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Policy in the Interwar Period**

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Abstract

The Age of Mass Migration came to an end in the interwar period with new American immigration restrictions, but did this end affect some potential migrants more than others? I use previously unanalysed data from passenger lists of ships leaving Bremen, one of the major European ports of emigration, between 1920 and 1933, to identify occupations and skill levels of individual migrants. The main focus of the paper is on the role that policy played in influencing the selection of migrants. I study the American quota laws of 1921, 1924, and 1929, and find that increasingly strict quotas led to an increase in the skill level of migrants as well as a shift from agricultural to manufacturing workers first, and from manufacturing to professional workers later.

JEL Codes: J15, K37, N32, N34.

Keywords: immigration policy, skill selection, quotas, United States, Bremen, interwar period.

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1 Introduction

The Age of Mass Migration in the Atlantic economy came to an end in the interwar period when the United States gradually restricted migration from Europe. Before World War I, European emigrants faced few entry restriction policies in the Americas.¹ This changed with the literacy test in 1917, followed by the national quota laws in 1921, 1924, and 1929. Emigration from the North and West of Europe had at this point decreased significantly while emigration from the South and East had grown a lot up to the war. Nonetheless, absolute migration rates were still high in the “old” migrant source countries by modern standards and were affected far less than in the newer ones by the new restrictions.² Europe remained a continent of emigration rather than immigration in the interwar years, with 1.46 million people leaving the continent between 1921 and 1939.³ The characteristics of these emigrants constitute the focus of this article. I analyse specifically how the skill composition of the migrant movement changed as a consequence of tightening American immigration laws. The quotas set an upper bound for each country’s number of migrants but did not explicitly discriminate within countries. The question therefore is whether they had any impact on skill levels and whether they disproportionately hurt the low-skilled.

In this endeavour I draw upon a new source that has previously not been used for econometric analysis. I have compiled all remaining passenger lists of the port of Bremen through which a large share of Europeans left the continent for the United States and other destinations, mostly in the Western hemisphere. These lists have been digitised, transcribed and published online by the Bremen Genealogical Society.⁴ Until a few years ago research on histor-

1. T. Hatton and J. Williamson, *The Age of Mass Migration: Causes and Economic Impact* (Oxford University Press, 1998).

2. A. McKeown, “Global Migration, 1846-1940,” *Journal of World History* 15, no. 2 (2004): 155–189.

3. D. Kirk, *Europe’s population in the interwar years* (Taylor & Francis, 1969), 279.

4. K. Wesling, ed., “Bremer Passagierlisten,” 2009, <http://www.passengerlists.de>.

ical immigration patterns to the United States had to rely on rough estimates and macro data, and most literature relies on one central source for migration statistics, compiled by Ferenczi and Willcox.⁵ Only recently has there been a revival of research on historical migration with the surge in digitisation of previously unavailable micro data collected from arrival port statistics such as Ellis Island,⁶ census data,⁷ or subsamples of passenger lists.⁸ This article will continue this trend and make use of the detailed micro data available in the Bremen passenger lists.

The four major developments in US immigration policy, the 1917 literacy test, the introduction of the quota system in 1921, and its subsequent reforms in 1924 and 1929, all constituted severe exogenous shocks for European emigration, the effect of which varied a lot across countries. Since the quota laws were non-discriminatory *within* source countries, they raise the question of whether the composition of migrants was affected by this overall reduction. The large cross-country variation allows me to use those less or not at all affected by the quotas as a control group and thus analyse the effect of the policies in a difference-in-differences framework. I will show that all four restrictions led to an increase in migrant skill levels, but at a more disaggregated level the nature of the change differed between the early 1921 quota and the later adjustments.

Section 2 sums up the economic literature on migrant selection with a special focus on policy. Section 3 presents the historiography of the American

5. I. Ferenczi and W. F. Willcox, *International Migrations: Statistics*, vol. 1 (National Bureau of Economic Research, Inc, 1929).

6. O. Bandiera et al., “The Making of Modern America: Migratory Flows in the Age of Mass Migration,” *Migration and Development*, *Journal of Development Economics* 102 (2013): 23–47.

7. R. Abramitzky et al., “Europe’s Tired, Poor, Huddled Masses: Self-Selection and Economic Outcomes in the Age of Mass Migration,” *American Economic Review* 102, no. 5 (2012): 1832–56; R. Abramitzky et al., “Have the poor always been less likely to migrate? Evidence from inheritance practices during the Age of Mass Migration,” *Journal of Development Economics* 102 (2013): 2–14; R. Abramitzky et al., “A Nation of Immigrants: Assimilation and Economic Outcomes in the Age of Mass Migration,” *Journal of Political Economy* 122, no. 3 (2014): 467–506.

8. G. Roseman, “An analysis of changes in the characteristics of emigrating Farmers and Laborers from the Hamburg Passenger lists: 1855–1857, 1875–1877, and 1880,” *The Social Science Journal* 41, no. 3 (2004): 409–421.

immigration policy in the interwar era. Section 4 contextualises the passenger lists that constitute my core data source, section 5 describes the specification of the diff-in-diff model I use, and section 6 contains the empirical results. Section 7 sums up and concludes.

2 Literature Review on the Economics of Migrant Selection

Economic theory does not make a clear prediction about how the quotas should affect migrant flow composition. Standard models can be applied under the assumption that quotas affect selection through a rise in migration costs, but even then the predictions are ambiguous. In the standard Roy-Borjas model⁹ where cost is independent of skill level, an existing selection would be reinforced; i.e. if migrants are positively selected from the population of origin they will become even more so after the quota. The model predicts that, if migrants move from a country with relatively low returns to skills, implying relatively lower inequality, to one with relatively high returns and higher inequality, the migrants will be positively selected because high-skilled have more to win from migration, assuming a sufficiently high correlation of the individual skill level in the host and source country. Conversely, migrants from a country with relatively high inequality compared to the destination will be negatively selected since those on the lower end of the skill distribution have more to gain. For instance, Norway had a more unequal income distribution than the United States in the 19th century and Norwegian migrants were therefore negatively selected from the source population.¹⁰ If we now increase the cost of migration by enforcing a non-discriminatory restriction on the number of migrants,

9. A. D. Roy, "Some Thoughts on the Distribution of Earnings," *Oxford Economic Papers* 3, no. 2 (1951): 135–146; G. J. Borjas, "Self-Selection and the Earnings of Immigrants," *The American Economic Review* 77, no. 4 (1987): 531–553.

10. Abramitzky et al., "Europe's Tired, Poor, Huddled Masses: Self-Selection and Economic Outcomes in the Age of Mass Migration," 1834.

the group that can profit from migration gets smaller as the migration return shrinks, and since this group is found only on one end of the skill distribution, only the least-skilled or the highest-skilled remain in the migrant pool.¹¹

This simple prediction is complicated by a series of confounding factors. First of all, the model assumes that migration costs are identical for each migrant and do not cause a bias in the self-selection. A series of studies has incorporated a more complex understanding of migration costs. Chiswick,¹² and Chiquiar and Hanson¹³ incorporate a skill-dependent migration cost into the model. Empirical research, e.g., on modern Mexico-US migration, has been inconclusive about the model's predictions.¹⁴ Belot and Hatton¹⁵ find that the skill premium is only an accurate predictor of selection if poverty constraints are accounted for, while factors such as the variables found in common gravity frameworks often play a more important role than policy or wage incentives. Migration costs in the early 20th century, including the interwar period, have been found to have a negative effect on migrant quantity but no effect on average skill level, while output per capita in the source country affected the liquidity constraint for the lower end of the income spectrum, thus

11. Borjas, "Self-Selection and the Earnings of Immigrants"; C. G. Massey, "Immigration quotas and immigrant selection," *Explorations in Economic History* 60 (2016): 21–40.

12. B. R. Chiswick, "Are Immigrants Favorably Self-Selected?," *The American Economic Review* 89, no. 2 (1999): 181–185.

13. D. Chiquiar and G. H. Hanson, "International Migration, Self-Selection, and the Distribution of Wages: Evidence from Mexico and the United States," *Journal of Political Economy* 113, no. 2 (2005): 239–281.

14. Chiquiar and Hanson, "International Migration, Self-Selection, and the Distribution of Wages: Evidence from Mexico and the United States"; P. M. Orrenius and M. Zavodny, "Self-selection among undocumented immigrants from Mexico," *Journal of Development Economics* 78, no. 1 (2005): 215–240; D. McKenzie and H. Rapoport, "Network effects and the dynamics of migration and inequality: theory and evidence from Mexico," *Journal of development Economics* 84, no. 1 (2007): 1–24; R. Kaestner and O. Malamud, "Self-selection and international migration: New evidence from Mexico," *Review of Economics and Statistics* 96, no. 1 (2014): 78–91; J. W. Ambrosini and G. Peri, "The Determinants and the Selection of Mexico-US Migrants," *The World Economy* 35, no. 2 (2012): 111–151.

15. M. V. Belot and T. J. Hatton, "Immigrant Selection in the OECD*," *The Scandinavian Journal of Economics* 114, no. 4 (2012): 1105–1128.

being negatively correlated with migrant selectivity.¹⁶ These findings are based on occupation in the source country rather than occupation in the US, which, the authors argue, would be an insufficient measure for a migrant’s skill level at the time of migration.

Compared to modern immigration policy, early attempts by the United States to regulate immigration were, with the exception of the literacy test, not explicitly skill-selective. It is therefore not clear from the outset what effect the quotas had on selection. If we use a model that incorporates varying migration costs as a function of skill, as in Chiquiar and Hanson,¹⁷ and apply it to the case of tightening policy, the selection effect of rising costs will still be positive if the selection was already positive before, but not necessarily negative in an initially negatively selected migrant pool.¹⁸ Migration policy, in particular, can make immigration more costly for low-skilled migrants if the destination country only accepts more educated people. Empirical research shows that the Roy model’s predictions are correct in scenarios with free migration, e.g. most¹⁹ (though not all²⁰) cases of internal migration in the modern United States or of pre-WWI transatlantic migration.²¹ Possible reasons for a skill-based cost bias are, apart from discriminatory policy, the ability of the better

16. M. Covarrubias et al., “Who comes and Why? Determinants of Immigrants Skill Level in the Early XXth Century US,” *Journal of Demographic Economics* 81, no. 01 (2015): 115–155.

17. Chiquiar and Hanson, “International Migration, Self-Selection, and the Distribution of Wages: Evidence from Mexico and the United States.”

18. Massey, “Immigration quotas and immigrant selection.”

19. G. B. Dahl, “Mobility and the return to education: Testing a Roy model with multiple markets,” *Econometrica* 70, no. 6 (2002): 2367–2420; G. J. Borjas, *Issues in the Economics of Immigration* (University of Chicago Press, 2008).

20. R. Akee, “Who Leaves? Deciphering Immigrant Self-Selection from a Developing Country,” *Economic Development and Cultural Change* 58, no. 2 (2010): 323–344.

21. S. A. Wegge, “Occupational self-selection of European emigrants: Evidence from nineteenth-century Hesse-Cassel,” *European Review of Economic History* 6, no. 3 (2002): 365–394; J. Long and J. Ferrie, “Intergenerational occupational mobility in Great Britain and the United States since 1850,” *The American Economic Review* 103, no. 4 (2013): 1109–1137; J. Mokyr and C. Ó. Gráda, “Emigration and poverty in pre-famine Ireland,” *Explorations in Economic History* 19, no. 4 (1982): 360–384; R. L. Cohn, “Occupational Evidence on the Causes of Immigration to the United States, 1836–1853,” *Explorations in Economic History* 32, no. 3 (1995): 383–408; Abramitzky et al., “Europe’s Tired, Poor, Huddled Masses: Self-Selection and Economic Outcomes in the Age of Mass Migration.”

educated to quickly adapt to a new environment, and the inability of the poor to finance their trip through credit.²² Research on changing selection over time has, e.g., been conducted by Jasso et al.²³ for the post-war US where they find an increasingly positive selection.

Most recently, Massey²⁴ looks at the effect of the United States' national quota system of 1921 and finds a positive effect of restrictive migration policy on selection. Her research provides the methodological basis for this article. Massey exploits the fact that immigrants from the Western hemisphere were not affected by the American quota system. She applies a difference-in-difference regression model where European immigrants are the treatment group that are affected by the quota, and Canadian immigrants are the control group. She then examines the introduction of the 1921 quota and its effect on selection in the two groups. Since she uses a dummy variable approach, every European emigrant is assumed to experience the same treatment affect of being subject to a quota.²⁵

3 American Immigration Policy

The freedom of entry to the United States for Europeans during the "Age of Mass Migration" came to an end in 1917.²⁶ This was when the US Congress

22. R. Abramitzky and L. P. Boustan, "Immigration in American Economic History," *Working Paper*, Working Paper Series 21882 (National Bureau of Economic Research, January 2016).

23. G. Jasso et al., "The Changing Skill of New Immigrants to the United States: Recent Trends and Their Determinants," in *Issues in the Economics of Immigration*, ed. G. Borjas (University of Chicago Press, January 2000), 185–226.

24. Massey, "Immigration quotas and immigrant selection."

25. Massey shows her results to be robust when she specifies the quota restriction in a continuous way. *ibid.*

26. For other ethnicities, notably the Chinese, it ended much earlier, first with the 1875 Page Act targeted at Asian prostitutes and forced labourers, then with the Chinese Exclusion Act of 1882, which prohibited the entry of Chinese labourers in general and denied any person of Chinese heritage US citizenship. E. Lee, "A Nation of Immigrants and a Gatekeeping Nation: American Immigration Law and Policy," in *A Companion to American Immigration*, ed. R. Ueda (Wiley-Blackwell, 2006), 10 A series of more general immigration restrictions in the late 19th century then attempted to target undesirable individuals such as criminals, the mentally ill, or beggars, but no systematic attempt at overall migration restriction was

passed an Immigration Act that required a literacy test from every potential immigrant and excluded the inhabitants of a newly defined “Asiatic Barred Zone” stretching from the Arab peninsula to New Guinea.²⁷ In addition to illiterates, the act allowed the denial of entrance “on grounds of physical, mental or moral defects, or for political and economic reasons”, with the last category including “contract labourers, unaccompanied children under sixteen, and (...) those ‘likely to become a public charge’.”²⁸

The literacy requirement was the first major policy that left a notable mark on European migration. A second restrictive measure followed with the Quota Act of 1921. It first established a system of national quotas that would be the core of American immigration law for more than four decades. It limited annual overall migration to 355,000 and, more importantly, restricted the number of migrants for each nationality to three per cent of the number of foreign-borns from that respective country in the US at the time of the 1910 census. Since the existing migration stock was disproportionately Northern and Western European, as these made up the bulk of migrants in earlier decades, the policy effectively discriminated against the South and East and shifted the composition of migrants back towards its 19th century pattern.²⁹ Germans, as the biggest ethnic group in the United States, were scarcely affected, while the inflow of Poles, Czechs and Russians that often left through German ports, plummeted.³⁰

made.Lee, “A Nation of Immigrants and a Gatekeeping Nation: American Immigration Law and Policy,” 11

27. Ibid., 12.

28. B.-A. Zucker, “American Refugee Policy in the 1930s,” in *Refugees from Nazi Germany and the liberal European states*, ed. B. Caestecker Frank & Moore (2010), 153.

29. Lee, “A Nation of Immigrants and a Gatekeeping Nation: American Immigration Law and Policy,” 12.

30. D. Hoerder, “The traffic of emigration via Bremen/Bremerhaven: Merchants’ interests, protective legislation, and migrants’ experiences,” *Journal of American Ethnic History* 13, no. 1 (1993): 68–101.

In 1924, the legislation became even more restrictive: The quotas were lowered from three to two per cent and the overall number reduced to 165,000.³¹ Furthermore, the reference census was moved back from 1910 to 1900, leading to a further shift in favour of Northwestern Europeans.³²

Hatton and Williamson³³ describe a shift from “new”, predominantly Eastern European source countries to the “old”, Western and Northern European sources, as intended by the quotas, which induced a positive selection effect as these old countries were more developed. From 1911-16 to 1936-40 the share of “skilled, professional, or commercial occupations” among immigrants rose from 17.9 per cent to 30.6 per cent. A rise in the share of female migrants is attributed by Hatton and Williamson³⁴ to the rise in family reunification. This meant that the high labor force participation and low dependency rates of previous decades could not be upheld in the interwar years. Meanwhile, potential overseas migrants from Eastern Europe who were deterred by the quota laws, instead often chose second-best destinations within Europe and ended up in, e.g., France. Hatton and Williamson³⁵ argue that transatlantic migration would have dried up in the interwar years without the quotas. As migration follows a life cycle pattern, driven by industrial catch-up, demographic transitions and network effects, the peaking Eastern European exodus would have probably ended sooner or later, just as the Northwestern one did. This, how-

31. Lee, “A Nation of Immigrants and a Gatekeeping Nation: American Immigration Law and Policy,” 12.

32. Immigrants who were exempt from the quota included

(a) close relatives of American citizens, their wife/ husband and their unmarried children under twenty-one years of age; (b) returning resident aliens; (c) natives of Western-hemisphere countries, their wives and unmarried children; (d) ministers and professors, their wives and unmarried children under eighteen years of age; (e) bona fide students; and (f) American women who had lost their United States citizenship by marrying aliens.

Zucker, “American Refugee Policy in the 1930s,” 157

33. T. Hatton and J. Williamson, *Global Migration and the World Economy: Two centuries of policy and performance* (MIT Press, 2005).

34. Ibid., 259.

35. Ibid., 199.

ever, assumes the “absence of war, depression, and policy”. Oltmer³⁶ describes a drop in the migration from Germany after the introduction of the American quota laws, but also in consequence of the stabilisation of the currency after the hyperinflation of 1923. The economic and political crisis had driven many Germans out of their home country.

Poverty constraints may have kept unemployed and unskilled workers from being able to pay for the passage. However, so-called prepaid tickets, where relatives and friends in the destination country paid for the trip, made up an increasing share of the passengers.³⁷ Bickelmann’s findings fit the results of economic research on network effects.³⁸ The share of such payment schemes increased from 32,959 out of 79,460 in 1912/13 to 66,343 out of 88,232 in 1923/24,³⁹ and while it fell again in the recovery years it remained higher than in pre-war times. The direct monetary cost of the passage to North America, meanwhile, did not change dramatically over the interwar years. A third class ticket from Hamburg or Bremen to the United States or Canada cost 120 US dollars until 1921, 102.5 dollars from 1921 to 1925, 115 dollars from 1925 to 1931, and 99 dollars from 1931 to 1932.⁴⁰ In comparison, a skilled construction worker in a major German city earned between 7.82 (Magdeburg) and 14.48 dollars (Hamburg) per week in the year 1925.⁴¹

36. J. Oltmer, *Migration vom 19. bis zum 21. Jahrhundert*, Enzyklopädie deutscher Geschichte (De Gruyter, 2016), 44.

37. H. Bickelmann, *Deutsche Überseeauswanderung in der Weimarer Zeit* (Steiner, 1980).

38. M. Beine et al., “Diasporas,” Symposium on Globalization and Brain Drain, *Journal of Development Economics* 95, no. 1 (2011): 30–41; S. A. Wegge, “Chain migration and information networks: evidence from nineteenth-century Hesse-Cassel,” *The Journal of Economic History* 58, no. 04 (1998): 957–986; D. McKenzie and H. Rapoport, “Self-selection patterns in Mexico-US migration: the role of migration networks,” *The Review of Economics and Statistics* 92, no. 4 (2010): 811–821; P. Winters et al., “Family and Community Networks in Mexico-U.S. Migration,” *The Journal of Human Resources* 36, no. 1 (2001): 159–184.

39. Bickelmann, *Deutsche Überseeauswanderung in der Weimarer Zeit*, 162.

40. Ibid., 163.

41. 32.86 and 60.85 Reichsmark, at an exchange rate of 4.2010 Reichsmark per US dollar. Wages from Statistisches Reichsamt (*Statistisches Jahrbuch für das Deutsche Reich*). Exchange rate from Officer (“Exchange Rates Between the United States Dollar and Forty-one Currencies”)

In the following years, migration was distinctly lower but did not completely halt. Citizens of countries in the Western Hemisphere, those deemed to have “preferred skills”, as well as wives and children of US citizens were exempt from the quota and constituted a large share of the migrant waves in the 1920s and 1930s.⁴² For Eastern Hemisphere migrants, the overall migration cap was set to 150,000 under President Hoover in 1929, with the reference year for the national quotas moved to 1920.⁴³ At the same time, the concept of national quotas based on foreign-born US residents was replaced with a national origins system. The national origins of the overall US population were used as the basis to calculate the share of admissible immigrants from each nation and a commission was put in charge of providing estimates for the origins based on census sources of the previous century. The “native stock” was categorised based on the 1790 census. The system disproportionately favoured immigrants from Britain, while drastically reducing the quotas for other north-western countries, such as Ireland, Germany, and the Scandinavian nations, groups that previously had been at an advantage.⁴⁴ The German quota, for instance, dropped from 51,227 to 25,967.⁴⁵ The second decade of the interwar era saw a sharp decrease in overall migration and an increase in return migration as the Great Depression made life in the United States less desirable. Fewer than 700,000 entered the country in the 1930s.⁴⁶

The consulates in the origin countries were responsible for steering the composition of migrants but did not make much use of that in the 1920s. From September 1930, enforcement became stricter under the Hoover Directive and the choice criteria began to resemble modern migration restrictions as potential

42. Lee, “A Nation of Immigrants and a Gatekeeping Nation: American Immigration Law and Policy,” 15.

43. M. Lemay and R. Barkan, *U.S. Immigration and Naturalization Laws and Issues: A Documentary History* (1999), xiii.

44. D. King, *Making Americans: Immigration, race, and the origins of the diverse democracy* (Harvard University Press, 2009), 210.

45. Bickelmann, *Deutsche Überseeauswanderung in der Weimarer Zeit*, 38.

46. Lee, “A Nation of Immigrants and a Gatekeeping Nation: American Immigration Law and Policy,” 15.

migrants had to convincingly show that they would not be a burden to the American welfare state and find employment within a short period of time. In the following years, only 10 per cent of the theoretically available visas allotted under the quota system were actually granted.⁴⁷

4 Data Description and Contextualisation

I use passenger lists from the port of Bremen that have been stored by the Bremen Chamber of Commerce and digitised in cooperation with the Bremen Society for Genealogical Investigation.⁴⁸ The Free Hanseatic City of Bremen with its port at Bremerhaven was the first German state to introduce an emigrant protection law in 1832, which included a requirement for the shipowners to keep detailed passenger lists.⁴⁹ These lists were collected by the “Information Office for Emigrants” from 1851. Only a few passenger lists remain for the 19th century today because between 1875 and 1908, all lists older than three years were to be destroyed due to a lack of archival space. World War II further contributed to the destruction of the material. What is left today are 3,017 lists, most of which cover the interwar period, specifically the years 1920 to 1939, ending just a week before the German invasion of Poland. A smaller number of lists is also available for some pre-war years, 1907/08 and 1913/14. The surviving lists had been kept safe in a salt mine from 1942 until they fell into Soviet hands and were transferred to Moscow after the war. They were eventually returned to the Bremen Chamber of Commerce in 1990 and subsequently transcribed by the Bremen Genealogical Society.⁵⁰

The lists provide a unique source on emigration from Germany, especially to the United States. Bremen was, along with Hamburg, one of the two main ports of emigration in Germany. While it is a much smaller port today, it

47. Bickelmann, *Deutsche Überseewanderung in der Weimarer Zeit*, 39.

48. Wesling, “Bremer Passagierlisten.”

49. Ibid.

50. Ibid.

surpassed the latter in emigrant numbers by far in the 19th century when 38 per cent of all emigrant ships arriving at the east coast of North America embarked from here (followed by Hamburg (17 per cent), Liverpool (16) and Le Havre (11)). About 7 million people left Europe through its port in Bremerhaven, 90 per cent of which were bound for the United States.⁵¹ The passenger lists, according to Wesling,⁵² include 738,101 entries. I have scraped the material and compiled it in a data set for quantitative analysis. I have excluded all ships that, instead of a destination, include the term “Gesellschaftsreise” (conducted tour) or “Rundreise” (roundtrip) as the passengers on these journeys were tourists, not emigrants. My database covers the years 1907/08, 1913/14, and 1920-39, and contains 719,298 entries, of which the overwhelming majority, 556,831 entries, were bound for New York.⁵³

An example of the original lists is included below in figure 1. If filled out completely, the lists include each passenger’s full name, an individual passenger ID (sometimes unique on the ship, sometimes within the traveling class), sex, marital status, place of residence in Germany, nationality, federal state, occupation, and ultimate destination (city and country, for the US state). Beginning in January 1937 the Nazi authorities also recorded emigrants’ religion and ethnicity. While the lists were not maintained very thoroughly for some of these variables, we still have, e.g., occupation data for 306,684 passengers to New York and 112,288 passengers to other ports. In addition to the individual passenger data, the lists include the name of the ship, the captain, the shipping line, a unique journey ID, the port of destination and the port of origin (usually Bremen or Bremerhaven, with very few exceptions where, e.g., a ship starting from Hamburg made a stop in Bremen).

51. P. Marschalck, *Inventar der Quellen zur Geschichte der Wanderungen, besonders der Auswanderung, in Bremer Archiven* (Bremen: Selbstverlag des Staatsarchivs der Freien Hansestadt Bremen, 1986).

52. Wesling, “Bremer Passagierlisten.”

53. Of the remaining 162,467 passengers, the biggest groups traveled to Buenos Aires (44,701), Southampton (22,818), Baltimore (19,040), Halifax (16,085), and Rio de Janeiro (10,368) but all of these are clearly dwarfed by the magnitude of the New York emigrant group.

Figure 1: The original passenger lists for ships leaving the port of Bremen.

41

Ausreiseliste - 2 -

(Diese Liste gilt nicht für Touristenfahrten*) und »Kraft durch Freude«-Reisen.)

Reederei: Norddeutscher Lloyd
Personen-Verkehr

Schiffsklasse: Mariden

Verzeichnis der mit dem MS/Dampfer GNEISENAU

am 13. Juni 1939 von Bremen über Antwerpen / London / Paris / Brüssel / Genève nach Orléans beforderten Reisenden.

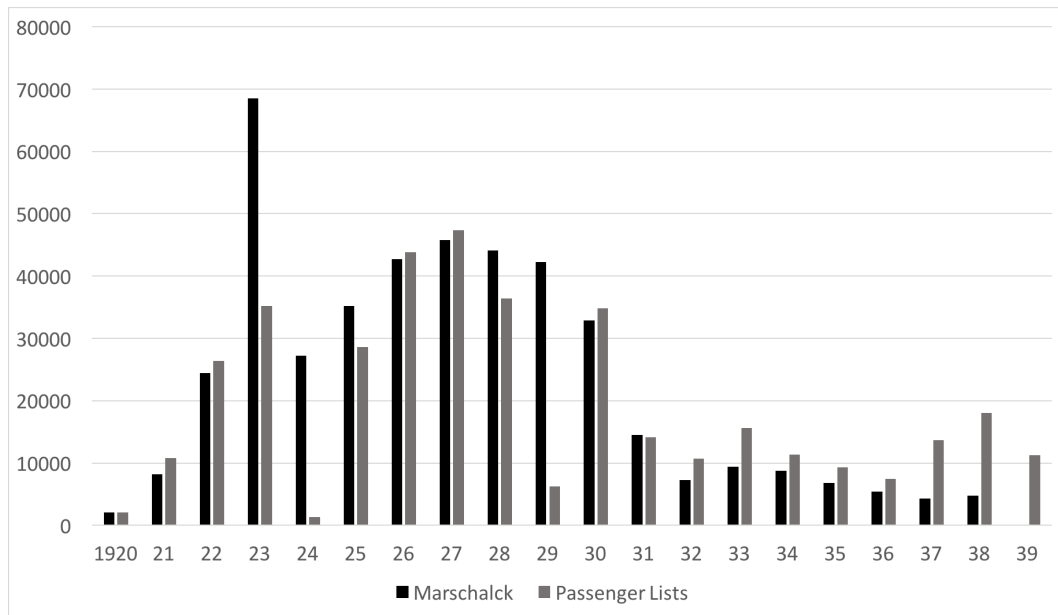
Zur Vermeidung von Rückfragen sind sämtliche Spalten lückenlos auszufüllen.

Pass.- Nr.	Familienname und Vorname*)	Geb.- datum u. ort	Fa- milien- stand (inkl. verh. verw., gesch.)	Alter (inkl. unvoll- ständi- ger Jah- re)	Bisheriger Beruf*)	Stellung im Beruf*)	Staats- angehörig- keit	Letzter dauernder Wohnort*)		Ziel der Reise oder Auswanderung*)		A*) Aus- wander- status nach R Deutsch- land	Auszufüllen nur für Auswanderer		Bemerkungen
								Ort	Provinz, Staat	Ort	Provinz, Staat		Volks- zugehörig- keit	Zeit der Auswan- derung nach Deutsch- land (Geburts- datum ab 1.1.1933)	
81	GIAPPEL Walter	18.11.1910	M	28	Kaufmann	D.R.	Antwerpen	D.R.	Antwerpen	D.R.	Antwerpen	A	jüdisch aus.		
82	GOLDSCHMIDT Carl	6.10.1891	M	47	Kaufmann	M	Antwerpen	M	Antwerpen	M	Antwerpen	A			
83	" Spitz	28.8.1904	M	34	Kaufmann	M	Antwerpen	M	Antwerpen	M	Antwerpen	A			
84	GUTTENTAG Armin	23.1.1883	M	56	Kaufm. Agent	M	Antwerpen	M	Antwerpen	M	Antwerpen	A			
85	" Ober	25.11.1902	M	36	Kaufmann	M	Antwerpen	M	Antwerpen	M	Antwerpen	A			
86	" Dier	25.11.1915	M	23	Kaufmann	M	Antwerpen	M	Antwerpen	M	Antwerpen	A			
87	HAUSDORF Martha	17.1.1901	M	38	Kaufmann	M	Antwerpen	M	Antwerpen	M	Antwerpen	A			
88	" Alice	9.2.1899	M	40	Kaufmann	M	Antwerpen	M	Antwerpen	M	Antwerpen	A			
89	HORN Edgar	23.11.1891	M	47	Kaufmann	M	Antwerpen	M	Antwerpen	M	Antwerpen	A			
90	JAKOB Simon	1.8.1891	M	48	Kaufmann	M	Antwerpen	M	Antwerpen	M	Antwerpen	A			
91	LILIENTHAL Adar	11.7.1883	M	56	Kaufmann	M	Antwerpen	M	Antwerpen	M	Antwerpen	A			
92	" Thoma	17.1.1891	M	48	Kaufmann	M	Antwerpen	M	Antwerpen	M	Antwerpen	A			
93	MARROWSKI Julius	12.2.1899	M	40	Kaufmann	M	Antwerpen	M	Antwerpen	M	Antwerpen	A			
94	MICHALEX Martha	26.11.1888	M	50	Kaufmann	M	Antwerpen	M	Antwerpen	M	Antwerpen	A			
95	MICHELSONN Bernhard	2.11.1888	M	50	Kaufmann	M	Antwerpen	M	Antwerpen	M	Antwerpen	A			
96	" Regina	1.2.1899	M	40	Kaufmann	M	Antwerpen	M	Antwerpen	M	Antwerpen	A			
97	MONOGRUDSKY Alexander	11.2.1911	M	28	Kaufmann	M	Antwerpen	M	Antwerpen	M	Antwerpen	A			

This example of a passenger list contains emigrants leaving the port on 13 June, 1939, on a ship called "Gneisenau", traveling to East Asia. The recorded information in the columns, from left to right, is: passenger number, name, sex, family status, age (in this case recorded as date and place of birth, but usually just in years), occupation (two columns), nationality (D.R. means *Deutsches Reich*), last place of residence, state or province, destination, emigration status, ethnicity, and religion. Image taken by the author.

The data set on its own does not give any conclusive evidence regarding the absolute level of emigration. Originally around 4,500 passenger lists were collected, of which only a little more than 3,000 survive. The graph below shows that emigrants for some years are suspiciously absent. The sudden trend reversals coincide well with the most severe economic shocks in interwar Germany, i.e. the hyperinflation and subsequent currency reform of 1923, and the Great Depression in the late 1920s. However, the fact that there are only four ships registered for 1924 and only three for December 1928 to October 1929 suggests that these are gaps in the data, not actual drops in migration

Figure 2: Absolute annual level of migration through Bremen 1920-1939 according to Marschalck and the passenger lists



of such severity. A recent study by Lumpe and Lumpe⁵⁴ provides further support for the claim that apart from these two problematic years, the pattern of migration in the passenger lists closely follows the general trend of migration from Germany.

A separate source to draw on to test the random distribution of the missing lists are the official statistics provided by Marschalck.⁵⁵ Graph 2 shows the annual number of passengers for the years in question based on this source, which follow a similar pattern to the preserved passenger lists, with migration first increasing, then dropping during the hyperinflation, then slowly increasing only to drop once again in the Great Depression. The major deviations are, as expected, the years 1923/24 and 1929 when the passenger lists fall far short of the Marschalck values. One exception is the rise in the late 1930s that does not appear in Marschalck's numbers.

54. C. Lumpe and C. Lumpe, "German emigration via Bremen in the Weimar Republic (1920–1932)," MAGKS Joint Discussion Paper Series in Economics, no. 53 (2017).

55. Marschalck, *Inventar der Quellen zur Geschichte der Wanderungen, besonders der Auswanderung, in Bremer Archiven*.

In order to comprehend how the skill composition of the migrants changed over time, I exploit the fact that around 50 per cent of the passenger entries in my data set include a self-reported occupation. For the interwar years, these passengers report 10,000 different job titles, although many of them are just different spellings and abbreviations. I assign HISCO codes to each of these occupations. HISCO is the “historical international classification of occupations” developed by Leeuwen et al.⁵⁶ It assigns a five-digit code to each historical occupation which makes it possible to categorise occupations at different aggregation levels. The highest aggregation level divides all occupations into 10 groups which are listed in table 1.

I then make use of a one-dimensional occupation scale that is compatible with the HISCO system, HISCLASS. HISCLASS is a measurement of skill level on a scale from 1 to 12 with 1 being the highest-skilled occupation.⁵⁷ Table 2 gives some examples of occupations with different skill levels and their corresponding HISCLASS score.

5 Methodology

5.1 Literacy Test

Since the passenger lists are also available for some pre-war years, I can begin the analysis with the 1917 literacy test. The expected outcome of restricting migration to those who were literate would be a rise in the skill level of migrants. However, migration had fallen to close to zero during the war and the test therefore could not have mattered a lot at this time. Only when migration picked up again after the war did the restriction have an impact, but while skill levels were markedly higher after the war than before, the enormity of the systemic shock caused by the war and years of interrupted migration make it

56. M. v. Leeuwen et al., *HISCO: Historical international standard classification of occupations* (Leuven: Leuven University Press, 2002).

57. M. van Leeuwen and I. Maas, *Hiclass: A Historical International Social Class Scheme*, Kadoc Artes 12 (Leuven University Press, 2011).

Table 1: HISCO main categories with examples

	Category	Examples
0	Professional, Technical and Related Workers A	Scientists, Engineers, Doctors
1	Professional, Technical and Related Workers B	Lawyers, Teachers, Clerics, Artists
2	Administrative and Managerial Workers	Government officials, Managers, Supervisors
3	Clerical and Related Workers	Secretaries, Bookkeepers, Clerks
4	Sales Workers	Merchants, Salesmen in Retail, Wholesale, Insurance...
5	Service Workers	Cooks, Waiters, Caretakers, Barbers, Dry-Cleaners
6	Agricultural Workers	Farmers, Agricultural Daylabourers, Fishermen, Hunters
7	Production and Related Workers A	Miners, Metal Processors, Textile Workers, Butchers, Brewers
8	Production and Related Workers B	Shoemakers, Cabinetmakers, Blacksmiths, Electricians, Plumbers, Jewellers
9	Production and Related Workers C	Painters, Carpenters, Bricklayers, Vehicle Drivers, Non-classified Labourers

Table 2: HISCLASS scores: examples from the data

Occupation	HISCLASS
Domestic Servant	11
Miner	9
Brickmason	7
Baker	7
Office clerk	5
Teacher	2
Physicist	2
Doctor	2
Diplomat	1

problematic to just conclude that the test was successful in raising the skill level. To test how much of an effect it had, I construct a continuous treatment variable that measures to what extent a given country of origin was affected by the test. I restrict my sample to the pre-war years, 1907, 1908, 1913 and 1914, as well as the inter-war years from 1920 up to the introduction of the first quotas in June 1921. I assume that the pre-war, unrestricted migration is representative of the pool of potential migrants. I use United States census data from IPUMS⁵⁸ for the year 1920 and exclude any migrant that entered the country after the date when the literacy test came into effect, i.e. February 5, 1917 (since the census data contain only the year, not the month when an immigrant entered the country, I exclude all of 1917). I then construct average literacy rates by nation of origin for migrants resident in the US as reported in the census in 1920. The lower this average literacy rate is, the more a country's future migrant pool should be affected by the restriction. If a country generally provides very high-skilled migrants and reaches a very high literacy rate among them, then the restriction should hardly matter at all. The US data are preferable to national literacy rates in the source countries because it gives me a comparable index across countries but also because the source country data would include many people who have no intention to migrate regardless of restrictions. In the absence of restrictions, the immigrants in the US should be as close to a sample of all potential migrants as I can get. I then run a difference-in-differences regression with the time of the treatment being February 5, 1917, and the literacy rate as the treatment effect, specified as

$$SKILL_i = \beta_0 + \beta_1 POST_i^{1917} + \beta_2 LITRATE_i + \beta_3 (POST_i^{1917} * LITRATE_i) + \epsilon \quad (1)$$

58. S. Ruggles et al., *Integrated public use microdata series*, Version 6.0 [machine-readable database] (Minneapolis: University of Minnesota, 2015).

where $SKILL_i = (-1) * HISCLASS$ is the occupational skill level score of individual i , $POST_i^{1917}$ is 1 if the emigration date is after the implementation of the literacy test and 0 if not, and $LITRATE_i$ is the average literacy (i.e. the percentage of individuals who reportedly can read and write) for the respective national origin. The expected coefficient of the interaction term if the literacy test raised migrant skill levels is therefore negative: The lower the initial literacy rate among migrants for a specific country, the higher is the post-1917 skill increase.

I use SKILL as the left-hand variable in lieu of the US census occupational prestige score applied by Massey. This measure, however, has the same shortcomings as the census scores as it cannot account for skill differences *within* a given occupation and is therefore an imperfect proxy for a passenger's occupational income.⁵⁹ Massey herself uses HISCLASS as a robustness check as it has the advantage of not being dependent on average occupational income in a specific country but assigns an internationally comparable skill level to each occupation. To make the following analysis easier to comprehend, I change the sign of the explained variable. Because of the way HISCLASS is defined, a drop in its value would signify a rise in the skill level. Multiplying by -1 means that now a positive selection effect is expressed by a positive sign, not a negative one, and vice versa.

5.2 Quota Laws

In the next step I move on to the quota laws. My data allow me to observe migration over a longer time period and exploit the fact that there is not only one incidence of treatment (going from no quota at all to some form of quota not further defined) but three, in 1921, 1924, and 1929 (plus a minor adjustment in 1922) that affect each European country to a different extent. I make use of the statistics recorded in the *Annual Report of the Commissioner General of Immigration to the Secretary of Labor*, a publication by the United States

59. Massey, "Immigration quotas and immigrant selection," 27.

Bureau of Immigration⁶⁰ to collect migration rates for all available countries for each fiscal year as well as the quota applied to each country. The annual reports distinguish between quota migrants and non-quota migrants, meaning that the latter would not be subject to the quota of their specific nationality, e.g. because they were married to an American citizen.

One major concern for any correlation between quotas and skill level is the possibility of reverse causality. Quotas are not allocated randomly, but with the presumption that the “new” migration from Eastern and Southern Europe is less skilled than migration from the North and West. The policy is designed in a way that makes it look superficially neutral (the same rule applies to everyone), but by choosing an early benchmark date, first 1910, later 1890, rather than the most recent census of 1920, the quota laws are clearly set up with a bias favouring German, British, and Irish migrants in the first two versions, and only British in the 1929 version. A reverse causality might therefore arise from the fact that less-skilled immigrant groups are assigned stricter quotas. The specification I therefore employ, following Massey,⁶¹ is a difference-in-difference regression. I regress skill level on a time-based dummy, that is 1 after the treatment takes effect, and 0 before; on a measure of quota strictness as described below; and an interaction effect, the post-dummy multiplied by the quota strictness. Any reverse causality should be captured by the simple quota strictness measure, while the actual effect of the quotas on selection appears in the interaction effect’s coefficient.

For the regression specification I begin with replicating Massey’s model with my data. I use two different versions of the quota treatment effect, one binary and one continuous specification. The baseline equation for the binary form is

60. United States Bureau of Immigration, ed., *Annual Report of the Commissioner General of Immigration to the Secretary of Labor for the Fiscal Year Ended June 30, 1939*,

61. Massey, “Immigration quotas and immigrant selection.”

$$SKILL_i = \gamma_0 + \gamma_1 POST_i^t + \gamma_2 TREAT_i + \gamma_3 (POST_i^t * TREAT_i) + \zeta_{it} \quad (2)$$

where $POST_i^t$ is 1 if i emigrated after the date t when one of the three quotas ($t \in \{1921, 1924, 1929\}$) came into effect and 0 otherwise, and $TREAT_i$ is 1 if the nationality of individual i is affected by a binding quota and 0 if it is not. For the continuous measure, we have

$$SKILL_i = \delta_0 + \delta_1 POST_i^t + \delta_2 RATIO_i + \delta_3 (POST_i^t * RATIO_i) + \eta_{it} \quad (3)$$

where

$$RATIO_i = \frac{MIGRATION_{nt-1}}{QUOTA_{nt}} \quad (4)$$

if the passenger's nationality is affected by the quota, with $MIGRATION_{nt-1}$ as the annual country-level migration flow to the United States and $QUOTA_{nt}$ the assigned annual quota (for nationality n , with t being the first fiscal year of the quota implementation), and

$$RATIO_i = 0 \quad (5)$$

if it is not.

I use two different indicators of quota restriction in the following regressions. One is a treatment dummy and is therefore closer to Massey's main specification. However, Massey uses Canadian immigrants as her control group who were not affected by the quota. My data set only contains a small number of Western hemisphere migrants and these might not be representative as they are traveling from a continent that is not their place of residence. I therefore narrow my definition of treatment to exploit the differences between European countries. A quota only becomes binding, and in theory should therefore only

matter for selection, if it is completely filled and therefore bars people from migrating who otherwise would have wanted to. If we assume that this is the only channel through which the quota affected migration, there should be no difference whether a country fills its quota up to 30 per cent or up to 80 per cent; the only difference is whether it does or does not reach 100 per cent in a given year. I therefore set the treatment dummy to 1 if the migration level in the first year of the quota implementation is at least 95 per cent (I do not use 100 to allow for some inaccuracies in the statistics as well as in the discretion of migration officials possibly allowing fewer or more migrants into the country than they are supposed to). If the quota is filled up to less than 95 per cent, or if the passenger's country of origin is not assigned a quota, I set the dummy to 0.

The second indicator is a continuous measure. I construct the ratio of the migration rate in the fiscal year just before the quota was enacted over the absolute number of people allowed into the country under the quota to get a measure of the extent to which the quota actually restricts migration. The higher this value is, the stricter the quota is relative to migration demand in the source country. Instead of a dummy that is 0 before the quota and 1 after, this ratio gives me a continuous measure for how much each country was affected by quota, that is able to account for differences between the old and new migration countries. If a country fills up its quota completely (or as it sometimes happens in the data, slightly exceeds its quota), it will still be assigned a score of 1 like in the binary version (or in some cases where the quota was exceeded a little, more than 1). If, for example, a country only sends half as many immigrants as it would be allowed, the quota is not binding and the score is only 0.5.

In order to understand why the interaction effect would differ between the specifications with the binary and continuous quota measure, it is important through what channel the quotas restrict migration. The argument in favour of the dummy specification is simple: if all the quota does is to stop further im-

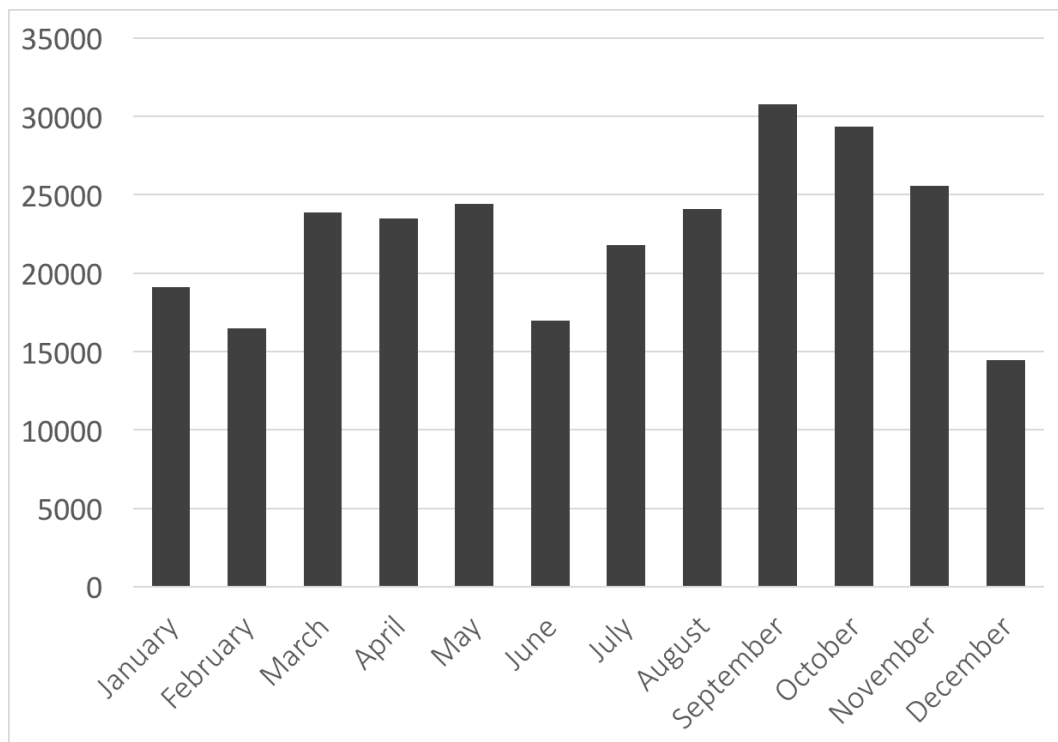
migration at the point at which it is exhausted, it should only matter whether this point is reached or not. There is no difference for an individual's migration decision whether his or her country's quota is 20 per cent or 50 per cent filled. Neither of the two scenarios restricts a person's ability to migrate in theory. However, whether the quota for a particular country is more or less strict might influence the migration decision beyond the mere legal restriction. It may exert a psychological effect on potential migrants, signalling to them that they are less welcome in the receiving country. It also creates uncertainty at the initial point where a migrant decides to save money for emigration, assuming that some time passes between that point of decision-making and the actual time of emigration, because the migrant does not know if the quota will be filled. Moreover, quotas were calculated on an annual level, but then allocated on a monthly level while migration statistics are available on a yearly level only. Just because the yearly quota was not filled, that does not mean that the restriction was not binding in some months.⁶² This is especially likely as migration flows varied seasonally while the quotas were set evenly throughout the year. Throughout the period, migration to the US via Bremen was especially high in September (30,780 migrants, 11.38 per cent of the sample) and October (29,344, 10.85) while it was much lower in the summer and winter months (16,473 passengers (6.09 per cent) in February, 16,985 (6.28) in June, 14,457 (5.35) in December) (see also figure 3). For these reasons, the effect of the annual quota may very well be continuous rather than binary. To account for this, I run each specification twice, for both measures of quota treatment.

I assign the corresponding ratio to each individual migrant based on reported nationality and date of departure and regress the individual occupational score on this ratio. For these regressions, I restrict the sample to migrants traveling to a port in the United States.⁶³ I have no way of identifying

62. United States Bureau of Immigration, *Annual Report of the Commissioner General of Immigration to the Secretary of Labor for the Fiscal Year Ended June 30*.

63. i.e. New York City, Baltimore, Galveston, Philadelphia, San Francisco, Boston, Los Angeles, New Orleans, Seattle, San Diego, Mobile, Portland, Florida, Oakland, Tacoma, and the generic destination "USA".

Figure 3: Seasonal distribution for emigrants to the United States, 1920-1939



transit passengers who went to US ports via, e.g., Southampton, so I have to focus on the direct lines. I furthermore drop all those passengers whose nationality is given as American. Many of those may actually be from European countries with the intention of becoming naturalised US citizens, whose nationality was not recorded properly due to the carelessness of the port officials. However, given the huge number of passengers it is not feasible to sort out these cases individually. Finally I drop all those passengers who are clearly identifiable as tourists. These include the ones whose port of destination information is replaced with the word “Rundreise” (round trip) or “Gesellschaftsreise” (social trip), or whose final destination is identical with their place of residence. Again, some of the latter category may just have not been recorded accurately, but to reduce the danger of any bias that might result from these touristic passengers, I exclude them all. While this does not rule out completely that a significant share of the remaining passengers are only visiting the United States temporarily, it reduces this bias as far as the data allow. I

argue that the viability of my results is not infringed by the remaining bias, as tourists would, if anything, be less responsive to emigration policy. Hence if I find an effect on selection my estimates should be on the conservative end as the effect among only the true emigrants would be larger. Moreover, tourism at the time appears to flow mostly into one direction, from the US to Europe, so that the high number of US travellers is not necessarily comparable to the share of tourists among westbound passengers. Coons and Varias⁶⁴ describe how shipping companies “eagerly awaited the American ‘invasion’ in the summer of 1920” while “many Europeans saw the ship as their conduit to a better life in the Americas”. The high number of US nationals among the west-bound passengers (178,237) appears to confirm this. I subsequently drop all US nationals from the analysis.

I first apply Massey’s model to three separate subsamples of my data set. Each of these subsamples includes two distinct periods of migration policy, one before and one after a specific policy came into law. The first sample includes migrants between the end of World War I, i.e. after the introduction of the literacy test, and June 1924, i.e. just before the implementation of the Johnson-Reed Act. The treatment cutoff point is June 3, 1921, when the Emergency Quota Law comes into affect. Treatment is defined here based on migration in the fiscal years ending in 1921 (for the continuous measure) and 1922 (for the dummy measure), and the quota for the fiscal year 1922. The second sample consists of migrants between the passing of the Emergency Quota Act in 1921 and the full implementation of the National Origins Act with a further reduction in the quotas in 1929. Treatment is defined based on the fiscal years 1923 (continuous) and 1924 (dummy) and the pre-/post-treatment cutoff is July 1, 1924. That is also the date when the third sample begins. The data set ends in August 1939, just before the outbreak of World War II and the end of emigration via Bremen. However, because of the regime

64. L. Coons and A. Varias, *Steamship Travel in the Interwar Years: Tourist Third Cabin* (Amberley Publishing, 2016).

change in January 1933 when Hitler becomes chancellor, I cut off the sample at that point for the diff-in-diff analysis.

Shifts in migrant composition due to the quotas can occur in two different ways. The first is the result of the implicitly non-random distribution of quota severity. If countries with stricter quotas were also ex ante less-skilled, quotas would lead to a between-country shift towards higher-skilled nations. On the other hand the restriction of the size of the migrant pool could lead to a non-random exclusion of individuals, leading to a within-country shift. I therefore subsequently include nation fixed effects to distinguish between these two channels. A significant negative coefficient on the interaction term in the nation-fixed effects regression would support the argument that there is not only a between-, but also a within-country shift towards more skilled workers. All specifications also include year-fixed effects to account for a variety of confounding factors, which is particularly important in a time as tumultuous as the interwar era when year-by-year variation might be high.

Another matter that needs to be addressed is that of the appropriate clustering of standard errors. Standard errors need to be clustered when “the regressor of interest is fixed within groups”.⁶⁵ Massey clusters her results at the port-of-entry level,⁶⁶ but does not offer any justification for this. My data set includes only 16 ports of entry in the United States⁶⁷, which makes econometrically viable clustering at this level problematic because of the low number of clusters (see, e.g., Angrist and Pischke⁶⁸). However, it also simply makes more sense to cluster at the national or regional level for the point of origin, since that is the level at which migration restriction varies. Since visa decisions were made by the regional consulates, a regional clustering seems most appropriate. In the following section, I therefore use standard errors clustered by

65. J. D. Angrist and J.-S. Pischke, *Mostly harmless econometrics: An empiricist's companion* (Princeton university press, 2008), 311.

66. Massey, “Immigration quotas and immigrant selection,” 31.

67. New York, Baltimore, Galveston, Philadelphia, San Francisco, Boston, Los Angeles, New Orleans, Seattle, Mobile, Portland, Florida, Oakland, Tacoma, and a generic “USA”.

68. Angrist and Pischke, *Mostly harmless econometrics: An empiricist's companion*.

sub-national region where available (i.e. for all German migrants, with regions defined as including all states except for Prussia, and all Prussian provinces), and at national level for all others.

6 Empirical Results

6.1 Literacy Test

I begin with the effect of the 1917 literacy test for which the results are easier to predict than for the later restrictions. If literacy is a proxy for skill level, the test should have a positive effect on skill selection. Table 3 provides the results for the selection effect of the literacy test. The negative coefficient on the interaction term together with the positive coefficient on the post-treatment dummy in all specifications confirms that while skill levels did rise significantly after the restriction (and hence after the war), the rise in skill level was higher the lower the pre-restriction literacy rate of the origin country was.

6.2 Quota Laws

I now look at the effect of the quota laws. Figure 4 provides the trend in monthly average skill level for two groups of immigrants divided along the continuous specification, one with a quota filled less than 80% and one with a quota filled 80% or more. It shows that these two groups follow a common trend (albeit at different levels) and diverge only after the first quota law takes effect. The remaining fluctuation in the two graphs follows a seasonal pattern.

Table 4 shows the regression results for the dummy specification. Columns (1) and (2) are based on the 1920-1924 sample with the 1921 treatment, columns (3) and (4) use the 1921-1929 sample with a 1924 treatment, and columns (5) and (6) use the 1924-1933 sample with a 1929 treatment.

The results show that there does indeed seem to be a reverse causality element playing into the relationship between treatment and skill level: the

Table 3: Effect of the literacy test on skill level

Estimation Period	(1) 1907-21	(2) 1907-21
Post 1917	21.59*** (7.164)	11.40*** (3.878)
Literacy rate	0.0920* (0.0489)	0.181
Post 1917 * Lit. rate	-0.224** (0.0902)	-0.107** (0.0509)
Constant	-18.48*** (4.009)	-23.01
Observations	75,469	75,469
R-squared	0.088	0.137
Nation FE	NO	YES
Year FE	YES	YES

Robust standard errors in parentheses

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

Dependent variable SKILL=(-1)*HISCLASS.

Standard errors clustered by region.

negative coefficients on the treatment dummy (i.e. “Binding Quota”) in those regressions that do not control for nation fixed effects (i.e. columns (1), (3), and (5)) point towards a negative relationship between quota severity and skill level in all three samples, which should capture the effect of stricter quotas being assigned to countries with an ex-ante less skilled migrant pool. The interaction effect on the other hand shows the exact opposite: for the 1921 sample, Massey’s results are confirmed only in the regressions including nation-fixed effects: the 1921 emergency quota act led to a rise in the skill level (i.e. a positive coefficient) of migrants from those nations for which the quota became binding in the 1921-22 fiscal year. A binding quota led to a rise in the skill score by 1.165 (out of a scale from 1 to 12) in comparison to a non-binding quota within a given country, based on the regression with both nation and year fixed effects.

Figure 4: Skill level trend before and after implementation of the first quota, smoothed time series



The vertical line denotes the implementation of the first quota law in 1921.

For the Johnson-Reed Act of 1924, the coefficients again point in the expected direction. Here the effect is of a similar magnitude. In 1929, however, the effect turns out to be insignificant within countries of origin, and negative between them. This may be due to the fact that the 1929 quotas hit the high-skilled nations in Northern Europe much harder than the ones in 1921 and 1924. Germany in particular saw its quota severely reduced. Since the effect disappears once I control for nationality this hints at a shift from high-skilled back to low-skilled countries.⁶⁹

Table 5 conducts the same exercise for the continuous measure of quota treatment. Massey's base results for 1921 are confirmed only for between country, not within country shifts, opposite to the dummy specification, i.e.

69. The post-1924 and post-1929 dummies drop out of the specification because of perfect collinearity with the year fixed effects.

Table 4: Effect of quota restrictions on skill level, dummy specification

Estimation Period	(1) 1920-24	(2) 1920-24	(3) 1921-29	(4) 1921-29	(5) 1924-33	(6) 1924-33
Post 1921	-0.371 (0.349)	-0.582* (0.304)				
Binding Quota 1921	-1.995** (0.771)	-8.165*** (0.372)				
Post 1921 * Binding Quota 1921	0.643 (0.565)	1.165*** (0.372)				
Binding Quota 1924			-4.411*** (0.714)	1.914*** (0.318)		
Post 1924 * Binding Quota 1924			1.313*** (0.482)	1.086*** (0.318)		
Post 1929					2.613*** (0.341)	1.900*** (0.334)
Binding Quota 1929					0.179 (0.555)	13.74*** (0.460)
Post 1929 * Binding Quota 1929					-0.995*** (0.320)	-0.424 (0.294)
Constant	-6.849*** (0.577)	-2.834*** (0.400)	-4.024*** (0.714)	-2.633*** (0.336)	-8.861*** (0.556)	-15.28*** (0.499)
Observations	33,601	33,601	96,391	96,391	84,707	84,707
R-squared	0.045	0.087	0.003	0.024	0.015	0.033
Nation FE	NO	YES	NO	YES	NO	YES
Year FE	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses

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

Dependent variable: SKILL=(-1)*HISCLASS.

Treatment variable “Binding Quota”=1 if migration in year t over quota in year t is at least 0.95.

Standard errors clustered by region.

the effect is insignificant once I control for nationality. Where I do not, the skill selection effect is significant and positive. In contrast, the results are more robust and imply both a between- and a within-country shift in the 1924 sample where the effect is significant in all specifications. A 100% quota fulfilment in 1924 is associated with a skill score that is higher by between 0.142 and 0.171 depending on specification, in comparison to no quota restriction at all. In 1929, the selection effect is not significant.

6.3 Pooled Specification

The three quota law changes operate in a similar way, i.e. they set a country-specific maximum number of migrants which subsequently gets stricter over time. Hence it should be possible to examine the three legislative steps in one pooled regression. I restrict my data set to the time period from Novem-

Table 5: Effect of quota restrictions on skill level, continuous specification

Estimation Period	(1) 1920-24	(2) 1920-24	(3) 1921-29	(4) 1921-29	(5) 1929-33	(6) 1929-33
Post 1921	-0.366 (0.717)	0.0109 (0.390)				
Quota ratio 1921	-5.604** (2.754)	-2.309 (1.605)				
Post 1921 * Quota ratio 1921	5.539** (2.714)	2.143 (1.605)				
Quota ratio 1924			-0.136*** (0.0411)	0.166 (9.806)		
Post 1924 * Quota ratio 1924			0.142*** (0.0300)	0.171*** (0.0269)		
Quota ratio 1929					0.0717 (0.302)	0.573
Post 1929 * Quota ratio 1929					-0.335 (0.222)	-0.128 (0.163)
Constant	-7.579*** (0.953)	-3.529*** (0.551)	-7.891*** (0.494)	-8.976	-8.814*** (0.511)	-8.023
Observations	32,740	32,740	96,268	96,268	84,561	84,561
R-squared	0.017	0.086	0.008	0.026	0.013	0.028
Nation FE	NO	YES	NO	YES	NO	YES
Year FE	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses

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

Dependent variable: SKILL=(-1)*HISCLASS.

Treatment variable RATIO=migration in year n-1 / quota in year n.

Standard errors clustered by region.

ber 1920 (when the post-WWI data begin) to August 1939 and use all three groups of explanatory variables, i.e. three post-quota dummies, three treatment effect dummies (or ratios), and three interaction effects. Running this triple difference-in-difference regression yields the results in table 6. Columns (1) and (2) use the dummy version of the treatment effect, columns (3) and (4) the continuous one. In both cases I report the specification with SKILL as the explanatory variable. For both specifications of the treatment variable, the results are significant for the 1921 quota before inclusion of nation fixed effects, in the binary specification also after their inclusion. The evidence is strongest for the 1924 quota where coefficients are highly significant both before and after inclusion of nation fixed effects and in both specifications of the treatment variable. The effect of the 1929 quota is insignificant or even negative.

Table 6: Pooled difference-in-differences specification

Estimation Period	(1) 1920-33	(2) 1920-33	(3) 1920-33	(4) 1920-33
Post 1921	-0.783 (0.656)	-0.0868 (0.365)	-0.582 (0.402)	-0.527 (0.333)
Post 1929	3.298*** (0.448)	2.711*** (0.481)	3.755*** (0.321)	3.551*** (0.377)
Quota ratio 1921	-6.094** (2.800)	-2.686* (1.587)		
Quota ratio 1924	-0.122*** (0.0374)	-0.301*** (0.0257)		
Quota ratio 1929	0.206 (0.281)	-1.305*** (0.254)		
Post 1921 * Quota ratio 1921	6.138** (2.786)	2.589 (1.581)		
Post 1924 * Quota ratio 1924	0.113*** (0.0248)	0.153*** (0.0220)		
Post 1929 * Quota ratio 1929	0.00433 (0.212)	0.261 (0.208)		
Binding Quota 1921			-1.985** (0.764)	6.038*** (0.173)
Binding Quota 1924			-3.211*** (1.001)	-6.564*** (0.448)
Binding Quota 1929			-0.463 (0.499)	3.306
Post 1921 * Binding Quota 1921			1.083* (0.546)	1.276*** (0.351)
Post 1924 * Binding Quota 1924			2.595*** (0.443)	1.947*** (0.325)
Post 1929 * Binding Quota 1929			-0.389* (0.223)	-0.410 (0.287)
Constant	-8.262*** (0.607)	-2.664*** (0.906)	-7.016*** (0.806)	-7.024*** (0.514)
Observations	129,414	129,414	131,861	131,861
R-squared	0.044	0.068	0.052	0.078
Nation FE	NO	YES	NO	YES
Year FE	YES	YES	YES	YES

Robust standard errors in parentheses

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

Dependent variable SKILL=(-1)*HISCLASS.

Standard errors clustered by region.

One aspect that may impact how the quota in 1929 differs from earlier changes, is the fact that shortly after its introduction, migration levels plummeted for unrelated reasons: the Great Depression, while increasing push factors, also significantly eroded the pull factors of the US economy and raised the risk associated with leaving one's home country. Less explicit migration barriers also increased as fewer visas were given out by the consulates than the quota would have allowed. Migration to the US fell far below the quota level as a consequence and stayed at a low level throughout the 1930s. To see how persistent the effect of the initial quota shock is, I run a regression on the 1924-1939 sample, using fiscal year dummies interacted with the treatment effect of 1929. Figure 5 shows the interaction term coefficients for each year along with confidence intervals of 2 standard deviations. It becomes clear that while the effect remains insignificant for several years after the official introduction of the quotas, it becomes positive and significant once quotas become more important (and more often binding) again in 1937. The 1929 quota therefore does indeed appear to have a positive impact on selection just like the 1924 quota.⁷⁰

6.4 Disaggregation by Occupational Groups

The classification of occupations into larger groups allows me to expand the analysis how the quotas affect composition beyond the one-dimensional skill level. I repeat the regressions above, but use HISCO first-digit category dummies as the dependent variable. Table 7 shows the results. The group hit hardest by the 1921 quota are agricultural workers whose share falls by 30.3 percentage points more in countries with binding quotas than in those with free migration after the quota comes into effect. Meanwhile, the share of production workers (category 9) rises by 16.1 percentage points more in the fully treated countries. All in all this implies a shift from agriculture to craftsman-

70. Note these years are fiscal years, i.e. the year 1933 is actually the 12 month period ending in June 1933, because that is the basis on which the quotas were set.

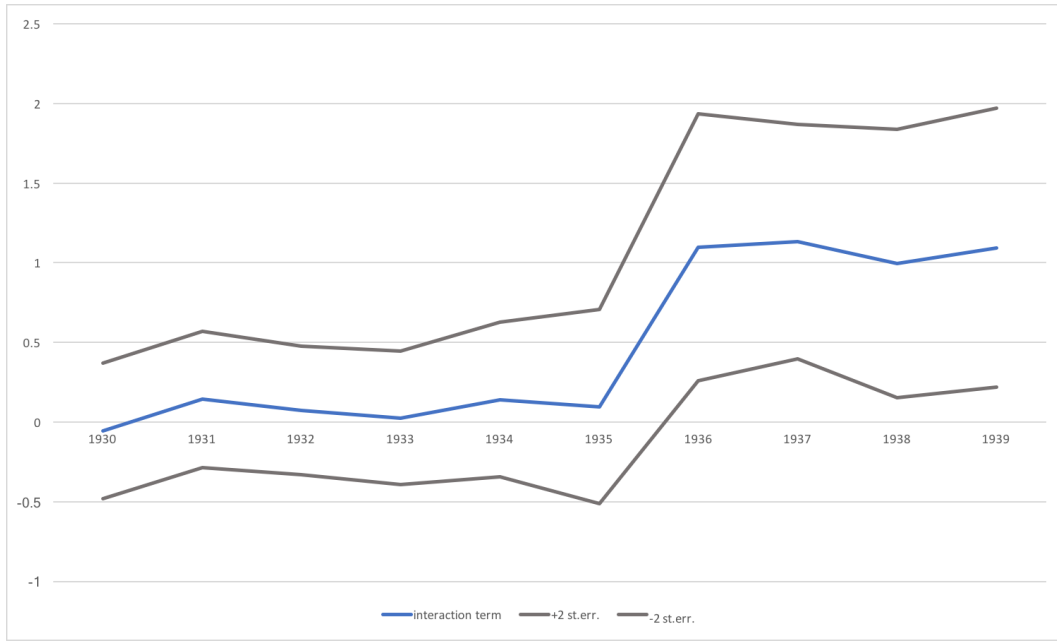


Figure 5: Interaction coefficients for each fiscal year with the continuous treatment effect in one pooled regression, including year and nation fixed effects. The upper and lower bounds mark two standard errors from the coefficient in each direction.

ship and manufacturing among the emigrants. The 1924 quota's impact is found across most of the occupational groups. While the share of professional and technical workers rose (categories 0 and 1), as did that of clerical workers (category 3), the percentage of service workers as well as production workers dropped. Commercial and agricultural occupations did not see any significant changes. In comparison to the 1921 quota this shows that, while both caused a shift towards higher-skilled migrants it happened at different levels and in different sectors of the occupational distribution. The first restriction crowded out the farmers in favour of the manufacturers, the latter were in turn replaced with white-collar professions. The 1929 restriction finally lead to a further rise in the share of professionals by 9 percentage points more than in non-quota countries (category 0), a slight drop in managerial and service workers (categories 2 and 4), and a somewhat larger drop in production workers (category 8).

Table 7: Effect of quotas on share of occupational groups among migrants

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Occupation group	Professionals & Technical A	Professionals & Technical B	Administrative & Managerial	Clerical workers	Sales workers	Service workers	Agricultural, husbandry & forestry	Production workers A	Production workers B	Production workers C
Quota ratio 1921	-0.0832 (0.116)	-0.0873 (0.0594)	-0.00628 (0.0473)	-0.0294 (0.0199)	0.0401 (0.0674)	0.0994 (0.115)	0.306* (0.168)	-0.151* (0.0782)	-0.0410 (0.0329)	-0.0475 (0.0372)
Post '21 * Quota ratio	0.0942 (0.116)	0.0877 (0.0595)	0.00964 (0.0475)	0.0301 (0.0199)	-0.0754 (0.0673)	-0.0979 (0.115)	-0.303* (0.168)	0.161** (0.0781)	0.0394 (0.0330)	0.0548 (0.0375)
Constant	0.121* (0.0613)	0.0109 (0.0166)	-0.0162 (0.0164)	0.00658 (0.00744)	0.976*** (0.0171)	0.0129 (0.0651)	-0.105** (0.0408)	0.0260 (0.0377)	-0.00813 (0.0114)	-0.0244 (0.0167)
Observations	41,451	41,451	41,451	41,451	41,451	41,451	41,451	41,451	41,451	41,451
R-squared	0.017	0.006	0.009	0.007	0.017	0.011	0.057	0.008	0.010	0.004
Quota ratio 1924	0.0117*** (0.000856)	-0.000937*** (0.000219)	0.000358 (0.000342)	-0.000216** (0.000105)	-0.0164*** (0.000431)	0.00173*** (0.000527)	0.000526 (0.000846)	0.00124*** (0.000398)	0.00169*** (0.000395)	0.000284 (0.000268)
Post '24 * Quota ratio	0.0210*** (0.00377)	0.00458*** (0.000964)	-0.00206 (0.00159)	0.00120*** (0.000436)	0.000990 (0.00177)	-0.00656*** (0.00225)	-0.00556 (0.00403)	-0.00382*** (0.00141)	-0.00904*** (0.00173)	-0.000724 (0.000927)
Constant	-0.0414*** (0.0107)	0.00361 (0.00600)	0.00529 (0.00731)	0.00200 (0.00226)	1.005*** (0.00798)	0.0465 (0.0289)	0.000879 (0.0143)	0.00178 (0.0144)	-0.00697* (0.00377)	-0.0166 (0.0148)
Observations	122,650	122,650	122,650	122,650	122,650	122,650	122,650	122,650	122,650	122,650
R-squared	0.026	0.004	0.008	0.006	0.007	0.011	0.028	0.008	0.011	0.003
Quota ratio 1929	0.0653 (793.3)	-0.0272 (282.9)	-0.0861	-0.00189	-0.0599 (820.7)	0.160	-0.179	0.100 (548.0)	0.0323	0.0293 (126.3)
Post '29 * Quota ratio	0.0938*** (0.0166)	0.00371 (0.00593)	-0.0155*** (0.00515)	-0.000288 (0.00206)	-0.00385 (0.00698)	-0.0187* (0.0101)	0.0237 (0.0269)	-0.0104 (0.00768)	-0.0460*** (0.0109)	-0.0265** (0.0126)
Constant	-0.106 (688.2)	0.118 (812.9)	0.396	0.0253	0.249 (1,527)	-0.409 (1,068)	0.753	-0.251 (1,077)	0.0561 (859.8)	0.0774 (475.6)
Observations	135,653	135,653	135,653	135,653	135,653	135,653	135,653	135,653	135,653	135,653
R-squared	0.103	0.010	0.013	0.005	0.008	0.010	0.050	0.006	0.024	0.012
Nation FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses

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

Standard errors clustered by region.

Dependent variable: 1 if individual is in HISCO category 1 to 9, 0 otherwise.

7 Conclusion

The 1917 literacy test raised skill levels of migrants in the immediate post-war years. In the case of the quota laws, the effect is more ambiguous. The most conclusive results are those for the 1924 quotas. Their treatment effect is significant and positive throughout almost all specifications and thus indicates a positive selection effect, a rise in the skill level as a consequence of the law, both between and within countries. For 1921 the results seem ambiguous and not very robust, but where they are significant, only point to a positive impact, implying a rise, not a drop, in the skill level. Whether or not it is significant depends on the specification. While the pure legal restriction expressed in the dummy version seems to have affected skill levels more through a shift within countries (as it becomes significant once nation-fixed effects are included), the continuous definition that is better suited to express more sub-

the restrictions through rising administrative costs, psychological deterrence, uncertainty, or seasonal variation, appears to have had a stronger effect on the between-country selection.

The least convincing evidence is that for the 1929 quota. Curiously there is an unexpected negative effect in some specifications which is probably driven by the tightening quotas for Germany. One needs to keep in mind that the data set becomes a lot more biased towards Germans in the 1930s as fewer and fewer Eastern Europeans travel via Bremen. That the positive coefficient returns in later years makes sense in so far as these were the years when the quota for Germany became more binding again as more and more refugees tried to leave the country in the final years before the war. Nonetheless, the 1929 quota's impact cannot explain the steady rise in skill level throughout the 1930s.

With regards to economic sectors, the quotas affected very different groups. Where the initial introduction of the system lowered the share of agriculture and raised that of manufacturing among the occupational groups, the later reforms restricted the latter in turn and benefited mostly white-collar managerial and professional occupations. Whether the skill level changed more due to a drop in low-skilled or a rise in high-skilled migrants, depends on the specification of the treatment effect but the drop in the share of low-skilled migrants generally seems to be the most robust effect across samples and definitions.

Quotas mattered not just for overall migration levels but also had a non-neutral impact on the composition of the migrant pool. Where this impact is significant, it tends to have a positive impact on selection. However, as the interwar era progresses, the quotas lose their importance in shaping migrant composition. When they do become binding again towards the end of the 1930s, their effect on skill selection is again a positive one.

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