

Escaping Europe: Health and Human Capital of Holocaust Refugees¹

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Abstract

The large-scale persecution of European Jews during the Second World War generated massive refugee movements. We study the last wave of Holocaust refugees with a newly compiled dataset of mostly Jewish passengers from several European countries traveling from Lisbon to New York between 1940 and 1942. We find that refugees and non-refugee passengers were positively selected, but non-refugees even more so, suggesting it was predominantly the European elite who escaped the Holocaust during this period. In spite of the unique circumstances of this historical setting, this episode of migration displays well-known selection features: both refugees and non-refugees are positively selected, and earlier passengers are more positively selected than later passengers, and economic barriers to migration apply.

Keywords: Migration, Refugees, World War II, Holocaust, New York

JEL codes: N32, N34, N42, N44, F22, J24, O15

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1. Introduction

The wide-range persecution of Jews in the context of World War II led to the largest refugee streams of the twentieth century. From the Nazi seizure of power in January of 1933, to the invasion of Poland in September of 1939, restrictions and threats on Jewish life and property became all too prevalent in Germany. After the outbreak of war, the expansion of Nazi Germany further set in motion those who feared for their lives and could afford to flee.

In this paper we study the last wave of Jewish refugees to escape Europe after the outbreak of the war based on a newly compiled dataset from the United States Records of the Immigration and Naturalization Service. We analyze all alien passengers traveling from Lisbon to New York on steam vessels between 1940 and 1942. Temporarily, the war made Lisbon the last major port of departure when all other options had shut down. Escaping Europe before 1940 was troublesome but there were still several European ports providing regular passenger traffic to the Americas. After 1940, emigration was increasingly difficult and getting to Lisbon was both a matter of wealth and luck; by mid-1942 it was nearly impossible for Jews to leave Europe due to mass deportations to concentration camps in the East. The Lisbon migrants were wartime refugees and offer a valuable insight into the larger body of migrants that were forced to escape Europe as a result of the Nazi oppression since 1933.

Using micro-level evidence on Jewish and non-Jewish migrants to the United States, we are able to assess the socioeconomic background of European refugees. Passenger records contain personal, ethnic, anthropometric, and socioeconomic characteristics, as well as place of birth and last residence. This detailed information allows us to identify occupational background, language skills, health status and human capital of nearly 10,000 adult individuals. Our rich dataset allows us to further investigate: (a) whether there was migrant selection with respect to source populations, i.e. who escaped the Holocaust; (b) whether refugees were any different from non-refugees; and (c) whether such differences can be explained by observable socioeconomic characteristics.

We use average height as a key indicator to assess health and human capital. Adult height is an output-oriented indicator reflecting nutrition, disease environment, pollution and the quality of housing around the time of birth (Steckel 1995). Economic historians have used it extensively as an indicator of health and human capital when studying migration. In the early twentieth century, Mexican and Italian migrants to the US as well as migrants from Europe, the Middle East, and Latin America migrating to Argentina were taller when compared to average citizens in their home countries (Kosak and Ward 2014, Twrdek 2012, Spitzer and Zimran 2017). In our historical context average adult height

allows for a direct comparison of socioeconomic backgrounds of migrants, separately by gender, ethnicity, and nationality.

The majority of migrants in our dataset were Jews mostly from Germany and Poland, but in total we identify migrants from 17 nations across Europe. Our findings show these migrants belonged to a higher social background compared to the populations in their source countries, a pattern that is stronger for females than males. We further investigate differences in height between Jews and non-Jews, which disappear once we control for timing of the migration decision. Moreover, we observe a typical pattern in the migration literature: early migrants were taller than late migrants, suggesting even stronger positive selection for migrants fleeing the Nazi regime between 1933 and 1940, before our period of analysis.

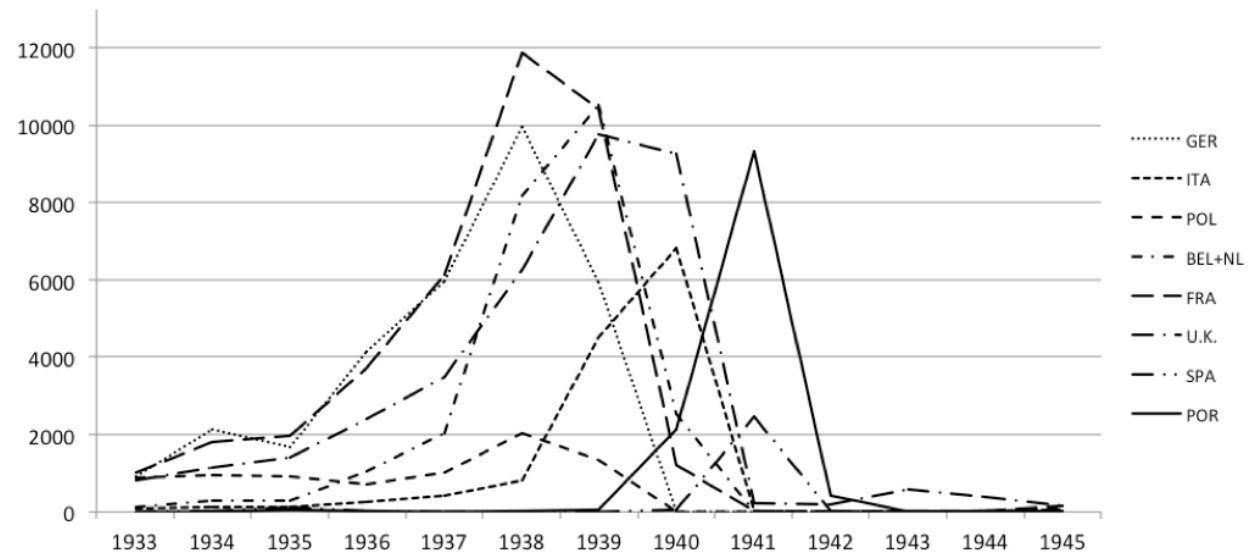
These results are in line with previous studies suggesting German-Jewish émigrés arriving in the United States in the 1930s had a sizable impact on the US economy (Abramitzky et al. 2014), particularly on that country's innovation (Moser et al. 2014), with significant losses for German scientific output (Waldinger 2016). Our results also relate to the finding that population losses in Europe affected the development of their original countries (Acemoglu et al 2011). Lastly, we focus on war-time refugees and thus contribute to a much under-researched, and often hard to document, area of international migration as relevant today as it was in the 1940s.

2. Jewish Outmigration and US immigration policy

Founded in the 1920s, the German Nationalist Socialist party gathered only marginal shares of the vote in that first decade. Struggling in the aftermath of World War I, Germany saw its internal crisis deepen as the Great Depression hit in 1929, after which Nazi propaganda found fertile ground (Eichengreen and Temin 2000:204-5). In November of 1932 the Nazi party won the national election and in January of 1933 Adolf Hitler became German Chancellor. In February the Reichstag Fire helped further consolidate Nazi power in Germany, which became a single party system in July of 1933. In 1934, the office of the President was abolished and its powers merged with the Chancellor's, making Hitler head of state and the supreme leader of the German armed forces. Restrictions on Jewish civil liberties arrived soon and Germany's border expansion made more Jews subject to these

restrictions.² Such conditions gave rise to a continuous stream of Jewish migrants leaving various European countries since 1933. Figure 1 shows approximate Jewish arrivals in New York City by country of departure.³

Figure 1: Jewish arrivals in New York by country of departure⁴



Source: Ancestry.com

The Nuremberg Race Laws of 1935 and the Nazi expansion into the Rhineland, Austria, and the Sudetenland in 1936 and 1938 marked a clear rise in Jewish arrivals from all countries that would later be involved in war. Outmigration from these countries peaked between 1938 and 1940, dropping to negligible levels thereafter. In 1940, the fall of Paris in June and the London bombings in December effectively shut down passenger traffic from traditional ports such as Marseilles, Le Havre or Liverpool. Neutral Portugal and more modestly Spain, which were never substantial countries of departure to the United States, became the last countries on the escape route of European Jews. The end of Spain's civil war in 1939 left that country with few resources to spare on transatlantic voyages, making

² See Kaplan (2005) for a thorough discussion.

³ New York was the major entry port into the United States for Portuguese ships. Baltimore, Boston, and New Orleans also received Jewish migrants but not in large numbers. Between 1940 and 1942, Baltimore received a total of 655 Jews (569 from Portugal), ports in Massachusetts 1,591 (none from Portugal), and New Orleans 270 (none from Portugal).

⁴ Country of departure is not necessarily country of origin, especially for later departures. For instance Austrian Jews could not have departed from a port in their home country, and there were virtually no resident Jewish communities in Portugal or Spain by the time Jews left these countries' shores in large numbers. The data comes from ancestry.com and meets specific search criteria for ethnicity, country of departure, and year of arrival.

Lisbon the major European port of departure to the Americas between 1940 and 1942. Getting to Lisbon as the war expanded, however, became extremely difficult and a combination of money and luck allowed people to proceed through France and Spain to get to Portugal.⁵ This late emigration flow largely ceased in the summer of 1942 when mass deportations to labor camps in the east sealed the fate of Jews who had not left Europe before (Breitman 1991).

No matter when they left, European Jews faced a stringent US immigration policy based on quotas of national origin and without specific provisions for refugees.⁶ The Immigration Act of 1921 (amended in 1924 and 1929) restricted migrant admissions by country to 2% of the corresponding foreign born population in the 1890 census.⁷ These quotas favored migrants from Northwest Europe and Scandinavia --the main sources of early US immigration-- and very much limited the acceptance of migrants from southern and eastern Europe (Feingold 1995).

After 1933 many Jews sought refuge in the United States, but in most years the German quota went unfilled (Greenberg 1996): initially there were further migration restrictions on account of job scarcity induced by the Great Depression (Hoover 1931); and by mid-1940 there were security concerns regarding the possible admission of infiltrated spies, communists, or fascists among the refugees (Goodwin 1995). As a result the Department of State instructed consuls to deny visas to any applicants with any family still in Nazi controlled Europe, as such family ties would “make the entry of the applicant prejudicial to the public safety or inimical to the interests of the United States” (Morse 1968:300).⁸ The ruling immediately affected thousands of refugees already waiting in, or on their way to, Lisbon.

By the end of 1941 the US entered the war and the refugee crisis became less visible to the American public. Rumors of the Holocaust were often rejected as too macabre to believe. Even in Palestine, allusions to the mass murder of Jews were discounted until the arrival of dozens of refugees

⁵ Routes to reach Lisbon varied. Most famous is probably that described in the initial credits of the 1942 movie *Casablanca* where refugees went from Paris to Marseille, crossed the Mediterranean to Oran in Algeria and from there travelled to Casablanca in French Morocco where they would wait for exit visas to Lisbon. Most documented are the routes from France across the Pyrenees into Spain — through the Basque Country (Bordeaux-Bayonne-Irún) or Catalonia (Marseille-Perpignan-Portbou) — and onto Lisbon (Weber 2011). See Halperin (2017), Lochery (2011), and Weber (2011) for accounts of refugee journeys to Lisbon during this problematic period, and Redel (2007) and Remarque (2007) for fictionalized novels of these dramatic events based on true stories.

⁶ For a thorough review of immigration regimes in US history see Abramitzky and Boustan (2016).

⁷ See Table 6 in the Appendix for exact quota numbers after the 1929 amendment.

⁸ For detailed visa procedures see Morse (1968:301-3). Increased visa restrictions sealed the fate of many who sought to escape Nazi occupied or threatened territory after this date. Such was the case of Otto Frank (father of Anne Frank), residing in Amsterdam since 1933, who sought American visas for his family in April of 1941 (Breitman, Stewart and Hochberg 2009:260-263).

with eyewitness reports from Poland in November of 1942 (Marrus 1996:157). Only by mid-1943, after notable defeats of the Axis in Europe and the Pacific, was there willingness to confront the death camps in Eastern Europe (Feingold 1995).

Roosevelt's executive order in January 1944 established the War Refugee Board to "rescue the victims of enemy oppression who are in imminent danger of death" (Roosevelt 1944). Only then was there an official refugee policy that facilitated transportation to the US and coordinated efforts of neutral governments in Europe with those of international relief organizations. After the end of the War the slow pace of legislation for the expedited admission of displaced persons led President Truman to designate existing immigration quotas for such individuals in December of 1945. The Displaced Persons Act of 1948, amended in 1950, allowed the admission of 400,000 European refugees into the US outside of the quota system and established precedent for future refugee crises.

3. The passenger data

The data come from the *New York Passenger Arrival Records — 1820-1957* located at the National Archives in Washington DC and contained in 9,567 microfilm rolls. We focus on the very last wave of Holocaust refugees arriving in New York and coming from Lisbon between July 11 1940 and June 30 1942, when there was direct steamer traffic between the two cities. This time period corresponds to 243 rolls, each compiling between one and three volumes of ship manifests of 800 to 900 pages each registering 2 to 3 days of arrival information.

On a typical weekday the Port of New York saw 10 to 20 vessel arrivals (between passenger ships, cargo ships, or flying boats) coming from domestic or international ports of origin. Of the 472 vessels originating in Portugal, 100 passenger ships came from Lisbon.⁹ We extracted over 3,000 picture files corresponding to these passenger manifests and included 97 manifests in our dataset as the remaining manifests were either illegible, the vessel carried no passengers, or the vessel carried only passengers in transit to the Caribbean that did not disembark in New York. We then hired transcriptionist services to input the information corresponding to the passengers on the alien lists into spreadsheet format.

⁹ There were also vessels departing from other Portuguese ports in the mainland of the Atlantic Islands, but these vessels overwhelmingly carried cargo. Sometimes ships departed from Lisbon and stopped at intermediate ports such as Casablanca, Bermuda, or Havana, to drop off and pick up passengers before getting to New York.

Ship manifests separated United States citizens and alien passengers, who were asked much more detailed questions, such as race or place of last residence.¹⁰ We discarded US citizens' manifests and used only alien manifests, from where we can directly identify passengers of Jewish race. We define as refugees all Jewish passengers plus all non-Jewish passengers traveling with a Jewish spouse, child, or parent as all these passengers had similar travel reasons.¹¹ We also consider refugees all stateless passengers of non-Jewish race, to capture eventual members of the Nazi opposition whose citizenship was revoked in the late 1930s. All in all, our full dataset contains 19,193 alien passengers of which 12,204 were refugees mostly of Jewish origin.

The remaining passengers fall on the default category of non-refugees. Among these, we have passengers with obvious travel motives such as business travelers sponsored by Standard Oil staying for a short time, or diplomats in transit to their home countries or their embassies in Washington DC. We dropped all such passengers from the non-refugee group. We are left with non-Jewish passengers with no apparent travel motive, who could have been tourists, economic migrants, or members of the Nazi opposition fleeing persecution but still in possession of their citizenship. Such is the case of the son and the brother of Thomas Mann, well known for his anti-Nazi speeches in German broadcasted by the BBC (Beddow 1995). Since the manifests do not unambiguously identify passenger travel motive we do not classify these individuals as refugees, though there is reason to believe that many of these non-Jewish passengers were in hoping for refuge in the United States.

Suggestive evidence that economic migrants did not abound among non-refugee passengers comes from the age distributions in Figure 2. Both distributions peak around age 40 in stark contrast with the typical age distribution of economic migrants where the modal age lies between 20 and 24 (Hatton and Williamson 2005:78).¹² Unlike economic migrants, our passengers travelled mostly with their families (husband, wife, and children) and at times even extended families (parents, in-laws, uncles, and siblings and their families); though this pattern is more common among refugees it is not absent in non-refugees. There were passengers in all age brackets, from babies born on board to octogenarians traveling with their children and grandchildren. There were also unaccompanied Jewish

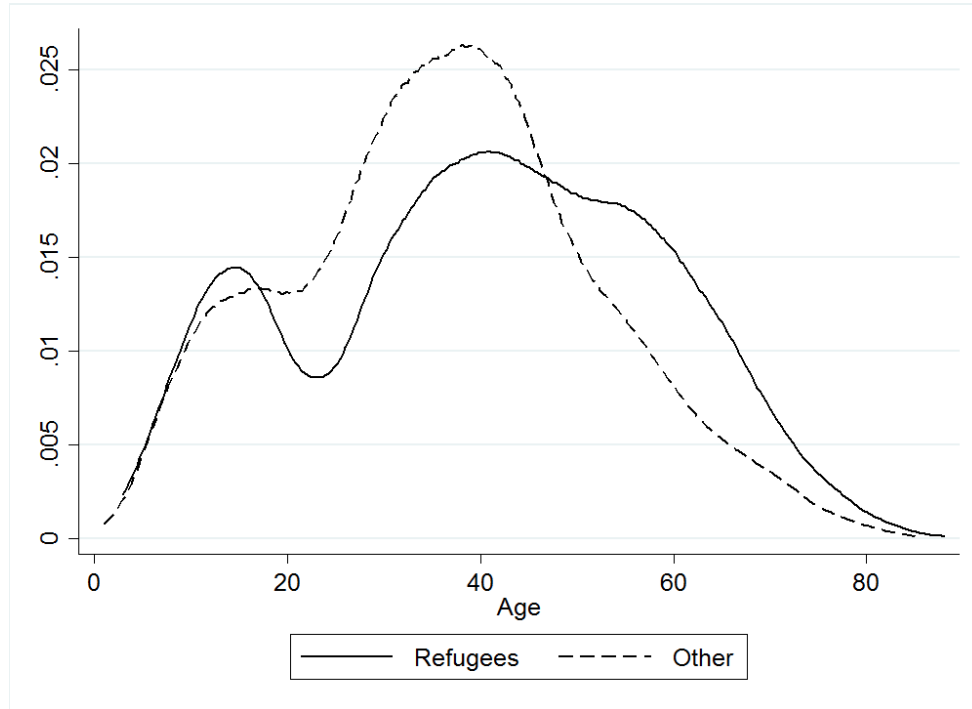
¹⁰ See Data Appendix for the different sets of questions asked to US citizens and alien passengers.

¹¹ Given the war context, some refugees could have tried to hide their Jewish origins, potentially creating an undercounting problem. In 82 out of 97 manifests however, we find passengers declaring their race to be Austrian or Dutch only to have it crossed in pencil by an immigration inspector who overwrote "Hebrew." Undercounting of Jews is therefore not a big concern.

¹² The average (median) age for refugees and non-refugees is approximately 39.9 (41) and 35.5 (36), respectively (see Table 7 in the Appendix). Results of a two-sample t-test and a two-sample Wilcoxon rank-sum test suggest that these differences are also statistically significant.

children (sponsored by international relief organizations) and a disproportionately large share of refugees in older age brackets.

Figure 2: Kernel densities of age



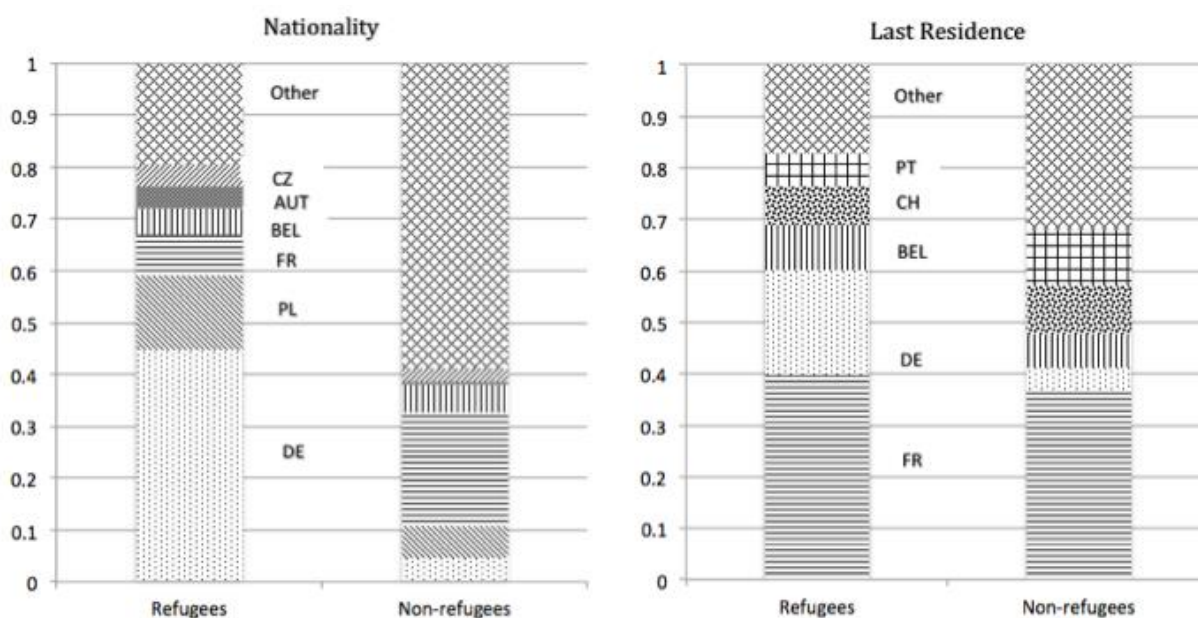
If in terms of age both refugees and other passengers were rather similar, there were marked differences with respect to national origin as shown in the left panel of Figure 3.¹³ Nearly half of the refugees were German nationals, distantly followed by Poles, French, Belgians, Austrians, and Czechoslovaks. Non-refugees, on the other hand, were mostly French nationals (about one-fifth), while other nationalities were rather dispersed (less than one-tenth each).

As for last residence, refugees and non-refugees alike followed a more similar pattern. France was last residence for most alien passengers refugees and non-refugees alike, suggesting the presence of non-Jewish Nazi opponents in our non-refugee group. In contrast, Germany was last residence to a much smaller fraction of non-refugees (4.2%) than refugees (20%). Switzerland and Portugal remained neutral throughout the war, yet the relatively large shares of refugees claiming last residence

¹³ Approximately 2,200 passengers in our sample were declared stateless so we assigned them a nationality based on country of birth. We also made the necessary corrections regarding Austrian citizens whose place of birth was declared to be "Vienna -- Germany," for example. While this was formally correct after the Anschluss, we code all individuals born in Austria as Austrian.

there suggest different reasons for leaving. Refugees in Switzerland might have felt unsafe with neighboring countries engulfed in war and preemptively left Europe, as many did before the outbreak of the war (see Figure 1). In Portugal, there was virtually no resident Jewish community so refugees claiming last residence there must have been in the country for at least a year before departing to the US. They could have been waiting for US immigration papers or attempting to purchase a passage on one of the various ships departing to the Americas that were often overbooked. There are reports of refugees waiting months in Portugal for a transatlantic passage as their US immigration papers were about to expire (Lochery 2011, Weber 2011).

Figure 3: Alien passengers by origin (in %)



Discrepancies between refugee nationality and country of last residence offer an insight into pre-1940 migration within Europe. Close to half of all alien passengers in our dataset were German refugees, but only a quarter of our passengers reported Germany as their country of last residence. Austria, Poland, and Czechoslovakia also have more nationals than last residents, suggesting an out-migration pattern before 1940 especially for Jewish refugees who had moved out of Nazi Germany before the beginning of the war and were already migrants in Europe prior to departure to the US. Conversely, France, Portugal, Belgium, and Switzerland were receiving countries.

Although passengers originated in various European countries, not all had the United States as their last destination. Table 1 divides refugees and non-refugees by gender and length of stay in the

US. Most passengers in our dataset cleared the US visa process, had an assigned quota number, and intended to stay permanently in the US.¹⁴ There were also passengers with temporary visas, for example business travelers or tourists. And finally there were passengers in transit to other countries.

Table 1: Alien passengers by length of stay in the US

	Refugees			Non-Refugees		
	All	M	F	All	M	F
Permanent	86.7%	46.7%	53.3%	56.1%	43.6%	56.4%
Temporary	9.9%	54.1%	45.9%	27.3%	56.5%	43.5%
Transit	3.4%	56.8%	43.2%	16.5%	53.9%	46.1%
Total	100%	47.8%	52.2%	100%	48.8%	51.2%

The vast majority of our passengers arrived in the US to stay permanently, a tendency that was much stronger among refugees, who were seldom in transit when compared to other passengers. Among aliens declaring a permanent stay there were more females than males regardless of refugee status, a pattern not replicated in temporary or transit passengers.

Lastly, alien passengers also reported their height, language skills, and occupation allowing for a deeper understanding of their health and human capital.

4. Human and Health Capital

Our classification of refugees includes all Jewish passengers as well as their non-Jewish family members, regardless of occupation or length of stay in the US as these passengers were unlikely to return to Europe. The remaining passengers cannot unambiguously be identified as refugees. Henceforth we refer to these passengers as 'non-refugees' although there is reason to believe that many of them were fleeing Europe for fear of persecution.¹⁵

In addition, we restrict our analysis to passengers aged 16 and older since children and adolescents usually have not developed their human capital and height in full. We now discuss passengers' human capital by gender as proxied by occupational skill and language abilities. We then compare the

¹⁴ See Appendix for multi-part question 24 on the purpose of the trip and intended length of stay.

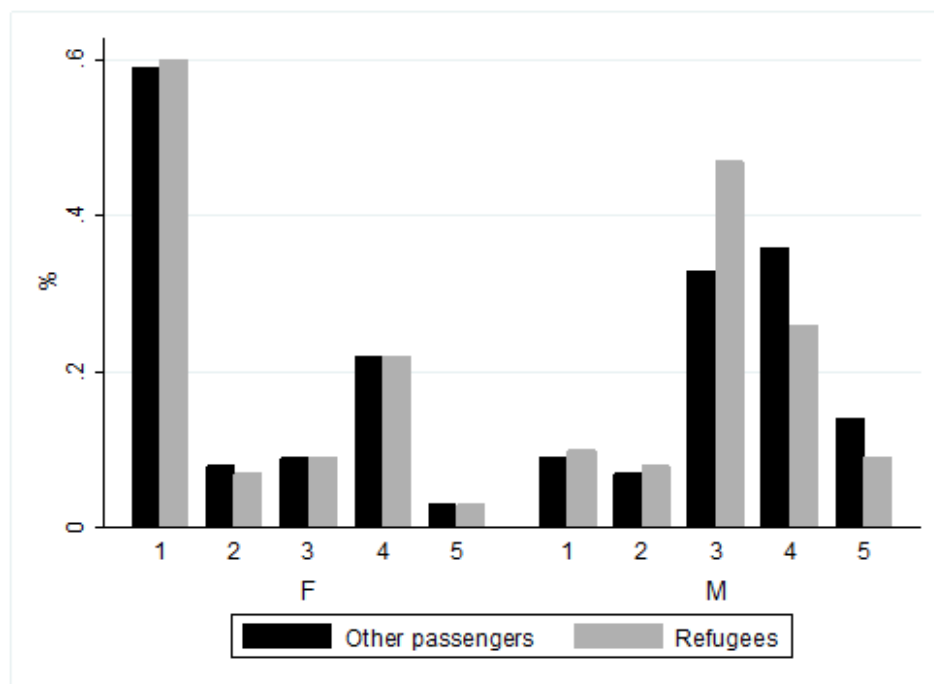
¹⁵ The case of Salvador Dalí and his wife is a good example. They were not identified as Jews in the manifests, even though Dalí's mother's family had Jewish origins (Gibson 1998). The couple declared a length of stay of 6 months but their status must have changed after arrival since they remained in the US for 8 years. This case shows that some of the non-refugees with temporary (but not necessarily short) stays did not return to Europe any time soon. As such we consider them as part of the non-refugee outmigration movement.

average height of these same groups of passengers with that of source countries to understand their selection patterns. Finally, we investigate whether differences in migrant selection between refugees and other passengers can be explained by observable characteristics, such as refugee status, skill level, migration initiative, or income.

4.1 Passenger skills

Figure 4 shows the occupational distributions of refugees and non-refugees according to the commonly used Armstrong (1972) taxonomy, which assigns values from 1 to 5 to individual occupations according to the required time of training, in the following order: unskilled (1), semi-skilled (2), skilled (3), semi-professional (4), and professional (5).¹⁶

Figure 4: Occupational distributions



In line with traditional family roles in the 1940s, close to 2/3 of female passengers were homemakers. The occupational distribution across refugee and non-refugee females is remarkably similar. Male refugees on average ranked lower in the Armstrong scale than non-refugee males because a larger

¹⁶ See section 6.3 in the Appendix for more detail on the grouping of specific occupations into each category as well as the most common occupations by gender and refugee status.

fraction of the latter ranked in levels 4 and 5 (47% vs 30%). This pattern is consistent with different travel motives: most non-refugees belonged to the very limited segment of society able to travel internationally in the early 1940s, which denoted higher income and skill levels; non-refugees could also afford to travel, but perhaps because they liquidated assets as they were pushed out of Europe.

With respect to language skills, gender differences are non-existent for refugees and minimal for non-refugees. Additionally, refugees fared better as they spoke on average more languages than non-refugees (1.6 vs 1.4, see Table 7 in the Appendix) and this difference is statistically significant.¹⁷ There is no evidence that this difference is related to Yiddish or Hebrew language skills since only 133 individuals declared to speak either of these two languages.¹⁸

4.2 Passenger selection

We evaluate the impact of this outmigration in terms of health and human capital by computing average heights of adult European passengers of nationalities with at least 20 observations for each gender.¹⁹ We then compare these averages with the corresponding average height of males, weighted by cohort, in the corresponding source countries. Independently compiled height values that provide us with the average height of source populations is taken from Baten and Blum (2014).²⁰ Average height in this database is organized by birth decades and was tested for multiple biases to ensure representativeness.²¹

In our manifests, heights are, in all likelihood, self-reported, raising potential bias issues.²² The literature estimates the bias at 0.8 cm for males (Hatton and Bray 2010), while for females most studies report a positive bias, but the estimated magnitudes vary between -1.7 cm and 2.5 cm (Engstrom et

¹⁷ See Appendix for full text of question 8 in the alien manifests, which includes reading and writing information. Since literacy tests for incoming migrants were in place as of the 1917 Immigration Law, we interpret this question simply as language knowledge.

¹⁸ We investigate whether this difference is due to refugees from bilingual countries and find that refugees of quite a few nationalities had better language skills than non-refugees even after controlling for country fixed effects. See Table 5 in the Appendix.

¹⁹ A simple average computation would be misleading due to the inclusion of individuals aged 16 and older who were still growing. We therefore estimate average heights by OLS, separately by gender and refugee status, and include age dummies for teenagers.

²⁰ The height data is available at <https://www.clio-infra.eu/>. See Baten and Blum (2012) for details of its construction.

²¹ We calculate female heights based on the concept of sexual dimorphism, which considers differences across genders within the same species, such as height. We thus apply the formula relating male and female heights in Holden and Mace (1999). The exact formula in cm is: $Male\ height = 1.99 \times Female\ height - 3.24$. An alternative formula in Gustafsson and Lindenfors (2004) results in lower benchmark heights for women, which yields even higher positive selection so we report the more conservative estimates only.

²² See Spitzer and Zimran (2017:32-33), for a thorough discussion of this matter.

al. 2003). Even so, there is no reason to assume a different bias between males and females so we correct all our passenger heights downward by 0.8 cm.²³ This conservative approach allows for a comparison with source countries' height that is unaffected by the potential self-reporting bias in the manifests.

Descriptive statistics presented in Tables 2a and 2b suggest positive selection among non-refugees of all nationalities. Except for Greek males, all other non-refugee average heights are statistically different from the corresponding home averages. For refugees, statistically significant differences across means are not as prevalent, especially for males: Austrian, German, Hungarian, Latvian, and Polish refugees were no different in terms of average height from males in the corresponding home countries. Dutch and Luxembourgian male refugees were shorter than males in the Netherlands and Luxembourg, but every other nationality in our sample was positively selected relative to the source countries.

For females, the majority of refugees was positively selected; only Latvian and Luxembourgian refugees (that is 198 in 5,127 female refugees) were no different from females in those countries of origin. The statistically significant differences indicating negative selection occur in male refugees from Luxembourg (−3.4 cm), and the Netherlands (−1.8 cm), which correspond to 170 individuals. Much to the contribution of women, most refugees were therefore positively selected though to a lesser extent than non-refugees (exception to Italians) and contributed to the brain drain of sending countries. Females were more selected than males regardless of refugee status, suggesting Europe lost more human and health capital from female emigration.

²³ We also adjust heights of individuals 50 and older for shrinking, using estimates that the elderly male and female English populations experience an annual decline in physical stature of approximately 0.09 percent and 0.13 percent, respectively (Fernihough and McGovern 2015). This adjustment does not dismiss the importance of Age dummies to control for cohort effects.

Table 2a: Heights and selectivity of European male passengers, 1940-42

Nationality	Males (home country)	Male (non-refugees)	N (m)	Diff (m)	Male refugees	N (m, refugees)	Diff (m)
	(a)	(b)		(b) - (a)	(c)		(c) - (a)
Austria	168.1				169.4	195	1.3
Belgium	166.8	172.2 ***	77	5.5	169.3 *	198	2.5
Czechoslovakia	168.3	173.5 ***	33	5.2	171.1 **	205	2.8
France	166.6	173.0 ***	195	6.4	170.6 ***	298	4.0
Germany	168.8	171.9 *	67	3.1	169.4	2,068	0.6
Greece	168.5	170.6	33	2.1			
Hungary	170.0	174.0 ***	34	3.9	170.0	143	0.0
Italy	165.3	171.0 ***	32	5.7	172.1 ***	35	6.8
Latvia	170.9				169.0	37	-1.9
Luxembourg	170.0				166.6 ***	59	-3.4
Netherlands	170.0	175.0 **	77	5.1	168.2 ***	111	-1.8
Poland	167.3	173.4 ***	51	6.0	167.5	736	0.2
Portugal	164.2	168.3 ***	73	4.1			
Romania	166.7				169.5 *	75	2.8
Russia	167.8	174.1 ***	28	6.3	170.8 **	246	2.9
Switzerland	169.8	176.0 ***	62	6.2	172.4 *	120	2.6

Table 2b: Heights and selectivity of European female passengers, 1940-42

Nationality	Females (home country)	Female (non-refugees)	N (f)	Diff (f)	Female refugees	N (f, refugees)	Diff (f)
	(d1)	(e)		(e) - (d1)	(f)		(f) - (d1)
Austria	157.2				160.4 ***	264	3.2
Belgium	156.0	163.5 ***	107	7.5	161.3 ***	231	5.3
Czechoslovakia	157.4	162.6 ***	36	5.2	161.3 ***	220	3.9
Denmark	159.0	165.8 ***	32	6.8			
France	155.8	163.0 ***	403	7.1	161.3 ***	359	5.4
Germany	157.8	162.8 ***	135	5.0	160.6 ***	2,577	2.8
Greece	157.6	163.1 ***	56	5.6			
Hungary	159.0	163.0 **	35	4.0	163.0 ***	128	4.1
Italy	154.6	162.2 ***	40	7.5	162.8 ***	35	8.1
Latvia	159.7				159.5	31	-0.3
Luxembourg	158.9				159.4	67	0.4
Netherlands	158.9	163.8 ***	88	4.9	162.0 ***	125	3.1
Poland	156.5	164.0 ***	64	7.5	158.9 ***	688	2.4
Portugal	153.7	159.1 ***	94	5.4			
Romania	155.9				160.1 ***	70	4.2
Russia	156.9	165.0 ***	33	8.0	160.9 ***	194	4.0
Switzerland	158.7	164.0 ***	86	5.3	163.2 ***	138	4.4

4.3 Investigating the Jewish height disadvantage

At this point we know that both refugees, consisting mostly of European Jews, and non-refugee passengers were positively selected from their source countries. Non-refugees seem to have undergone stronger selection compared to refugees.²⁴ What we still do not know are the reasons behind these

²⁴ This height disadvantage is consistent with the literature on Jewish heights, which generally finds Jews shorter than non-Jews (Aschoff and Hiermayer 2009, Wurm 1982, Kopczynski 2011, Komlos 1992, Bolgár 2013).

differences in selection. In this section we test two competing hypotheses. The first argues that refugees were generally shorter due to their mostly Jewish background, which could possibly bring about differences in lifestyles and other unobserved socioeconomic features that potentially explain height differences. The other competing hypothesis relates to the specific conditions passengers in our refugee and non-refugee groups might have faced prior to migration to the US that we can directly observe from the ship manifests. If we are able to explain any observed difference in height between refugees and non-refugees by including relevant control variables, we may discard height differences related to Jewish background.

We address this question by testing whether the height gap of Jews in our data is robust in a multivariate regression setting. To do so, we test whether the Jewish height gap can be explained by differences in skills, in the timing of migration, and in income. We test each of these hypotheses separately according to the following regression:

$$h_i = a + \beta_1 R_i + \delta H_{ij} + \beta_2 R_i \times H_{ij} + C_i + A_i + \eta_i + \varepsilon_i$$

with $j = 1, 2, 3$ and $H_1 = S_i$, $H_2 = M_i$, $H_3 = Y_i$

where h_i is passenger i 's height, R_i equals 1 if i is a refugee and 0 otherwise, S_i is i 's skill level proxied by the Armstrong index, M_i is migration initiative captured by i 's US visa timing²⁵ and whether i was already a migrant in Europe before departing to the US, Y_i is i 's income level proxied by travel class and the identity of the passage's sponsor, C_i and A_i are country and age fixed effects, η_i are additional individual controls, and ε_i is the error term.²⁶

The coefficients of interest are β_1 and β_2 , pertaining to refugee status (R) and a series of interaction terms. We assess the robustness of the Jewish height disadvantage by adding additional controls (η_i) on the right hand side of the equation. The rationale is to account for any differences in selection into migration between Jewish refugees and other passengers, which may help evaluate height differences in an appropriate context. The first of these controls is *urban origin* that captures potential height differences between rural and urban passengers. We create a dummy equal to 1 if the individual was born in a city larger than 100,000 people in the reference year of 1900 as most of our passengers were

²⁵ See Figure 7 in the Appendix for kernel densities of visa timing for refugees and non-refugees. The pattern suggests refugees got visas later than other passengers. Regarding our metric, days and months are fractions of $1/365$ and $1/12$ of the calendar in the three years of data we have. For example, a visa issued on the 10th of May 1941 corresponds to $1.36 = (10/365) + (5/12) + 1$.

²⁶ Robustness checks including vessel fixed effects confirm these findings.

born around the turn of the century. The objective is to control for a possible height penalty in large industrial cities, which could reflect poor environmental conditions in early life (Martínez-Carrión and Moreno-Lázaro 2007). The second control is a dummy variable for *permanent* length of stay, equal to 1 if the passenger had an assigned quota number. Any such passenger went through the lengthy US immigration application procedure, thus this variable controls for possible selection resulting from the US immigration policy. The statistical significance of our results is unaffected by either of these controls.

The baseline regression confirms earlier results: Jewish refugee males were on average 2.58 cm shorter than non-refugee males as shown in Table 3a.²⁷ This coefficient remains statistically significant when separately testing the skill and income hypotheses (H1 and H3), while the effect disappears when controlling for migration timing (H2) and in the joint test, suggesting the observed differences between refugees and non-refugees relate to changes in migrant selection of refugees over time rather than intrinsic differences across the two passenger groups. While refugees, especially Jews, were pushed out of the Nazi's sphere of influence in Europe, non-refugee passengers could afford to travel internationally with less pressure in the early 1940s.

Testing the *skill* hypothesis reveals that an increase in male skill level is associated with a 0.35 to 0.37 cm additional height, and that male refugees were no different from non-refugees on this front. Testing the *migration* hypothesis shows that prior male migrants were no taller than those declaring their last residence to be in their country of birth, regardless of refugee status. Refugees obtaining visas later, however, were shorter than those obtaining earlier visas: each additional year without a US visa is associated with a height disadvantage of 0.89 to 1.21 cm.²⁸

Testing the *income* hypothesis reveals that males traveling less comfortably had a height disadvantage of 0.77 to 0.79 cm by traveling class, i.e. first, second, third, or steerage. The manifests also divide the passage's sponsor into three categories: self-paid, paid by relatives, or paid by a third party. Males sponsored by non-family members were between 1.40 and 1.47 cm shorter on average than self/family-sponsored males. We can only hypothesize about the reasons for these differences, but traditional family roles may be at play here. In the traditional family of the 1940s males were the main

²⁷ Since most refugees were Jews, this statistically significant difference could potentially originate from the different nutritional intake of a kosher diet. Such cultural factors are difficult to quantify but late twentieth century Israelis are relatively tall given their national income (Blum 2013). Surely not all Israelis keep kosher, but devout Christians also fast and abstain from meat once a week, which can also have implications in adult stature. We therefore cannot associate a kosher effect with the negative coefficient.

²⁸ All models control for nationality, eliminating the potential concern that taller nationalities left Europe earlier.

family providers. As such, males that did not pay for their own passage (or were not sponsored by a close family member, such as the father) perhaps had lower socioeconomic status, which might also be reflected in shorter stature.

Table 3a: Correlates of individual height (males)

	base	H1	H2	H3	H1+H2+H3
Refugee	-2.58*** (.285)	-3.08*** (.882)	-.69 (.625)	-2.68*** (.498)	-1.68 (1.135)
Skill		.37* (.210)			.35* (.210)
Refugee × skill		.17 (.240)			.10 (.241)
Prior migrant			.70 (.486)		.43 (.486)
Refugee × prior migrant			.29 (.512)		.08 (.517)
Visa timing			.06 (.367)		.06 (.368)
Refugee × visa timing			-1.21*** (.332)		-.89*** (.336)
Travelling class				-.79*** (.247)	-.77*** (.248)
Refugee × travelling class				.27 (.265)	.33 (.267)
Non-family sponsor				-1.47** (.667)	-1.40** (.668)
Refugee × non-family sponsor				.67 (.762)	.97 (.763)
Country & Age FE	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	Yes
Constant	173.10*** (1.483)	171.85*** (1.630)	172.72*** (1.537)	174.88*** (1.507)	173.31*** (1.717)
N	5,657	5,657	5,657	5,657	5,657
R ²	.09	.09	0.10	0.10	0.11

Note: Robust standard errors in brackets; */**/** refer to statistical significance at the 10%, 5% and 1% levels.

Table 3b: Correlates of individual height (females)

	base	H1	H2	H3	H1+H2+H3
Refugee	-2.17*** (.291)	-2.68*** (.451)	-1.04 (.713)	-1.49** (.629)	-1.19 (.896)
Skill		-.25 (.164)			-.23 (.163)
Refugee × skill		.27 (.196)			0.28 (.194)
Prior migrant			1.26** (.521)		1.10** (.530)
Refugee × prior migrant			-0.75 (.537)		-.66 (.551)
Visa timing			-1.10*** (.376)		-1.01*** (.382)
Refugee × visa timing			-.30 (.366)		-.18 (.367)
Travelling class				-.08 (.289)	.00 (.300)
Refugee × travelling class				-.44 (.312)	-.46 (.323)
Non-family sponsor				-2.03*** (0.559)	-1.84*** (.561)
Refugee × non-family sponsor				.80 (.702)	.73 (.714)
Country & Age FE	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	Yes
Constant	163.02*** (1.396)	163.48*** (1.421)	163.30*** (1.457)	164.58*** (1.561)	164.58*** (1.561)
N	3,780	3,780	3,780	3,780	3,780
R ²	.08	.08	.08	.09	.09

Note: Robust standard errors in brackets; */**/** refer to statistical significance at the 10%, 5% and 1% levels.

Table 3b shows results for females. Similar to males, female refugees were 2.17 cm shorter than other females in the baseline regression. Adding controls for time of migration (H2) erases this effect, which is also not present in the joint test. The *skill* hypothesis is difficult to test for women as

the Armstrong index fails to capture skill. Nearly 60% of female passengers followed the traditional role of homemakers in the 1940s (see Figure 4). This category obviously does not reflect female human capital, but their traditional role within the family.²⁹

Contrary to males, when testing the *migration* hypothesis we find that females that were prior migrants before leaving Europe were associated with a height advantage of 1.10 to 1.26 cm. These early migrants were taller, regardless of refugee status, when compared with females who lived in their country of birth prior to traveling to the US. Females with visas issued later had a height penalty of 1.01 to 1.10 cm regardless of refugee status in contrast to males where this association is valid for refugees only.

Testing the *income* hypothesis does not confirm the inverse relationship between travel class and height that we found in men, but we still find that females with passage paid by a third party were shorter than the otherwise sponsored. Again, in the 1940s women were rarely the bread earners in the household and as such being sponsored by a family member (usually the husband or the father) was the norm. Financial constraints making it impossible for the (male) household head to finance his wife or daughter's passage may indicate lower socioeconomic status. Indeed, we find a negative height correlation in the range of 1.84 to 2.03 cm for female passengers who were sponsored by a third party. Refugee interactions in this test are not statistically significant.

4.4 Migrant selectivity revisited

We just showed that observed differences in height between refugees and non-refugees can partially be explained by differences in the time of migration of these groups. Generally, taller individuals tended to migrate earlier, and non-refugees in our data tended to migrate before refugees (see Figure 7 in the Appendix). As a consequence, migration initiative, captured by migration timing and prior migrant status, may explain some of the migrant selectivity in general. We revisit the observed height selectivity in Tables 2a and 2b by re-estimating the height of refugees and non-refugees with an augmented regression framework that controls for migration initiative. We then compare passengers' average heights in Tables 2a and 2b with the estimated height averages resulting from this augmented method.³⁰

²⁹ In the 1940s female contribution to the family subsistence was mostly non-monetary and often occurred outside the official labor market. Though not significant the skill coefficient is negative possibly indicating that the skilled women were the relatively poor who needed to support their families.

³⁰ Regression results available upon request.

Table 4 shows differences in height resulting from this change in estimation method. Adding controls for previous migration and migration timing does not substantially alter the selection of non-refugees of either gender. For refugees, however, these extra controls matter substantially: female height increases between +1.2 cm for Czechoslovaks and +2.7 cm for Latvians; estimated height changes for males range between +0.4 cm for Dutch and +2.3 cm for French.

Table 4: Changes in estimated height by passenger group (in cm)

	Males		Females	
	non-refugees	refugees	non-refugees	refugees
Austria		1.79		2.01
Belgium	-0.09	1.58	-0.02	1.72
Czechoslovakia	0.43	0.47	-0.30	1.16
Denmark			0.13	
France	-0.22	2.32	0.17	2.45
Germany	0.48	1.30	-0.14	1.79
Greece	-0.02		-0.10	
Hungary	-0.01	1.55	-0.06	1.88
Italy	-0.32	1.81	0.20	1.75
Latvia	-0.34		0.27	
Luxembourg		1.61		2.11
Netherlands	0.27	0.37	-0.18	1.36
Poland	0.28	0.67	-0.14	1.61
Portugal	-0.37		0.31	
Romania		0.65		1.41
Russia	0.5	0.40	-0.32	1.35
Switzerland	-0.17	1.72	0.06	1.89

Since non-refugees are unaffected by the changes in the estimation method, we believe that the observed selection in Tables 2a and 2b is partially the result of changes in migration initiative, and does not entirely reflect socioeconomic differences. Differences in selection between non-refugee and refugee males is reduced, but not eliminated for Belgians, Germans, Hungarians, and Swiss, while virtually eliminated for French. Conversely, the height premium for male Italian refugees raises, and the selection differentials for male Poles, Russians and Dutch do not experience substantial changes. For females, the selection differentials are reduced for Poles, Russians, and are almost eliminated for Czechoslovakia, Belgium, France, Germany and Belgium. Finally, the existing refugee height advantage for Hungarians, Swiss, and Romanians increases slightly.

5. Conclusion

We assess the human and health capital of Europeans arriving New York City between 1940 and 1942 and originating in Lisbon, the only European port with regular passenger traffic to the Americas after mid-1940 when most of Europe was engulfed in war. The majority of these individuals were Jewish refugees and their families escaping Nazi persecution and expanding war. Many Jews left Europe ever since the Nazis took power in Germany in 1933, but the closure of all other European gateways to passenger traffic after the outbreak of the war, made these Lisbon passengers the last to escape the Holocaust. We investigate how these migrants compared to fellow nationals remaining in Europe, whether they were different from non-Jews traveling in the same vessels, and if such differences were accounted by observable characteristics.

We construct a novel dataset based on ship manifests from the United States Records of the Immigration and Naturalization Service, which contain micro-level information on all alien passengers making the journey from Lisbon to New York between July of 1940 and June of 1942. Detailed information on personal and socioeconomic characteristics, in addition to anthropometric indicators, allows for a comparative study of the patterns of selection of these wartime migrants.

We use adult stature as a proxy for the human and health capital these migrants carried. For most of the observed nationalities, the last Holocaust refugees were positively selected relative to the source populations, a pattern that was more pronounced in women, reflecting the war context. The degree of selection we observe reflects the immense difficulty of traveling from European source regions to the south-western tip of the continent in the early 1940s; those who succeeded were not only fortunate, but also well-off. Despite reported records that refugees had to overcome more hurdles

than non-refugees to escape Europe in the early 1940s, we find that the latter were taller than the former and, therefore, more positively selected relative to the populations in the source countries.

We assess three hypotheses potentially behind the height gap between refugees and non-refugees: refugees may come from a different socioeconomic background, have different migration initiative, or come from different sectors of the wealth distribution. We find that refugees are no different from refugees in terms of income or skill, but that migration initiative, proxied by visa date and migrant status prior to traveling to Lisbon, plays a significant role in explaining height differences between refugees and non-refugees. Earlier migrants were more positively selected than later migrants, but even the latest of these Holocaust refugees were positively selected relative to the source country populations. Our present findings suggest not only that earlier Jewish refugees (escaping Europe between 1933-1939) might have carried even higher human capital, but also that refugees from long lasting conflicts can still be positively selected relative to the origin. We leave the important discussion of the determinants of the observed migrant selection for future work.

References

1. Abramitzky, Ran and Leah Boustan. "Immigration in American History." *Journal of Economic Literature*, forthcoming (2016).
2. Abramitzky, Ran, Leah Boustan and Katherine Eriksson. "A Nation of Immigrants: Assimilation and Economic Outcomes in the Age of Mass Migration." *Journal of Political Economy* 122, 3 (2014): 467-506.
3. Acemoglu, Daron, Tarek A. Hassan and James A. Robinson. "Social Structure and Development: a Legacy of the Holocaust in Russia," *Quarterly Journal of Economics* 126 (2011): 895-946.
4. Armstrong, W. A., "The use of information about occupation," in E. A. Wrigley, ed., *Nineteenth-century society: essays in the use of quantitative methods for the study of social data*. Cambridge: Cambridge University Press, 1972: 191--310.
5. Aschoff, Diethard, and Martin Hiermeyer. "The physical stature of Jewish men in the German Principality of Salm, 1802--1807." *Economics & Human Biology* 7, 1 (2009): 107-108.
6. Baten, J., and Blum, M., "Growing tall but unequal: new findings and new background evidence on anthropometric welfare in 156 countries, 1810-1989." *Economic History of Developing Regions*, 27, S1 (2012): 66-85.
7. Baten, Joerg, and Matthias Blum. "Why are you tall while others are short? Agricultural production and other proximate determinants of global heights." *European Review of Economic History* 18, 2 (2014): 144-165.
8. Beddow, Michael. "From nationalist to anti-Nazi - biography of Thomas Mann," *Times Literary Supplement*, October 13 1995, Issue 4828: 15(2).
9. Blum, Matthias. "Cultural and Genetic Influences on the 'Biological Standard of Living'." *Historical Methods: A Journal of Quantitative and Interdisciplinary History* 46, 1 (2013): 19-30.
10. Bolgár, Dániel. "Wealthier Jews, taller Gentiles: Inequality of income and physical stature in fin-de-siècle Hungary." *Economics & Human Biology* 11, 4 (2013): 433-435.
11. Breitman, Richard. *The Architect of Genocide: Himmler and the Final Solution*. New York: Bodley Head, 1991.
12. Breitman, Richard, Barbara McDonald Stewart and Severin Hochberg Eds. *Refugees and Rescue: the diaries and papers of James G. McDonald 1935-1945*. Bloomington: Indiana University Press, 2009.
13. Case, A. and C. Paxson. "Height, Health, and Cognitive Function at Older Ages," *American Economic Review* May, 98, 2 (2008): 463-467.
14. Chiswick, Barry R. "Are Immigrants Favorably Self-Selected?" *American Economic Review Papers and Proceedings of the One Hundred Eleventh Annual Meeting of the American Economic Association* 89, 2 (May, 1999): 181-185.
15. Eichengreen, Barry, and Peter Temin. "The gold standard and the great depression," *Contemporary European History* 9, 2 (2000): 183-207.

16. Engstrom, J.L., Paterson, S.A., Doherty, A., Trabulsi, M. and Speer, K.L., 2003. "Accuracy of self-reported height and weight in women: an integrative review of the literature," *Journal of Midwifery & Women's Health* 48, 5 (2003): 338-345.
17. Feingold, Henry L. *Bearing Witness: How America and Its Jews Responded to the Holocaust*. Syracuse, NY: Syracuse University Press, 1995.
18. Fernihough, A. and M. E. McGovern. "Physical stature decline and the health status of the elderly population in England," *Economics and Human Biology* 16 (2015): 30-44.
19. Gibson, Ian. *The Shameful Life of Salvador Dali*. New York: W.W. Norton & Company, 1998.
20. Goodwin, Doris Kearns. *No Ordinary Time: Franklin & Eleanor Roosevelt: the home front in World War II*. New York: Simon & Schuster, 1995.
21. Greenberg, Karen J. "The Burden of Being Human: An Essay on Selected Scholarship of the Holocaust," in *FDR and the Holocaust*, Verne W. Newton (ed.). New York: St. Martin's Press, 1996: 29-39.
22. Gustafsson, A. and Lindenfors, P. "Human size evolution: no evolutionary allometric relationship between male and female stature," *Journal of Human Evolution* 47, 4 (2004): 253-266.
23. Guven, C., and W. S. Lee "Height and cognitive function at older ages: Is height a useful summary measure of early childhood experiences?" *Health Economics* 22 (2013): 224-233.
24. Halperin, Joan Arney. *My Sister's Eyes: a family chronicle of rescue and loss during World War II*. JMA Press, 2017.
25. Hatton, T.J. and B. E. Bray. "Long run trends in the heights of European men, 19th–20th centuries," *Economics & Human Biology* 8, 3 (2010): 405-413.
26. Hatton, Timothy J. and Jeffrey G. Williamson. *Global migration and the world economy two centuries of policy and performance*. Cambridge, Mass: MIT Press, 2005.
27. Holden C., Mace R. "Sexual dimorphism in Stature and women's work: A phylogenetic cross-cultural study," *American Journal of Physical Anthropology* 110, 1 (1999): 27-45.
28. Hoover, Herbert. "White House Statement on Government Policies To Reduce Immigration," Mar. 26, 1931. Online by Gerhard Peters and John T. Woolley, The American Presidency Project. <http://www.presidency.ucsb.edu/ws/?pid=22581>, retrieved on 10/08/15.
29. Kaplan, Marion. *Jewish Daily Life in Germany, 1618–1945*. Oxford: Oxford University Press, 2005.
30. Komlos, John "The Standard of Living of Jews in Austria-Hungary: The Anthropometric Evidence, 1860-1920," in *Jews in the Hungarian Economy, 1760-1945*, Michael K. Silber (ed.). Jerusalem: The Magnes Press, The Hebrew University, 1992: 127-134.
31. Kopczyński, Michał. "The physical stature of Jewish men in Poland in the second half of the 19th century," *Economics & Human Biology* 9, 2 (2011): 203-210.
32. Kosack, E. and Z. Ward. "Who Crossed the Border? Self-Selection of Mexican Migrants in the Early Twentieth Century," *Journal of Economic History* 74, 4 (2014): 1015-1044.
33. Lochery, Neill. *Lisbon: War in the Shadows of the City of Light, 1939-1945*. Scribe Publications Pty Limited, 2011.

34. Markhof, Georg J. E. Mautner. *Das St. Louis-Drama: Hintergrund und Rätsel einer mysteriösen Aktion des Dritten Reiches*. Graz-Stuttgart: Leopold Stocker Verlag, 2001.
35. Marrus, Michael R. "Bystanders to the Holocaust (Review of Monty Penkower's *The Jews Were Expendable: Free World Diplomacy and the Holocaust* and David Weyman's *The Abandonment of the Jews: America and the Holocaust, 1941-1945*)" in *FDR and the Holocaust*, Verne W. Newton (ed.). New York: St. Martin's Press, 1996: 151-158.
36. Martínez-Carrión, Jose-Miguel and Javier Moreno-Lázaro. "Was there an urban height penalty in Spain, 1840-1913?" *Economics and Human Biology* 5 (2007): 144-164.
37. Morewitz, Stephen J. and Susan Lieberman. *Steamship Quanza*. New York: Palgrave Macmillan 2012.
38. Morse, Arthur D. *While Six Million Died*. New York: Random House, 1968.
39. Moser, Petra, Alessandra Voena and Fabian Waldinger. "German Jewish Émigrés and US Invention," *American Economic Review* 104, 10 (2014): 3222--3255.
40. Ofer, Dalia. *Escaping the Holocaust: Illegal Immigration to the Land of Israel, 1939-1944*. Oxford: Oxford University Press, 1990.
41. Paxson, Anne, Christina Case and Mahnaz Islam. "Making sense of the labor market height premium: Evidence from the British Household Panel Survey," *Economics Letters* 102, 3 (2009): 174--176.
42. Persico, N., A. Postlewaite, and D. Silverman. "The Effect of Adolescent Experience on Labor Market Outcomes: The Case of Height," *Journal of Political Economy* 112, 5 (2004): 1019-1053.
43. Redel, Victoria. *The Border of Truth*. New York: Counterpoint, 2007.
44. Remarque, Erich Maria. *The Night in Lisbon*. New York: Harcourt, 1964.
45. Roosevelt, Franklin D. "Executive Order 9417 Establishing the War Refugee Board," Jan. 22, 1944. Online by Gerhard Peters and John T. Woolley, The American Presidency Project. <http://www.presidency.ucsb.edu/ws/?pid=16540>, retrieved on 10/08/15.
46. Schick, Andreas and Richard H. Steckel. "Height as a Proxy for Cognitive and Non-Cognitive Ability,". NBER Working Paper No. 16570, 2010.
47. SDD: Selected Digitized Documents Related to the Holocaust and Refugees, 1933-1945. Franklin D. Roosevelt Presidential Library & Museum. Official File 20 - Department of State, 1940-1941 Box 9. <http://www.fdrlibrary.marist.edu/resources/images/hol/hol00007.pdf>, retrieved on 10/08/15.
48. Spitzer, Yannay and Ariell Zimran. "Migrant Self-Selection: Anthropometric Evidence from the Mass Migration of Italians to the United States, 1907–1925." Manuscript, 2017.
49. Statistical Abstract of the United States. Washington D.C. Government Printing Office, 1929, p. 100.
50. Steckel, R.H. "Stature and the standard of living," *Journal of Economic Literature* 33 (1995): 1903-1940.
51. Trippe, Juan T. "Ocean Flying is Routine," *Flying Magazine*, October 1941: 44-100.
52. Twrdek, Linda. *Essays on the Biological Standard of Living in Latin America and the Caribbean*. Dissertation, University of Tübingen, 2011.

53. Waldinger, Fabian. Bombs. "Brains, and Science -- The Role of Human and Physical Capital for the Creation of Scientific Knowledge," *Review of Economics and Statistics*, 98, 5 (2016): 811-831.
54. Weber, Ronald. *The Lisbon Route: Entry and Escape in Nazi Europe*. Lanham: Ivan R. Dee, c2011.
55. Wurm, H. "About the variation of the average height in the course of the German history and the influence of dietary-protein," *HOMO Journal of Comparative Human Biology* 33, 1 (1982): 21-42.

Archival Reference

1. *Passenger and Crew Lists of Vessels Arriving at New York, New York, 1820-1957*. Microfilm Publication T715, 9567 rolls. NAI: 300346. Records of the Immigration and Naturalization Service: National Archives at Washington, D.C.

6. Appendix

6.1 International travel in the 1940s

The early 1940s marked the infancy of commercial aviation, which was not the main form of long-distance travel. In 1937, Pan American Airways and Britain's Imperial Airways operated survey flights across the Atlantic and in the summer of 1939 Pan Am officially inaugurated mail and (later) passenger service twice a week, along two routes. The northern route linked Port Washington in New York City to Southampton in England, stopping in New Brunswick, Newfoundland, and Ireland. The southern route connected New York to Marseille with stops in Bermuda, the Azores, and Lisbon. The trip from New York to Lisbon lasted approximately 27 hours and was priced at \$375 one-way or \$675 return.³¹ Each Boeing 314 clipper—or flying boat, as it landed on water—carried a maximum of 36 (nighttime) passengers and 11 crew members including two cabin stewards.

The outbreak of the war in September halted service to Southampton and Marseilles, so Foynes in Ireland and Lisbon in Portugal became the terminals for the northern and southern routes, respectively. The winter brought suspension of the northern route in October and it was never resumed, which consolidated air service across the Atlantic on the New York-Lisbon line (Trippe 1941:60). After the US joined the war in December of 1941, clippers carried military personnel and equipment on the Atlantic and Pacific routes under the orders of the US Army Transport Command, though the planes were still flown by Pan Am crews.

The end of the war retired the clipper, which had become technologically obsolete with the development of new planes that could travel longer distances and land on runways (a legacy of wartime building programs), making flying much safer. Of the twelve Boeing clippers ever built, three were lost in accidents, one of which with considerable loss of life upon landing in Lisbon's Tagus river in February of 1943. Among the dead and the seriously injured were the prominent American author and war correspondent Benjamin Robertson and American singer and actress Jane Froman. Also killed in a plane shot down by the Luftwaffe was English film star Leslie Howard when flying from Lisbon to Bristol in June of 1943. The high profile of the passengers involved in these accidents suggests that flying in the 1940s was the form of travel of the upper elites. Commercial air travel became more generalized in the late 1950s with the development of jet technology, which considerably reduced travel times and effectively replaced passenger ships in long-distance transportation.

³¹ In 2016 prices, these fares would correspond to \$6,396.88 and \$11,514.38 according to the CPI inflation calculator of the Bureau of Labor Statistics.

The dominant form of international travel in the early 1940s was therefore the ocean liner, which is the reason we focus on the passengers thus carried. Steamers connected Lisbon and New York in 9 days and carried the bulk of the transatlantic passengers. Several shipping lines from multiple nations had been crossing the Atlantic since the nineteenth century. In the US, the most prominent were perhaps the American Export Lines and the United States Lines, both based in New York and founded in 1919 and 1921, respectively. The former provided cargo and passenger service to Mediterranean ports (from Gibraltar to Haifa), while the latter directed cargo, passenger, and mail operations to ports further north (from Le Havre in France to the Free City of Danzig, today Gdansk in the Baltic). In Portugal, the National and the Colonial Navigation Companies operated in the Atlantic since 1918 and 1922, respectively, mostly on routes connecting Lisbon to Africa and Brazil.

With World War II Europe saw most of its ports close to shipping traffic. By July of 1940, the Mediterranean had become unsafe for travel so American Export Lines started direct weekly service from Lisbon to New York on the Four Aces -- SS Excalibur, SS Excambion, SS Exeter, and SS Exochorda -- formerly employed in 43-day luxury cruises in the Mediterranean. In addition, the company chartered the larger USS Siboney from the struggling Cuba mail line for service in the Lisbon-New York line. After the US joined the war on December 8th 1941, these ships went into service under the US Army for the transport of troops.³² The SS Excambion was the last American passenger to depart Lisbon on December 12th 1941.

In 1940, there were only two voyages by Portuguese vessels between Lisbon and New York in 1940, in August and November, but service picked up in 1941 with two or three vessels each month. Of the 100 vessels crossing to New York between July of 1940 and June of 1942, 66 were American, 28 Portuguese, and six had other nationalities: four Greek and one Japanese all in 1940, and one Swedish ship carrying the last diplomats out of Europe in May of 1942.

Ocean liners on the Lisbon-New York route differed substantially in size. Originally luxury ships, the Four Aces had smaller capacity than the larger Portuguese passenger ships. The SS Excalibur and its sister ships carried 125 first class passengers, whereas the SS Serpa Pinto could carry a total of 704 passengers (113 first class, 86 second class, 130 third class, and 375 steerage). According to the Transmigration Bureau, a nonprofit agency that assisted refugees in transit since 1940, the approximate cost of the steamship passage from Lisbon was \$350 but each passenger's cost of travel from

³²

Of the Four Aces, all but the SS Exochorda were lost in the war by enemy action.

Europe to the US varied with place of origin, sojourn in Lisbon, and other taxes and fees (Ancestry.com). Passenger ships out of Lisbon were often overbooked and oversold. Cargo vessels operated by the same shipping companies occasionally carried very few passengers (5 to 13 if any).

6.2 Manifest details

The header on each manifest page contains name of the vessel, date of departure from Lisbon or any other intermediary port of call, date of arrival in New York, and class of travel. Manifests were filled out by officials of the shipping company. Upon arrival in New York, the vessel's captain handed the manifest lists to the local immigration inspector who would verify, and eventually correct, the information in the lists as passengers cleared customs. Each manifest page contains up to 30 passengers on separate lines numbered 1 to 30. The information asked of each passenger figures in numbered columns, now transcribed.

United States Citizens

1. No. on List
2. NAME IN FULL, Family name, Given name
3. Age, yrs/mos
4. Sex
5. Married or single
6. If native of United States insular possession or if native of the United States, give date and place of birth (city or town and state)
7. If naturalized, give name and location of court which issued naturalization papers and date of papers
8. Address in the United States

Alien Passengers

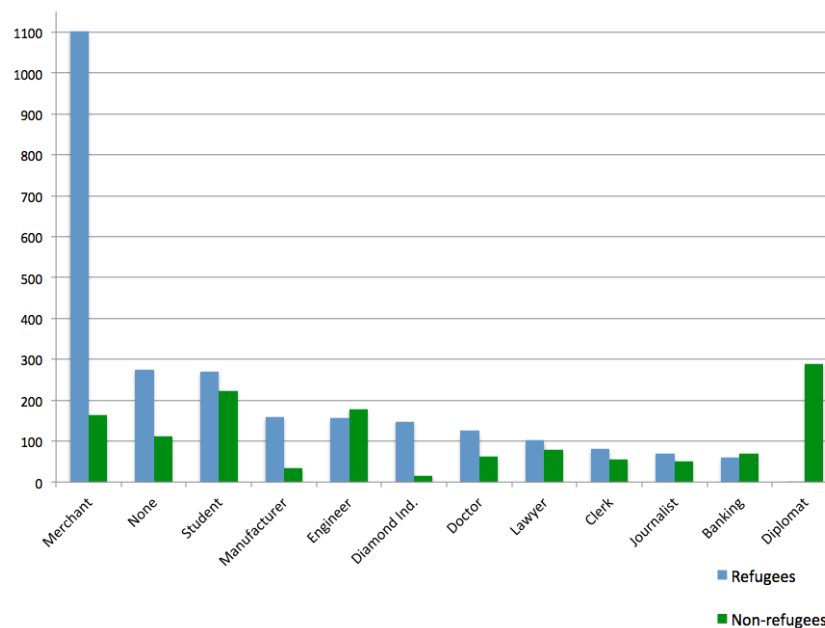
1. No. on List
2. HEAD-TAX STATUS (this column for use of Government officials only)
3. NAME IN FULL, Family name, Given name
4. Age, yrs/mos
5. Sex
6. Married or single
7. Calling or occupation
8. Able to read and write in what language (or if exemption claimed, on what ground)
9. Nationality (Country of which citizen or subject)
10. Race or people
11. Place of birth: county, city or town, State, Province or District

12. Immigration visa, passport visa, or reentry permit number (prefix number with QIV, NQIV, PV, or RP and give section of act involved)
13. Issued: place and date
14. Data concerning verification of landings, etc. (this column for use of Government officials only)
15. Last permanent residence (county, city or town, State, Province or District)
16. No. on List (alien manifests extend on two separate pages and the numbers listed on the second page are in place of the passengers name)
17. The name and complete address of nearest relative or friend in country whence alien came, if none there, then in country of which a citizen or subject
18. Final destination, state, city or town (Intended future permanent residence): Foreign country via (port of departure), in U.S.A. its territories or possessions (State, city or town)
19. Whether having a ticket to such final destination
20. By whom was passage paid (whether alien paid his own passage, whether paid by relative or any other person, or by any corporation, society, municipality, or government)
21. Whether in possession of \$50 and if less, how much?
22. Whether ever before in the United States; and if so, when and where?
23. Whether going to join a relative or friend; state name and complete address, and if relative, exact relationship
24. Purpose of coming to United States: Whether alien intends to return to country whence he came after engaging temporarily in laboring pursuits in the United States; Length of time alien intends to remain in the United States; Whether alien intends to become a citizen of the United States
25. Ever in prison or almshouse or institution for care and treatment of the insane or supported by charity, if so, which?
26. Whether a polygamist
27. Whether an anarchist
28. Whether a person who believes in or advocates the overthrow by force or violence of the Government of the United States or all forms of law, etc. (see footnote for full text of the question)
29. Whether coming by reason of any offer, solicitation, promise or agreement expressed or implied to labor in the United States
30. Whether excluded and deported within one year
31. Whether arrested and deported at any time
32. Condition of health, mental and physical
33. Deformed or crippled. Nature, length of time and cause
34. Height: feet/inches
35. Complexion
36. Color of hair and eyes
37. Marks of identification

6.3 Occupations and the Armstrong index

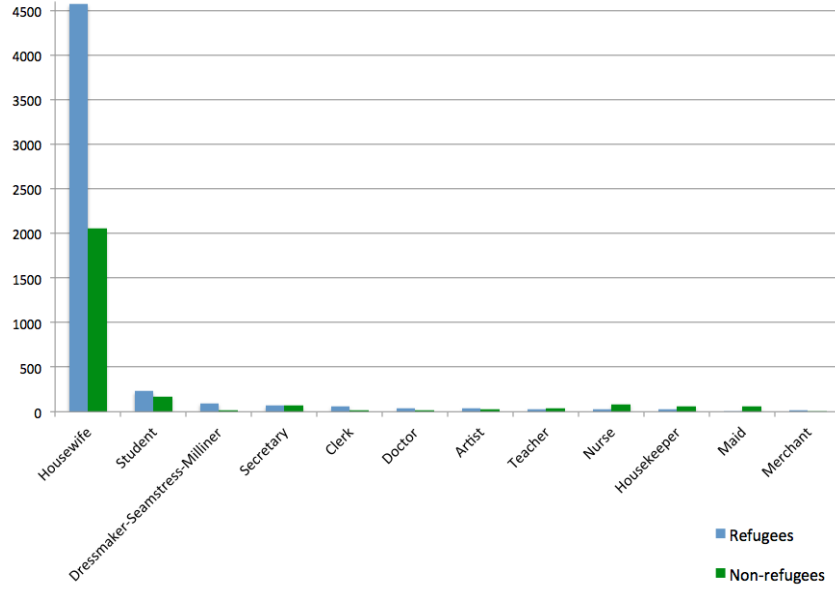
The Armstrong index (1972) considers five categories that classify occupations according to the required amount of training. In our data, unskilled refers to occupational statements such as 'without occupation', 'none', or 'laborer'. Semi-skilled refers to low training occupations requiring more professional experience than 'unskilled', for example fishermen, hairdressers, chauffeurs, or hotel employees. In skilled we consider occupations with solid training and skills, such as merchants, nurses, and skilled industrial workers. Semi-professional occupations include students, engineers, teachers, economists, chemists, and other white collar occupations indicating higher education. Professionals constitute the upper end of the occupational scale, which include diplomats, physicians, and university professors.

Figure 5. Top-12 occupations for males



Figures 5 and 6 provide the top twelve occupations for men and women 16 and older in our data. Male refugees were mostly merchants and students in contrast with other male passengers who were mostly students and diplomats. The few males that were retired or declared 'no' occupation contrasts directly with the large number of females declaring to be housewives, in line with 1940s societal patterns, and thus unskilled in the Armstrong index. These females could have been educated, but such is not captured by the Armstrong index.

Figure 6. Top-12 occupations for females



6.4. Language skill analysis

To account for potential effects of bilingual countries we run the following regression separately for males and females:

$$languages_i = \alpha + \beta R_i \times C_i + \gamma C_i + \varepsilon_i$$

where the coefficients of interest are α the average number of languages spoken by non-refugees, and β the average number of languages spoken by refugees of particular nationalities, while γ controls for country effects (e.g. Switzerland has multiple official languages).

Language regressions in Table 5 report differences in language skills by gender, refugee status and origin after controlling for nationality. The dependent variable is the number of languages an individual is able to speak; accordingly, coefficients are interpreted as the average number of languages an individual is able to speak conditional on all control variables. We find that male and female non-refugees spoke 1.54 and 1.16 languages on average, respectively. Positive and significant β coefficients indicate that refugees of quite a few nationalities had better foreign language skills than non-refugees even after controlling for country effects. For instance, 47 percent of French female refugees spoke an additional language compared with female non-refugees. German nationals are the most represented among refugees in our data and yet we do not observe a statistically significant β for German

refugees, suggesting they were less skilled in terms of foreign languages than refugees of other nationalities. This trait is in line with the general finding in the migration literature that a larger migrant stock reduces selection.³³

Table 5: Languages by gender and origin

	Males	Females
α – non-refugees	1.54***	1.16***
β – refugees		
Austria	.11	.43***
Belgium	.20**	.28***
Czechoslovakia	.27**	.01
France	.37***	.47***
Germany	-.03	-.04
Hungary	.27**	.11
Luxembourg	.36*	.33
Netherlands	.05	.16
Poland	.29***	.24***
Romania	.04	.22
Russia	-.05	.34**
Switzerland	.04	-.01
N	5,657	3,780
R ²	.06	.08

Note: Robust standard errors in brackets: *** p<0.01, ** p<0.05, * p<0.1.

6.5 Additional tables and graphs

Table 6: United States immigration quotas by country of origin in 1929

Northwest Europe and Scandinavia		Eastern and Southern Europe		Other Countries	
Country	Quota	Country	Quota	Country	Quota
Germany	51,227	Poland	5,982	Africa (other than Egypt)	1,100
UK	34,007	Italy	3,845	Armenia	124
Ireland	28,567	Czechoslovakia	3,073	Australia	121
Sweden	9,561	Russia	2,248	Palestine	100
Norway	6,453	Yugoslavia	671	Syria	100
France	3,954	Romania	603	Turkey	100
Denmark	2,789	Portugal	503	Egypt	100
Switzerland	2,081	Hungary	473	New Zealand & Pacific Isls.	100
Netherlands	1,648	Lithuania	344	All others	1,900
Austria	785	Latvia	142		
Belgium	512	Spain	131		
Finland	471	Estonia	124		
Free city of Danzig	228	Albania	100		
Iceland	100	Bulgaria	100		
Luxembourg	100	Greece	100		
Total (number)	142,483		18,439		3,745
Total (%)	86.5		11.2		2.3
Total Annual immigration quota: 164,667					

Source: *Statistical Abstract of the United States*. Washington D.C. Government Printing Office, 1929, p. 100.

³³

OLS regression results in Table 2 are confirmed by a set of Poisson regressions available upon request.

Figure 7: Kernel densities of visa issuing dates

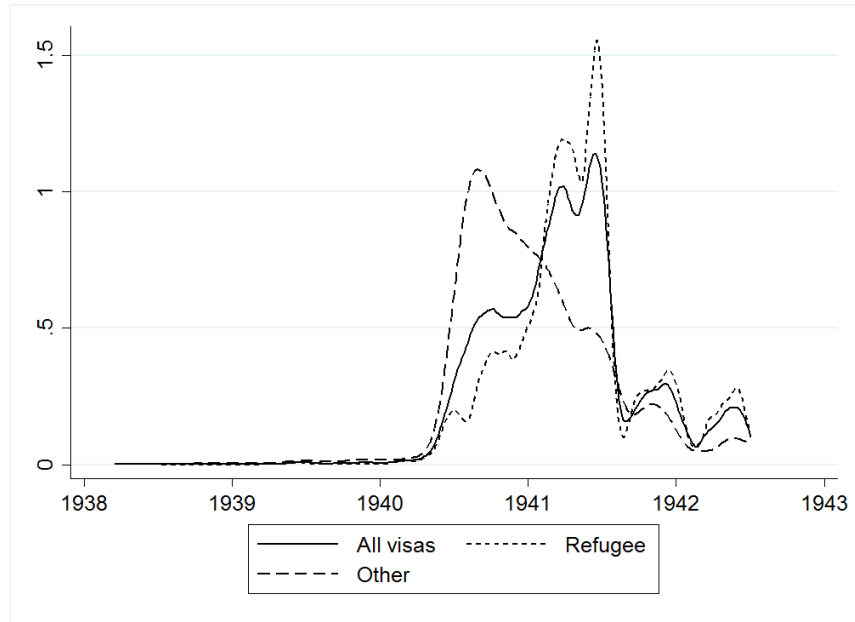


Table 7: Descriptive statistics

	Refugees				Non-refugees			
	Males		Females		Males		Females	
	avg.	s.d.	avg.	s.d.	avg.	s.d.	avg.	s.d.
height	169.7	7.4	160.8	6.9	173.0	7.8	163.8	6.5
height adjusted	170.3	7.2	161.6	6.7	173.3	7.8	164.3	6.5
age	44.7	15.0	42.9	16.7	39.8	13.4	37.6	14.4
age 16-19	7%	0.13	11%	0.16	8%	0.14	10%	0.16
skill	3.2	1.0	1.8	1.2	3.5	1.0	1.9	1.3
skill 1	7%	0.26	66%	0.47	5%	0.22	63%	0.48
skill 2	9%	0.28	8%	0.27	9%	0.28	9%	0.29
skill 3	54%	0.50	11%	0.31	39%	0.49	11%	0.31
skill 4	20%	0.40	12%	0.32	31%	0.46	14%	0.35
skill 5	10%	0.31	3%	0.18	16%	0.37	3%	0.18
# languages	1.6	0.8	1.6	0.7	1.4	0.6	1.3	0.6
English	43%	0.50	42%	0.49	59%	0.49	56%	0.50
Yiddish	0%	0.00	0%	0.00	1%	0.09	1%	0.08
prior migrant	60%	0.49	55%	0.50	34%	0.47	33%	0.47
1940 arrival	21%	0.41	12%	0.32	51%	0.50	36%	0.48
1941 arrival	73%	0.44	79%	0.41	46%	0.50	60%	0.49
1942 arrival	6%	0.23	9%	0.29	3%	0.17	4%	0.19
travel class	2.2	1.1	2.1	1.1	1.5	0.9	1.4	0.8
pay self	63%	0.48	29%	0.46	77%	0.42	40%	0.49
pay family	27%	0.44	58%	0.49	13%	0.33	40%	0.49
pay other	10%	0.31	13%	0.34	10%	0.31	20%	0.40
urban	40%	0.49	45%	0.50	40%	0.49	42%	0.49
permanent	82%	0.38	87%	0.33	57%	0.50	64%	0.48
US vessel	29%	0.46	33%	0.47	57%	0.47	70%	0.47
PT vessel	61%	0.49	64%	0.48	23%	0.42	29%	0.45
N	4,202		2,744		1,455		1,036	