Persecution and Migrant Self-Selection: 
Evidence from the Collapse of the Communist Bloc

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Abstract

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 micro-data from the three largest destination countries: Germany, the United States, and Israel. 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 obtained 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 both theoretically and empirically 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

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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. 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 or conflict—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\(^2\)—along with census microdata from four Communist Bloc countries—Russia, Poland, Romania, and Hungary. A major challenge in comparing the self-selection of refugees to that of other migrants is that refugees typically come from different countries or migrate in different time periods. 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 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

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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.

\(^2\) Together, these three countries received about 90% of Communist Bloc migrants between 1989 and 2000 (see Appendix Table C1).
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 between 1962 and 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. We refer to these as late refugees. The third left in or after 1993, after most ethnic and refugee migration had ceased. We refer to these as economic migrants. While such a sharp cohort-based definition is inevitably arbitrary, we argue that the rapid institutional changes in the Communist Bloc and the West created meaningful differences in the migration incentives and constraints faced by these cohorts. We then estimate differences in educational attainment and economic outcomes at the destination between these cohorts.

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. This comparison group allows us to distinguish changes due to the collapse of Communism and the subsequent policy responses from broader demographic, economic, and policy trends.

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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. The Asylum Compromise also imposed a cap on the number of ethnic Germans approved for resettlement from the former Soviet Union. 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 3.2).

4 One major exception is the easing of immigration restrictions in Germany as new countries were admitted to the European Union. The transition period toward free immigration ended in 2011, with a major enlargement of the European Union in 2004 which included several Communist Bloc countries. We exclude arrivals after 2003 from our sample for this reason. Moreover, excluding immigrants from countries that were admitted during our study period does not alter our main results (see Appendix Table B5).
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 these findings. 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 policy changes in destination countries after the collapse favored higher-skill Communist Bloc migrants. 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 Germany and the US, social assistance to refugees was reduced during this period, and a language proficiency test was required in Germany starting in 1990.\textsuperscript{5} 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 compared with 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 the later economic migrants. We consider, and rule out, that this change can be fully explained by liquidity constraints, returns to skill in the Communist Bloc, or family reunification, among other potential alternatives. Instead, we argue that persecution disproportionately motivated highly educated workers to migrate.

\textsuperscript{5}Additionally, employment preference visas grew in importance in the US, rising from 5% in 1989 to 13% in 2000 (INS).
Why might persecution increase the average educational attainment of those who decide to migrate? We show that this prediction can be derived from a simple Roy model in which persecution reduces the utility cost of migrating. Despite the Roy model's widespread use to study immigrant selection, this implication has been overlooked in the refugee literature. In our simple model, people enjoy living in their home country and move only if they are offered a wage premium that outweighs their preference to stay home. 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 income 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 preference. Persecution, which we model as reducing the home preference, 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.

Our model offers two predictions about the relationship between human capital and migration, which we use to test the persecution channel. To do so, we estimate education-emigration profiles from combined origin- and destination-country census data. The first prediction is that emigration rates should decrease in education at the top of the education distribution. We find that this is true in each of the four origin countries where our exercise is possible: workers with tertiary degrees were less likely to emigrate than workers with post-secondary degrees in Poland, Romania, and Hungary, or with upper secondary degrees in Russia. While this finding cannot be explained by immigrant sorting based on income—as the returns to education were higher in the West (see Section 5.4)—it is consistent with a home preference. The second prediction is that persecution, by reducing the home preference, should attenuate the drop in emigration at the top of the education distribution. While we do not observe persecution at the individual level, we can identify two groups in two Communist Bloc countries that faced long-standing persecution and that accounted
for a substantial share of refugee flows: Jews and ethnic Germans in Russia and Romania. We find that emigration rates in each of these groups were relatively higher for members with tertiary degrees. These findings support our interpretation that refugees’ relatively high human capital was a consequence of a home preference influencing emigration decisions out of the Communist Bloc.

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 in Germany and the US, consistent with emigration barriers imposing relatively greater costs on the less well-off, as in Chiquiar and Hanson (2005). Comparing immigrants in Germany who arrived before and after the construction of the Berlin Wall confirms this finding. 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. This suggests 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 receiving country are an important determinant of immigration attitudes (Mayda, 2006, Baseler et al., 2024). 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.

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In contrast, in Israel, late refugees were on average much more educated than other cohorts, consistent with Soviet policy being more successful at preventing Jewish “brain drain” in the pre-collapse period.
2 Literature Review

First and foremost, this paper contributes to the understanding of one of most significant events of the 20th century, the collapse of the Communist Bloc. Despite the magnitude of the migration wave following the collapse—this event is among the biggest migration episodes in history—there has been relatively little economic analysis of the immigrants themselves. One exception is Denisenko et al., eds (2020), who offer a historical description and socioeconomic characterization of Soviet migration in this period, but do not analyze the impact of the collapse on migrant selection. Another is Locher (2004), who argues that the decline in average education of former Soviet Union immigrants to Israel during the 1990s can be explained by a complementarity between imported and locally acquired skills, motivating those with more education to migrate earlier, but does not consider the relationship between persecution and migrant selection. Other impacts of the collapse have received greater attention: see, for example, Brainerd (1998) for an analysis of impacts on Russian labor markets; Friedberg (2001), Borjas and Doran (2012), and Glitz (2012) for an analysis of impacts of immigration on receiving countries; and Abramitzky and Sin (2014) for an analysis of the impact on idea flows.

This paper also contributes 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 human capital, 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 using an origin-country assignment rule, and finds that refugees earned less upon arrival. This finding is rationalized by a self-selection model in which refugees are relatively more motivated by non-economic factors.\(^7\) Chin and Cortes (2015) find similar results using the New Immigrant Survey, which includes refugee status at the individual level. Dustmann et al. (2017) and Brell et al. (2020) find similar results for refugees and other immigrants in the

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\(^7\)Abramitzky et al. (2021) use oral history records from arrivals at Ellis Island and find that refugees learned English faster than other immigrants in the US. Boustan (2007) studies Jewish migration from the Russian Empire, and finds that migration rates respond both to pogroms and to variation in economic conditions. Forced displacement may itself increase human capital and long-run income (Becker et al., 2020, Chiovelli et al., 2021, Sarvimäki et al., 2022) but can also create sustained economic and mental health losses (Baseler and Hennig, 2024).
European Union. Our paper is among the first to document an episode in which refugees were more positively selected than other migrants. The only other example we are aware of is Aksoy and Poutvaara (2021), 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 utility from consumption directly. However, violent conflict was not the primary driver of migration in our context. Instead, we offer an explanation for more positive selection of refugees that has not been proposed in the migration literature, despite being anecdotally very important to the immigration decision: a home preference that is reduced by persecution.

Finally, we contribute to the literature on migrant selection more broadly. Chiswick (1978) finds that foreign-born workers catch up with native 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. In the Borjas (1987) model, refugees may be negatively selected from the origin population, but outperform natives at the destination (which Borjas terms “refugee sorting”), 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. 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. Abramitzky (2008, 2018) find 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. McKenzie and Rapoport (2010) show that migrant selection from Mexico to the US becomes more
negative in places with stronger destination networks. 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, and Borjas et al. (2019) shows that immigration restrictions are unlikely to be driving positive selection. See Borjas (1994) and Abramitzky and Bouson (2017) for a more thorough review of the literature on migrant selection. Our model is related to McKenzie and Rapoport (2007), who study migration in an environment with illiquid assets, a fixed cost of migrating, and credit constraints, which together predict intermediate selection of emigrants. Like Dustmann and Okatenko (2014), we emphasize the role of preferences for local amenities in influencing migration decisions. The authors show that better local amenities—such as public services and security—predict lower emigration intentions on average, but do not study selection. Our model contributes to the migration literature by offering new predictions about how a home preference affects who migrates. Specifically, we show theoretically that negative selection of migrants can arise from concavity of utility and a home preference, and demonstrate empirically that these predictions were borne out during one of the world’s most significant migration episodes.

3 Brief History and Policy Background

This section summarizes the historical and policy details most relevant to our analysis, with a focus on immigration policy and persecution. Additional details can be found in Appendix C.

3.1 Migration and Persecution 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 Communist governments. Legal emigration was virtually impossible from the USSR, and generally very difficult from the satellite states (Dowty, 1987). Legal emigration was occasionally permitted for ethnic and religious minorities. Escape became significantly more difficult after the construction of the Berlin Wall in 1961 (see Appendix Figure C1).
Oppression and persecution, especially of minority ethnic and religious groups, was a defining feature of the Stalinist era, including an explicitly anti-Jewish campaign. Although these campaigns were curtailed after Stalin’s death in 1953, systematic persecution of ethnic and religious minorities continued through the 60s, 70s, and 80s (Gitelman, 1982, Orleck, 1999). Methods of persecution in the USSR and its satellites included forced labor and relocation, ethnic cleansing and religious repression, and state surveillance (Taborsky, 1973, Rieber, 2000).

Major reforms began in the Soviet Union under Mikhail Gorbachev, who became General Secretary of the USSR in 1985. Gorbachev 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. Emigration restrictions were gradually eased, especially for ethnic minority groups (Kort, 1996, Denisenko, 2020). Unrestricted emigration was legalized in 1992 (Pirozhkov, 1996). In the satellite countries, reform happened more suddenly, with Communist governments ceding control and emigration restrictions removed by the end of 1989.

The removal of emigration restrictions led millions of people to leave the Communist Bloc. Figure 1 shows the yearly number of refugees and asylum seekers arriving in Germany, the US, and Israel (Section 5.1 describes these administrative data). Refugee arrivals were low before 1987: 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 Germany, 60,000 in the United States, and 200,000 in Israel. Refugee arrivals declined after 1993, in part because of policy changes in the West, which we discuss below. For a country-level breakdown of total immigration flows in this period, see Appendix Table C1.

3.2 Western Immigration Policy

Until 1989, Germany and the United States were open to any asylum seeker who managed to escape the Communist Bloc (Marshall, 2000, Rosenberg, 2015). Throughout the entire period,
Israel provided the right to citizenship for all Jews through its Law of Return (Schroeter, 1971).

German and US policies were tightened after 1989 as 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). Between 1989 and 1993, Germany began to require asylum seekers to apply for recognition of status in the home country, added a German language test, and reduced access to social services. In 1993, the controversial Asylum Compromise came into force, allowing automatic denials of asylum for those traveling through or from a “safe country,” which included every new Eastern European democracy (Marshall, 2000). That same year, the number of ethnic German immigrants was capped at 200,000 per year. In the US, the INS Refugee standard of a “well-founded fear of persecution” was applied to asylum applications starting in 1989, though the burden of proof was lowered in 1990 for Soviet Jews and several Christian minority groups. Social assistance for refugees was also reduced. Appendix Figure C2 summarizes the major immigration policy changes in Germany and the US between 1989 and 1993.
4 A Migration Model With Persecution

In this section, we provide a conceptual framework to guide our analysis of migration out of the Communist Bloc. Our model is a simplified variant of the generalized Roy model (see, for example, Eisenhauer et al., 2015) which is commonly used to study immigrant selection. Our framework embeds persecution into a trade-off between an income premium from migrating and a preference for 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.

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 is endowed with transferable human capital $H > 0$. Denote the migration decision with $M \in \{0, 1\}$. Workers remaining in their home country earn income $Y_0 = H$ and enjoy a home amenity $A_0$ (we will later use the home amenity term to describe the effect of persecution). Workers who migrate capture an income premium $P > 0$ so that their total income in the West is $Y_1 = H + P$, and enjoy a destination amenity $A_1 < A_0$. Workers’ preferences are represented by the utility function $U = \log Y + \theta \log A$, with $\theta > 0$. In this model, workers migrate when

$$H < \frac{P}{(A_0/A_1)^{\theta} - 1}. \quad (1)$$

While here we model utility as a sum of logs for simplicity, our predictions hold for a much broader class of functions, namely when utility is additively or multiplicatively separable in $Y$ and $A$ and there is diminishing marginal utility of income. We provide a more general model and proofs of these results in Appendix A. In Section A.2, we extend the model to explicitly allow the migration premium to increase in human capital, which yields a condition on how steep the premium must be to overturn negative selection. This extension reveals that negative selection will be more likely when 1) income differences between the origin and destination are large, 2) the migration premium is not too steep in human capital, and 3) the home preference is large. Finally,
we show, in Section A.3, that an alternative, linear-utility model can generate the same prediction if the home preference rises steeply—relative to the migration premium—in human capital.

### 4.2 How Does Persecution Affect Who Migrates?

All else equal, a higher migration premium $P$ raises the cutoff below which workers migrate—leading to more positive selection—while a higher home preference $A_0/A_1$ lowers the cutoff below which workers migrate—leading to more negative selection. If (all else equal) persecution reduces workers’ home preference, then persecution will lead to more positive selection of migrants.

Equation 1 describes an individual’s migration decision, but selection from a population of potential migrants depends on features of the joint distribution of the parameters $H$, $A_0/A_1$, and $P$. For example, if high-human-capital workers can earn a much bigger migration premium compared to low-human-capital workers, migrants may be positively selected along $H$ in spite of the declining returns to migrating in human capital 	extit{ceteris paribus}. Below, we consider the implications for migrant selection under different assumptions about the joint distribution of $H$, $A_0/A_1$, and $P$.

Figure 2 shows three examples that shed light on the conditions favoring positive or negative migrant selection under the migration rule in (1). Each panel shows level sets $\tilde{H}(P, A_0/A_1)$ of workers who are indifferent between migrating and staying. Note that $\tilde{H}$ is increasing in $P$ and decreasing in $A_0/A_1$: workers with less human capital require a lower premium to be willing to migrate, and a greater home preference to forgo a given migration premium. In Panel A, the migration premium is constant, migrants are negatively selected, and persecution leads to more positive selection. In Panel B, the migration premium is sharply increasing in human capital, generating positive selection of migrants. In this case, persecution leads to less positive selection. In Panel C, the home preference is sharply decreasing in human capital, generating positive selection of migrants. In this case, persecution leads to less positive selection.\(^8\) In Section 7, we discuss how our results support the applicability of Panel A over Panels B and C to our setting.

\(^{8}\)In our model, as $A_0/A_1 \to 1$, $\tilde{H} \to \infty$. In this case, there is no selection, as everyone wishes to migrate. As $P \to 0$, $\tilde{H} \to 0$, and no one wishes to migrate.
Figure 2: The Effect of Persecution on Migrant Self-Selection in Three Environments

Panel A

Panel B

Panel C

Notes: \( \bar{H} \) is the value of human capital \( H \) at which workers are indifferent between migrating and staying home, given a migration premium \( P \) and home preference \( A \equiv A_0/A_1 \). \( P(H) \) and \( A(H) \) are the relationships between the migration premium or the home preference, respectively, and human capital in the population. Panels A and B: \( A_L \) and \( A_H \) are home preferences for workers who do and do not face persecution, respectively, with \( A_L < A_H \). Panel C: Persecution reduces the home preference by \( c \) at every level of \( H \). Panel A: selection is negative, and reduced by persecution. Panels B and C: selection is positive, and reduced by persecution.

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. Second, Germany and the United States became increasingly selective in the entry requirements they imposed on immigrants from the Communist Bloc.

The effect of removing exit restrictions on migrant selection is theoretically ambiguous, and depends on how restrictions interact with human capital. If removing exit restrictions lowers migration costs uniformly, this would appear as an increase in the intercept of \( P(H) \), leading to more positive selection in Figure 2 Panel A. If high-human-capital workers are better equipped to navigate immigration bureaucracies, as in Chiquiar and Hanson (2005), then exit restrictions would screen out the less well-off. In this case, removing exit restrictions would both increase the intercept and decrease the slope of \( P(H) \), leading to an ambiguous change in selection. On the other hand, since attempting to migrate could lead to job loss, better-off workers may have had more to lose. Some satellite countries also imposed emigration taxes equal to the cost of the person’s edu-
cation. If these forces dominate, then exit restrictions would screen out the more well-off. In this case, removing exit restrictions would both increase the intercept and the slope of $P(H)$, leading to more positive immigrant selection in Figure 2 Panel A.

The effect of immigration policy reform in Germany and the US on migrant selection is more straightforward: nearly every change reflected an attempt to make resettlement more difficult, especially for migrants who were likely to rely on social welfare programs (see Section 3.2). The closure of the asylum channel in Germany also meant that prospective migrants could enter only through standard immigration channels, which require the migrant to demonstrate economic self-sufficiency. These reforms should generate more positive migrant selection.

### 4.4 Testing the Model’s Predictions in the Data

Table 1 summarizes the most important features affecting migrant selection around the collapse of Communism. The first is the average home preference among migrants, which will be relatively low in the two refugee periods. The second is the difficulty of exiting the Communist Bloc, which was very high in the first period and low afterward. The third 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 and increased as destination countries restricted asylum channels and imposed self-sufficiency requirements. Israeli immigration policy remained open to Jewish migrants throughout this period.

The changes shown in Table 1 suggest several empirical tests. Comparing the early and late refugee cohorts in Germany isolates the effect of exit restrictions, while the same comparison in the US estimates the combined effects of exit restrictions and immigration policy skill bias. Comparing the late refugee and economic migrant cohorts in the US and Israel isolates the effect of persecution, while the same comparison in Germany estimates the combined effects of persecution and immigration policy skill bias. In all cases, comparing the late refugee and economic migrant cohorts holds fixed emigration restrictions. A drop in education from the late refugee to the
Table 1: Summary of Migration Regimes

<table>
<thead>
<tr>
<th></th>
<th>Pre-1986 (Early Refugee)</th>
<th>1987–1992 (Late Refugee)</th>
<th>Post-1993 (Economic Migrant)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Preference of Migrants (e.g., Due to Persecution)</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Difficulty of Exiting Communist Bloc</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Immigration Policy Skill Bias in Germany</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Immigration Policy Skill Bias in US</td>
<td>Low</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Immigration Policy Skill Bias in Israel</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>

The economic migrant period would indicate that refugees are more positively self-selected, because changes in immigration policy during this period favored skilled migrants.

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 1985, 1989, 1991, 2000, and 2005, accessed through remote execution on data hosted by the Federal Statistical Office. For the US, we combine the 1980, 1990, and 2000 5% public use census files with the yearly 1% American Community Surveys (ACS) from

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9Pooling is possible across micro-census survey years, but not across census and micro-census surveys. We therefore analyze these datasets separately.
2001 through 2011 obtained through IPUMS.\textsuperscript{10} For Israel, we combine the 1972, 1983, 1995, and 2008 10% public use census files obtained through IPUMS. When analyzing census data from Germany and the US, we randomly sample 10% of natives and 100% of Western and Communist Bloc immigrants to produce our main sample. We estimate education-emigration profiles for each origin country with available census data from around 2011—Poland, Hungary, Romania, and Russia\textsuperscript{11}—to match the timing of the German census.

Data on refugee admissions in the US are available from the Yearbooks of Immigration Statistics. 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 main analysis to individuals aged 25–65 who first immigrated at age 25 or older. 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.\textsuperscript{12} We impose the same sample selection criteria across each of the three destination countries. Appendix Table B5 shows that our main results are robust to an immigration age cutoff of 35.

\textsuperscript{10}We do not use the US 2010 10% sample because it does not include information on country of birth. We additionally use ACS data through 2019 only when analyzing long-run labor market trajectories.

\textsuperscript{11}Specifically, we use the 2011 Censuses in Poland, Hungary, Romania, and Germany, the 2010 Russian Census, 2008 Israeli Census, and the pooled 2009–2013 ACS. Census data for Ukraine and Belarus are also available; 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.

\textsuperscript{12}Appendix Table B5 shows that results estimated in the full sample are very similar in Germany and the US, but attenuated (though of consistent sign) in Israel.
5.3 Outcome Variable Construction

Our primary outcome variable is years of education. In each destination country, we rely on the finest available educational attainment measure and generate a continuous variable denoting years of education using the International Standard Classification of Education 1997 (ISCED). Because there is likely significant heterogeneity in the content and quality of educational programs across origin countries, we rely on within-origin-country variation in our main analysis.

We analyze differences in three labor market outcomes that are available in all three destination countries: an indicator for whether the individual was employed in the census reference period, an indicator for whether they work in a high-skill occupation, and an indicator for whether they work in a high- or medium-skill occupation. We code skill groups using the International Standard Classification of Occupations 2008 (ISCO), coding major groups 1–3 as high skill, and major groups 4–8 as medium skill. In the US and Israel, we analyze differences in the logarithm of total personal income excluding welfare and social security payments (income is not provided in the German census). In the US, we analyze differences in self-reported English language ability using an indicator for whether the person speaks English well, very well, or speaks only English (the German and Israeli censuses do not provide language ability).

Because estimating education-emigration profiles requires combining information from origin and destination countries (see Section 6.2), it is important to construct a measure of education that is comparable across countries (so that a given individual would give the same answer regardless of what country they live in). To do so, we standardize education categories using ISCED, and aggregate classifications up to major categories: lower secondary or less (ISCED levels 0–2), upper secondary (level 3), post-secondary (level 4), and tertiary (levels 5–6).

5.4 Sample Summary Statistics

Appendix Table B1 displays summary statistics for our sample of Western European, Soviet satellite, and USSR immigrants by destination country along with a native sample in the same age range. Compared with natives in each country, Communist Bloc immigrants are slightly more
likely to be women, and more likely to be married. 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 natives. In Israel, Soviet immigrants—who comprise the vast majority of Communist Bloc immigrants—are more educated than both native Israelis and Western European immigrants.

The Mincerian returns to education were lower in the Communist Bloc than in the major destination countries. Each year of schooling is associated with a log-point increase in wages of 0.08, 0.09, and 0.06 in West Germany, the United States, and Israel respectively, but only of 0.02 in Poland (Bils and Klenow, 2000) and 0.04 in 1990s Russia (Cheidvasser and Benítez-Silva, 2007).\footnote{Appendix Table B3 shows Mincer coefficient estimates from our data: these are higher in the US than in Germany or Israel. Curiously, one more year of education is generally associated with a modestly higher probability of high-skill employment in the Communist Bloc than in Germany or Israel (coefficients are roughly similar to those from the US). In light of the lower Mincerian returns to income in the Communist Bloc compared to the West, this finding suggests that high-skill jobs were more selective on education in the Communist Bloc, but did not pay very much more.}

### 5.5 Definition of Policy Regimes

Our analysis focuses on the three time periods we believe best distinguish our policy regimes of interest. We refer to the first period, from 1962 to 1986, as the *early refugee* period. In this period, emigration 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 our main analysis (but use this period to estimate the impact of the Berlin Wall construction on migrant selection). The second period includes the years surrounding the collapse of Communism, from 1987 to 1992.\footnote{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 (the collapse of Communism in Eastern Europe) as the cohort cutoff year, and excluding the 1990 census data, in Appendix Table B5. This is unsurprising, as migration flows in 1987 and 1988 were a small share of overall flows between 1987 and 1993, as shown in Figure 1.} 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 arrivals after 2003 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 to Israel, this should not significantly affect comparability across countries.

5.6 Comparison to Western European Immigrants

A simple comparison across arrival-year cohorts 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.15 There were no significant changes to German, US, or Israeli immigration policy that specifically affected immigrants from Western European countries throughout our study period.16 Demographic trends in Western and Eastern Europe were relatively similar during our study period.17 In Section 6.4, we discuss robustness of our results to potentially different pre-trends in these two groups.

5.7 Estimating Equations

Estimating Changes in Education: We estimate changes in immigrants’ average educational attainment across regimes, separately for each destination country on a sample of Communist

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15 We include immigrants from IPUMS’ Western, Northern, and Southern Europe (excluding Albania).
16 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 Appendix Table B5).
17 See Appendix Table B2 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.
Bloc immigrants and natives, using the following regression specification:

\[ Y_i = \alpha_1 \text{Post93}_i + \alpha_2 \text{Post87}_i + X_i \Gamma + \epsilon_i \]  

(2)

where \( Y_i \) is the education of person \( i \); \( \text{Post93}_i \) and \( \text{Post87}_i \) are dummies equal to 1 if person \( i \) immigrated in or after 1993 and 1987 respectively; \( X_i \) is a vector of control variables including origin-country and survey-year fixed effects and 5-year bin dummies for age fully interacted with gender; and \( \epsilon_i \) is an error term. Our primary coefficient of interest, \( \alpha_1 \), represents the average change in education from the late refugee to the economic migrant period, among immigrants from the same origin country, controlling for age and gender differences using native profiles, and allowing for common differences across survey years. Our second coefficient of interest, \( \alpha_2 \), estimates the analogous change for late refugees relative to early refugees. 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 cohorts to those for Western European 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:

\[ Y_i = \beta_1 \text{Communist}_i \times \text{Post93}_i + \beta_2 \text{Communist}_i \times \text{Post87}_i \]

\[ + \beta_3 \text{Post93}_i + \beta_4 \text{Post87}_i + X_i \Gamma + \nu_i \]  

(3)

where \( \text{Communist}_i \) is a dummy variable equal to 1 if person \( i \) is an immigrant from a Communist Bloc country, \( \nu_i \) is an error term, and other variables are defined as in (2). Our coefficients of interest, \( \beta_1 \) and \( \beta_2 \), capture the average difference in education across CommunistBloc 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 profiles, and allowing for common differences across survey years.
Estimating Changes in Destination Outcomes: We estimate changes in immigrants’ outcomes across policy regimes using (3) and including 5-year bin dummies for years since arrival (with 1-year bins for the first 5 years) fully interacted with gender in the control vector $X_i$.

Construction of the Berlin Wall: The construction of the Berlin Wall in 1961 made immigration into West Germany substantially more difficult. This provides an additional test of the impact of emigration barriers on migrant selection. We measure the average change in Communist Bloc immigrants’ educational attainment, relative to Western European immigrants arriving in the same period, with the following difference-in-differences regression:

$$Y_i = \delta_1 \text{Communist}_i \times \text{Post62}_i + \delta_2 \text{Post62}_i + X_i \Gamma + \omega_i$$  \hspace{1cm} (4)

where $\text{Post62}_i = 1$ if person $i$ immigrated in or after 1962, $\omega_i$ is an error term, and other variables are defined as in (3). We estimate this regression on a sample of natives and Communist Bloc or Western European immigrants arriving between 1955 and 1986 in the German micro-census data.\(^{18}\)

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 proceed to consider alternative explanations of our results in Section 6.4.

6.1 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 2. This

\(^{18}\)Note that immigrants arriving in the present-day territory of East Germany will be counted as immigrants to Germany in micro-census years after reunification. Assuming the construction of the Berlin Wall did not change the average education of immigrants settling in East Germany, this definition will bias our results toward zero.
result holds when we use Western Europeans as a comparison group (Column 3) and is robust to age and gender controls (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 1). In order to distinguish between them, we need to examine results 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 $< 0.01$). Note that this comparison is cleaner in Israel and the United States, where immigration policies changed less than in Germany across these periods. Nevertheless, because German policy changes favored skilled migrants, those policy changes should attenuate, not explain, our finding. These estimates are not driven by any one origin country, as shown in Appendix Figure B4, or any particular year, as shown in Appendix Figure B1, which plots coefficients for Germany and the US by arrival year. These results indicate that changes in migration costs resulting from the removal of emigration barriers cannot fully explain the higher education levels of refugees.

The decline in educational attainment from the late refugee to the economic migrant period occurred throughout the education distribution (see Appendix Table B4), and is most pronounced, in percentage terms, among the highest-educated migrants in each destination country. This finding is consistent with persecution driving the highly educated to migrate, as predicted by our model.

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
Table 2: Differences in Educational Attainment Across Immigrant Cohorts

<table>
<thead>
<tr>
<th>Outcome: Years of Education</th>
<th>Single Differences</th>
<th>Diff in Diffs (vs. Western Europe)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td><strong>Immigrants in Germany</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communist x Post-93</td>
<td>-0.223***</td>
<td>-0.151***</td>
</tr>
<tr>
<td></td>
<td>(0.030)</td>
<td>(0.030)</td>
</tr>
<tr>
<td>Communist x Post-87</td>
<td>-0.529***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.053)</td>
<td></td>
</tr>
<tr>
<td>Post-93</td>
<td></td>
<td>0.892***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.097)</td>
</tr>
<tr>
<td>Post-87</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>512,036</td>
<td>512,036</td>
</tr>
<tr>
<td>Demographic Controls</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td><strong>Immigrants in US</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communist x Post-93</td>
<td>-0.046</td>
<td>-0.168***</td>
</tr>
<tr>
<td></td>
<td>(0.029)</td>
<td>(0.034)</td>
</tr>
<tr>
<td>Communist x Post-87</td>
<td></td>
<td>0.257***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.038)</td>
</tr>
<tr>
<td>Post-93</td>
<td></td>
<td>1.313***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.030)</td>
</tr>
<tr>
<td>Post-87</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demographic Controls</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td><strong>Immigrants in Israel</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communist x Post-92</td>
<td>-0.765***</td>
<td>-1.309***</td>
</tr>
<tr>
<td></td>
<td>(0.036)</td>
<td>(0.039)</td>
</tr>
<tr>
<td>Communist x Post-90</td>
<td></td>
<td>1.643***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.057)</td>
</tr>
<tr>
<td>Post-92</td>
<td>-0.089</td>
<td>-0.664***</td>
</tr>
<tr>
<td></td>
<td>(0.141)</td>
<td>(0.141)</td>
</tr>
<tr>
<td>Post-90</td>
<td></td>
<td>-0.211</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.292)</td>
</tr>
<tr>
<td>Observations</td>
<td>447,097</td>
<td>447,097</td>
</tr>
<tr>
<td>Demographic Controls</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Notes: An observation is an individual. See Section 5 for data sources. Each sample includes individuals aged 25–65 who are natives or who immigrated between 1962 and 2003 after the age of 25 from the Communist Bloc. Columns 3–6 add immigrants from Western Europe with the same restrictions. All regressions control for country-of-birth and survey-year fixed effects. Demographic controls are 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
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. As we describe in Section 6.2, our results support the second explanation: migration rates at the top of the education distribution were relatively higher for Jews and ethnic Germans. 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, Dowty, 1987), 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 Appendix Table B5).

Our setting offers two natural experiments to estimate the impact of migration costs on migrant selection. First, we compare the early refugee to the late refugee cohorts: these cohorts migrated for similar reasons but faced very different migration costs. 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, but rose in Israel by 1.6–2.2 years. The difference in the Israeli result suggests that Soviet policy was more successful at preventing Jewish “brain drain” in the pre-collapse period through targeted visa denials and prohibitive diploma taxes (Dowty, 1987). Indeed, excluding Jewish immigrants leads the coefficient on Post87 (or Post90, in Israel) to fall in each destination country, especially Israel, where it becomes negative and significant. 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). Second, we compare Communist Bloc immigrants arriving in Germany before and after the construction of the Berlin Wall in 1961, which made migration into Germany substantially more difficult. As shown in Appendix Table B8, the average education of Communist Bloc immigrants rose after the construction of the Berlin Wall by between 1–2 years, implying that emigration costs were, on average, screening out the less well-off.
6.2 Mechanisms Behind the Higher Education of Refugee Immigrants

What explains the lower educational attainment of immigrants arriving in the economic migrant period compared 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. This section provides evidence from education-emigration profiles that the change in self-selection was partly due to persecution. We discuss alternative mechanisms for the change in self-selection, and rule out that these can fully explain our results, in Section 6.4.

Testable predictions of the persecution channel. Our model predicts that persecution can increase the average human capital of migrants when high-human-capital workers forgo migration for a home amenity, which persecution reduces. There are two testable predictions embedded in this explanation: that highly educated workers in the Communist Bloc were less likely to migrate than workers with medium levels of education, and that this pattern will be attenuated among persecuted groups.

Testing the predictions by combining origin and destination data. Ideally, we could test these predictions by measuring the probability of migration out of the Communist Bloc at each education level 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. For this exercise, we use the population censuses taken nearest to 2011 in each country and restrict to the sample born in each home country between 1946 and 1986 (aged 25–65 in 2011) who had not emigrated by age 25.

Because we cannot observe persecution directly, we rely on membership in two ethnic minority groups that faced long-standing 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.\footnote{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.}

This exercise relies on three main assumptions. First, the selection of migrants who moved 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 (about 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, we restrict our sample to individuals between age 25 and 65 as of 2011, for whom mortality rates are low. 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.

Findings. We find support for both of our predictions: migration rates out of each origin country are declining at the top of the education distribution, but much less so (if at all) for ethnic Germans
and Jews (see Figure 3). 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.\textsuperscript{20} In 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.\textsuperscript{21} This pattern is not specific to the Communist Bloc: the best-off are less likely to emigrate across many contexts (McKenzie and Rapoport, 2007, Dustmann and Okatenko, 2014, Clemens and Mendola, 2020). While often attributed to illiquid wealth, this common pattern is also consistent with our home preference model. Note that this pattern cannot be explained by a standard Roy model of immigrant sorting based on income, as the returns to education were higher in the West (see Section 5.4).

In Romania and Russia, where ethnic group is identifiable, we find that the decline in migration at the top of the educational attainment distribution was substantially less pronounced for Jews and ethnic Germans. In the Romanian population, those with a tertiary degree were only 64\% as likely to migrate as those with a post-secondary degree. For ethnic Germans and Jews in Romania, that share rises to 93\% and 81\% respectively. In the Russian population, those with a tertiary degree were only 76\% as likely to migrate as those with a post-secondary degree. For Soviet Germans and Jews, that share rises to 98\% and 100\% respectively.

6.3 Labor Market Outcomes and Language Acquisition

The decline in immigrants’ education is echoed in the declining quality of the labor market outcomes they obtained and the language skills they acquired in the destination, although significant differences appear only in some outcomes and not others (see Table 3). In Germany and the US, economic migrants were 6–7 pp. less likely to work in high-skill jobs than late refugees ($p$-vals

\textsuperscript{20}Post-secondary degree holders represent small shares of the population still living at the origin in these three satellite countries, but significant shares (11–13\%) of emigrants.

\textsuperscript{21}Appendix Figure B2 shows education-emigration profiles broken down by period of migration. The negative selection pattern out of Russia is driven by the economic migrant period, during which migrants with lower secondary education or less were relatively much more likely to leave than before. This change is not observed in Poland, Hungary, or Romania, and is consistent with higher emigration barriers in Soviet Russia than in the Soviet satellites.
Figure 3: Migration Rates are Lower for the Highest-Educated Individuals, Except Among Persecuted Minority Groups.

Notes: Each line shows the estimated probability of migrating. Migration rates are normalized by the rates for post-secondary education (or upper secondary in Russia). Results cannot be estimated for ISCED level 4 (post-secondary) in Russia, as this degree is not separately categorized 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 for each origin-country cohort, with percentages shown on the secondary vertical axis.

Differences in labor market outcomes between the early and late refugee cohorts also echo differences in educational attainment. In Germany and the US, late refugees obtained worse outcomes than early refugees. They were 1–2 pp. 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, they were 10 pp. 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.\textsuperscript{22} We pursue two strategies to distinguish these two channels. First, we modify (3) to include a years-of-education fixed effect interacted 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. Second, we track cohorts’ outcomes over time by interacting cohort dummies with each survey year in (3). We restrict each cohort such that arrival-year compositions are roughly constant across survey years, and only recent arrivals (within 5 years of the first year we observe them) are included.\textsuperscript{23}

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 (see Appendix Figure B5). Broadly speaking, controlling for education reduces differences across cohorts by one-third to one-half, but significant gaps remain (see Appendix Table B6).

\subsection*{6.4 Alternative Explanations}

In this section, we consider alternative explanations for the lower educational attainment observed for economic migrants compared to late refugees. While many of these mechanisms surely played an important role in determining emigration decisions, we argue than none can fully explain our findings. We summarize our findings here, with further details available in Appendix D.

\textsuperscript{22}Because we focus on individuals who immigrated at age 25 or older, observed differences in education likely reflect differences upon arrival. Labor market outcomes and language acquisition, however, will in part reflect immigrants’ human capital investment after arrival. 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.

\textsuperscript{23}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 1980–1984 for the early refugee cohort, 1987–1990 for the late refugee cohort (taking the first observation as 1991 instead of 1989 to avoid a compositional change across survey years), and 1995–1999 for the economic migrant cohort.
Table 3: Differences in Labor Market Outcomes and Language Skills Across Immigrant Cohorts

<table>
<thead>
<tr>
<th></th>
<th>(1) Employed</th>
<th>(2) High-Skill Job</th>
<th>(3) Medium Skill Job</th>
<th>(4) Log Income</th>
<th>(5) English Well</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Immigrants in Germany</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communist x Post-93</td>
<td>-0.018</td>
<td>-0.066***</td>
<td>-0.063***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.012)</td>
<td>(0.013)</td>
<td>(0.013)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communist x Post-87</td>
<td>-0.009</td>
<td>-0.069***</td>
<td>-0.023</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.016)</td>
<td>(0.016)</td>
<td>(0.017)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-93</td>
<td>-0.012</td>
<td>0.025*</td>
<td>0.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.012)</td>
<td>(0.013)</td>
<td>(0.014)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-87</td>
<td>-0.179**</td>
<td>-0.184***</td>
<td>-0.283***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.079)</td>
<td>(0.061)</td>
<td>(0.077)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>529,736</td>
<td>529,736</td>
<td>529,736</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dep. Var. Mean</td>
<td>0.740</td>
<td>0.168</td>
<td>0.570</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Immigrants in US**  |              |                    |                      |                |                 |
| Communist x Post-93  | -0.004       | -0.057***          | -0.007               | -0.217***      | -0.100***       |
|                      | (0.006)      | (0.007)            | (0.006)              | (0.018)        | (0.005)         |
| Communist x Post-87  | -0.019***    | -0.052***          | -0.023***            | -0.170***      | -0.109***       |
|                      | (0.006)      | (0.006)            | (0.006)              | (0.017)        | (0.005)         |
| Post-93              | 0.014***     | 0.032***           | 0.016***             | 0.150***       | 0.047***        |
|                      | (0.005)      | (0.006)            | (0.006)              | (0.015)        | (0.003)         |
| Post-87              | 0.003        | 0.054***           | 0.009**              | 0.132***       | 0.088***        |
|                      | (0.004)      | (0.005)            | (0.004)              | (0.013)        | (0.003)         |
| Dep. Var. Mean       | 0.70         | 0.30               | 0.69                 | 10.00          | 0.71            |

| **Immigrants in Israel** |              |                    |                      |                |                 |
| Communist x Post-92   | -0.009       | -0.037             | -0.009               | -0.178**       |                 |
|                      | (0.035)      | (0.033)            | (0.035)              | (0.089)        |                 |
| Communist x Post-90   | 0.099***     | -0.050             | 0.018                | -0.012         |                 |
|                      | (0.033)      | (0.033)            | (0.034)              | (0.081)        |                 |
| Post-92              | -0.016       | 0.012              | -0.034               | 0.310***       |                 |
|                      | (0.034)      | (0.033)            | (0.035)              | (0.089)        |                 |
| Post-90              | -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       | 0.73         | 0.19               | 0.55                 | 9.34           |                 |

**Notes:** See Table 2 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
Changing Liquidity Constraints. While liquidity constraints per se cannot explain the change in selection from the late refugee to the economic migrant period, a change in liquidity constraints could. However, such an explanation is difficult to reconcile with the pronounced changes at the top of the education distribution, with similar results in the USSR and satellite countries, and with consistent results when excluding post-recovery years, as we discuss in Section D.1.

Income Inequality in the Communist Bloc. Increasing income inequality in the Communist Bloc during our study period may have reduced the incentive for highly educated workers to migrate. However, this mechanism cannot explain the inverted U-shape in Figure 3 or the shift in the ethnic composition of Communist Bloc migrants. Furthermore, we find that the decline in education across immigrant cohorts was not more pronounced for groups that were likely more affected by post-collapse economic restructuring—male workers, young workers, and workers in Soviet (as opposed to satellite) countries (Brainerd, 1998, Prasad and Keane, 1999)—as would be predicted by a migration response driven by changes in inequality, as discussed in Section D.2.

Appendix Table B9 shows differences in outcomes by gender. While gender differences in the economic migrant group are generally small compared to unconditional changes in Germany and Israel, the lower income compared to late refugees is significantly muted for men in the US. This is somewhat surprising in light of growing incentives for high-earning men to remain in the Communist Bloc after 1993 due to wage decompression.

Networks and Family Reunification. If immigrant networks in the destination grow over time, with early arrivals “paving the way” for future arrivals, this could also explain the observed drop in immigrants’ average educational attainment over time (Munshi, 2003, McKenzie and Rapoport, 2010, Spitzer and Zimran, 2018, Buggle et al., 2020). However, networks are unlikely to explain the changes we observe, 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. Moreover, there was substantial variation in the pre-collapse size of immigrant networks across origin- and destination-country groups. For example, significant Russian and
Polish populations lived in the US prior to the collapse of Communism, whereas Russian arrivals in Germany and Israel after 1987 dwarfed the existing diasporas there. Nevertheless, we observe roughly similar drops in educational attainment during the economic migrant period among Soviet and satellite immigrants in all three destinations, as shown in Appendix Table B7, and no single origin country is driving our results, as shown in Appendix Figure B4. Finally, family reunification patterns in our data are inconsistent with many family ties across immigrant cohorts, as discussed in Section D.3.

**Differential Pre-Trends.** If the characteristics of immigrants from Western Europe were trending relative to those of immigrants from the Communist Bloc prior to the time period we study, our findings could be driven in whole or in part by the continuation of those trends. This point is further complicated in our setting because asylum and ethnic resettlement laws applied specifically to Communist Bloc immigrants before the collapse. Western European immigrants may be a more informative comparison group for Communist Bloc immigrants after the collapse—when both groups become largely subject to the same immigration policies—than they were before. Nevertheless, it is reassuring that our results are not driven entirely by the continuation of pre-existing trend differences across these two groups. Our results are robust to extrapolating linear time trends through our study period, as described in Section D.4.

**Differential Non-Random Attrition.** An additional concern is that differential non-random attrition, due to return migration or death, is complicating our results (Dustmann and Weiss, 2007). However, our main findings hold in the German micro-census—which reduces the horizon over which attrition could have occurred—tracking fixed characteristics across survey years reveals only modest differential attrition, and our results are similar when excluding immigrants arriving within 5 years of the census survey in which they appear, who are more likely to be short-term immigrants (Dustmann and Weiss, 2007). Details are presented in Section D.5.
Immigrant Sub-Groups and Time Period Definitions. We test whether our results are driven by Jewish immigrants, who were the highest-educated group in the Soviet Union and who migrated in large numbers during our study period.\textsuperscript{24} We find that changes in education across Communist Bloc immigrant cohorts are largely similar when we exclude Jewish immigrants (Appendix Table B5), 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).

Direct Impacts on Western European Immigration. In principle, immigration flows from the Communist Bloc may have influenced immigration decisions from other regions. For example, prospective skilled immigrants may have anticipated competing with the new, highly skilled Communist Bloc immigrants and thus preferred not to immigrate. Such an impact on Western European immigrants would put downward pressure on the average education levels of Western Europeans arriving after the collapse. As this would attenuate all of our difference-in-differences estimates (with the exception of Communist \times Post-90 in Israel), it is unlikely to explain our findings.

Changes in Communist-Bloc Educational Attainment. A general reduction in educational attainment within the Communist Bloc, relative to Western Europe, around the collapse of Communism could explain the drop in educational attainment of Communist Bloc immigrants even without changes in migrant selection. As shown in Appendix Table B2, the reverse is true: educational attainment grew faster in Eastern Europe than in Western Europe between the 1970s and 1990s. Additionally, our results hold when we restrict our analysis to older arrivals (see Appendix Table B5), who would have completed their education well before the collapse of Communism.

\textsuperscript{24}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.
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 after 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 robust to restricting our sample to individuals who immigrated after the age of 35 years (see Appendix Table B5).

Loss of Consumption Due to Persecution. If persecution threatened consumption through a mechanism like the one described in Aksoy and Poutvaara (2021), it could induce well-educated workers in persecuted groups to want to migrate. We do find that the observational returns to education were slightly lower for members of minority groups in the Communist Bloc compared to the overall population, though only for some outcomes and in some countries (see Appendix Table B3). However, this mechanism alone cannot be driving our results. A threat to consumption would lead the highest-educated workers to emigrate at the highest rates. Instead, we find that the highest-educated workers were either much less likely to emigrate (in majority groups) or no more likely to emigrate (in minority groups), consistent with a home preference explanation.

Complementarity Between Imported and Locally Acquired Skills. If education is complementary with skills acquired in the destination country, this will motivate highly educated workers to migrate early (Locher, 2004). While this explanation is consistent with the lower average education of the economic migrant compared to the late refugee cohort, it cannot explain the inverse U-shape in migration shown in Figure 3, or the flattening of the U-shape for Jewish and ethnic German migrants.
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 preference. 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 as groups that face the worst persecution tend to exit as quickly as possible, and 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 be-
tween 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 post-war levels (Russian Census, 1989, Tolts, 2020). Our estimates are consistent with these findings, showing emigration rates in these groups that vary from 20 to 85% in the years 1987–1992 across all education levels (see Appendix Figure B3).

Our finding that refugees from the Communist Bloc were more positively self-selected than the economic migrants who came later is unusual within the literature on refugee migration. This may be because many studies on refugee selection compare refugees from one set of countries to economic migrants from another, implying that country-level effects will influence estimated differences. However, as our model illustrates, the nature of selection depends on the context. Our model predicts that negative selection of migrants at the top of the human capital distribution is more likely when income differences between the origin and destination are large, when the migration premium is relatively flat in human capital, and when the home preference is large. Our findings are thus consistent with the vast income differences between the Communist Bloc and the West, a migration premium that was not too steep in human capital, and/or a strong home preference among Eastern Europeans. In contrast, in settings where the home preference is weaker among the highly educated, this can generate positive selection of migrants. A post-revolutionary setting, such as the period shortly after the Russian Revolution, may fit this description. Future research could test these predictions outside the Communist Bloc, leading to a better understanding of the role that a home preference plays in shaping migration decisions.

\[25\] Fuchs-Schündeln and Schündeln (2020) find that the share of pre-tax income going to the top 10 percent in 1990 was about 27 percent in the West and about 23 percent in the East, and that social expenditure and tax progressivity were greater in the West.

\[26\] While dissatisfaction with Communist governments was widespread throughout the Communist Bloc in the 1980s, few held positive views of life in the West. 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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