigration, which has consistently topped the list of European voters' concerns since 2014 (Politico, 2019). Although the legal frameworks regulating asylum policy in Europe are based predominantly on humanitarian considerations (Dustmann et al., 2017), the economic implications of refugee migration for the host country are an important determinant of attitudes toward immigration (Mayda, 2006, Baseler

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[6]In contrast, in Israel, late refugees were on average much more educated than other cohorts. A potential explanation is that Russian Jews who wanted to migrate to the US were diverted to Israel by temporary changes in US policies toward Jewish refugees (see Section 3.4.2).

et al., 2022). In Germany, concerns about refugees' reliance on social assistance fueled the contentious disputes over asylum policy in the late 1980s and early 1990s (Marshall, 2000). The 2022 Ukrainian refugee crisis has renewed the debate on whether host countries should prioritize the economic integration of refugees, or only provide temporary hosting (see, for example, Culbertson, 2022). Our analysis of the characteristics of refugees—and especially their economic performance in the destination—is thus at the heart of this policy debate.

This paper proceeds as follows. Section 2 reviews related literature. Section 3 describes the relevant historical and policy details of our setting. Section 4 describes our conceptual framework, presents a simple model of migration under persecution, and offers preliminary evidence that migrant selection in this context is consistent with the model's predictions. Section 5 describes our data and estimation strategy. Section 6 presents our main results. Section 7 discusses the implications of our findings and compares our results to other research in the literature on refugee selection.

2   Literature Review

This paper is most closely related to the literature studying the selection and outcomes of refugees relative to other migrants (we use the term *selection* to refer to the position of the average migrant in the origin-country distribution of a human capital measure such as education, a process that depends both on migrants' self-selection and legal restrictions on exit and entry). Cortes (2004) compares refugees to economic migrants arriving in the US by applying an origin-country assignment rule to US census data. She finds that refugees earn less upon arrival, but experience faster income growth compared with economic migrants. This is rationalized by a self-selection model in which refugees—who are relatively more motivated by non-economic factors—are more negatively self-selected, but invest more in destination-specific human capital because they intend to stay there longer.[7] Chin and Cortes (2015) find similar results using the New Immigrant Survey, which permits identification of refugee status at the individual level. Dustmann et al. (2017) and

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[7]Abramitzky et al. (2021) use oral history records from arrivals at Ellis Island and find that English acquisition occurred faster for refugees compared to other immigrants in the US. Forced displacement may also affect preferences for human capital investment (Becker et al., 2020, Chiovelli et al., 2021).

Brell et al. (2020) find similar results for refugees and other immigrants in the European Union. Boustan (2007) studies Jewish migration from the Russian Empire, and finds that migration rates respond both to pogroms and to variation in economic conditions. Our paper is among the first to document an episode in which refugees were more positively selected than other migrants. The only other example of which we are aware is Aksoy and Poutvaara (2019), who find that refugees fleeing conflict for Europe in 2015 and 2016 were more positively selected than those migrating for other reasons. The authors hypothesize that conflict may induce high-skill workers to migrate if it threatens wage income directly. Our paper is the first we are aware of to hypothesize that persecution can generate more positive self-selection of migrants through its effect on the home amenity.

We also contribute to the literature on migrant selection more broadly. Chiswick (1978) finds that foreign-born workers catch up with native-born workers in the US, and argues that this may be due to positive self-selection. Borjas (1987) demonstrates that the self-selection of migrants depends on the relative variance of the income distributions at the origin and destination.[8] Abramitzky et al. (2012) find that migrants from Norway to the US during the age of mass migration—when borders were nearly open—were negatively selected from urban areas, consistent with the Borjas model given Norway's greater income inequality during that period.[9] Abramitzky (2008, 2018) finds that the most productive members of egalitarian kibbutzim communities in Israel were more likely to exit those communities. Chiquiar and Hanson (2005) introduce to the Borjas model a migration cost which is declining in human capital to explain the observed intermediate selection of immigrants from Mexico in the US despite greater income inequality in Mexico. We find that the removal of Communist Bloc exit restrictions lowered the average educational attainment of migrants, consistent with the Chiquiar and Hanson model. Grogger and Hanson (2011) show that an income-maximization model based on absolute wage differences rationalizes the positive selection into migration observed throughout much of the present world. See Borjas (1994) and Abramitzky and Boustan (2017) for a more thorough review of the literature on

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[8]In the Borjas model, refugees may outperform the native-born at the destination if the two countries' labor markets reward very different skills. We do not think this characterizes the post-WWII Communist Bloc: in our data, education obtained under Communist Bloc regimes strongly predicts labor market success in the West.

[9]In contrast, migration from Western Europe to the US—which had similar levels of income inequality during this period—was neutral (Wegge, 2002).

migrant selection. Finally, our study is conceptually closely related to McKenzie and Rapoport (2007), who develop a migration model incorporating illiquid assets, fixed costs, and credit constraints. A key prediction of this model is intermediate self-selection of migrants: the least well-off cannot afford the fixed cost, and the most well-off prefer to retain the illiquid asset rather than migrate for an income premium. In our model, the home amenity functions as the conceptual analog of an illiquid asset: it is not portable across borders and induces the highest-educated to forgo migration. Like Dustmann and Okatenko (2014), we emphasize the role of local amenities in influencing migration decisions. Our contribution is to demonstrate that home amenities can reduce migration disproportionately at the top of the education distribution, and thus generate the commonly observed inverted U-shape relationship between migration and human capital, which is often attributed to illiquid land wealth (McKenzie and Rapoport, 2007, Bazzi, 2017).

We also contribute to a set of papers analyzing the economic consequences of the collapse of the Soviet Union. See Denisenko (2020) and Göttsche et al. (2020) for a historical description and socioeconomic characterization of Soviet emigrants in this period. Brainerd (1998) studies the labor market impacts of the collapse, and finds that wage dispersion and the male-female earnings gap increased in Russia after 1991, while the returns to experience decreased. We join a long list of papers using the collapse of the Soviet Union as a natural experiment to study various economic outcomes (for example, Friedberg, 2001, Borjas and Doran, 2012, Abramitzky and Sin, 2014).

3   History and policy background

3.1   Migration restrictions in the Communist Bloc

From the end of World War II until the late 1980s, the Soviet Union and its satellite states were controlled by totalitarian-style Communist governments which exercised an extremely high degree of control over everyday life. Emigration was among the foremost concerns of these governments. Dowty (1987) writes, "A large-scale exodus would have constituted an unacceptable blow to Soviet self-esteem. . . That some Soviet citizens might prefer to live elsewhere, especially in the capitalist West, was highly threatening." Restrictions were ostensibly based on national security: "Simply

by having lived and worked in the USSR, emigres are, in the Soviet view, bearers of sensitive information to enemy states" (Gitelman, 1982). The Soviet government thus worked to make emigration very difficult: "by 1928, illegal departure had become almost impossible," and "by... 1936, there was virtually no legal emigration from the Soviet Union" (Dowty, 1987).[10]

These restrictions were enforced with an extensive system of border controls which formed part of the Iron Curtain separating the Communist Bloc from the West. Those who intended to flee to the West were often charged with "treason against the nation" as outlined in a distinct set of Soviet laws, wherein "penalties for violations are described in unusual detail" (Dowty, 1987). Throughout the existence of the Soviet Union, official emigration channels remained extremely limited. Soviet authorities viewed emigration "not as a right, but as a concession to reprehensible people" (Gitelman, 1982). As such, emigration was extremely difficult and risky: a "massive media campaign aims to convince Soviet citizens that emigration is a tragic mistake, at best, and the act of ingrates or traitors, at worst. For those who persist and go through the emigration process, it is very often humiliating, demeaning, costly, risky, and exhausting" (Gitelman, 1982).

Emigration rules in Satellite states varied in their degree of restrictiveness, but the general picture was bleak. Describing the situation in the 1980s, Dowty writes, "Eastern bloc nations do not explicitly forbid emigration... The reality begins to emerge in a look at the actual requirements for leaving... Permission can be denied on a number of grounds, including national security and 'interests of the state'... So, while anyone can apply, the odds against success are extremely high. Sanctions against attempts to leave without permission are severe" (Dowty, 1987).

Emigration from Communist Bloc countries took two forms: legal emigration under bilateral agreements with Western countries, and illegal escape. The latter option was significantly more difficult after the construction of the Berlin Wall in 1961 cut off the direct route to West Germany (see Figure 1). After 1961, most escapees traveled through Yugoslavia, although several thousand successfully found a way through the Berlin Wall each year (Jarausch, 1994). These attempts were extremely risky, and at least 140 people died at the Wall between 1961 and 1989 (Hertle et

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[10]The end of World War II was accompanied by massive forced resettlement, including of ethnic Germans. Many fled to Germany; others were deported eastward. Germany does not generally collect information on immigration details prior to 1945, and in our analysis we restrict our focus to immigrants arriving after the construction of the Berlin Wall in 1961.

Figure 1: Map of Communist Bloc countries

al., 2011). Prospective escapees could also take advantage of periods of political instability: the USSR's invasion of Hungary in 1956 and of Czechoslovakia in 1968, as well as the declaration of martial law in Poland in 1981, prompted hundreds of thousands of departures. In some cases, legal emigration was permitted following agreements with Western governments. These consisted largely of ethnic and religious minorities, especially ethnic Germans (*Aussiedler*) and family members of West Germans living in East Germany (the West German government paid the governments of Romania, Poland, and East Germany to permit *Aussiedler* to emigrate), and Jews who were permitted to leave for the United States and Israel following international pressure in the early 1970s (Dowty, 1987).

3.2 Persecution in the Communist Bloc

The nature of state persecution in the Communist Bloc varied immensely throughout the history of the Soviet Union. In the pre-WWII era, repression and killings were conducted at scale against elites, wealthy peasants, religious groups, ethnic minorities, and political enemies of the Communist Party through campaigns such as the Red Terror from 1917–1922 and the Great Purge from

1936–1938 (Gregory, 2009, Harrison, 2011, 2014). Toward the end of WWII, entire ethnic groups accused of cooperation with Nazi Germany were forcibly relocated to Kazakhstan and the eastern USSR, including Volga Germans, Chechens, Ingush, Kalmyk, and Karachaev peoples (Rieber, 2000). Hundreds of thousands of German-speaking peoples who had fled west with the retreating German Army were later repatriated for forced labor (Rieber, 2000). Oppression and persecution of minority ethnic and religious groups continued during the post-WWII Stalinist era. During this time, an explicitly anti-Jewish campaign was launched, which closed all Jewish cultural facilities in 1948, and led to the murder of Jewish cultural figures in 1952. Although these campaigns were curtailed after Stalin's death, systematic persecution continued through the 60s, 70s, and 80s. Orleck writes in 1999, "The mid-1980s were as bleak a time for Soviet Jews as any period since the Six-Day War [in 1967]." Jews were barred from activities relating to foreign service, foreign trade, and research related to foreign cultures or defense, and from visible public offices such as in government or journalism. Jews encountered great difficulty entering institutions of higher education, reflected in the sharp drop in Jewish higher education enrollment between 1968 and 1976. Soviet propaganda sought to portray Jewish culture as dangerous to society, and Zionism as a "version of Fascism no better than the Hitlerite one" (Gitelman, 1982). Soviet Jews were sentenced to years of hard labor for advocating for emigration rights as late as 1986 (Orleck, 1999).

State persecution in the Satellites varied greatly by country, with the Romanian and Czechoslovakian Communist governments using particularly brutal Soviet-style methods of repression. Nicolae Ceaușescu, the General Secretary of the Romanian Communist Party from 1965 until his execution in 1989, ran a totalitarian government of mass political and religious repression, state surveillance, and arrests. After the end of WWII, the government of Czechoslovakia revoked citizenship from minority ethnic groups in an attempt to establish the primacy of Czechs and Slovaks. After a brief attempt at liberalization (Alexander Dubček's "socialism with a human face") in 1968 prompted a Soviet invasion, the Czechoslovakian Communist Party returned to orthodox Soviet-style policies during its period of "Normalization" (Taborsky, 1973). After Hungary refused to accept approximately 500,000 ethnic Hungarians from Czechoslovakia, around 50,000 of them were sent to labor camps (Rieber, 2000). Communist Poland, though it never accepted Soviet domination (Kort, 1996), pursued its own campaign of ethnic cleansing from 1945 to 1948 (with

an estimated death toll of at least one million ethnic Germans) and violently suppressed political dissidents throughout its existence—with an estimated death toll of 22,000 between 1948 and 1987 (Rummel, 1997).

3.3 The collapse of Communism

Major reforms began in the Soviet Union under Mikhail Gorbachev, who became General Secretary of the USSR in 1985. Among the most influential policy reforms were *perestroika*, or restructuring, and *glasnost*, or openness. These reforms aimed to move the Soviet Union gradually toward a more market-oriented economic system, decentralize political decision making, and permit a more open expression of ideas. Gorbachev's aim was not to provoke the end of Communism or to dissolve the Soviet Union: as Kort (1996) writes, "Gorbachev came to power determined to reform, and thereby to preserve, the Soviet system." Emigration restrictions were gradually eased: a policy reform in 1987 required exit visa cases to be decided within 1 month with a rationale to be given in the case of a denial. Still, emigration was permitted only if a person had close relatives living abroad, which made emigration much easier for ethnic minority groups (Denisenko, 2020). In 1988, restrictions on Jewish emigration were largely lifted, which led to mass Jewish emigration from Ukraine between 1988 and 1992 (Kort, 1996). By 1994 emigration out of Ukraine was largely economically motivated, and unrestricted emigration was finally legalized in 1992 (though it did not take effect until January of 1993) (Pirozhkov, 1996).

Reform in the Satellite countries happened more suddenly. Many Satellite governments initially resisted Gorbachev's agenda of reform, but could not stop waves of popular demands for liberalization and the end of one-party rule. The political successes of the Polish underground trade union Solidarity, combined with the apparent willingness of Soviet leaders to accommodate reform, led to a series of revolutions in each Satellite state. Power was in most cases peacefully handed to a new government, with the exception of Romania, where Ceaușescu attempted to retain control until his execution. By the end of 1989, the Communist Satellite governments had all ceded control, and emigration restrictions were removed entirely.

The removal of emigration restrictions led millions of people of leave the Communist Bloc. Table 1 shows estimates from Zaionchkovskaya (1996) and Pytliková (2006) of the total number

Table 1: Migration Flows From Communist Bloc, 1989–2000 (Thousands)

Destination	Origin Country						**Total**	**Share**
	USSR	Poland	Romania	Czech.	Hungary	Bulgaria		
Germany	1,911	1,323	511	240	219	139	4,344	0.64
Israel	869						869	0.13
US	420	205	67	14	13	24	743	0.11
Italy		44	122				166	0.02
Spain	27		103			26	157	0.02
Canada	1	81	39	9	8	8	145	0.02
Austria		53		38	27	8	125	0.02
Hungary			119	4			123	0.02
Greece	105					19	124	0.02
France		18					18	0.00
Finland	16						16	0.00
Total	3,350	1,725	962	304	267	224	6,831	1.00

Notes: Each cell shows the total migration between an origin-destination pair from 1989–2000, in thousands of migrants. Missing cells indicate no data. Source: Pytliková (2006) and Zaionchkovskaya (1996).

of emigrants, by origin and destination country, who left between 1989 and 2000. During these 12 years nearly 7 million people emigrated to the West. Germany was by far the top destination, receiving 4.3 million immigrants over this period, or 64% of the total. Israel and the United States each received nearly 1 million immigrants. Together, these three countries represent 88% of total migration flows over this period.

3.4   Immigration policy in the West

Broadly speaking, until 1989, Germany and the United States were open to any asylum seeker who managed to escape the Communist Bloc. These policies were tightened after 1989 because an unexpectedly large number of immigrants began arriving. Policy tightened quickly in the United States (with exceptions for certain minority groups), but more gradually in Germany given that the right to asylum was codified in the German constitution and retained significant popular support as of 1989 (Marshall, 2000). Throughout the entire period, Israel provided the right to citizenship for all Jews through its Law of Return.

3.4.1 Immigration policy before 1989

German immigration policy. During our period of study, German immigration policy covered three categories of immigrants: ethnic German resettlers, asylum seekers, and other immigrants (economic migrants). The right to citizenship for ethnic Germans—defined as a refugee or expellee of German ethnic origin or as the spouse or descendant of such a person—is guaranteed by Article 116 of the German constitution. Until 1990, it was possible for any ethnic German living in the Communist Bloc to obtain German citizenship nearly automatically upon arrival. Non-German escapees from the Communist Bloc faced few restrictions on their admission to Germany, which constitutionally guaranteed the right to asylum "with no exceptions" for those persecuted for political reasons (Marshall, 2000). However, a rising number of asylum seekers in the 1980s led the federal and state governments to pursue various deterrence strategies, such as imposing work bans and restrictions on choice of residence. These, however, were ultimately ineffective at reducing the number of asylum seekers (Marshall, 2000).

US immigration policy. US law recognizes the right of asylum for people who are "persecuted or ... [have] a well-founded fear of persecution on account of race, religion, nationality, membership in a particular social group, or political opinion" (US Congress). In practice, this right is limited by a numerical cap on the number of refugees permitted to settle in the US, which is decided yearly by the President and Congress. Until 1989, refugee status was nearly always granted to applicants from the Communist Bloc: as late as 1988, the approval rate was 99% for Soviet emigrants (Rosenberg, 2015). Two significant immigration reforms of this period affected migrants other than asylum seekers. First, the Immigration Reform and Control Act of 1986 granted legal status to 3 million undocumented immigrants who arrived before 1982, but tightened restrictions on employers who were knowingly hiring undocumented immigrants. Second, the Immigration Act of 1990 created priority categories for employment-based visas, created the H1B visa for college-educated foreigners, capped the number of unskilled immigrants, and created the diversity lottery.

Israeli immigration policy. Israeli naturalization law has long been based on the Law of Return, which stipulates that "every Jew has the right to come to his country as a [Jewish immigrant]." The notion of Jewish identification was not explicitly defined and left to courts to interpret. In 1970 the Law of Return was extended to the spouse, children, and grandchildren of Jews. In 1971, as a response to a group of Soviet Jews who had been denied exit visas, the Israeli Nationality Law was amended to grant citizenship to eligible Jews who had not yet migrated to Israel (Schroeter, 1971).

3.4.2 Immigration policy after 1989

Changes in Germany. On July 1, 1990, the Ethnic German Reception Law came into force, requiring that ethnic Germans apply for recognition of status in their home countries, fill out a questionnaire in German proving their commitment to German culture, and complete a language test. About a third of applications failed the language test (Marshall, 2000). Ethnic Germans from the former USSR, however, were exempt.

The most significant revision came into effect with the so-called *Asylum Compromise* which was voted into law by the Bundestag on June 23, 1993 after prolonged political debate, and came into force on July 2 of that year. The Compromise modified the German constitution to restrict the right to asylum. Applications from individuals who arrived in Germany via a "safe third country" or who came from a "safe country of origin" were deemed "manifestly unfounded" and could be speedily denied (Marshall, 2000). Every new Eastern European democracy was considered a safe country, effectively shutting down the asylum channel for Communist Bloc migrants. The human rights group The Society for Threatened Peoples, speaking about the Asylum Compromise, said, "What this effectively means is that no refugee can come to Germany by land. Only those who arrive by air can apply for asylum, but they would need visas to get here, and as a rule German embassies do not issue visas to people seeking political asylum. Is the only remaining possibility a flight by private plane and then a parachute jump?" That same year, the federal government capped the number of ethnic German immigrants at 200,000 per year. An immediate implication of these reforms was that the number of asylum applications and arrivals dropped precipitously. Jewish immigrants were exempt from these new restrictions, and as a result continued to migrate to Germany predominantly from the former USSR countries throughout the 1990s (Marshall, 2000).

German policies with respect to immigrants who were not ethnic Germans and were not seeking asylum remained relatively constant over this period. The most significant policy change was the Jan 1, 2000 citizenship law reform, which reduced the residency requirement for obtaining German citizenship from 15 to 8 years. Prior to this reform, naturalization was extremely rare in Germany, as applicants were required to maintain long periods of residency, give up their original citizenship, and pass screening by police investigators who rejected most applications (Kinzer, 1993).

Changes in the US. The wave of democratization in Eastern Europe in 1989, along with political pressure to respond to the increasing number of Communist Bloc immigrants, led Secretary of State George Shultz to order that the INS Refugee standard of a "well-founded fear of persecution" begin to be applied to all applications for asylum in early 1989. Applications were henceforth required to be filed from the home country. The immediate result of these new requirements was a fall in the number of refugees entering the US from the Communist Satellite countries. In February 1990, the Lautenberg Amendment lowered the burden of proof for Soviet Jews, Evangelical Christians, Ukrainian Catholics, and Ukrainian Autocephalous Orthodox Christians back to their pre-1989 levels. These groups, which the Amendment argued faced a "credible basis for concern" based on "historical circumstances," would not need to provide proof of a well-founded fear of persecution. Immigrants from the USSR therefore continued to enter as refugees in high numbers through much of the 1990s.

3.4.3   Social assistance provided to immigrants

Prior to the collapse of Communism, German law guaranteed full freedoms and access to social services for resettled ethnic Germans. In 1992, pensions paid to ethnic Germans were reduced (Marshall, 2000). In 1993, unemployment benefits paid on arrival to ethnic Germans were suspended and replaced with a transition payment and language course stipend (Marshall, 2000). In 1995, Germany agreed to contribute DM 200 million to the Russian government to resettle ethnic Germans from Asia (especially Kazakhstan) to Russia in an attempt to discourage their migration to Germany (Marshall, 2000).

Refugees granted asylum in Germany receive a residence permit entitling them to work, al-

Figure 2: Summary of Major Immigration Policy Changes in Germany and US, 1989–1993
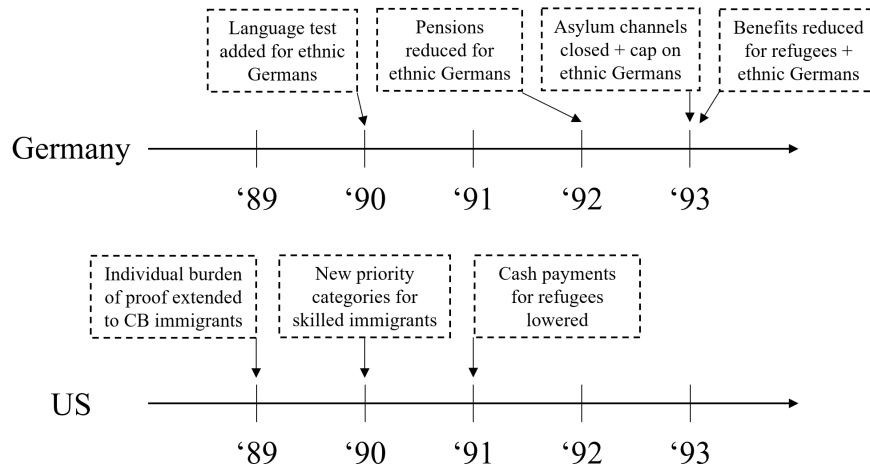
Notes: Immigration policies in Israel were relatively constant over this period.

though they faced sporadic work bans in the 70s, 80s, and 90s. After 5 years of living in Germany on a residence permit, refugees could apply for permanent residency subject to language fluency and self-sufficiency requirements. In November 1993, the Asylum Seeker Benefits Law reduced benefits paid to asylum seekers, for the first time separating entitlements from those offered to Germans and other immigrants.

US policy governing refugee resettlement assistance was set forth in the Immigration and Nationality Act of 1952, amended in 1965 and again in 1980 as The Refugee Act. Programs include cash assistance, medical assistance, basic needs support (such as housing, furnishings, food, and clothing), and language and job skill training (Bruno, 2011). In 1991, the duration of cash and medical assistance payments was lowered from 36 months to 8 months.

Resettlers arriving in Israel were supported by a decentralized network of "absorption centers" which provided initial accommodation and integration support. In the 1990s the government formalized a basic income program (called the "absorption basket") lasting for one year after arrival, while leaving service provision (such as assistance finding housing and jobs) to local governments and volunteer organizations (Leshem and Sicron, 1999).

4   Conceptual framework and migration model

In this section we provide a conceptual framework to guide our analysis of migration out of the Communist Bloc. The focus of our framework will be on the features of the migration decision that were most affected by the collapse of Communism and the subsequent Western response. Formulating such a model is by necessity an act of great simplification. Our aim is to extract the crucial components of the changing migration landscape in a way that permits useful analysis. In this section we will refer to self-selection in terms of the usual abstraction *human capital*. In our empirical analysis, we will analyze educational attainment and labor market outcomes, such as occupation and income, when comparing across cohorts.

Our framework embeds persecution into a simple migration model in which workers trade off an income premium from migrating against an amenity value of staying home. Our core assumption follows Seneca: people love their home country, and in general can only be induced to leave it by great differences in opportunity. We model persecution as reducing the value of remaining in the home country through a decrease in an amenity term in the utility function. A key result of the model is that, all else equal, workers with the highest education prefer not to migrate. This arises because the marginal utility of income is declining in income, but the home amenity value is not: as one moves up the income distribution, eventually workers are rich enough that the home amenity is more attractive than the income premium.[11] Persecution increases the threshold at which workers are indifferent between migrating and staying home, increasing the average human capital of migrants.

4.1   Model setup and solution

Consider a set of workers born in the Communist Bloc deciding whether to migrate to the West. Each worker i is endowed with transferable human capital $H_i \in \mathbb{R}^+$. Denote the migration decision of worker i with $M_i \in \{0, 1\}$. Workers remaining in their home country earn income $Y_i(M_i =$

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[11]The result that the best-off workers prefer not to migrate is a feature of migration models other than ours, and consistent with evidence from other settings. For example, workers with the highest level of education tended not to migrate during the age of mass migration (Abramitzky et al., 2013). Several studies from developing countries find that migrants are selected from the middle of the income distribution (McKenzie and Rapoport, 2007, Dustmann and Okatenko, 2014, Clemens and Mendola, 2020).

$0) = H_i$ and enjoy a home amenity $A_i \geq 0$ (we will later use the home amenity term to describe the effect of persecution). Workers who migrate capture an income premium P_i so that their total income in the West is $Y_i(M_i = 1) = H_i + P_i$. Both the home and destination countries can potentially establish migration barriers in the form of costly passport requirements, proof of income, or outright exit bans that are difficult to circumvent. For simplicity, we model these barriers as prohibitive for workers below a certain human capital threshold, denoted by $\bar{h}$. This result can be micro-founded by assuming that migration costs are decreasing in human capital (Chiquiar and Hanson, 2005).[12] The worker's utility is given by:

$$U_i(M_i = 0) = \log(H_i) + A_i$$

$$U_i(M_i = 1) = \log(H_i + P_i)$$

The worker's problem is:

$$\max_{M_i} U_i(M_i) = M_i \log(H_i + P_i) + (1 - M_i)(\log(H_i) + A_i) \tag{1}$$

$$s.t. \quad H_i \geq \bar{h} M_i$$

Workers with $H_i < \bar{h}$ cannot migrate whether they want to or not. Workers with $H_i \geq \bar{h}$ will choose to migrate when $H_i \leq \frac{P_i}{e^{A_i} - 1}$. Workers with $H_i > \max\left(\bar{h}, \frac{P_i}{e^{A_i} - 1}\right)$ are able to migrate, but prefer to stay home because the value of the home country amenity outweighs the income gain from migrating: we call this the *home amenity effect*. The solution to Equation 1 is therefore:

$$M_i^* = \begin{cases} 1 \text{ if } \bar{h} \leq H_i \leq \frac{P_i}{e^{A_i} - 1} \\ 0 \text{ otherwise.} \end{cases}$$

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[12]This could arise because higher-skill individuals are more easily able to meet the extensive bureaucratic migration requirements, because visa requirements explicitly screen on measures of human capital, or because paying a fixed migration cost imposes a lower time-equivalent cost for individuals with higher hourly wages.

4.2 How does persecution affect who migrates?

The marginal effect of persecution on the migration decision is unambiguous: for workers with $H_i \geq \bar{h}$, a decrease in A_i relaxes the condition $H_i \leq \frac{P_i}{e^{A_i}-1}$. Workers who preferred to stay home absent persecution may no longer be willing to forgo a migration premium to enjoy a home country amenity which has been reduced or negated by persecution. All else equal, the workers forgoing migration in the absence of persecution are those with the highest human capital, so persecution will increase the average human capital of migrants.

Whether migrants from persecuted groups are more or less positively selected than migrants from non-persecuted groups depends on the relationships between human capital, the migration premium, and the home amenity in the population. We illustrate this point with several examples: see the diagrams shown in Figure 3. In doing so, it will be helpful to define a level set $\widetilde{H}(P, A)$ of workers who, given their migration premium P_i and home amenity value A_i, are indifferent between migrating and staying. That is, $\widetilde{H}_i(P_i, A_i) = \frac{P_i}{e^{A_i}-1}$. Note that $\widetilde{H}$ is increasing in P and decreasing in A: workers with less human capital require a lower premium to be willing to migrate, and a higher home amenity value to forgo a given migration premium. We restrict our attention to relatively simple cases in which the migration premium is related to human capital through a function $P(H)$. Throughout these cases, we will set $\bar{h} = 0$ and focus only on the self-selection margin. While the results of Section 6 suggest that Case 2 approximates our setting, we believe that delineating several cases helps to clarify how each feature of the model interacts with migrant self-selection, and highlights the conditions under which we expect refugees to be more or less positively selected than economic migrants.

Case 1: Extreme persecution (A=0). In the extreme case, as A approaches 0, workers' enjoyment of their home country evaporates completely. This may reasonably describe contexts of extreme persecution such as mass killings. In this case, there is no self-selection into migration at all: $\widetilde{H} \to \infty$ and everyone who can migrate will.

Case 2: Constant migration premium. Consider a case in which $P(H) = p$ for some constant p. This may approximate a setting in which the migration premium is very large relative to home

country income (such as when workers move from a very poor to a very rich country). Consider two types of workers: high-amenity types (such as those not facing persecution) with A_H, and low-amenity types (such as those facing persecution) with $A_L < A_H$. In this case, low-amenity workers will be unambiguously more positively selected than high-amenity workers. Intuitively, persecution raises the cutoff $\widetilde{H}$ below which workers are willing to migrate. Note that any $P(H)$ that crosses $\widetilde{H}(P, A_H)$ to the left of $\widetilde{H}(P, A_L)$ will deliver the same result. In particular, any monotonically decreasing $P(H)$, or any concave $P(H)$ that crosses $\widetilde{H}(P, A_H)$ from above, will satisfy this requirement.

Case 3: Migration premium increases in human capital. Consider a case in which the migration premium is increasing rapidly in human capital. This may represent a setting in which the skill premium in the origin is very low relative to the destination. Again consider the two types of workers as outlined in Case 2. If $P(H)$ crosses $\widetilde{H}(P, A_L)$ from below, then migrants of both types will be positively selected along human capital. In this case, persecution lowers the cutoff $\widetilde{H}$ above which workers are willing to migrate, and so low-amenity types will be more negatively self-selected.

Case 4: Home amenity decreases in human capital. Consider a case in which the home amenity is lower for workers with greater human capital. This may represent a post-revolutionary setting characterized by the persecution of educated elites, such as the period shortly after the Russian Revolution. Assume the function $A(H)$ describes the relationship between the home amenity and human capital, and intersects the level set $\widetilde{H}(P, A)$ from above along the A axis. Consider a form of persecution that reduces the home amenity value by a constant term c. Then this persecution lowers the cutoff $\widetilde{H}$ above which workers wish to migrate, and so persecuted types will be more negatively self-selected. Note that this result relies on the shape of $A(H)$: in particular, an upward sloping or constant $A(H)$ will reverse this result.

Figure 3: How the Effect of Persecution on Migrant Self-Selection Depends on the Relationships Between Human Capital, the Migration Premium, and the Home Amenity in the Population
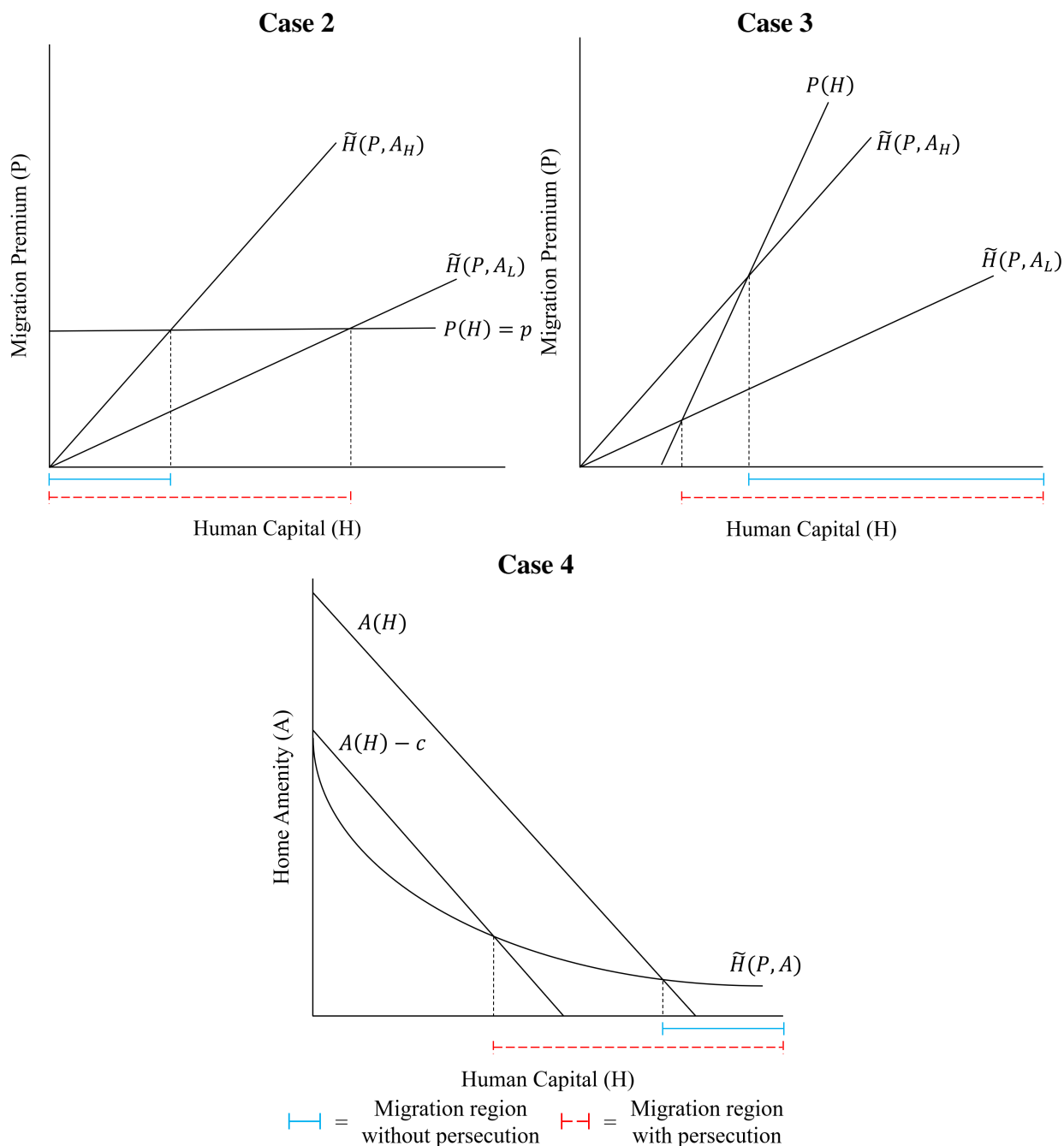
Notes: $\widetilde{H}$ is the value of human capital H at which workers are indifferent between migrating and staying home, given a migration premium P and home amenity value A. $P(H)$ and $A(H)$ are the assumed functional relationships between the migration premium or the home amenity, respectively, and human capital in the population. Cases 2 and 3: A_L and A_H are amenity values for workers who do and do not face persecution, respectively. Case 4: Persecution reduces the home amenity value by c at every level of H. Case 2 shows an example of negative self-selection, which is reduced by persecution. Cases 3 and 4 show examples of positive self-selection, which is reduced by persecution. See Section 4.2 for details.

4.3 How do migration restrictions affect who migrates?

The collapse of Communism brought about two major changes to the constraints that prospective migrants faced. First, it became substantially easier to exit the Communist Bloc: what before was criminal, was now unrestricted. This happened overnight in some places, such as Romania, and over a handful of years in others, such as the USSR. Second, Germany and the United States became increasingly selective in the entry requirements they imposed on immigrants from the Communist Bloc.

The effect of Soviet-style exit restrictions on migrant selection is theoretically ambiguous. On the one hand, the better educated may be more equipped to navigate the complex bureaucracy built to render migration impractical. On the other hand, to the extent that attempted migration can result in job loss or exclusion from educational or social institutions, the better off may have more to lose from risking migration. Some Satellite countries, including Romania and Czechoslovakia, explicitly targeted their restrictions at the better educated by imposing an emigration tax equal to the cost of a person's education. The effect of the removal of exit restrictions on migrant selection is therefore an empirical question.

The effect of immigration policy reform in Germany and the US on migrant selection is more straightforward: nearly every policy change reflected an attempt to make resettlement less desirable, more difficult, and to deter migrants who were likely to rely on social welfare programs (see Section 3.4.3). Germany also made it dramatically more difficult for Communist Bloc migrants to claim asylum (see Section 3.4.2). Lacking the asylum channel, prospective migrants could enter only through standard immigration channels, which require the migrant to demonstrate economic self-sufficiency and make a case for their economic contribution to the destination country. We therefore expect—holding the self-selection margin constant—that immigration policy reforms in the US and Germany should unambiguously increase the average human capital of migrants: the self-sufficiency and language requirements, as well as reductions in social assistance, should impose a higher burden on the less well-off. We view this as an increase in $\bar{h}$ within our migration model.

4.4 Evidence of the home amenity effect

Our model predicts that persecution can increase the average human capital of migrants. This occurs when high human capital workers forgo migration for a home amenity, which persecution reduces. Our model thus yields two testable predictions, which we consider in this section: highly educated workers in the Communist Bloc were less likely to migrate than workers with medium levels of education, and this pattern will be weaker among persecuted groups.

Ideally, we could test these predictions by measuring the probability of migration out of the Communist Bloc at various education levels using nationally representative panel data. To our knowledge, no such data exist. However, we can estimate migration rates at each education level by combining origin and destination country census data, and applying Bayes' rule:

$$Pr(M = 1|H = h) = Pr(H = h|M = 1) \times \frac{Pr(M = 1)}{Pr(H = h)}$$

where M is a binary variable with 1 denoting migration out of the Communist Bloc and h is a value of educational attainment H. We estimate $Pr(H = h|M = 1)$ from educational attainment data on Communist Bloc immigrants in Germany, Israel, and the US (weighted by their population sizes) and estimate $Pr(H = h)$ by combining the same data with educational attainment data from the origin country. We estimate $Pr(M = 1)$ from relative population sizes in the three destinations compared to the origin, but since this does not vary with education it acts only as a scaling factor.

This exercise relies on three main assumptions. First, the selection of migrants who went to destination countries in our sample—Germany, the US, and Israel—must not be too different from selection across all destinations. Because these three destinations represent a great majority (nearly 90%) of emigration from Communist Bloc countries, this assumption is likely to hold. Second, any mortality differences across education groups need to be common in the origin and destination. Throughout our analysis (described in greater detail in Section 5.2), we restrict our sample to individuals between age 25 and 65 as of 2011. Third, educational attainment observed for immigrants in the census needs to reflect investments made in the home country. Again matching our main analysis, we restrict our sample of immigrants to those who first moved at age 25 or

older.[13]

We conduct this exercise separately for each origin country with available census data from around 2011—Poland, Hungary, Romania, and Russia[14]—to match the timing of the German census. We restrict to individuals aged 25–65 as of 2011 who immigrated at age 25 or older. For example, we can estimate the size and educational attainment of the cohort born in Poland between 1946 and 1986 based on counts in the Polish, German, US, and Israeli censuses. The estimated migration probability is thus simply the number of immigrants living in Germany, the US, or Israel who were born between 1946 and 1986 in Poland and immigrated at age 25 or older, divided by the sum of that immigrant count and the number of Poles born in the same period who are residing in Poland as of the 2011 census.

We standardize education categories across countries using the International Standard Classification of Education 1997 (ISCED). To increase comparability across countries, we aggregate classifications up to the following major categories: lower secondary or less (ISCED levels 0–2), upper secondary (level 3), post-secondary (level 4), and tertiary (levels 5–6). Because we cannot observe persecution directly, we rely on membership in two ethnic minority groups that faced widespread persecution in the Communist Bloc: Jews and ethnic Germans. Ethnic membership can be observed or inferred in each of the destination countries, as well as in Romania and Russia.[15]

We find support for both of the model's testable predictions: migration rates out of each origin country are declining at the top of the education distribution, but much less so for ethnic Germans and Jews. Figure 4 displays these results. In Poland, Hungary, and Romania, migration rates exhibit an inverted U-shape in education: individuals with post-secondary degrees are more likely to migrate than those with tertiary degrees or those with less than a post-secondary degree. In

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[13]These restrictions imply that our estimates apply to sub-populations—those born between 1946 and 1986 who were living in their home country up until the age of 25—and selection patterns may be different in the broader population. Nevertheless, we view these estimates as relevant to our study given our focus on working-age adult immigrants.

[14]Census data for Ukraine and Belarus are also available on IPUMS. However, migration to Russia from other post-Soviet countries was substantial after the collapse of Communism (Denisenko, 2020). We thus focus on Russian-born individuals who remained in Russia or who migrated to the West.

[15]The German census contains data on religion, but not ethnicity. Since naturalization rates in Germany were substantially higher among ethnic Germans than other immigrant groups (Marshall, 2000), we use German citizenship to proxy for German ethnicity among Communist Bloc immigrants. The US census contains information on ancestry and language: we code ethnic Germans based on German ancestry and Jews based on Israeli ancestry or Hebrew or Yiddish language. The Israeli census includes data on religion. The Romanian census includes information on religion and ethnicity, and the Russian census includes information on mother tongue.

Russia, migrant selection is negative: those with tertiary degrees are the least likely to migrate, and those with less than an upper secondary degree are the most likely to migrate. These patterns echo the common finding that the propensity to migrate decreases toward the top of the income or wealth distribution in many countries (McKenzie and Rapoport, 2007, Dustmann and Okatenko, 2014, Clemens and Mendola, 2020, Bazzi, 2017). Although this empirical regularity is often attributed to illiquid land wealth, it is also consistent with the home amenity effect.[16]

In Romania and Russia, where disaggregating by ethnic group is possible, we find that the decline in migration propensity at the top of the educational attainment distribution is substantially less pronounced for Jews and Germans. Among Jews and Germans in Romania, those with a tertiary degree are about as likely to migrate as those with a post-secondary degree (about 94% as likely). Among the rest of the Romanian population, those with a tertiary degree are only 75% as likely to migrate as those with a post-secondary degree. Among Soviet Germans, those with a tertiary degree are just as likely (99% as likely) to migrate as those with an upper secondary degree. Among other Russians, those with a tertiary education are only 63% as likely to migrate as those with an upper secondary degree. Whatever mechanism is reducing migration at the top of the education distribution is more pronounced among members of the majority ethnic group, and consistent with a home amenity effect that is reduced by persecution.

4.5   Summary of conceptual framework

Table 2 summarizes the three features we believe are crucial for understanding changes in migrant selection following the collapse of Communism. As described in Section 5.4, we focus on three periods: the early refugee period (until 1986), the late refugee period (from 1987 until 1992), and the economic migrant period (after 1993). The first feature we focus on is the average home amenity among the set of people who are migrating. In the two refugee periods, this amenity will be relatively low: persecution was a key reason to flee the Communist Bloc, and in most cases migrants were required to demonstrate evidence of persecution to immigration authorities. The

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[16]The model of McKenzie and Rapoport (2007) describes an agricultural household, whereas the Communist Bloc countries were largely urbanized by this period. Urbanization rates in 1990 are around 60–75% for most Communist Bloc counties (World Bank).

Figure 4: Migration Rates are Lower for the Highest-Educated Individuals, Except Among Persecuted Minority Groups.
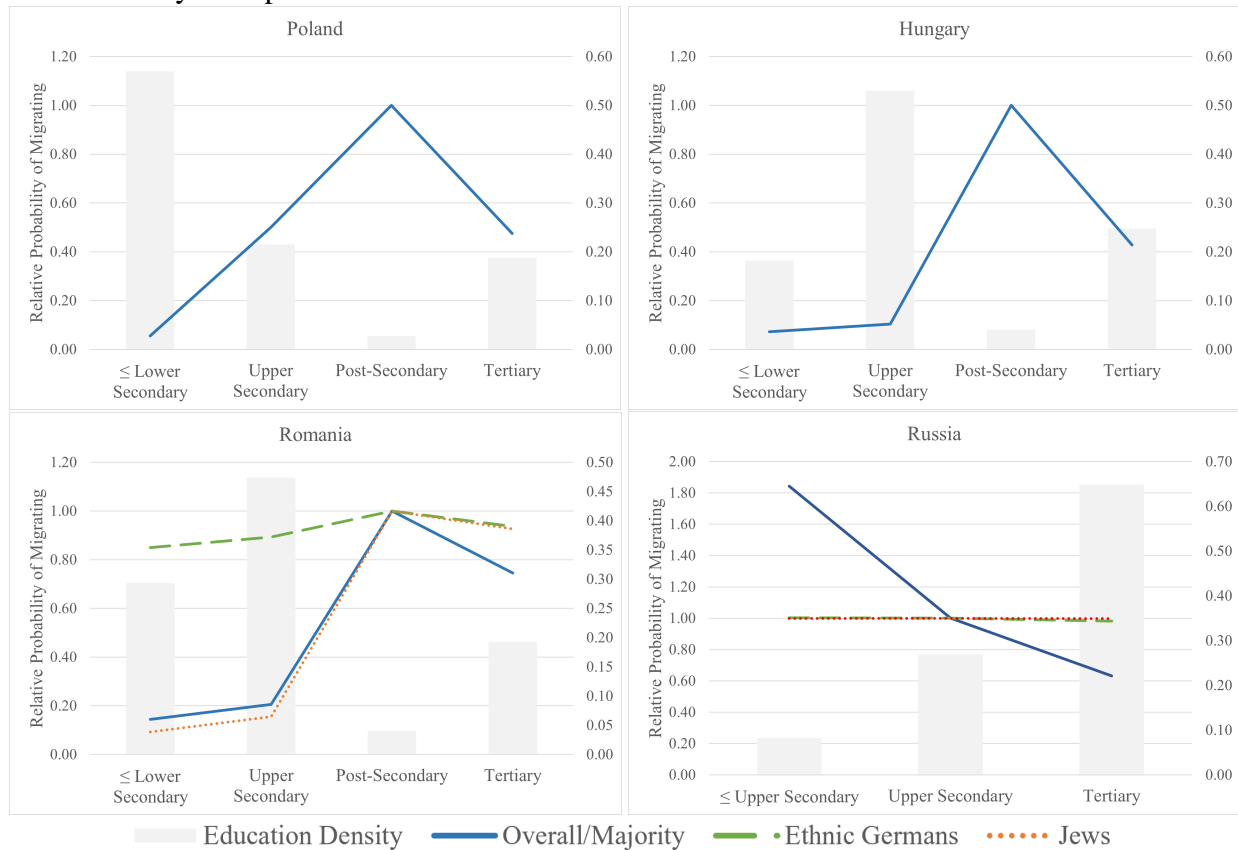
Notes: Each line shows the estimated probability of migrating by origin country. Migration rates are estimated using origin and destination country census data (see Section 4.4) and are normalized by the rates for post-secondary education (or upper secondary in Russia). ISCED level 4 (post-secondary) is not separately identifiable in the Russian census. Because migration, especially among non-Russian ethnic groups, to Russia from other Soviet Republics was substantial in the 1990s (Denisenko et al., 2020, Ioffe, 2020), we include Jewish and German immigrants from any Soviet Republic when computing migration probabilities to the West. Gray bars show the distribution of educational attainment, regardless of residence, with percentages shown on the secondary vertical axis.

second feature is the difficulty of exiting the Communist Bloc, which was very high in the first period and low afterward. The third feature is the extent to which immigration policies in destination countries admitted Communist Bloc migrants based on their skills (or *immigration policy skill bias*). This was low when destination countries were admitting migrants based primarily on evidence of persecution or minority ethnic group membership (until 1989 in the US,[17] and 1993 in Germany) and increased as destination countries restricted asylum channels and imposed self-sufficiency requirements on would-be immigrants. Israeli immigration policy remained open to

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[17]In 1990, an exception was made for Soviet Jews and certain Christian minority groups (see Section 3.4.2). Thus the change in skill-selectivity applied to Communist Bloc migrants was less stark in the US than in Germany.

Table 2: Summary of Migration Regimes

	Pre-1986 (Early Refugee)	1987–1992 (Late Refugee)	Post-1993 (Economic Migrant)
Home amenity of migrants (e.g. due to persecution)	Low	Low	High
Difficulty of exiting Communist Bloc	High	Low	Low
Immigration policy skill bias in Germany	Low	Low	High
Immigration policy skill bias in US	Low	High	High
Immigration policy skill bias in Israel	Low	Low	Low

Jewish migrants throughout this period.

Table 2 suggests several empirical tests. A comparison of the early to the late refugee cohorts in Germany will isolate the effect of exit restrictions, while the same comparison in the US will estimate the combined effect of exit restrictions and immigration policy skill bias. A comparison of the late refugee cohort to the economic migrant cohort in the US and Israel will isolate the effect of persecution, while the same comparison in Germany will estimate the combined effect of persecution and immigration policy skill bias. In all cases, comparisons of the late refugee cohort to the economic migrant cohort hold fixed the effect of emigration restrictions.

5   Data and estimation strategy

In this section we describe our methodology, including dataset construction, sample selection, variable definition, and estimation strategy.

5.1   Data sources

We analyze the selection and outcomes of Communist Bloc immigrants in Germany, the US, and Israel by combining census microdata from each of these destination countries. For Germany, we rely on either the 10% household census of 2011, or a pooled dataset consisting of the 1%

household micro-censuses from 1973, 1985, 1989, 1991, 2000, and 2005, accessed through remote execution on data hosted by the Federal Statistical Office.[18] For the US, we combine the 1980, 1990, and 2000 5% public use census files with the yearly 1% American Community Surveys from 2001 through 2011 obtained through IPUMS.[19] For Israel, we combine the 1972, 1983, 1995, and 2008 10% public use census files obtained through IPUMS.[20] When analyzing census data from Germany and the US, we randomly sample 10% of native-born and 100% of Western and Communist Bloc immigrants to produce our main sample.

Aggregate data on refugee admissions in the US are available from the Yearbooks of Immigration Statistics published yearly by the Department of Homeland Security. Data on refugee admissions in Germany are taken from monthly bulletins published by the Federal Cabinet of Germany (*Bundesregierung*), which include information on refugee admissions approximately monthly by origin country from 1986. Data on the number of ethnic German resettlers (*Auessiedler*) are taken from the Federal Office of Administration (*Bundesverwaltungsamt*). In Israel, the vast majority of Communist Bloc immigrants were Soviet Jews eligible for full citizenship, and so we do not distinguish between immigrant classes. Data on arrivals by origin country are taken from the Central Bureau of Statistics of Israel.

5.2   Sample construction

We restrict our analysis to adults of working age at the time of the census survey who immigrated as adults. These individuals are likely to have completed their education before immigrating, to have had significant agency in their migration decision, and to be attached to labor markets in the destination at the time of survey. Specifically, we restrict our sample to individuals aged 25–65

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[18]The Federal Statistical Office (*Statistisches Bundesamt*) is a statistical arm of the Federal Ministry of the Interior. For researchers outside of Germany, the census and micro-census data are available through remote execution. Pooling is possible across micro-census survey years, but not across census and micro-census surveys. We therefore analyze these two datasets separately.

[19]We do not use the US 2010 10% sample because it does not include information on country of birth.

[20]Although our outcomes are measured in different years across destination countries, this is not important for our analysis. For adults over 25 years of age, broad educational attainment should be largely fixed over time. Labor market shocks that are common to Western European and Communist Bloc immigrants will be absorbed by our comparison group. Finally, our main analysis relies on cohort-level, rather than country-level, variation.

who first immigrated at age 25 or older.[21] We impose the same sample selection criteria across each of the three destination countries. Table A7 shows that our main results are robust to an immigration age cutoff of 30 or 35.

5.3 Sample summary statistics

Table A1 displays summary statistics for our sample of Western European, Soviet satellite, and USSR immigrants by destination country along with a native-born sample in the same age range. Compared with the native-born in each country, Communist Bloc immigrants are slightly more likely to be women, and more likely to be married. In Germany, Communist Bloc immigrants are slightly less likely to be employed, and less likely to be employed in high-skill jobs, compared with the native-born. In the US, there is almost no gap in employment outcomes relative to the native-born or Western European immigrants. In Israel, Communist Bloc immigrants are as likely to be employed, but somewhat less likely to find a high-skill job, compared with the native-born. Education differences vary: in Germany, Satellite immigrants are the most educated group, whereas in the US they are less educated than Soviet immigrants but more than Western European immigrants and the native-born. In Israel, Soviet immigrants—who comprise the vast majority of Communist Bloc immigrants—are more educated than both native-born Israelis and Western European immigrants.

5.4 Definition of policy regimes

In our main analysis, we focus on the three time periods we believe best define our three policy regimes of interest. Such an approach requires considerable simplification, but we argue that this particular division effectively captures the most important variation in migration incentives and constraints. We refer to the first period, stretching from 1962 to 1986, as the *early refugee* period. This period is characterized by emigration that was extremely difficult and motivated to a great degree by persecution. Before the Berlin Wall was built in 1961, it was significantly easier to travel to West Germany—we therefore exclude these years from analysis. The second period includes

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[21]To define cohorts consistently across survey years, we measure age as the difference between birth year and survey year in Germany and the US (the Israeli censuses prior to 2008 group age and birth year into 5-year intervals).

the years surrounding the collapse of Communism, from 1987 to 1992.[22] We refer to this period as the *late refugee* period. This period is characterized by emigration that was significantly easier for those who could claim refugee or ethnic minority status, and thus was dominated by members of these groups. The period from 1993 to 2003 we refer to as the period of *economic migration*. The crucial year 1993 marks the landmark Asylum Compromise in Germany, which imposed a binding cap on the number of ethnic German resettlers and effectively closed the asylum channel for prospective Communist Bloc immigrants. Beginning in 2004, several former Communist Bloc countries joined the European Union, significantly changing the migration landscape—we therefore exclude these years from analysis. Note that because the Israeli census groups immigrants' arrival years into periods, we must use slightly different definitions of each regime: 1962 to 1989, 1990 to 1991, and 1992 to 2003. Nevertheless, because 1990 and 1991 represent the bulk of immigration flows, this should not significantly affect comparability across countries. Table A7 shows robustness to our choices of cutoff years.

5.5   Comparison to Western European immigrants

One concern with a simple comparison across arrival-year cohorts is that these differences may reflect general changes in immigration policy at the destination—for example, a skill-biased shift in visa category allocations—trends in labor demand for skilled compared to unskilled workers, or secular trends in the educational attainment of prospective migrants. To isolate the effect of the collapse of Communism on migrant selection, we therefore use immigrants from Western Europe as a comparison group.[23] There were no significant changes to German, US, or Israeli immigration policy that specifically affected immigrants from Western European countries throughout our study period.[24] Demographic trends in Western and Eastern Europe were relatively similar during our

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[22]The cohort cutoff year of 1987 is chosen for two reasons. First, it represents the beginning of major reforms in the USSR with respect to emigration policy. Second, the 1990 US Census does not disaggregate immigration year within the 1987–1990 period. We show that our results are robust to using 1989 as the cohort cutoff year (and excluding the 1990 census data) in Table A7.

[23]We include in this group immigrants from Western, Northern, and Southern Europe (excluding Albania) as defined by IPUMS.

[24]One major exception is the easing of immigration restrictions in Germany as new countries were admitted to the European Union. Excluding immigrants from countries that were admitted during our study period does not alter our main results (see Table A7).

study period.[25]

5.6 Estimating equations

Measuring changes in education: To measure how immigrants' average educational attainment changed across regimes, we estimate the following regressions, separately for each destination country, on a sample of Communist Bloc immigrants and native-born:

$$Y_i = \beta_1 Post93_i + \beta_2 Year87\_92_i + X_i\Gamma + \epsilon_i \tag{2}$$

where Y_i is the educational attainment of person i; $Post93_i$ is a dummy equal to 1 if person i immigrated in or after 1993; $Year87\_92_i$ is a dummy equal to 1 if the person immigrated between 1987 and 1992[26]; X_i is a vector of control variables including a country-of-origin fixed effect, a survey-year fixed effect, and 5-year bin dummies for age fully interacted with gender; and ϵ_i is an error term. Our coefficients of interest, β_1 and β_2, represent the average difference in education between immigrant arrival cohorts from the same origin country, controlling for age and gender differences using native-born profiles, and allowing for common differences across survey years. In all regressions we apply individual weights to estimate population parameters, and adjust standard errors to account for census sampling methodology.

To compare changes for Communist Bloc immigrant cohorts to those for Western European immigrant cohorts, we add Western European immigrants to the sample and interact the cohort dummies with a Communist Bloc dummy, yielding difference-in-differences regressions of the form:

$$Y_i = \beta_1 Communist_i \times Post93_i + \beta_2 Communist_i \times Year87\_92_i \tag{3}$$
$$+ \beta_3 Post93_i + \beta_4 Year87\_92_i + X_i\Gamma + \epsilon_i$$

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[25]See Table A2 for details. From the 1970s to the 1990s, total population grew by 7% in Western Europe and 11% in Eastern Europe. During this period educational attainment expanded faster in Eastern Europe than Western Europe, suggesting that estimated changes in self-selection for Eastern European immigrants will be biased upward.

[26]The Israeli censuses group immigrant arrival years into intervals, so our measurement departs slightly from that for the Germany and the US. Specifically, we group 1992–2008 arrivals in the 2008 census data, and group 1990–1991 and 1980–1989 arrivals in both the 2008 and 1995 census data.

where *Communist*$_i$ is a dummy variable equal to 1 if person i is an immigrant from a Communist Bloc country, and with other variables defined as in (2). Our coefficients of interest, β_1 and β_2, capture the average difference in education across Communist Bloc immigrant arrival cohorts from the same origin country, relative to Western European cohorts arriving in the same period, controlling for age and gender differences using native-born profiles, and allowing for common differences across survey years.

Measuring changes in socioeconomic outcomes: To measure changes in immigrants' outcomes across policy regimes, we estimate (3) adding 5-year bin dummies for years since arrival (with 1-year bins for the first 5 years) fully interacted with gender to the control vector X_i.

6   Results

This section presents our main results estimating the impact of the collapse of Communism on migrant selection, and interprets those results through the lens of our framework in Section 4. We also consider and rule out alternative explanations of our results, including changing returns to skill in the Communist Bloc, family reunification, differences in education acquired after immigration, and selective attrition of immigrants from our sample.

6.1   Migration flows

The end of Communism in Eastern Europe led to a dramatic increase in the number of migrants leaving the Communist Bloc for the West. Figure 5 shows the yearly number of refugees and asylum seekers (including ethnic German resettlers) arriving in Germany, the US, and Israel, separately for the USSR and its satellite countries. Applicants whose cases for resettlement were denied are not included. In the years preceding 1987, refugee arrivals were low: roughly 50,000 per year in Germany, not more than 10,000 per year in the US, and only a few thousand per year in Israel. After the collapse of Communism, arrivals rose precipitously in all three destination countries. In the peak immigration year of 1990 alone, the number of refugees resettled was 450,000 in

Figure 5: Yearly Refugee Arrivals in Germany, US, and Israel (Thousands)
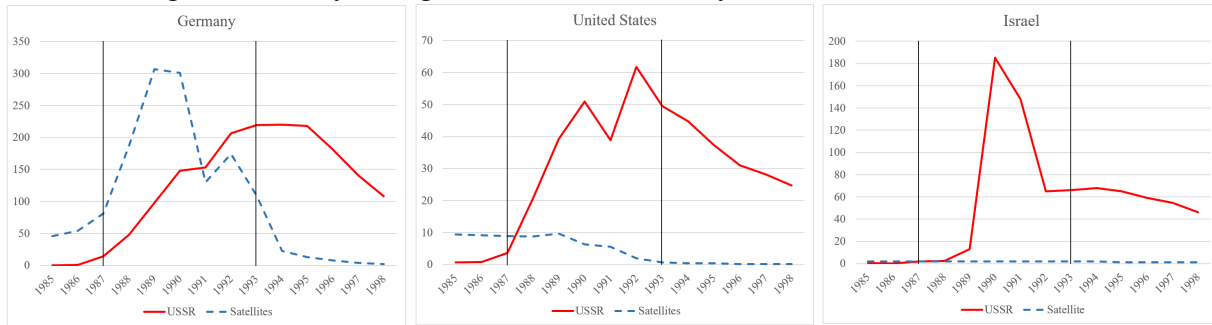
Source: Cabinet of Germany (*Bundesregierung*) and Federal Office of Administration (*Bundesverwaltungsamt*), US Yearbooks of Immigration Statistics (Department of Homeland Security), and the Central Bureau of Statistics of Israel. German data include asylum seekers and ethnic Germans approved for resettlement. US data include refugee and asylee approvals. Israeli data include all arrivals. Arrivals are recorded in the year of first arrival, not the year in which the visa was obtained. Vertical lines mark 1987—the beginning of emigration liberalization in the USSR— and 1993—the year of the Asylum Compromise in Germany, which effectively barred most asylum applications from Eastern Europe (see Section 3.4.2).

Germany, 60,000 in the United States, and 200,000 in Israel.

6.2 Education

The transition from refugee migration to economic migration led to a drop in the average education of immigrant arrivals in all three destination countries, as shown in Column 1 of Table 3. This result holds when we use Western Europeans as a comparison group, as shown in Column 3, and does not depend on whether we control for age and gender differences, as shown in Column 4. One potential explanation for this finding is that emigration was easier in the post-collapse period, and that emigration barriers were relatively more difficult for workers with lower education to overcome. Alternatively, there may have been a compositional shift toward migrants who are less positively self-selected. A simple comparison of pre-collapse to post-collapse immigrants mixes these two forces (see Table 2). In order to distinguish between them, we need to examine selection separately for each of our three policy regimes.

We find that the economic migrant cohort was less educated than the late refugee cohort in all three destination countries. This result holds whether we compare cohorts directly (Column 2) or use Western Europeans as a comparison group (Column 5), and does not depend on whether we control for age and gender differences (Column 6). In the single-differences specification shown

in Column 2, this difference is about 0.2 years in Germany and the US and 1.3 years in Israel (all p-values < 0.01). Compared with Western European immigrants (Column 6), the difference is similar or starker: 0.8 years in Germany, 0.5 years in the US, and 1.2 years in Israel (all p-values < 0.01). These results indicate that changes in migration costs resulting from the removal of emigration barriers cannot fully explain the lower education levels of economic migrants compared with refugees.

The decline in educational attainment from the late refugee to the economic migrant period occurred throughout the education distribution (see Table A3), and is most pronounced, in percentage terms, among the highest-educated workers in each destination country. This finding is consistent with persecution driving highly educated workers to migrate, as predicted by our model.

We assess the impact of lower migration costs on migrant selection by comparing the early refugee to the late refugee cohorts. We find that the average education of Communist Bloc immigrants fell compared to Western European immigrants in Germany and the US, in the range of 0.6–0.8 years. The change was more pronounced in Israel, where the late refugee cohort had 1.6–2.2 *more* years of education on average than the early refugee cohort. This finding may reflect the fact that emigration was somewhat more open for Jews traveling to Israel than for other groups in the pre-collapse period (Dowty, 1987). It may also be that policy changes in the US in 1989 led some highly educated Jews—who would have preferred to live in the US but could not obtain an entry visa—to instead move to Israel (Cohen and Haberfeld, 2007).

What explains the lower educational attainment of immigrants arriving in the economic migrant period relative to the late refugee period? Changes in destination-country immigration policies are highly unlikely to explain this change, as the most significant policy changes in the US and Germany were designed to make the asylum process more difficult, limit social assistance programs, and favor high-skill migrants. Emigration restrictions, having been largely lifted by 1989, were roughly constant across these two periods. Our findings therefore point to more positive self-selection of migrants in the late refugee period compared to later economic migrants.

Table 3: Differences in Educational Attainment Across Immigrant Cohorts

	Single Differences		Diff in Diffs (vs. Western Europe)			
Outcome: Years of Education	(1)	(2)	(3)	(4)	(5)	(6)
Immigrants in Germany						
Communist x Post-93	-0.223***	-0.680***	-0.984***	-0.878***	-1.439***	-1.360***
	(0.030)	(0.056)	(0.102)	(0.101)	(0.131)	(0.131)
Communist x Year 87–92		-0.529***			-0.632***	-0.581***
		(0.053)			(0.151)	(0.150)
Post-93			0.892***	0.654***	1.012***	0.678***
			(0.097)	(0.097)	(0.120)	(0.119)
Year 87–92					0.244*	0.050
					(0.142)	(0.142)
Observations	512,040	512,040	529,740	529,740	529,740	529,740
Demographic Controls	x	x		x		x
Immigrants in US						
Communist x Post-93	-0.046	0.089**	-1.200***	-1.124***	-1.256***	-1.208***
	(0.029)	(0.035)	(0.041)	(0.041)	(0.047)	(0.046)
Communist x Year 87–92		0.257***			-0.769***	-0.714***
		(0.038)			(0.053)	(0.053)
Post-93			1.313***	1.076***	1.573***	1.295***
			(0.030)	(0.029)	(0.031)	(0.031)
Year 87–92					1.158***	0.971***
					(0.038)	(0.037)
Observations	2,989,320	2,989,320	3,108,279	3,108,279	3,108,279	3,108,279
Demographic Controls	x	x		x		x
Immigrants in Israel						
Communist x Post-92	-0.765***	0.334***	-0.425***	-0.100	0.863***	1.023***
	(0.036)	(0.056)	(0.145)	(0.145)	(0.152)	(0.152)
Communist x Year 90–91		1.643***			2.153***	2.188***
		(0.057)			(0.297)	(0.297)
Post-92			-0.089	-0.664***	-0.085	-0.691***
			(0.141)	(0.141)	(0.142)	(0.142)
Year 90–91					-0.211	-0.550*
					(0.292)	(0.292)
Observations	447,097	447,097	451,646	451,646	451,646	451,646
Demographic Controls	x	x		x		x

Notes: Each column is a separate regression. An observation is an individual. See Section 5 for data sources. Each sample includes immigrants aged 25–65 from Communist Bloc countries (USSR, Poland, Romania, Czechoslovakia, Hungary, and Bulgaria) or Northern, Western, and Southern Europe who immigrated between 1962 and 2003 after the age of 25. All regressions control for country-of-birth and survey-year fixed effects. Columns 1, 2, 4, and 6 add 5-year age-bin fixed effects interacted with a gender dummy. Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

There are two possible interpretations of this change: either education levels were higher on average among persecuted groups—which comprised a bigger share of immigrant flows during the late refugee period compared to the economic migrant period—or there was a greater skill bias in migrant self-selection from persecuted sub-populations compared to non-persecuted sub-populations, as illustrated in our model. Our results support the second explanation: migration rates at the top of the education distribution were higher for Soviet Germans, and Romanian Jews and Germans—groups facing widespread persecution in the Communist Bloc—than for the rest of the population within those countries (see Figure 4). While the first explanation—that persecuted groups were more educated on average—may partly explain our findings, it alone cannot be driving our results. Although Jews were the most educated group within the Soviet Union (Kravetz, 1980), ethnic Germans were among the least educated (Mukhina, 2007). Our results are robust to excluding Jewish immigrants from our sample, which is consistent with within-group differences in selection playing a key role in driving the changes we observe (see Table A7).

6.3 Labor market outcomes and language acquisition

The decline in immigrants' average education levels is echoed in the declining quality of the labor market outcomes they obtained and the language skills they acquired in the destination (Table 4). Our difference-in-difference estimates control for broader trends in migrant selection by using outcomes for Western Europeans as a comparison, as well as age, gender, and duration in the destination. We find that, in all three destination countries, economic migrants were less likely to be employed and less likely to work in higher-skill occupations[27] than were late refugees. In Germany and the US, these differences are generally large and statistically significant. For example, economic migrants were 6–7 pp. less likely to work in high-skill jobs than late refugees (p-vals < 0.01). In the US and Israel, where we observe real earned income, economic migrants earned 0.18–0.22 log points less (19–24% less, p-vals < 0.01) than late refugees. In the US, the only destination where we observe language skills, economic migrants were 10pp. less likely to report speaking English well (p-val < 0.01).

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[27]We code ISCO-08 major groups 1–3 as high skill, and groups 4–8 as medium skill.

Table 4: Differences in Labor Market Outcomes and Language Skills Across Immigrant Cohorts

	(1)	(2)	(3) High or	(4)	(5) Speaks
	Employed	High-Skill Job	Medium Skill Job	Log Income	English Well
Immigrants in Germany					
Communist x Post-93	-0.027*	-0.134***	-0.083***		
	(0.015)	(0.015)	(0.016)		
Communist x Year 87–92	-0.009	-0.069***	-0.023		
	(0.016)	(0.016)	(0.017)		
Post-93	-0.191**	-0.159***	-0.280***		
	(0.078)	(0.061)	(0.076)		
Year 87–92	-0.179**	-0.184***	-0.283***		
	(0.079)	(0.061)	(0.077)		
Observations	529,740	529,740	529,740		
Dep. Var. Mean	0.740	0.168	0.570		
Immigrants in US					
Communist x Post-93	-0.023***	-0.109***	-0.030***	-0.387***	-0.209***
	(0.005)	(0.006)	(0.005)	(0.015)	(0.005)
Communist x Year 87–92	-0.019***	-0.052***	-0.023***	-0.170***	-0.109***
	(0.006)	(0.006)	(0.006)	(0.017)	(0.005)
Post-93	0.017***	0.086***	0.025***	0.282***	0.136***
	(0.004)	(0.004)	(0.004)	(0.012)	(0.003)
Year 87–92	0.003	0.054***	0.009**	0.132***	0.088***
	(0.004)	(0.005)	(0.004)	(0.013)	(0.003)
Observations	3,108,279	3,108,279	3,108,279	2,691,691	3,108,279
Dep. Var. Mean	0.70	0.30	0.69	10.00	0.71
Immigrants in Israel					
Communist x Post-92	0.089***	-0.086***	0.010	-0.190***	
	(0.018)	(0.018)	(0.019)	(0.053)	
Communist x Year 90–91	0.099***	-0.050	0.018	-0.012	
	(0.033)	(0.033)	(0.034)	(0.081)	
Post-92	-0.030	-0.001	-0.021	0.191***	
	(0.018)	(0.018)	(0.019)	(0.053)	
Year 90–91	-0.014	-0.013	0.014	-0.120	
	(0.033)	(0.032)	(0.034)	(0.080)	
Observations	451,646	451,646	451,646	299,323	
Dep. Var. Mean	0.72	0.19	0.55	9.35	

Notes: See Table 3 for sample information. Columns with missing results indicate that the outcome is not available in that country. High- and medium-skill jobs correspond to ISCO-08 groups 1–3 and 4–8, respectively. Dependent variable means shown for all Communist Bloc immigrants.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

A comparison of labor market outcomes between the early and late refugee cohorts also echoes the differences in educational attainment. In Germany and the US, late refugees obtained worse outcomes than early refugees. They were 1–2pp. less likely to be employed and 5–7 pp. less likely to find high-skill jobs. In the US they earned 0.17 log points (19%) less and were 11 pp. less likely to speak English. In Israel, where late refugees had 2.2 more years of education compared to early refugees, they were 10pp. more likely to be employed, but the difference is driven by low-skill jobs.

Differences across immigrant cohorts may reflect two distinct channels: differences in human capital at the time of arrival, or differences in trajectories given the initial level of human capital. Because we focus on individuals who immigrated at age 25 or older, observed differences in education likely reflect differences upon arrival, and our findings are robust to using higher immigration-age cutoffs, such that immigrants' education is highly likely to have been completed prior to migration (see Table A7). Labor market outcomes and language acquisition, however, will in part reflect immigrants' human capital investment after arrival, and incentives to invest in destination-specific capital may be higher for certain immigrant groups (Cortes, 2004). Note, however, that if one group experiences larger gains in the destination, we cannot distinguish whether this is because those immigrants faced different incentives to invest in human capital, or whether those gains reflect delayed returns to human capital acquired prior to arrival.

We pursue two strategies to distinguish differences in initial human capital from differences in trajectories. First, we modify the control vector X_i in equation (3) to include a years-of-education fixed effect, which we also interact with gender. If controlling for education reduces the magnitudes of the estimated coefficients on our cohort dummies, this supports the conclusion that differences in outcomes were partly driven by differences in human capital upon arrival.[28] Our second strategy is to disaggregate survey years to allow us to track cohorts' outcomes over time. We modify equation (3) by interacting each cohort dummy, and its interaction with *Communist$_i$*, with a survey-year fixed effect. We restrict each cohort such that arrival-year compositions are constant across survey years, and only recent arrivals (within 5 years of the first year they are ob-

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[28]If educational attainment is positively, but imperfectly, correlated with other, unobserved dimensions of human capital, then this test will understate the importance of human capital on arrival.

served in our data) are included.[29] As before, we control for country-of-birth fixed effects, 1-year dummies for years since arrival fully interacted with gender, and 5-year age-bin dummies fully interacted with gender.

We find evidence that both channels are at play: later Communist Bloc cohorts arrived with less education and experienced slower labor market gains relative to earlier cohorts. Broadly speaking, controlling for education reduces differences across cohorts by one-third to one-half, but significant gaps remain (see Table A4).

Tracking immigrants' outcomes across survey years in the US shows that every Communist Bloc cohort, but especially the late refugee cohort, experienced substantial gains over time in several outcomes relative to Western European immigrants (see Figure 6). Shortly after arriving in the US, late refugees are much less likely to be employed relative to Western European immigrants arriving during the same interval. They are also less likely to hold a skilled job, less likely to be fluent in English, and earn much less. However, within 10 years they have closed the gap in each of these measures. Though early refugees and economic migrants also experience rapid gains relative to Western Europeans, the gains are generally largest for the late refugee cohort. Results in Germany are broadly similar, but standard errors are substantially larger. We did not conduct this analysis in Israel because Israeli censuses use different, overlapping arrival-year groupings. Together, these results suggest that both differences on arrival and faster labor market gains explain the differences across cohorts.

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[29]Specifically, for the US, we use arrival years 1975–1980 for the early refugee cohort, 1987–1990 for the late refugee cohort, and 1995–2000 for the economic migrant cohort. For Germany, we use arrival years 1980–1985 for the early refugee cohort, 1987–1991 for the late refugee cohort (taking the first observation as 1991 instead of 1989 to avoid a compositional change across survey years), and 1995–2000 for the economic migrant cohort.

Figure 6: Trajectories of Immigrant Outcomes by Cohort, US and Germany.

United States

Germany
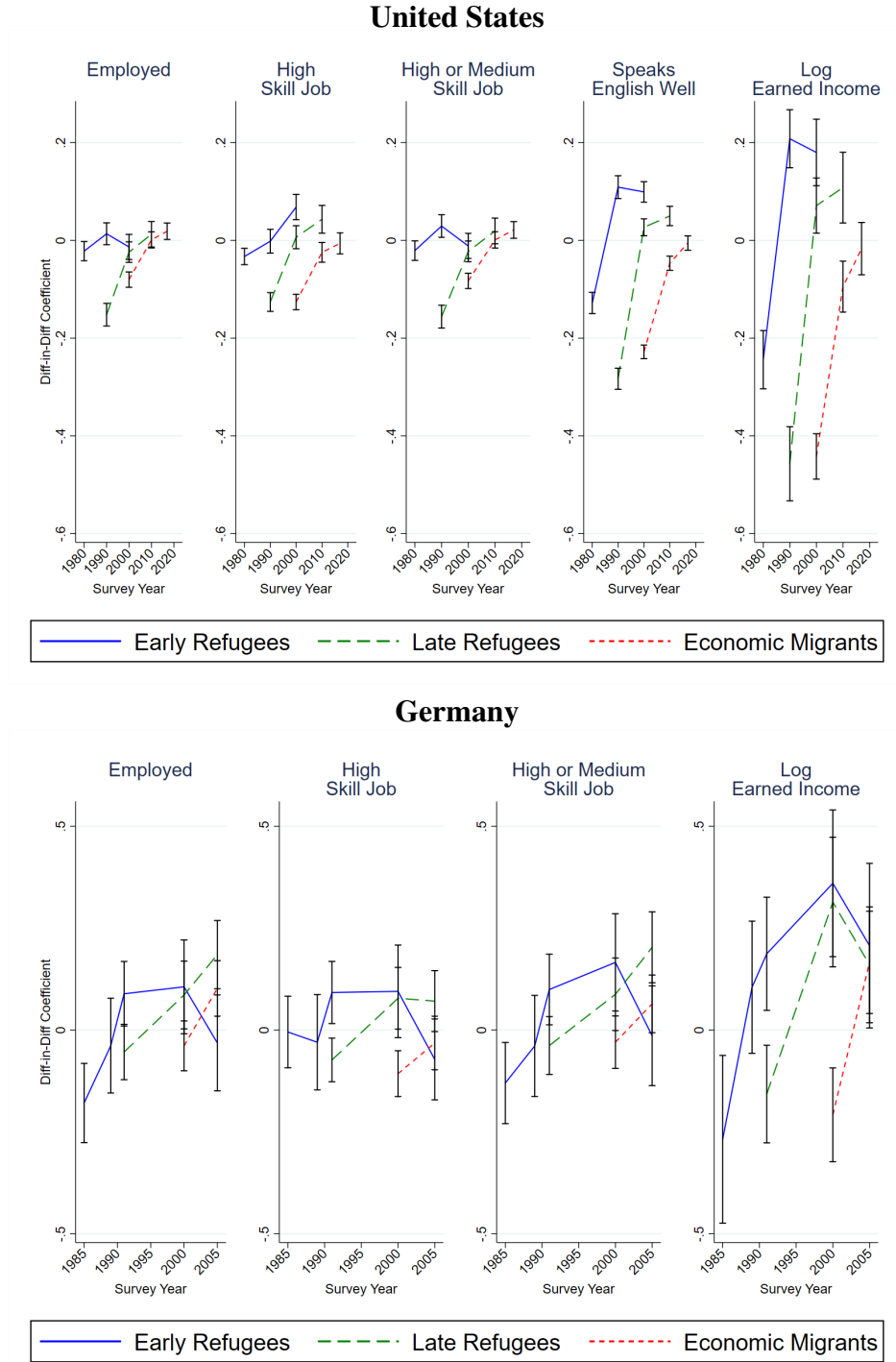
Notes: Each plot shows average outcomes obtained by Communist Bloc immigrants relative to Western European immigrants. All regressions control for county-of-birth fixed effects, age-bin fixed effects interacted with a gender dummy, and years-in-destination fixed effects interacted with a gender dummy. The early refugee cohort includes arrival years 1975–1980. The late refugee cohort includes arrival years 1987–1990. The economic migrant cohort includes arrivals years 1995–2000. 95% confidence intervals shown in black.

6.4   Robustness to alternative explanations

In this section we consider and rule out potential alternative explanations for the lower educational attainment observed for economic migrants compared to the refugee cohorts. These alternative explanations include: increasing returns to education in the Communist Bloc, family reunification, education acquired after arrival in the destination, compositional differences across groups driven entirely by highly educated Jews, sensitivity to the assignment of immigration years to specific cohorts, and differential attrition.

Income inequality in the Communist Bloc: If economic restructuring in the Communist Bloc led income inequality to increase relative to the West, this may have reduced the relative incentive for highly educated workers to migrate, following the logic of the Borjas (1987) model. Although this fact alone can explain neither the inverted U-shape in Figure 4 nor the shift in the ethnic composition of Communist Bloc migrants, it could explain the lower average education of immigrants in the post-collapse period compared to the pre-collapse period. To test whether our results could be driven by economic restructuring, we test whether the decline in education across immigrant cohorts was more pronounced for groups that were more affected by restructuring. Although the nature and the labor market impacts of post-Communist reforms varied by country, restructuring generally had a more pronounced effect on inequality within three groups: male workers, young workers, and workers in Soviet (as opposed to Satellite) countries (Brainerd, 1998, Prasad and Keane, 1999). If increases in the returns to education are driving our results, we would expect to see larger drops in the educational attainment of immigrants after the collapse among these three groups. For each of our three groups of interest, we run a version of Equation (3) that includes interactions between our main cohort dummies and a dummy variable for membership in the group more affected by wage decompression. To examine the effect of economic restructuring in the absence of changing barriers to emigration, we focus on the comparison between the late refugee period and the economic migrant period. Our findings, shown in Table A5, do not support this alternative hypothesis: differences in changing selectivity across more- and less-affected groups are generally small, statistically insignificant, and inconsistently signed. For example, the drop in average educational attainment is similar for immigrants from the Satellite countries compared to

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those from the Soviet Union in all three destination countries. The drop in educational attainment is slightly greater for male workers in Germany, but smaller in Israel; the drop for young workers is slightly greater in the US and Israel, but smaller in Germany. While changes in inequality in the Communist Bloc surely affected migration decisions, we do not find evidence that it is driving our main results.

Family reunification: If family members migrate sequentially, with one person "paving the way" for future family members, this could also explain the observed drop in immigrants' average educational attainment over time (Munshi, 2003, 2011). For this to explain our main findings, it would need to be the case that immigrants arriving during the economic migrant period were in great part the less-educated family members of the immigrants arriving during the refugee periods. We do not believe this can explain our findings, as family reunification did not play a major role in this context. For example, only 10% of USSR immigrants arriving in the US in the 1990s received immigrant status on the basis of kinship (Denisenko, 2020). This is unsurprising given the substantial shift in the ethnic makeup of arrivals: refugees came predominantly from minority ethnic groups, while economic migrants came predominantly from majority ethnic groups.

Consistent with this, we observe few immigrants in Germany reporting that they have nuclear family residing in their origin country. Table A6 shows that, through survey year 1991, only 14–15% of Communist Bloc immigrants reported having a spouse or child still living at the origin. This share falls to 2–3% by 2000–2005, suggesting that family reunification did occur, but not in substantial numbers.

If economic migrants were in large part the family members of earlier refugees, then we would expect many refugees who arrived recently to report having family at the origin, and for this share to decrease with time spent in the destination as their family members eventually joined them. On the other hand, economic migrants should be much more likely to arrive with no family at the origin, and this share should decrease much more slowly over time. While we do not have panel data on individual migrants, we can estimate family reunification profiles using cross-sectional variation in time spent in the destination. Table A6 shows that the estimated rate of family reunification is very similar across cohorts: there is a 0.8–0.9% reduction in the probability of having family

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at the origin per year spent in the destination. This finding is robust to controlling for age and country-of-origin effects.

Education acquired in the destination: If immigrants acquire education after arrival, our results will be driven by both selection into migration at the time of immigration and differences in trajectories post-arrival. Restricting to individuals who immigrated after the age of 25 greatly reduces the possibility that education was obtained in the destination, but some immigrants may continue their education even after the age of 25. Note that, to the extent that differences in post-immigration trajectories are due to differences in unobserved human capital at the point of arrival, this would not fundamentally alter the interpretation of our results. Still, we find that our results are quite robust to restricting our sample to individuals who immigrated after the age of 30 or 35 years (see Table A7).

Immigrant sub-groups and time period definitions: We test whether our results are driven by Jewish immigrants, who were the best-educated ethnic group within the Soviet Union and migrated in large numbers during our study period.[30] We find that changes in education across Communist Bloc immigrant cohorts are largely similar when we exclude Jewish immigrants (Table A7), suggesting that our results are driven by changing self-selection within ethnic groups and not only across ethnic groups. Finally, our results are robust to redefining the beginning of the late refugee period to 1989 (the collapse of Satellite Communist governments) and to restricting our sample of immigrants to a narrower arrival-year window (1980–1999).

Differential attrition: A final concern is that differential attrition, due to return migration or death, is complicating our results. In particular, our reliance on the German census of 2011 means that at least 25 years have passed since the arrival of the early refugee cohort. Two pieces of evidence point to a limited effect of differential attrition on our results. First, Table A8 shows that our findings on education and labor market differences hold in the German micro-census

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[30]Note that, even if our results were driven largely by Jewish immigrants, this would not change our interpretation of the drop in education from the late refugee to the economic migrant period being driven by a shift from more to less persecuted groups. However, it would imply that the drop in education would be driven by a shift from more to less well-educated groups, rather than from more positively to more negatively selected migrants from within those groups.

pooled 1% samples from 1985, 1989, 1991, 2000, and 2005, which reduces the horizon over which attrition could have occurred. Second, we test for differential attrition explicitly by applying our strategy used to track immigrants' labor market outcomes over time, discussed in Section 6.3, to characteristics which should be fixed over time such as year of arrival, birth year, gender, and educational attainment. Figure A1 displays the results, plotting differences between Communist Bloc and Western European cohorts over time. While there is some differential attrition, it is modest in size and similar in sign and magnitude across cohorts. This suggests that differential attrition is unlikely to be driving our results.

7 Discussion

This paper analyzes the consequences of the collapse of Communism on the number and characteristics of migrants leaving the Communist Bloc. The removal of exit restrictions in the Communist Bloc led to a massive increase in the number of people migrating to the West. Immigrants arriving after the collapse were less well-educated, and obtained worse labor market outcomes, on average, than those who came before. Given the size of the increase in the number of immigrants, however, differences in characteristics and outcomes are arguably modest. This suggests that Soviet-style emigration restrictions had relatively uniform impacts across the education distribution. To the extent that uniform migration costs should theoretically impose a greater burden on the less well-off (Chiquiar and Hanson, 2005, McKenzie and Rapoport, 2007), this finding may reflect the partial success of Communist Bloc governments in restricting the emigration of the highly educated.

Most surprisingly, we find that across several outcomes the greatest decline in the success of arriving immigrant cohorts occurred not immediately after the collapse (when exit restrictions were removed), but only after 1993 (when Germany closed its asylum channel and most refugee migration ended). We find that the educational attainment, language skills, and labor market outcomes were worse for this later cohort despite immigration policy in the US and Germany becoming more skill-selective over time. We argue that this finding is consistent with refugees being more positively self-selected than economic migrants in this context. This can be explained by a simple model in which workers trade off an income premium from migrating against a home amenity. The

model highlights that, in contexts where a highly educated group is electing to forgo migration, persecution can disproportionately induce highly educated workers to migrate, even if it is not directed specifically against them. Combining origin and destination country census data to estimate migration rates across the education distribution, we find that the model characterizes patterns of migrant selection from the Communist Bloc remarkably well.

The effect of persecution on migrant selection may operate through two distinct channels. First, there may be a composition effect where groups that face the worst persecution will tend to exit as quickly as possible, and will therefore constitute a smaller share of later immigrant cohorts. Second, there may be a change in the level of persecution brought about by the end of Communism. Because of our limited ability to identify persecution at the individual level, we are not able to distinguish between these two channels. However, demographic data from the Communist Bloc suggest that the first channel is likely to be significant. Two populations that faced widespread persecution in the Communist Bloc—Jews and ethnic Germans—have declined in size by 55–90% from their postwar heights (Russian Census, 1989, 2010, Tolts, 2020).

Comparison to other studies of refugee self-selection. Our finding that refugees from the Communist Bloc were more positively self-selected than the economic migrants who came later is unusual within the sizable literature on refugee migration. To our knowledge, ours is the first paper showing that a more positive self-selection of refugees can result from a home amenity that reduces migration among highly educated, non-persecuted groups. Why does our result differ from the more common finding that refugees are negatively selected relative to economic migrants? One possibility is differences in estimation strategies. In particular, many studies on refugee selection compare refugees from one set of countries to economic migrants from a different set of countries. Country-level effects may influence estimated differences between refugees and economic migrants, and complicate interpretations relating to selection from a fixed population. Indeed, Aksoy and Poutvaara (2019)—who employ within-country variation—find more positive selection of male refugees. However, we do not think this is likely to explain the common finding that refugees are less positively selected than economic migrants. This result appears across several studies, which rely on different sets of refugee-producing countries. Additionally, Chin and Cortes (2015)

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find that the performance gap between refugees and economic migrants is wider within origin country than across origin countries, although the former result is based on a very small sample.

Instead, we believe that the heterogeneity in selection patterns across studies is due to differences in context. Our migration model offers a few suggestions about which contextual features are likely to matter. The importance of the home amenity to the migration decision is key in our model. If the importance of the home amenity is small relative to income, then the home amenity effect is unlikely to be important. To the extent that many Eastern Europeans feel that the important social or cultural aspects of their home countries cannot be found elsewhere,[31] this may support the appropriateness of our model in this context. If the home amenity is relatively less important to the highly educated, our model's prediction can be reversed, and refugees will be less positively selected relative to economic migrants. This alternative model may be appropriate in a post-revolutionary setting characterized by hostility toward educated elites, such as the period shortly after the Russian Revolution. It may also be appropriate if the highly educated are more cosmopolitan, that is, more likely to feel that the amenities they enjoy at home can also be found in other countries. Finally, when the migration premium—the difference between earnings at the destination and the origin—is much higher for the better-educated, economic migrants will be more positively selected than refugees. This condition is less likely to hold when income gaps between origin and destination countries are substantial across the entire education distribution.

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[31]Indeed, Denisenko (2020) argues that experts, prior to the collapse, had underestimated the importance of factors constraining emigration out of the USSR, including native language and family and friends at home.

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Appendix

Table A1: Summary Statistics

	(1) Native-Born	(2) W. European Immigrant	(3) Satellite Immigrant	(4) Soviet Immigrant
Immigrants in Germany				
Age at Immigration	-	31.7	32.0	36.1
Female = 1	0.50	0.45	0.55	0.54
Married = 1	0.58	0.72	0.78	0.82
Years of Education	13.5	12.5	13.6	12.9
Tertiary Degree = 1	0.18	0.29	0.17	0.20
Employed = 1	0.80	0.72	0.73	0.74
Works in High-Skill Job = 1	0.37	0.32	0.22	0.14
Subpopulation Observations	323,000	17,700	54,860	134,180
Subpopulation Size	37,083,750	193,173	511,353	914,191
Immigrants in US				
Age at Immigration	-	33.0	34.5	36.9
Female = 1	0.51	0.47	0.51	0.55
Married = 1	0.67	0.80	0.79	0.82
Years of Education	13.2	12.9	13.7	14.8
Tertiary Degree = 1	0.26	0.36	0.35	0.55
Employed = 1	0.73	0.71	0.74	0.67
Works in High-Skill Job = 1	0.28	0.34	0.26	0.33
Speaks English Well = 1	1.00	0.86	0.74	0.69
Subpopulation Observations	2,891,611	118,959	47,064	50,645
Subpopulation Size	121,893,259	507,391	228,491	254,942
Immigrants in Israel				
Age at Immigration	-	33.4	39.2	38.6
Female = 1	0.50	0.56	0.54	0.55
Married = 1	0.77	0.82	0.83	0.77
Years of Education	11.1	12.7	11.6	13.4
Tertiary Degree = 1	0.23	0.38	0.25	0.43
Employed = 1	0.69	0.64	0.66	0.73
Works in High-Skill Job = 1	0.27	0.30	0.21	0.18
Subpopulation Observations	377,150	4,549	10,296	59,651
Subpopulation Size	1,270,494	13,968	23,504	213,693

Notes: Sample includes immigrants arriving between 1962 and 2003. Tertiary degree refers to ISCED level 5A. High-skill job refers to ISCO-09 groups 1–3.

Table A2: Demographic and Educational Trends in Western and Eastern Europe, 1970–2000.

	Western Europe			Eastern Europe		
	1970s	1990s	Change	1970s	1990s	Change
Demographics						
Population (millions)	283	304	0.07	424	469	0.11
Rural Population (%)	29	26	-2.9	39	34	-4.8
Population Ages 15–64 (%)	63	67	3.4	65	66	1.3
Fertility Rate (births per woman)	2.1	1.5	-0.6	2.3	1.6	-0.7
Life Expectancy at Birth (years)	73	78	4.6	69	69	0.6
Educational Attainment						
Lower Secondary or Better	8.9	11.3	2.4	8.1	13.9	5.7
Upper Secondary or Better	3.7	6.0	2.3	0.8	6.7	6.0
Post-Secondary or Better	1.3	1.3	0.0	0.3	3.3	2.9

Notes: Data taken from World Development Indicators. Each column shows the population-weighted average by decade, and the change from the 1970s average to the 1990s average. Population change expressed as a percent change from 1970s. Educational attainment statistics refer to population ages 25+. Western Europe includes UK and excludes Germany.

Table A3: Economic Migrants Were Less Educated Than Late Refugees Across the Entire Education Distribution, With the Percentage Drop Being Most Pronounced for Tertiary Degrees

	(1) ISCED-3B or Better	(1) ISCED-3A or Better	(2) ISCED-4 or Better	(3) ISCED-5B or Better	(4) ISCED-5A or Better
Immigrants in Germany					
Communist x Post-93	-0.087***	-0.146***	-0.147***	-0.156***	-0.120***
	(0.013)	(0.015)	(0.015)	(0.015)	(0.014)
Communist x Year 87–92	-0.016	-0.096***	-0.102***	-0.114***	-0.092***
	(0.015)	(0.017)	(0.017)	(0.016)	(0.015)
Post-93	0.027**	0.033**	0.038***	0.072***	0.080***
	(0.012)	(0.013)	(0.013)	(0.013)	(0.012)
Year 87–92	-0.013	-0.014	0.001	0.020	0.027*
	(0.014)	(0.015)	(0.014)	(0.014)	(0.014)
Observations	529,740	529,740	529,740	529,740	529,740
Dep. Var. Mean for Communist	0.783	0.399	0.373	0.317	0.188
%Δ in Comm.: Post-93 vs 87–92	-0.09	-0.13	-0.12	-0.13	-0.15
Immigrants in US					
Communist x Post-93		-0.033***	-0.139***	-0.140***	-0.158***
		(0.004)	(0.006)	(0.006)	(0.006)
Communist x Year 87–92		-0.026***	-0.066***	-0.052***	-0.056***
		(0.004)	(0.007)	(0.007)	(0.007)
Post-93		0.043***	0.080***	0.121***	0.151***
		(0.002)	(0.004)	(0.004)	(0.004)
Year 87–92		0.047***	0.053***	0.072***	0.077***
		(0.003)	(0.004)	(0.005)	(0.005)
Observations		3,108,279	3,108,279	3,108,279	3,108,279
Dep. Var. Mean for Communist		.907	.652	.546	.456
%Δ in Comm.: Post-93 vs 87–92		-0.01	-0.11	-0.16	-0.22
Immigrants in Israel					
Communist x Post-92		0.130***	0.095***	0.080***	0.010
		(0.012)	(0.020)	(0.020)	(0.020)
Communist x Year 90–91		0.158***	0.225***	0.206***	0.207***
		(0.024)	(0.037)	(0.037)	(0.035)
Post-92		-0.086***	-0.033*	-0.007	0.000
		(0.012)	(0.019)	(0.019)	(0.019)
Year 90–91		-0.046**	-0.033	-0.001	-0.035
		(0.023)	(0.037)	(0.036)	(0.034)
Observations		451,646	451,646	451,646	451,646
Dep. Var. Mean for Communist		0.860	0.644	0.628	0.408
%Δ in Comm.: Post-93 vs 90–91		-0.03	-0.20	-0.20	-0.48

Notes: Each column shows a regression of a dummy variable $= 1$ if the person attained that ISCED level of education or better. %Δ in Comm. shows the % change in the dependent variable from the late refugee to economic migrant period. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table A4: Differences in Education Explain Some, but Not All, of the Differences in Outcomes Across Immigrant Cohorts

	(1)	(2)	(3)	(4)	(5)
			High- or		Speaks
	Employed	High-Skill Job	Medium-Skill Job	Log Income	English Well
Immigrants in Germany					
Communist x Post-93	0.009	-0.042***	-0.029*		
	(0.015)	(0.013)	(0.015)		
Communist x Year 87–92	0.002	-0.015	-0.007		
	(0.016)	(0.014)	(0.017)		
Post-93	-0.242***	-0.264***	-0.363***		
	(0.072)	(0.040)	(0.066)		
Year 87–92	-0.209***	-0.261***	-0.333***		
	(0.072)	(0.041)	(0.066)		
Observations	529,740	529,740	529,740		
Dep. Var. Mean	0.740	0.168	0.570		
Immigrants in US					
Communist x Post-93	0.009*	-0.033***	0.005	-0.229***	-0.206***
	(0.005)	(0.005)	(0.005)	(0.014)	(0.005)
Communist x Year 87–92	-0.002	-0.020***	-0.004	-0.098***	-0.106***
	(0.006)	(0.006)	(0.006)	(0.016)	(0.005)
Post-93	-0.020***	0.016***	-0.015***	0.116***	0.132***
	(0.004)	(0.004)	(0.004)	(0.011)	(0.003)
Year 87–92	-0.025***	0.012***	-0.021***	0.016	0.085***
	(0.004)	(0.004)	(0.004)	(0.013)	(0.003)
Observations	3,108,279	3,108,279	3,108,279	2,691,691	3,108,279
Dep. Var. Mean	0.70	0.30	0.69	10.00	0.71
Immigrants in Israel					
Communist x Post-92	0.064***	-0.115***	-0.019	-0.194***	
	(0.018)	(0.017)	(0.018)	(0.051)	
Communist x Year 90–91	0.041	-0.150***	-0.029	-0.150*	
	(0.032)	(0.031)	(0.033)	(0.082)	
Post-92	-0.041**	-0.014	-0.031*	0.181***	
	(0.018)	(0.017)	(0.018)	(0.050)	
Year 90–91	-0.035	-0.029	-0.008	-0.147*	
	(0.032)	(0.031)	(0.033)	(0.081)	
Observations	451,646	451,646	451,646	299,323	
Dep. Var. Mean	0.73	0.19	0.55	9.34	

Notes: See Table 3 for notes on sample and variable definitions. All regressions control for a years-of-education fixed effect interacted with gender. Dependent variable means shown for all Communist Bloc immigrants.
*** p<0.01, ** p<0.05, * p<0.1

Table A5: Increases in Wage Inequality Following Post-Communist Economic Restructuring Do Not Appear to Be Driving Results

	Group Experiencing Greater Wage Decompression		
Outcome: Years of Education	Men	Under-35	Soviet Union
Immigrants in Germany			
High Decompression x Communist x Post-93	0.144	-0.099	0.028
	(0.141)	(0.465)	(0.171)
High Decompression x Communist x Year 87–92	0.337*	-0.328	0.042
	(0.193)	(0.492)	(0.168)
Observations	529,740	529,740	529,740
HD x Post-93 - HD x 87–92	-0.19	0.23	-0.01
pval: HD x Post-93 - HD x 87–92 = 0	0.362	0.374	0.836
Immigrants in US			
High Decompression x Communist x Post-93	-1.125***	-0.168*	-0.065
	(0.064)	(0.088)	(0.072)
High Decompression x Communist x Year 87–92	-1.172***	-0.120	-0.142*
	(0.077)	(0.105)	(0.078)
Observations	3,108,279	3,108,279	3,108,279
HD x Post-93 - HD x 87–92	0.05	-0.05	0.08
pval: HD x Post-93 - HD x 87–92 = 0	.576	.648	.263
Immigrants in Israel			
High Decompression x Communist x Post-92	-0.065	-0.795***	2.120***
	(0.183)	(0.304)	(0.198)
High Decompression x Communist x Year 90–91	-0.447	-0.216	1.819***
	(0.518)	(0.622)	(0.262)
Observations	451,646	451,646	451,646
HD x Post-92 - HD x 90–91	0.38	-0.58	0.30
pval: HD x Post-92 - HD x 90–91 = 0	0.481	0.351	0.309

Notes: See Table 3 for notes on sample and variable definitions. Each column interacts arrival-year cohort dummies with an indicator for one of three sub-populations that experienced greater wage decompression following post-Communist economic restructuring: male workers, young (under-35) workers, and workers from the Soviet Union (compared to Satellite countries). All regressions include cohort dummies, which are not shown.

*** p<0.01, ** p<0.05, * p<0.1

Table A6: Family Reunification Profiles for Communist Bloc Immigrants in Germany

	Early Refugees	Late Refugees	Economic Immigrants
Summary Statistics			
Has Family at Origin, 1985–1991	0.15	0.14	-
Has Family at Origin, 2000–2005	0.02	0.03	0.05
Female	0.47	0.51	0.59
Married	0.75	0.81	0.83
Reunification Profiles			
Coefficient (years in Germany)	-0.008	-0.009	-0.008
	(0.001)	(0.002)	(0.002)
Intercept	0.197	0.154	0.091
	(0.030)	(0.002)	(0.016)
Reunification Profiles (with controls)			
Coefficient (years in Germany)	-0.006	-0.008	-0.008
	(0.001)	(0.002)	(0.002)

Notes: Data from pooled German Microcensuses of 1985, 1989, 1991, 2000, and 2005. Family at origin includes spouse or children 18 or younger. Reunification profiles estimated from a regression of whether the immigrant has family at the origin on the number of years since they arrived in Germany, with and without controls for county of origin and 5-year age-bin fixed effects. Robust standard errors in parentheses.

Table A7: Robustness of Results to Subgroup Choices and Policy Definitions

Outcome: Years of Education	1980–1999 Arrivals Only	Exclude Under-30 Arrivals	Exclude Under-35 Arrivals	Exclude Jewish Arrivals	Exclude New EU Members	Late Ref. Period = 1989–1992
Immigrants in Germany						
Communist x Post-93	-1.072***	-1.234***	-1.872***	-1.373***	-1.311***	-1.169***
	(0.177)	(0.232)	(0.447)	(0.131)	(0.148)	(0.119)
Communist x Late Ref.	-0.464**	-0.352	-0.752	-0.590***	-0.623***	-0.372**
	(0.185)	(0.259)	(0.474)	(0.150)	(0.177)	(0.150)
Post-93	0.289*	0.314	0.581	0.676***	0.630***	0.638***
	(0.169)	(0.219)	(0.426)	(0.120)	(0.138)	(0.111)
Late Ref.	-0.178	-0.350	-0.199	0.053	0.101	-0.042
	(0.178)	(0.248)	(0.455)	(0.142)	(0.170)	(0.145)
Observations	157,200	473,170	423,170	528,090	523,461	529,740
Dep. Var. Mean	13.14	13.02	12.92	13.12	13.14	13.14
Immigrants in US						
Communist x Post-93	-0.724***	-1.273***	-1.060***	-1.274***	-1.029***	-1.192***
	(0.059)	(0.058)	(0.076)	(0.047)	(0.049)	(0.048)
Communist x Late Ref.	-0.344***	-0.776***	-0.596***	-0.756***	-0.633***	-0.472***
	(0.062)	(0.067)	(0.089)	(0.054)	(0.057)	(0.063)
Post-93	0.571***	1.349***	1.402***	1.776***	1.540***	1.203***
	(0.040)	(0.039)	(0.053)	(0.031)	(0.034)	(0.032)
Late Ref.	0.314***	1.076***	1.193***	1.307***	1.197***	0.840***
	(0.043)	(0.050)	(0.067)	(0.038)	(0.042)	(0.047)
Observations	3,024,517	3,032,842	2,979,364	3,104,552	3,067,795	2,491,704
Dep. Var. Mean	14.43	14.17	13.98	14.28	14.28	13.89
Immigrants in Israel						
Communist x Post-92		1.195***	1.204***	-1.826***		
		(0.196)	(0.262)	(0.505)		
Communist x Year 90–91		2.128***	2.196***	-0.931*		
		(0.377)	(0.487)	(0.557)		
Post-92		-0.436**	-0.021	-0.858**		
		(0.185)	(0.251)	(0.393)		
Year 90–91		-0.149	0.168	0.021		
		(0.371)	(0.480)	(0.452)		
Observations		437,029	423,892	103,185		
Dep. Var. Mean		13.2	13.1	13.7		

Notes: See Table 3 for notes on sample and variable definitions. When defining the late refugee period as 1989–1992, we drop the 1990 US census because it aggregates arrival years 1987–1990 into a single code. Dependent variable means shown for all Communist Bloc immigrants.

*** p<0.01, ** p<0.05, * p<0.1

Table A8: Main Results Are Robust to Relying on German Micro-Censuses

|	(1) Years of Education	(2) Employed	(3) High-Skill Job	(4) High- or Medium-Skill Job	(5) Log Income
German Census 2011					
Communist x Post-93	-1.360***	-0.027*	-0.134***	-0.083***	
	(0.131)	(0.015)	(0.015)	(0.016)	
Communist x Year 87–92	-0.581***	-0.009	-0.069***	-0.023	
	(0.150)	(0.016)	(0.016)	(0.017)	
Post-93	0.678***	-0.191**	-0.159***	-0.280***	
	(0.119)	(0.078)	(0.061)	(0.076)	
Year 87–92	0.050	-0.179**	-0.184***	-0.283***	
	(0.142)	(0.079)	(0.061)	(0.077)	
Observations	529,740	529,740	529,740	529,740	
Dep. Var. Mean	13.1	0.74	0.17	0.57	
German Micro-Censuses					
Communist x Post-93	-1.051***	0.037	-0.118***	0.011	-0.123***
	(0.239)	(0.025)	(0.021)	(0.026)	(0.042)
Communist x Year 87–92	-0.497**	-0.015	-0.044**	-0.003	-0.150***
	(0.223)	(0.024)	(0.019)	(0.025)	(0.041)
Post-93	0.235	-0.006	0.019	-0.039**	0.006
	(0.156)	(0.015)	(0.015)	(0.017)	(0.028)
Year 87–92	0.201	0.024	-0.007	-0.014	0.091***
	(0.144)	(0.014)	(0.012)	(0.015)	(0.025)
Observations	1,750,636	1,750,636	1,750,636	1,750,636	1,426,512
Dep. Var. Mean	13.0	0.51	0.15	0.41	6.6

Notes: See Table 3 for notes on sample and variable definitions. German micro-census results combine 1% samples from 1985, 1989, 1991, 2000, and 2005. Dependent variable means shown for all Communist Bloc immigrants.
*** p<0.01, ** p<0.05, * p<0.1

Figure A1: Selective Attrition Appears Modest and Common Across Cohorts
United States
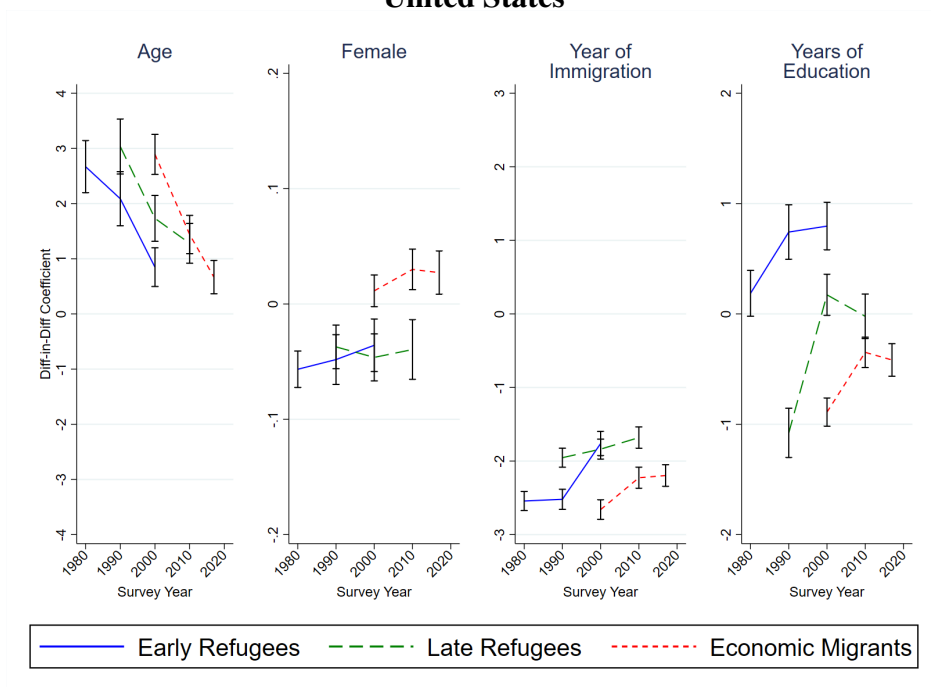
Germany
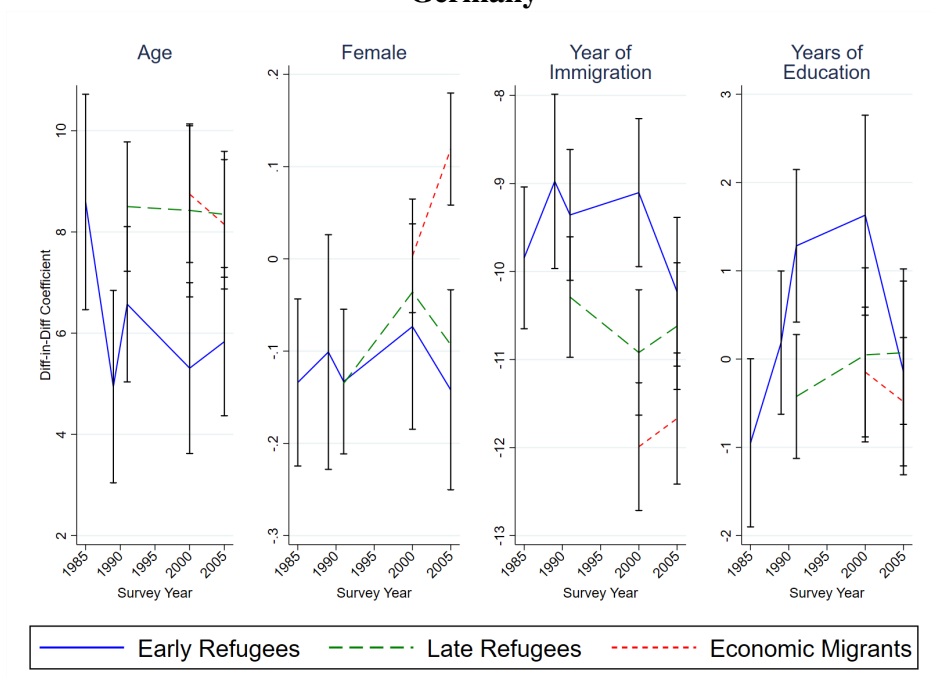
Notes: Each plot shows average characteristics of Communist Bloc immigrants relative to Western European immigrants. All regressions control for county-of-birth fixed effects. Early refugee cohort includes arrival years 1975–1980. Late refugee cohort includes arrival years 1987–1990. Economic migrant cohort includes arrivals years 1995–2000. 95% confidence intervals shown in black.