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CLOSING THE GATES:
ASSESSING IMPACTS OF THE IMMIGRATION ACT OF 1917

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ABSTRACT

On February 5, 1917, the United States passed the Immigration Act of 1917, which included a test for all migrants arriving to the U.S. to prove they were literate. The Literacy Test was one of the first and few times the U.S. used a broad 'skill-based' immigration policy in an attempt to limit migration. We assess whether the Immigration Act had any measurable impacts on immigration to the U.S. Using a differences-in-differences approach and digitized data from Ellis Island ship manifests from directly before and after the Act's passage and enactment, we show that the Act significantly altered selection into migration to the U.S. from Europe through Ellis Island, reducing migration from low literacy countries by 70 percent compared to arrivals from high-literacy countries. We also discuss other provisions of the Act that had the potential to influence the gender composition of arrivals. We show that women – and in particular single women – were less likely to arrive after its passage. Our analysis suggests that even during this period of lower immigration due to WWI and rising literacy levels, the 1917 Act was a consequential moment in immigration history in the United States.

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1. Introduction

On February 5, 1917, the United States passed the Immigration Act of 1917 – legislation that began a broader 'closing of the gates' to immigrants. This legislation is often referred to simply as the "Literacy Test" (LT), as the most controversial provision included a test for men and unaccompanied women who were between the ages of 16 and 55 arriving to the U.S. to prove they were literate – meaning that they had to be able to read a short passage in their native language to gain entry to the U.S.

The LT can be thought of as one of the first times the U.S. used a broad national skill-based immigration policy and marked the beginning of tightening immigration restrictions in the U.S., as the more restrictive quotas by country of origin implemented in 1921 and 1924 followed soon after. The LT almost became law several times prior to 1917, during a period of strong and rising anti-immigrant sentiment in the U.S. For example, in 1897, a version of the LT passed both the House and the Senate, and only was stopped by President Cleveland's veto.[1] During the next 20 years, there was considerable congressional activity and several presidential vetoes surrounding the restriction (see Goldin (1994) for more details on the history of Literacy Test legislation in Congress).

[1] Literacy Test legislation varied throughout the period. The version proposed in 1897 required every immigrant (men and women) to read and write in English or in the language of his or her native country. The next version admitted immigrants who could read and write any language, and allowed illiterate wives of literate men to enter the U.S. (Goldin, 1994). Eventually, the literacy test involved reading between 30 and 40 "ordinary" words in the immigrant's chosen language.

By the time the Act became law, literacy levels were rising throughout Europe, and scholars have suggested that the test thus most likely had little impact in actually restricting immigration (see e.g. Goldin 1994; Massey 2016). Moreover, World War I was well underway during this time, and immigration levels had already declined considerably due to the events of war. Thus, the literature has largely remained silent on whether there were measurable impacts of the LT. More recently, however, Spitzer and Zimran (2018) show that the LT did induce positive selection into migration from less-literate Southern Italy compared to Northern Italy, with migrants from Southern Italy being taller (which was correlated with literacy) than their non-migrant counterparts. Otherwise, recent increased interest among economic historians in the analysis of immigration during this period, in large part due to newly available digitized datasets, has instead tended to focus on the impacts of the 1921 and 1924 quotas on selection (Massey 2016) or on native labor market outcomes (e.g. Abramitzky et al. 2019; Doran and Yoon 2019; Tabellini 2020). Others papers have looked at the economic effects of local immigration shocks during this period (e.g. Lafortune, Lewis, and Tessada, 2019; Sequeira, Nunn and Qian, 2020).

In this paper, we revisit the 1917 Immigration Act to understand whether it had any measurable impacts on the number and composition of immigrants from Europe arriving to the U.S. particularly by restricting immigration to those who were literate. We have three primary objectives. First, we explain in detail the legislation itself, which had several provisions in addition to the LT, many aspects which have not been widely discussed in the immigration literature. Second, we discuss the relevant historical context related to World War I, which coincided with the LT and presents challenges to estimating causal impacts of the LT on selection. We then use newly available microdata on arriving immigrants to the Port of New York (Ellis Island) in 1916 and 1917 shortly before and after the passage and enactment of the

Immigration Act to estimate whether the Act had an impact on the flows and selection of immigrants entering the U.S.

Figure 1 shows the share of immigrants by year of arrival to the U.S. who were illiterate based on the 1920 Decennial Census. Even in the aggregate data, we can see a slight decline in the share of individuals who are illiterate who arrived in the years after the 1917 Act. While it's possible to see some impacts in the 1920 complete count census of immigrants, the 1920 census data only provides information on an individual's literacy in 1920 so it would not reflect literacy at the time of immigration. Moreover, the census only provides the year of immigration, so it's not possible to look at arrivals just before and after the passage and enactment of the Act. Using individual level micro data on arrivals through the port of Ellis Island in the weeks and months surrounding the passage and implementation of the Act allows us to better measure its immediate effects on selection.

[Insert Figure 1 here]

In addition to Spitzer and Zimran (2018), two recent studies are close to ours in focus as they estimate the impact of restrictive immigration policies during the Age of Mass Migration on immigrant selection to the US. Massey (2016) studies the impact of the 1921 quota, which capped the number of migrants based on nationality, on immigrant selection among male migrants. Massey shows that the quota led to immigrants in higher-skilled occupations arriving in the U.S. Chen (2015), meanwhile, examines the impact of the Chinese Exclusion Act of 1882 on selection, which excluded Chinese migrants from certain occupational classes from entering the U.S. Surprisingly, Chen finds that the legislation led to lower occupational standing among immigrants after restriction, but the children of the restricted immigrants had higher human

capital than the children of unrestricted immigrants.[2] The legislation we study is different from both of these policies, as the Act, including the LT, did not target a specific nationality per se, but rather used a broader 'skill-based' criteria for admission.

Finally, a key part of our analysis is to examine the impact of the Act on women. Female immigrants have not been the focus of most empirical economic history analysis of migration during this period (see Bandiera, Rasul, and Viarengo 2013). Both Massey (2016) and Chen (2015), two papers that also estimate the impacts of restrictive immigration policies on selection, limit their analysis to men. Since the LT only applied to men and unaccompanied women, it likely affected the incentives to migrate differently for men and women depending on their literacy rates and marital status, which we are able to investigate in our analysis.

There are several empirical challenges in estimating the impact of the LT. First, there were two key WWI events – the third German U-boat (submarine) offensive beginning in February 1917, which made passage dangerous in the North Atlantic, and the U.S. officially entering the war on April 6, 1917 – which coincided with the period during which the LT was passed and took effect (in February and May 1917, respectively). Second, the Immigration Act of 1917 did not only include the LT, but included several other provisions as well. This makes it difficult to separately identify the effects of the LT from the effects of these other events and provisions that might be affecting the selection of immigrants going to the U.S.

In our empirical analysis, we use several methods to address these issues. We use two empirical strategies. First, we use a differences-in-differences (DD) event study framework to compare the number of immigrants arriving to the U.S. shortly before and shortly after the key

[2] Other recent studies have also examined the impacts of the Chinese Exclusion Act on U.S. workers and their children (e.g. Long et al. 2022; Postel 2023).

legislation dates for immigrants who would have been more and less affected by the LT. We focus our analysis on immigrants arriving from Europe; most immigrants arriving through the Ellis Island port were European and the major focus of anti-immigrant groups and the Dillingham Commission was the arrival of migrants from Southern and Eastern Europe. We consider two control groups of individuals less likely to be impacted by the test, which we can compare to those who were more likely to be 'treated' to analyze the impacts of the Literacy Test: (1) immigrants from countries with high and low literacy levels, assuming those from lower literacy countries would be more likely to be affected by the test, and (2) immigrants from Northern and Southern Italy only, given the significantly lower literacy rates among those in the South. We then turn to individual-level linear probability models to provide suggestive evidence for the role of other provisions, such as the increased scrutiny placed upon women, as well as the gendered nature of the LT, on changing selection from within high- and low-literacy countries.

We focus on two periods in our DD analysis: (1) just after the legislation passed on February 5, 1917, but before the Literacy Test was implemented beginning on May 5, 1917, and (2) the period after the LT was in effect on May 5, 1917. We suggest that immigrants arriving at Ellis Island after the passage of the Act in February are individuals who might anticipate that they could not enter the U.S. after the Literacy Test took effect in May. We consider this an "anticipation effect" as have other studies examining the impact of policies after they are announced but before they take effect (Black et al. 2003; Malani and Reif 2015; Freedman, Owens, and Bohn 2018). We find some evidence of an anticipation effect among Southern Italians, which we suggest is the result of the sudden announcement of the test and short time period to implementation, which led to competition for limited spots on ships going to the U.S.

In our individual-level linear probability model specifications, in order to account for the role that the War and U-boat offensive played, we use port of departure fixed effects. While we cannot include these port fixed effects in the DD analysis, as there the analysis is at country of nationality level, in the individual-level analysis we are able to account for variation across immigrants within a country of nationality group in where they departed from. Given that there were a fixed number of ships with passage to the U.S. leaving ports of departure, we argue that looking at changes in the composition of immigrants leaving from these ports allows us to control for local factors that might impact selection due to the War. Secondly, we conduct the same analyses on Italy only. During the war, ships in the Mediterranean were under constant threat of U-boat strikes over the whole period, even passenger ships (Hough 1983). Furthermore, Italy entered the war before the U.S. As a result, the broad effects of war remained constant for Italy over the entire policy change period, so we can examine the effects of the literacy test on the less-literate South compared to the more-literate North. Finally, as an additional robustness check, we collect data on the number of ship hits in the Mediterranean and North Atlantic during our periods of investigation and find that there was no significant increase in the number of ships with passengers being struck by U-boat offensive measures except for those sailing from Britain. In additional analyses, we exclude Britain and still find significant effects.

Our main finding is that the Act significantly reduced immigration from countries with lower levels of literacy by approximately 70%. We also find that women, and specifically single women, were less likely to arrive after the Act's passage and enactment, indicating not just a response to the LT specifically but other provisions of the Act, such as higher scrutiny placed on women travelling alone, that made it more difficult for them to migrate. Our results hold up to alternative specifications that look specifically at Italy, as well as compared to a 'placebo'

Immigration Act a year earlier. These results demonstrate that the efforts of anti-immigration advocates were indeed successful, at least in the short term, in altering immigration flows prior to the 1924 quotas.

2. Background and Historical Context

The passage of an immigration law that included a literacy test required twenty years of political fights, including five separate instances of passage in the House and four in the Senate (Goldin 1994). It was only when the Senate overrode President Wilson's veto of the Immigration Act of 1917 that February that the LT finally became law.

Starting in the 1890s, immigrants began to arrive to the U.S. in greater numbers from eastern, southern, and central Europe rather than from the northern and western areas of the continent. These "new" immigrants stirred concerns in the United States about the "quality" of these immigrants and implications for the ethnic makeup of the country (Petit 2010; Oh 2012). In response to calls to limit immigration from these new immigrant countries, Congress created an 'Immigration Commission' to study the situation. Later known as the Dillingham Commission reports, the 23-volume analysis of immigration created by the Commission was presented to Congress in 1910 and 1911. It covered numerous aspects related to U.S. immigration, but as literacy test legislation was the key impetus for the reports, literacy is a frequent theme. One conclusion of the Commission was that a literacy test would limit migration from Eastern and Southern Europe by 30 percent (Massey 2016). While the Immigration Act of 1917 included restrictions on nationality for those migrating from much of Asia and the Pacific, the Dillingham Commission's focus was on limiting Eastern and Southern European migration. Therefore, we limit our sample to European migrants to examine the "effectiveness" of the LT in limiting

migrants from "new" European countries, and how well the policy aligned with limiting migration from low literacy countries. [3]

Figures 2 and 3 show the yearly and weekly migration flows from "new" and "old" Europe. Figure 2, reproduced from Massey (2016), shows the dramatic decrease in migration flows after the start of WWI.

[Insert Figures 2 and 3 here]

Figure 3 focuses in on our periods of interest: the immediate weeks surrounding the passage and implementation of the LT at Ellis Island. We use data on levels of schooling from Lee and Lee (2016) to examine literacy levels in "old" vs "new" Europe. We use their estimates of the share of individuals aged 15 to 64 with no educational attainment as a measure of illiteracy.[4] We consider those countries with higher shares of the population with no schooling as countries with higher levels of illiteracy. We create a cut-off for low-literacy countries as

[3] We use the Dillingham Commission as our guide for labelling "old" and "new" migrant nationalities. "Old" migrant nations included: Ireland, the United Kingdom, France, Germany, Norway, Sweden, Denmark, Netherlands, Switzerland, Belgium and Luxemburg. "New" migrants included: Czechoslovakia, Greece, Italy, Russia, Armenia, Bulgaria, Serbia, Montenegro, Croatia, Lithuania, Poland, and Bosnia. For our analysis, we combine immigrants who listed their nationality as either Bosnian, Serbian, Montenegrin, Kosovan, Slovenian, Romanian, Balkan, Yugoslavian as "Balkan" with a nation of "Balkans". Those who listed "Slovakian" were labelled as "Czechoslovakian" with a nation of "Czech Republic".

[4] While this measure will not give a completely accurate picture of the level of illiteracy (some may have been able to gain some level of literacy without formal schooling), it will give a lower bound on the likely literacy level within a country.

countries where the share of population with no schooling is greater than 30 percent.[5] As shown in Figure 4, the categories of "low literacy" and "new immigrant" did not always align.

[Insert Figure 4 here]

Appendix Figure A1 compares these no schooling rates with the illiteracy rates as measured in the 1920 complete count census of immigrants who arrived to the U.S. in 1916. Overall, the patterns in illiteracy between new and old countries are similar to those measured by no schooling rates. We also see that immigrants generally seemed to have higher degrees of literacy than the base population, but that may be an overestimate if literacy was acquired post-migration.[6]

2.1 Provisions of the Immigration Act of 1917

When the Immigration Act of 1917 finally passed, it laid out specific criteria about who was subject to the LT, as well as provisions beyond just the test. For example, as outlined in Table 1, the Act increased the head tax on arrivals from $4 to $8 per person, limited immigrants from certain groups, such as those who were ill or mentally disabled, and required shipping lines to better document the national origins of their crew members.

[5] We chose 30 percent based on the lowest level of no schooling among "new" immigrant countries (See Figure 4).

[6] Appendix Figure A2 shows the share of individual arrivals by our measure of low and high-literacy nationality and Appendix Figure A3 shows the share illiterate arrivals based on their low or high-literacy nationality based on the 1920 Decennial Census. As with Figure 1, these figures highlight the decline in either arrivals from low-literacy countries (A2) or the decline in share of illiterate individuals from each group of countries (and especially low-literacy countries) (A3) directly after the Immigration Act of 1917.

[Insert Table 1 here]

While the literacy test was the main restrictive provision of the Act, the specifics of who was eligible for the test, as well as the other provisions included in the Act may also have played as important a role in changing selection into migration during this period. Notably, only those sixteen and over were subject to testing. Fathers or grandfathers over 55 of immigrants arriving at the same time or who had arrived previously were exempt. An unmarried or widowed daughter, wife, mother, or grandmother of a literate immigrant was also exempt from the test. Family reunification was not controversial at this time, as the language of the literacy test indicates, and the LT created the circumstances for families to still migrate to the United States (Hutchinson 1981). As a result, these exceptions allowed many who may have been illiterate to still immigrate to the United States.

A general consensus about the literacy test during this period is that rising literacy rates in Europe made it largely inconsequential (Massey 2016). Table 2 shows the no schooling rates of major European countries for individuals aged 15 to 64 in 1915. While literacy rates had dramatically increased, a significant portion of potential migrants in countries such as Italy may have still found themselves barred from immigrating to the U.S. There is also a sharp gender disparity in schooling rates for many of these countries.[7] For example, in countries such as

[7] The share of women and men without schooling in Austria, Bulgaria, Belgium, and Hungary are the only countries where the low-literacy indicator would be different if coded by gender. So while gender differences are important to note, we do not expect that using one or the other in our main DD analyses would dramatically alter our results given the relatively low number of arrivals from these countries.

Portugal, Belgium, France, Greece, and Spain, the percent of women who had no schooling is almost or more than double that of men. While the test would have had no effect on the entrance of married illiterate women, the test limited the migration of single illiterate women.

[Insert Table 2 here]

Finally, changes in the responsibilities of shipping lines to comply with these new restrictions and directives likely altered the screening process before migrants even arrived at a U.S. port.[8] Importantly, the imposition of fines on shipping companies that brought excludable migrants to the U.S. shifted the burden of screening of immigrants largely onto the shoulders of company officials. The Immigration Act mandated that if a migrant was found to be excludable based on the provisions outlined, the shipping company was to be fined $25-$300 (depending on the class of excludable immigrant) and was obligated to pay for the migrant's passage back to his or her home country. In the first year of the literacy test, 192 illiterate migrants were excluded out of almost 300,000 new entrants (Goldin 1994). In the literature, it has not been clearly explored whether this low number of fines levied was due to rising literacy rates in Europe or successful screening on the part of the shipping companies.

In select case studies of shipping lines, testimony shows that the literacy test and other provisions directly affected ship line voyage frequency decisions and incentivized screening of migrants before they departed for the United States. For example, serving primarily the port of

[8] Changes in requirements for ship manifests also altered much of the data coming from the ports during this period. Prior to May 1, 1917, ships were not required to supply immigration officials with lists of crew members, and changes in total migrant data from this period must take these changes into account.

Providence, Rhode Island, the Fabre Line announced after the passage of the literacy test that it might be forced to reduce its service to Providence given that company records indicated that 40 percent of its passengers were illiterate (Jennings 2013). For the shipping company Royal Mail Steam Packet, which primarily served the Caribbean, officials testified to the Board of Special Inquiry[9], the government body which reviewed exclusion cases across all ports of entry, that the new laws were difficult to comply with:

> It is perhaps unnecessary for us to call to your attention the difficult conditions under which steamship lines are operating at the present time. The handicaps under which our agents are laboring were greatly [increased] by the fact that owing to the delay in the distribution of the law, they did not have sufficient time to familiarize themselves with the new regulations. (Board of Special Inquiry Case File 54290/33, Records of the Immigration and Naturalization Service, 1917)

These fines may have led the same shipping companies to ask for deposits from immigrants in the case they should be turned away. In the same testimony, the Royal Mail Company wrote to the Assistant Commissioner of Immigration at the time, Byron Uhl, after an immigrant aboard their ship was detained. In it, they defended their requirement of a $30 security for all immigrants travelling in their steerage class:

> The present scheme was decided upon whereby each passenger was requested when taking out his ticket to temporarily deposit $30.00 (the minimum amount required by the

[9] Records of the Board of Special Inquiry are available from Record Group 85 at the National Archives Building in Washington, D.C. We examined records of detained migrants from February 5, 1917 through August 31, 1917.

> U.S. Government before a passenger would be allowed to land) which amount was guaranteed to be returned on presentation of receipt at this office. Under no circumstances was it our intention or has it been our practice to forfeit the passenger's deposit or look to it as security for the payment of any of the costs of returning the alien. The return of the money was subject to no condition whatsoever but was in any event to be returned to the passenger. (Board of Special Inquiry Case File 54290/33, Records of the Immigration and Naturalization Service, 1917)

What these testimonies indicate is that failure by the steamship companies to successfully screen migrants before embarkation would be costly, and it was in the companies' best interest to perform a careful screening themselves. Ship manifest data, as a result, should reflect the result of LT screening on the part of the ships and self-selection among the migrants themselves.

2.2 Timing of the Act

A challenge that arises when examining this earlier period of immigration restriction is separating the effects of the Immigration Act of 1917 from the ongoing disruption to international migration caused by World War I, and accounting for the exact the timing of different parts of the Immigration Act itself. Ongoing U-boat campaigns made sea passage increasingly more dangerous.[10] Additionally, while the exclusion of those classes listed in

[10] By the time of the literacy test's passage, World War I had already escalated the dangers of ocean transit. German submarines or U-boats engaged in various campaigns of unrestricted submarine warfare, targeting all enemy ships, including those ships that may have been transporting passengers. The May 1915 sinking of the *Lusitania* and the

Section 3 of the Act occurred immediately after its passage on February 5, 1917, the other provisions of the Act, such as rules about ship manifests and fines, were not enacted until May 1, 1917. Importantly, the literacy test itself was not put into place until May 5, 1917. A timeline of these events is presented in Table 3.

[Insert Table 3 here]

Our period of analysis, which extends from September 1916 to June 1917, contains two key periods of increased U-boat warfare. Germany began a campaign of increased U-boat activity in February 1916 that later expanded to unrestricted attacks (meaning any ship, including passenger ships, was subject to targeting) beginning on February 1, 1917. By April 1917, the total loss for Britain and the Allies was 869,103 tons (Hough 1983). It was the resumption of this unrestricted warfare and the sinking of U.S. ships that led in part to the United States declaring war on Germany on April 6, 1917. For migrants looking to immigrate before the literacy test took effect, their decision was complicated by escalating tensions in the Atlantic and Mediterranean. In the testimony of a migrant who left the United States before the war began for England and chose not to return until it had quieted, his lawyer describes his decision-making process:

> …William Seal, has lived in the United States (State of Kansas) since 1869, and left this country during the Summer of 1914 for a visit to England with the full intention to return

loss of 1,198 passengers stands out as one example of the dangers that accompanied stepping onto a transatlantic ocean liner during this period.

> here shortly. Owing to the fact that soon after his arrival the great European war broke out he delayed his return to this country until such time that in his opinion conditions warranted his returning to his home. (Board of Special Inquiry Case File 54290/100, Records of the Immigration and Naturalization Service, 1917)

For many potential migrants, the start of WWI was enough for them to delay migration for potentially years at a time.

3. Conceptual Framework

3.1 Skill-based Selection

In this section, we briefly discuss the expected effects of the Immigration Act of 1917 in an immigration selection framework. Immigrant selection is a measure of *which individuals* choose to leave their home country. The core idea is that immigrants are not a random subset of the home country population – individuals of a particular type may decide to stay home while others decide to leave. In a simple Roy Model approach to modeling the migration decision, immigrants seek to maximize lifetime income and decide to stay home or emigrate depending on the costs of migrating and the potential labor market benefits that would be gained abroad (Roy 1951; Borjas 1987; Abramitzky, Boustan, and Eriksson 2012). There are three possible types of immigrant selection in this model, which are determined by the relative returns to education in the home and destination countries: positive selection, where immigrants tend to have higher levels of education than those who stay behind; negative selection, where immigrants tend to have lower levels of education; and intermediate selection, where immigrants tend to have similar levels of education. Immigrants can also differ from those who stay behind in terms of

other observable characteristics, such as age, gender, or occupation. In simple models, these costs are the same for all potential migrants, while in other approaches, the costs may differ by skill.

Abramitzky and Boustan (2012) describe how evidence on immigrant selection during the period we study is consistent with predictions of a basic Roy model, where selection was positive from some European countries and negative from others, depending on the relative returns to skill. As they note, the simple Roy model assumes an objective of maximizing lifetime income for all immigrants and does not include the consideration of non-economic factors that might motivate migration, such as persecution or war, which may differentially affect some potential migrants.

In the closest paper to ours studying immigration restriction during this period, Massey (2016) estimates the impact of the 1921 quota on immigrant selection. The quota limited the number of immigrants from certain nationalities that were allowed into the country, but the quota did not apply to Canadians. This allows her to measure selection in a difference-in-differences approach by comparing the occupations of Canadian migrants arriving before and after the quota to non-Canadian migrants arriving before and after the quota. She finds that the quota led to immigrants of occupations with higher earnings potential arriving in the U.S.

In our analysis, we seek to measure to what extent the Immigration Act of 1917, including the LT and other provisions, impacted immigrant selection. A key aspect of our analysis is differentiating between two periods: (1) the "Post-Passage Period", just after the legislation passed on February 5, 1917, but before the Literacy Test began to be administered, and (2) the "Post-Enactment Period", the period after the LT was in effect beginning on May 5, 1917. We should observe different types of immigrant selection during these periods relative to

before the legislation passed. In Table 4 we present our predictions for the type of selection we would expect during each period of analysis. In general, a greater number of arrivals from low-literacy countries would be considered "negative" selection in terms of literacy, bearing in mind that literacy itself is not always the best indicator of "skilled" labor.

[Insert Table 4 here]

Table 4 outlines four main aspects of the LT that may have altered migrant selection: the enforcement of Section 3 "excludable classes", the increased head tax, fines imposed on shipping companies, and, finally, the literacy test. Focusing first on the effects of the Immigration Act on low-literacy migration, we expect that as low literacy was correlated with lower per capita income and thus increased likelihood of becoming a "public charge", it is likely that Section 3 would have decreased immigration from these countries on its own as soon as the Act was passed, as Section 3 was enforced starting February 5th. However, we also expect that there would be some level of an anticipation effect among those who were illiterate but unlikely to be considered a public charge, who would be more likely to migrate after the announcement, anticipating that they would be unable to migrate after its enforcement. Then, after the literacy test was enforced, we would be less likely to see migrants from low literacy countries. We would also expect that if low literacy was correlated with lower income, the head tax would have increased the overall costs of migrating, and it would be advantageous to migrate before it was imposed. Finally, as we look at fines of shipping companies as credible threat to shipping lines, we would expect that after the LT's enforcement shipping companies would be more careful in screening out illiterate migrants before they even board after the fines were enacted, but not

before. Overall, we would then expect that the Immigration Act would induce positive selection after the enactment period, with possibly increased negative selection due to anticipation effects in the post-passage period.

3.2 Gendered Effects of Migration Restrictions

Table 4 also outlines the expected effects of the Immigration Act of 1917, including the LT, on the share of women migrating. European women in the early twentieth century were less likely to be literate than their male counterparts, making any migration restrictions based on literacy more likely to negatively affect women's ability to immigrate to the United States than men's. As a result, we might expect the LT as well as other provisions such as the fines levied on shipping companies who bring excludable migrants and an increased head tax to be more pronounced for low-literacy women: women would be more likely to migrate during the post-passage and less likely in post-enactment period.

Despite the Act's emphasis on limiting migration to those who were literate, provisions that allowed illiterate women to enter if they were meeting family members within the U.S. meant many were still able to immigrate. The LT's potential effects on women's migration during this period in particular highlight the ways in which women were viewed differently as migrants: female migrants were wives and mothers first, and those who fit this view of womanhood would not be a threat to the American way of life. [11] These criteria are most evident

[11] Eugenicist and racist concerns about the characteristics of children born to female migrants from "new" Europe and elsewhere were present in much of the debate surrounding the literacy test, but these arguments did not gain enough traction for Congress to support subjecting all women to the literacy test once it finally passed (Petit 2010).

in classes excluded in Section 3 and had important implications for women's selection into this migration: those who conformed to the traditional view of womanhood were more likely to be admitted, but women who did not (particularly those who were travelling alone), were more likely to be excluded immediately after the Act's passage.

Examining arrivals to Ellis Island from 1892 to 1924, Bandiera, Rasul, and Viarengo (2013) show an increase in the ratio of male to female migrants near the onset of World War I and remark: "This long run change might of course in part be related to the 1917 Immigration Act that excluded illiterates and raised the head tax for migrants, leading to relatively higher barrier to entry for women in the short run, and potentially, a change in the composition of female migrants in the longer term (28)." Overall, women faced higher barriers of entry to migration to the United States than men, even before the literacy test. Unaccompanied women arriving to the United States were placed under additional scrutiny, particularly in response to earlier immigration laws that aimed to turn away immigrants that officials believed would become public charges (Gabaccia 1996; Gardner 2005; Petit 2010; Bandiera, Rasul, and Viarengo 2013; von Berlepsch, Rodriguez-Pose, and Lee 2019). As discussed by Gardner (2005), U.S. immigration officials' concern with whether a migrant was likely to become a "public charge" was as much about current poverty as about potential future poverty, and often was applied in explicitly gendered ways:

> During the early twentieth century, immorality was linked to indigence, and laws against poverty were layered onto those directed at patrolling women's morality and their roles within a family economy. Regardless of their work skills, women arriving during the early twentieth century who were alone, pregnant or with children, or with a checkered

> moral past were routinely found to be LPC [likely to become a public charge]. LPC stigmatized women's work outside the home by dismissing the ability of single women, divorced women, or widows to support themselves and their families. Poverty, in essence, was a gendered disease (75).

This scrutiny placed upon women was amplified by the Immigration Act of 1917. Not including the literacy test, additional provisions aimed to explicitly exclude prostitutes or those deemed "immoral", a category that women arriving alone or with children, but with no husband, would be automatically assumed to potentially be a member of.

The gendering of immigration law in the United States reflected larger societal beliefs about the role of women in the workforce. Immigrant women were not seen as a threat to the U.S.-born labor force the way immigrant men were, as these women were considered as filling only the roles of wives and mothers. Women who stepped out of these (perceived) moral confines were thus the subject of additional scrutiny (Gardner 2005). Evidence of officials' concerns with whether a woman had a male family member who would support her after arrival or of her perceived morality as a woman is prevalent in the testimonies of women detained and brought before the Board of Special Inquiry.

Martha Wood, a Black woman who arrived at Ellis Island on July 17, 1917 from the British West Indies[12] with a child who was born out of wedlock, was denied admittance due to,

> "this woman's admitted immorality, the fact that she comes here with an illegitimate child, and wishes to proceed to relatives who are under no legal obligation to assist

[12] Women of color often faced additional scrutiny by immigration authorities (Gardner 2005).

> her…the Bureau recommends that the excluding decision be AFFIRMED and DEPORTATION DIRECTED" (Board of Special Inquiry Case File 54290/101, Records of the Immigration and Naturalization Service, 1917)

Italian widow Girolama De Marco, who arrived on July 2, 1917 with her two children, was ordered deported by immigration officials, despite her and her eldest daughter's proven ability to read and write, based on the argument that,

> "these aliens are likely to become a public charge…They arrive with a very small sum of money; have no one in their country who could be legally held responsible for their maintenance…the elder alien is incumbered with two absolutely dependent children, whose constant care and attention will make it practically impossible for her to accept employment" (Board of Special Inquiry Case File 54290/25, Records of the Immigration and Naturalization Service, 1917)

It was only after this decision was appealed and her deceased husband's family, who had invited her, testified before the Board of Special Inquiry that she was able to enter the country. In another incident in November of 1917, an Italian seamstress was only allowed to enter the country after her fiancé presented himself to the Board and married her at Ellis Island, proving that she was not "being brought here for an immoral purpose" (Board of Special Inquiry Case File 54290/396, Records of the Immigration and Naturalization Service, 1917).

Despite this increased scrutiny, the law's implicit acceptance of women as mothers and caregivers who were dependent on male financial support helped to exempt them in part from

skills-based immigration restriction and leads to the possibility that there was both negative and positive selection in terms of literacy among women. Illiterate women entering the United States could stay as long as they were meeting a family member (an exception only extended to adult men over the age of 55) and that would have consequences for women's selection. While women would have been less likely to immigrate overall, married women or those who could prove they were meeting a family member would have been more successful in passing inspection.

4. Data

We use digitized data on all passengers arriving on ships into the Port of New York (Ellis Island) from January 1916 to June 1917. These data were transcribed from ship manifests and provided to us by the Statue of Liberty - Ellis Island Foundation, Inc.[13] The manifests have information on each passenger's first and last name, age, marital status, United States citizenship, primary nationality, crew status, and place of residence before arrival in the U.S. They also include information about the ship on which the passenger arrived, including the name of the ship, departure port, and date of arrival. Summary statistics on these characteristics as well as the total number of arrivals from each country are outlined in Table 5.

[Insert Table 5 here]

Our primary analysis period spans about 10 months. We have a period of "pre-passage" data, from September 1916 to February 4, 1917 before the LT was passed. Next, we have arrivals

[13] Unfortunately, Ellis Island Foundation was not able to share data with us past June 1917 or prior to 1916 due to staffing changes.

during the three months of the Post-Passage or Anticipation Period, or from February 5, 1917 to May 4, 1917. Finally, we have arrivals from a month and a half of the Post-Enactment Period: May 5, 1917 to June 30, 1917. Due to the highly variable nature of the number of arrivals both by day and by week, for our main differences in differences analysis we use the sum of arrivals over two-week periods. The breakdown of these periods, and where the actual passage and enactment date falls within each two-week interval, are presented in Table 6.

[Insert Table 6 here]

The data includes both country of residence and primary nationality. We use the nationality information to define immigrants as "new" immigrants, which follows the categorization outlined by the Dillingham Commission of new immigrant countries (those of eastern and southern Europe), and "low literacy" countries, which are immigrants whose country of nationality has an average percentage of men and women with no schooling of 30 percent or above. Data on schooling from Lee and Lee (2016) limits our analysis to immigration with nationalities native to Albania, Austria, the Balkans, Belgium, Bulgaria, Cyprus, Czechoslovakia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, and the United Kingdom. We then drop Luxembourg and Cyprus due to the low number of arrivals over the entire period (19 and 9, respectively). For our robustness checks, we conduct analyses on only those from Italy, assigning North and South Italy based on listed city or region

of origin[14], and, as a measure of intensity of war, gather data on U-boat activity in the Atlantic and Mediterranean from https://uboat.net/.

5. Empirical Strategy

We use two approaches in our analysis. As mentioned earlier, there can be two types of selection resulting from a restrictive immigration policy like the LT. First, the policy can change the prevalence of certain countries of origin of the immigrants, and second, it can change the nature of selection within countries. We will be able to address the first using country of origin, and the second type using available observable characteristics, including age and gender, but we do not have an individual measure of literacy.

First, we estimate the impact of the Immigration Act of 1917 using a differences-in-differences (DD) event study approach on arrivals to Ellis Island after both the passage of the legislation (February 5, 1917) and the enactment of the literacy test (May 5, 1917). The LT's goal was to restrict those who were illiterate, however we do not have literacy in our data (although it was collected on the ship manifests, it was not digitized. Even if it were, it would not tell us who had previously planned to migrate but was barred from getting on the ship). Thus, a limitation of our analysis is that we have no individual measure of literacy or skill. Instead, we can create proxies based on the share of the male and female population with schooling from Lee and Lee (2016, see Table 2). The DD approach then compares the number of immigrants from countries with higher and lower literacy schooling levels (with a threshold of 30% with no

[14] Northern Italy was assigned to all those arriving from the Emilia, Friuli-Venezia Guilia, Liguria, Lombardy, Piedmont, Trentino, Vento and Trento regions. Southern Italy was assigned to those arriving from the Abruzzi, Apulia, Basilicata, Calabria, Campania, Molise, Puglia, Sardinia, and Sicily regions.

schooling for a lower literacy country by gender) arriving to the U.S. before and shortly after these key legislation dates. We assume that those from countries with lower levels of schooling would be more affected by the test, providing a treated and control group for the DD.

We aggregate arrivals into 2-week intervals for each country and define 3 periods: (1) the "Pre-passage" period before February 5, 1917; (2) the "Post-Passage" or Anticipation period between February 5 and May 5, 1917; and (3) the "Post-Enactment" period after May 5, 1917. Table 6 shows where the key dates of passage and enactment fall within each week.[15]

We estimate the following difference-in-differences event study regression using our panel dataset, where the dependent variable is log of the number of immigrants arriving at Ellis Island from any European port during every 2-week period *t:*

$$\ln\left(TotalArrivals_{gt}\right) = \alpha + \sum_{k=-10}^{-2} \beta_k \, x \, Low\ Literacy_{gk} + \sum_{k=0}^{10} \beta_k \, x \, Low\ Literacy_{gk} + \theta_c + \gamma_t + \varepsilon_{gt} \quad (1)$$

$Low\ Literacy_{gk}$ is the treatment dummy for whether the individual is from the group of low literacy or high literacy arrivals (g), which indicates whether immigrants have reported nationalities (c) from countries with greater than 30 percent of individuals with no schooling, using schooling data from Lee and Lee (2016). The panel includes 23 countries and 21 2-week

[15] "Post-Passage" period begins in the week following the week containing February 5, 1917. Since travel time by boat from Europe to Ellis Island often took a week or more, we anticipate that migrants would not have been able to adjust their behavior in the week that the legislation was passed. "Post-Enactment" period begins the week of May 5, 1917 due to general knowledge of when the literacy test would begin to be enforced.

periods spanning September 1916 – June 1917. Standard errors are clustered at the country of nationality level.

We also estimate the following two-way fixed effects (TWFE) regression:

$$\ln(TotalArrivals_{ct}) = \alpha + \delta_1 PostPass_t + \delta_2 PostEnact_t + \beta_1(Low\ Literacy_c\ x\ PostPass_t) + \beta_2(Low\ Literacy_c\ x\ PostEnact_t) + \theta_c + \varepsilon_{ct} \quad (2)$$

where *c* indicates the immigrant's country of nationality, $PostPass_t$ is an indicator for (2-week) periods after Feb. 5, 1917 and before May 5, 1917. $PostEnact_t$ is a dummy variable for weeks after May 5, 1917. The coefficients β_1 and β_2 then reflect the effect of the Enactment or Passage of the Literacy Test on the number of immigrants arriving from low literacy countries, which would have been more affected by the test. Standard errors are clustered at the country of nationality level.

We additionally estimate this specification with the log of total men and total women. Since there are zero arrivals for some country-time period observations, we add 1 to these observations. We also transform the total arrival variables using the inverse hyperbolic sine function, which has been suggested as an alternative method in the presence of zeros (Bellemare and Wichman 2020).

Recent advances in the difference-in-differences literature have raised concerns about bias in two-way fixed effects estimates (Goodman-Bacon 2021). However, our estimate of the impact of the LT is an unbiased estimate of the average treatment effect on the treated because the timing of the treatment happens for all arriving immigrants at the same time, i.e. it is not staggered (Baker, Larcker, and Wang 2022).

In our second approach, we conduct an individual-level analysis and estimate the probability an individual arrived either after February 5th or May 5th, 1917, based on their available characteristics from the digitized ship manifests, using a linear probability model.

In our specifications, the dependent variable is equal to 1 if the migrant arrived either after February 5, 1917 (Post-Pass) and before May 5, 1917, or after May 5, 1917 (Post-Enact). For the Post-Enact period, we compare individual arrivals to those who arrived *before* February 5, 1917, but not between February 5, 1917 and May 5, 1917. We estimate the following linear probability model for each individual i:

$$I(Post\ Pass, Post\ Enact)_i =$$

$$\alpha + \beta_{1-7} AgeCat_i + \beta_8 Married_i + \beta_9 Female_i + \beta_{10} Low\ Literacy_i + \gamma_{port} + \varepsilon_i \quad (3)$$

Where $Low\ Literacy_i$ is again our treatment dummy variable, indicating individuals with country of nationality with a no schooling rate 30 percent or above, using schooling data from Lee and Lee (2016). $AgeCat_i$ are age categories for individuals aged 16-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, and 50-55, $Married_i$ and $Female_i$ are dummy variables. Additionally, γ_{port} are departure port fixed effects. Departure port fixed effects help control for any heterogeneity introduced by WWI war activity in different bodies of water. Departure port fixed effects cannot be used in our DD estimates due to aggregating arrivals at the nation-by-period level.

6. Results

6.1. Differences-in-Differences Event Study Estimates

Figure 5a and 5b show the share of "new" and "low literacy" immigrants arriving each week over our analysis period. Raw weekly arrival data is plotted as well as the lowess of the overall trend in the share arriving from each group. Both figures show the shares of migrants arriving at Ellis Island from new and low literacy countries over the Pre-Passage, Anticipation, and Enactment Periods drop significantly after enactment.[16]

[Insert Figure 5 here]

We next show the event study estimates in Figure 6. This figure plots the β coefficients from Equation 1. The coefficients show the change in the total number of immigrants arriving from low and high literacy countries before and after the passage and enactment of the LT. Here, we see that there is a slight increase in arrivals from low literacy countries compared to high literacy countries after the LT passed, but these coefficients are not significantly different from zero. However, we see a significant decline in arrivals from low literacy countries compared to high literacy countries after the LT was enacted. We see the same pattern for men and women, with men showing a significant decline (Figure 6b and 6c).

[Insert Figure 6 here]

[16] An individual is labelled as coming from a high education/literacy country if the percent of individuals in their home country without schooling is less than or equal to 30 percent. An individual is labelled as coming from a low education/literacy country if the percent of individuals in their home country without schooling is greater than 30 percent.

The TWFE estimates are presented in Table 7. Column 1 shows the first difference estimate: fewer migrants arrived in both the post-passage and post-enactment period compared to the pre-passage weeks. Especially as World War I increased in intensity during the period, including Germany's revival of its unrestricted U-boat campaign, it is unsurprising that there is an overall decrease in the number of migrants.

[Insert Table 7 here]

Columns 2 and 3 show our main DD estimates of the impact of the LT passage and enactment on the log total biweekly arrivals as well as the inverse hyperbolic sine of biweekly arrivals. Both specifications indicate a large and significant decline of approximately 70 percent in the total number of arrivals from low literacy countries due to the enactment of the LT compared to high literacy countries.[17] Importantly, we see no significant impact of the passage of the LT during the anticipation period, suggesting no significant anticipation effects. Column 4 omits individuals with Italian nationality from the sample, as the lion's share of immigrants were from Italy prior to the passage of the LT, and shows that there was still a significant decline in immigrants from non-Italian low literacy countries after enactment of the LT.

Finally, Columns 5 and 6 estimate the impact of the LT on arrivals by gender. Column 5 shows that the LT reduced the number of men arriving from low literacy countries, but we do not see a significant decline for women, matching the overall picture we see in our event study estimates. We explore these gender differences further in the next section.

[17] In the log-linear model, to estimate the magnitude of the effect we calculate 100*[exp(-1.198) - 1].

6.2. Individual-Level Results: Literacy and Gender

Next, we present the results of the individual-level analysis where we estimate the probability an immigrant arrived either after February 5th (Passage) or May 5th, 1917 (Enactment) compared to pre-February 5, 1917, based on their available characteristics from the digitized ship manifests. In Table 8, we estimate the likelihood of coming from a low-literacy country controlling for individual characteristics. Column 1 shows that there is no significant difference in the likelihood of coming from a low-literacy and high literacy country during the Anticipation Period (post-Passage) relative to the pre-Passage period. Notably, Column 2 shows that immigrants from low-literacy countries were almost 14 percentage points less likely to arrive during the post-enactment period than those from high literacy countries, relative to the pre-passage period. These results are consistent with the DD estimates presented in the previous section, showing that the enactment of the LT led to a decline in arrivals from low literacy countries, even when controlling for other individual characteristics.

[Insert Table 8 here]

As discussed previously, World War I likely led to differences in the risks of traveling in bodies of water, which may be influencing our estimates if low- or high-literacy countries were differentially impacted by the war. To account for this, we include departure port fixed effects in Columns 3 and 4. Here we find that there was still a significant reduction in the likelihood of immigrants coming from low-literacy countries compared to high literacy during both the post-enactment and post-passage period.

These models at the individual level also allow us to examine the other characteristics of immigrant arrivals before and after the literacy test. The gendered nature of both literacy (women often had a lower literacy rate than men) and the enforcement of the literacy test (married women arriving with or meeting their husbands and women meeting family members could immigrate even if illiterate) may have led to differential selection based on gender during the periods we study.

For example, Table 8 shows that when controlling for whether an immigrant was from a low- or high-literacy country, women were approximately 5 percentage points less likely than men to arrive after the enactment of the literacy test than before its passage. As women's literacy levels (or schooling rate, our preferred measure) was lower than men's in most of Europe (except for those from Finland, Germany, Hungary, and Ireland), this suggests that the LT may have further restricted women compared to men.

[Insert Figure 7 here]

Other aspects of the Immigration Act, such as the increased scrutiny placed on women travelling alone in addition to the literacy test itself, also likely influenced women's selection into migration. Figure 7 plots the share of migrants who are men arriving each week from low and high literacy countries over the whole period, and shows that over time, this share has increased for both types of countries, but particularly from high-literacy ones.[18] In Table 9, we

[18] It is possible that, rather than these changes in gender composition reflecting the effects of the Immigration Act of 1917, they instead mirror common seasonal fluctuations in gendered migration. To explore this, Appendix Figure A4 examines our entire period of data: January 1916 through June 1917. We see a marked increase in the share of

expand on this analysis. First, we split our sample into the immigrants from low-literacy and high-literacy countries (Columns 1-4). We observe in Columns 3 and 4 from the coefficient on *Female* that women from high-literacy countries had a larger decline in likelihood of arriving in the U.S. compared to men, relative to women from low-literacy countries. Women from high-literacy countries were about 10 percentage points less likely to arrive after enactment compared to men from high literacy countries, whereas women from low literacy countries were only about 1 percentage point less likely to arrive than men. Secondly, when looking at women only (Columns 5-8) we find that married women from high literacy countries are about 4 percentage points more likely to arrive after passage and about 5 percentage points more likely to arrive after enactment than single women compared to the pre-passage period. Among low literacy country women only, there appears to be no relationship between the passage of the literacy test and likelihood of being married: there are similar shares of single and married women arriving from low literacy countries as compared to the pre-passage period.

[Insert Table 9 here]

These results suggest that the LT affected men and women from low literacy countries more equally than men and women from high literacy countries, particularly those who were single. However, after passage, it is women from high literacy countries that were more likely to

men after the passage of the Act in February that is not mirrored in the previous year. Appendix Figure A5 looks at the share of men by year of immigration in the 1920 Decennial Census and also shows no obvious yearly pattern in increases in the share of men in other years leading up to 1917. Additionally, placebo analyses presented in Table 10 show no significant association between placebo dates and gender composition.

have a literate husband with whom to migrate, but for those who were single or had no family to meet them, fewer would have been able to or found it worth it to make the journey after its passage. These factors help explain why we see a steeper decline in women's likelihood of migration compared to men's from high literacy countries, but also an increase in the likelihood of married women's migration. It is also likely the LT was not the only aspect of the Immigration Act of 1917 driving changes in the composition of arrival to Ellis Island. Increased head tax and increased scrutiny placed upon women upon arrival meant the cost of their immigration and the risks associated with it (as they would be more likely to be turned away than before its passage), may have even persuaded the most well-off women (those from high-literacy countries) to stay home as the benefits no longer outweighed those costs.

7. Robustness

A major challenge to estimating the effects of the LT has been its passage and enactment amid international conflict. Ongoing and escalating German U-boat campaigns during World War I over the two years under study, the U.S.'s entrance into the war, and country-specific exposure to the intensity of the war are all threats to our interpretation of the effects of the literacy test on migrant selection. To help account for this, we employ three different strategies. First, we test a 'placebo' literacy test the year prior, examining changes around February 5 and May 5, 1916. Second, we limit our analysis only to Italy, comparing the less-literate South to the North. Finally, we examine U-boat activity in the Mediterranean and the Atlantic, measuring to what extent different countries' ships were subject to increased risk to transatlantic crossings.

7.1. 1916 Placebo Analysis of the Literacy Test

First, we look at the impact of a 'placebo' literacy test, as if it passed one year earlier on February 5, 1916 and enacted on May 5, 1916. For the differences in differences results, we again aggregate arrivals into 2-week periods for each country and define 3 periods: (1) the "placebo pre-passage" period from January 1, 1916 to February 5, 1916; (2) the "placebo post-passage" period between February 5, 1916 and May 5, 1916, (3) the "placebo post-Enactment" period from May 5, 1916 to June 30, 1916.[19] In all, the placebo period encompasses 4 weeks of pre-passage arrivals, 14 weeks of post-passage arrivals, and 8 weeks of post-enactment arrivals. These periods are outlined in Table 6. Figure 8 shows the results of the placebo event study graphs, showing that there is not a significant change in arrivals from low literacy countries after the 1916 placebo passage and enactment dates.

[Insert Figure 8 here]

Individual-level placebo results are shown in Table 10, where the placebo post-passage period is defined as from February 5, 1916 to May 4, 1916 and the placebo post-enactment period is defined as from May 5, 1916 to June 30, 1916. We see that there is no significant association between a placebo literacy test and changes in the likelihood of seeing individuals from low literacy countries or women arriving in our placebo post-passage and post-enactment periods.

[Insert Table 10 here]

[19] We do not have data prior to 1916 so we can only begin the analysis on January 1, 1916.

7.1. North vs. South Italy Analysis

Next, we limit our individual analyses to just those migrants from Italy. Southern Italy was significantly less literate than the North, meaning we can expect the South to be "treated" by the LT. Additionally, by focusing on just one country of origin we can limit the potential variation in war intensity due to country differences, and we can hold relatively constant the level of U-boat activity over the period as unrestricted U-boat warfare was constant in the Mediterranean (Hough 1983).

Table 11 shows the result of our main individual likelihood regressions. For both the post-passage and post-enactment periods, Southern migrants were 2 and 6 percentage points less likely to arrive than Northern migrants, respectively. We also see that Italian women were 3 percentage points less likely to arrive post-enactment than men. There is also some evidence of an anticipation effect among Italian women, who were about 2 percentage points more likely to arrive in the post-passage period than men compared to the pre-passage period.

[Insert Table 11 here]

7.3. World War I & U-Boat Ship Hits

One concern is that the timing of World War I coincided with the legislation, and that our estimates may instead be due to WWI differentially impacting arrivals of immigrants from low literacy countries compared to high literacy countries. We investigate this possibility by examining the U-boat activity in the Atlantic and Mediterranean around our key legislative dates, which serves as a proxy for the intensity of war at sea during WWI and is a rough measure of the

relative danger of transatlantic passage during the post-passage and post-enactment periods. Figure 9 shows the total number ship hits to boats flying flags from low-literacy and high-literacy countries.

[Insert Figure 9 here]

The larger increase in ship hits to high-literacy country vessels compared to low literacy suggests that the decreased number of arrivals from low literacy countries is not due to increased risk to ship passage for those countries compared to high literacy. Ship hits are further broken down in Figure 10, which shows that the majority of the increase in ship hits come from those taken by British vessels, while other countries have more or less stable activity.

[Insert Figure 10 here]

8. Conclusion

Previous research has suggested that the 1917 Immigration Act had little impact on restricting immigration due to rising literacy rates throughout Europe and lower levels of immigration due to World War I. Using digitized data from Ellis Island ship manifests from directly before and after the Act's passage and enactment, we show that the Act did in fact significantly alter selection into migration to the U.S. from Europe through Ellis Island, reducing migration from low literacy countries by 70 percent. Additionally, suggestive qualitative evidence from detained migrants in addition to our linear probability results on significant changes in the share of women migrating before and after the Act's passage indicate that not just

the LT, but other aspects of the Act such as the increased scrutiny levied on female migrants, also led to important changes in women's migration. These results re-cast what many had considered ineffective legislation as a consequential moment in immigration history in the United States. Although the 1924 quotas would further restrict immigration soon after its passage, our estimates suggest that even during this period of lower immigration due to WWI and rising literacy, the LT had an impact.

Our findings raise further questions about the long-term impact of the Act that are fruitful areas for further research. For example, future research could examine how immigrants who arrived before compared to after the Act fared in terms of employment, socioeconomic status and assimilation, particularly for men and women. Other studies have examined how variation in skill mix across U.S. counties impacted capital-skill complementarity and economic outcomes of workers (e.g. Lafortune, Lewis, and Tessada 2019), and impacts of the changes in the composition of immigrants due to the Act could be explored in future work. Another area for further research is building on Goldin (1994), who examined the economic and demographic factors that led to the legislative passage of the literacy test, to understand more about the political economy impacts of the LT in the U.S. that may have created conditions that led to the even more restrictive measures adopted in the 1924 quotas that effectively closed the doors.

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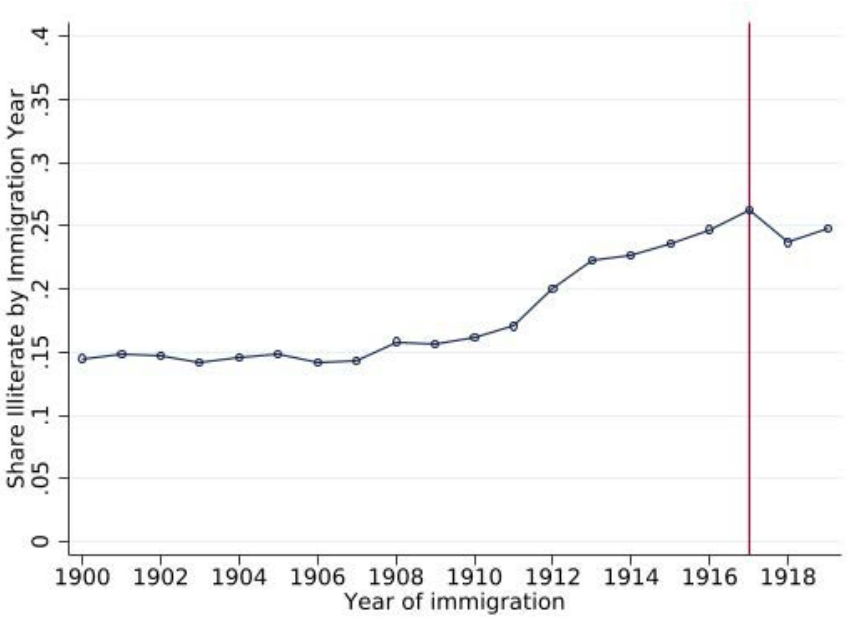
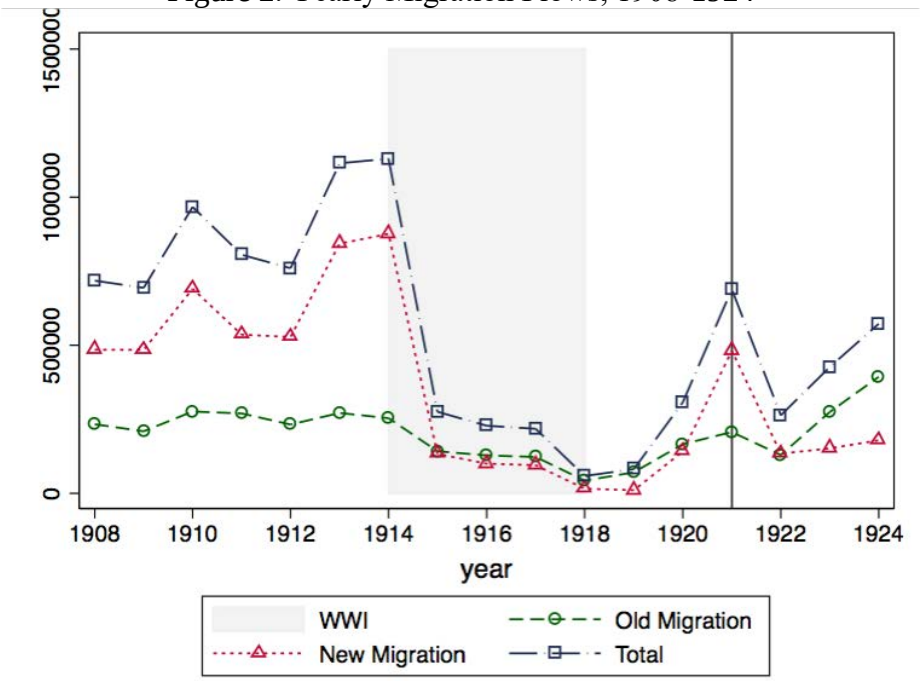
Tables and Figures

Figure 1. Share Illiterate Immigrants in 1920, by Arrival Year



Notes: Authors' calculations based 1920 complete count census. Graphs show the 1920 illiterate share of immigrants by year of arrival. Immigrants are limited to those from countries used in our main analyses: Albania, Austria, the Balkans, Belgium, Bulgaria, Czechoslovakia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Malta, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, and the United Kingdom

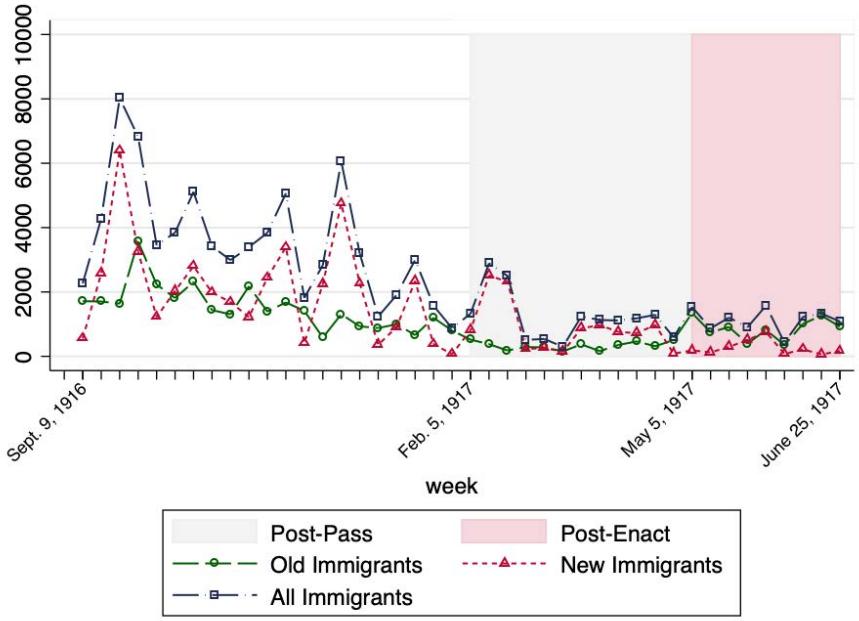
Figure 2. Yearly Migration Flows, 1908-1924



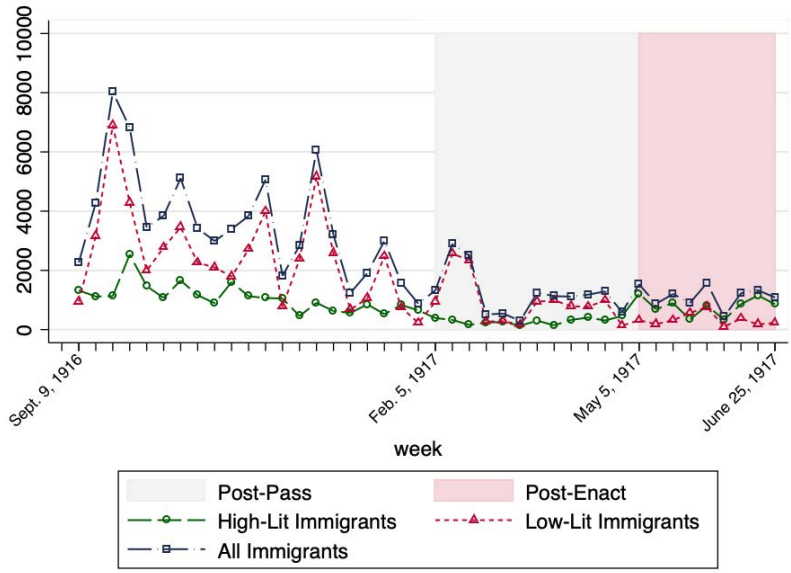
Notes: Source: Massey (2016), based on Reports of the Commissioner General of Immigration, 1908–1924. "Old" migrants included: Ireland, the United Kingdom, France, Germany, Norway, Sweden, Denmark, Netherlands, Switzerland, Belgium and Luxemburg. "New" migrants included: Czechoslovakia, Greece, Italy, Russia, Armenia, Bulgaria, Serbia, Montenegro, Croatia, Lithuania, Poland, and Bosnia. Line indicates passage of the Emergency Quota Act in 1921.

Figure 3. Weekly Migration Flows, September 1916 – June 1917

a. "Old" vs. "New" Migrants

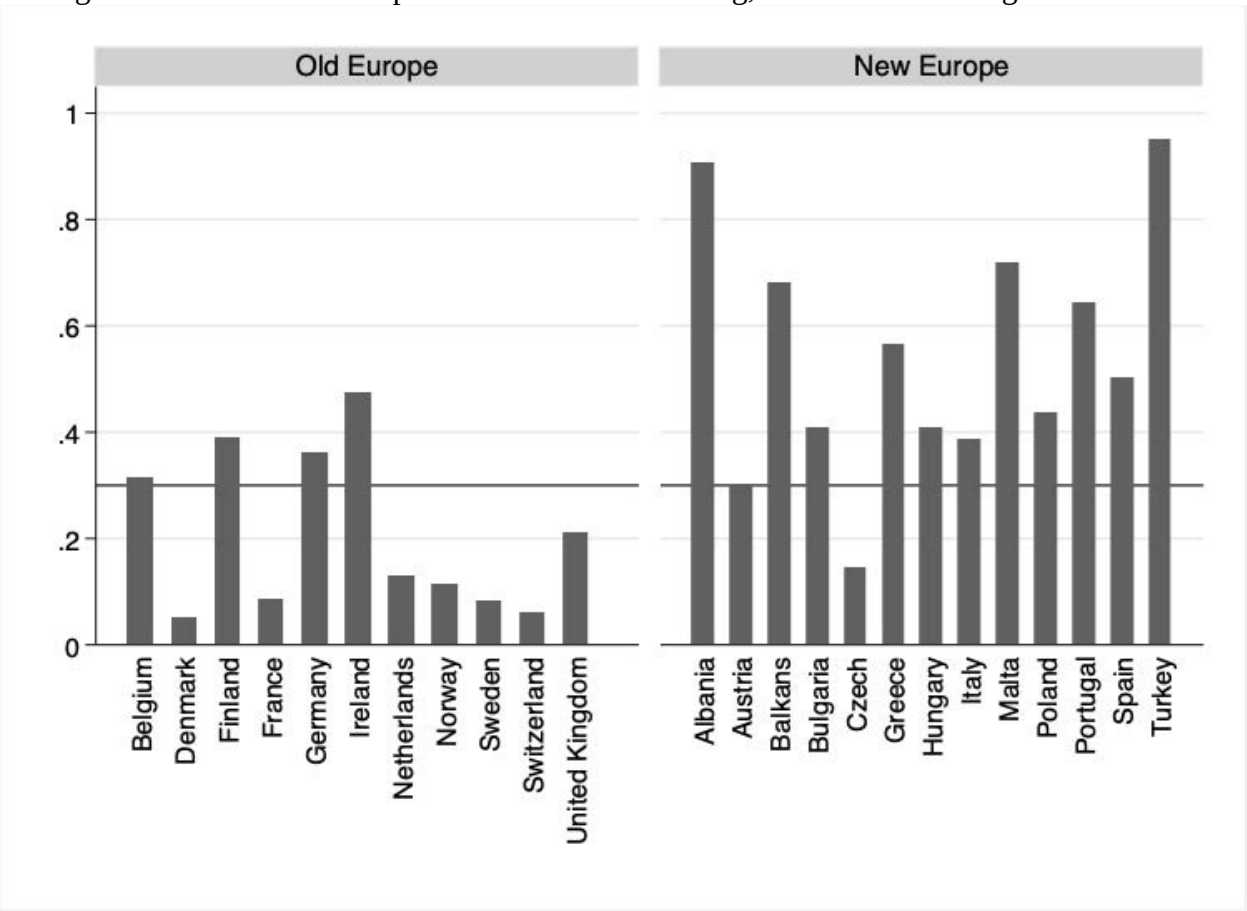


b. High-Literacy vs. Low-Literacy Migrants



Notes: Authors' calculations based on Ellis Island Ship Manifest data. "All immigrants" category includes immigrants from both "old" and "new" immigrant countries in Europe, as well as immigrants from non-European countries. Dates indicate start date of DiD analysis weeks: the "Post-Pass" period refers to those periods after the Immigration Act of 1917 was passed, but the literacy test was not yet enacted, and "Post-Enact" is the period after the literacy test was enacted. .

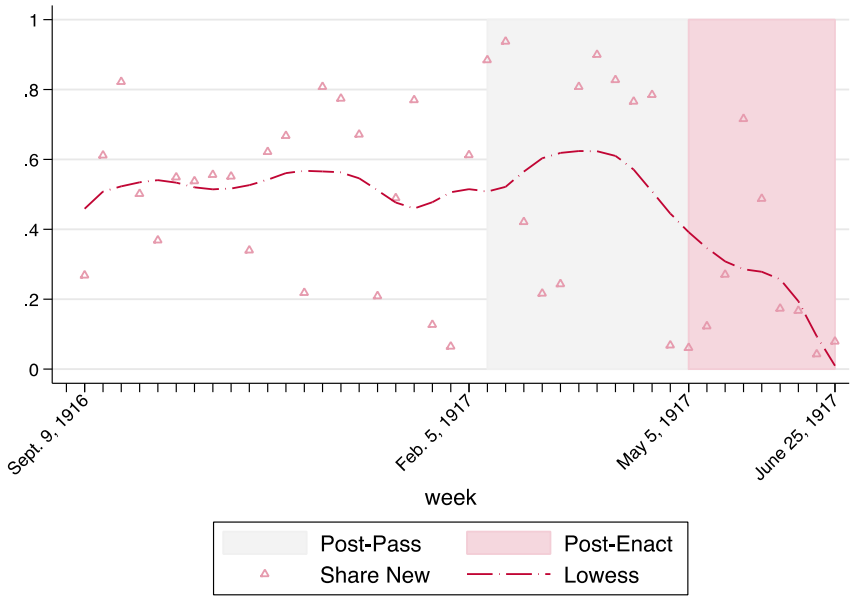
Figure 4. 1915 Share of Population with No Schooling, Old vs. New Immigrant Countries



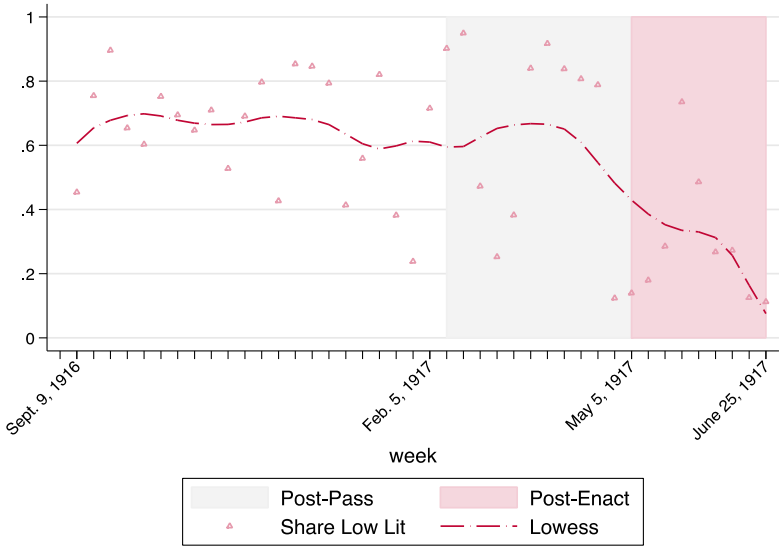
Notes: Authors' figure. Data on schooling from Lee and Lee (2016). Bars indicate average share of men and women of each country with no schooling in 1915. Horizontal line indicates authors' cutoff for "low literacy" countries: those with an average share of the population with no schooling at or above 30 percent.

Figure 5. Weekly Migration Flows, Share of Low-Literacy or New Immigrants

a. Share "New" Immigrants



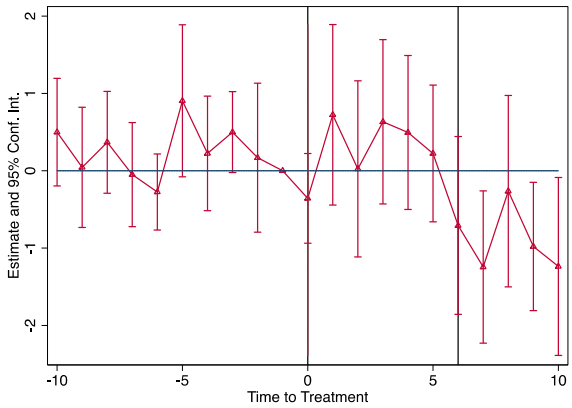
b. Share Low Literacy Immigrants



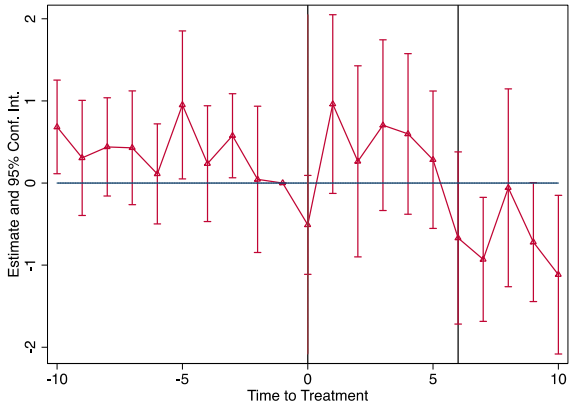
Notes: Authors' calculations based on Ellis Island Ship Manifest data. Graphs show the share of total European immigrants to the United States through Ellis Island from week 37 starting on September 9, 1917 through week 78 starting on June 25, 1917 and ending on June 30, 1917 from low-literacy countries (top) and "new" immigrant countries (bottom). Dates indicate start date of DD analysis weeks.

Figure 6. Event Study Estimates

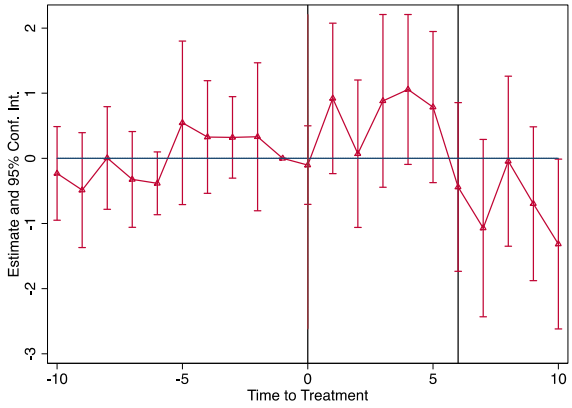
a. Total



b. Men

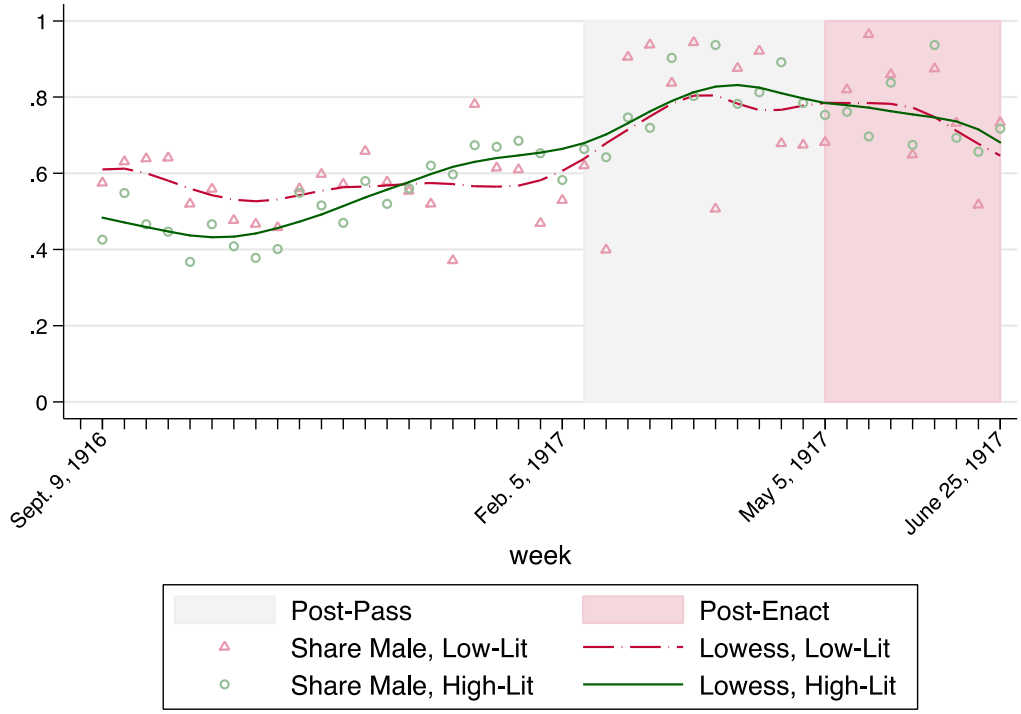


c. Women



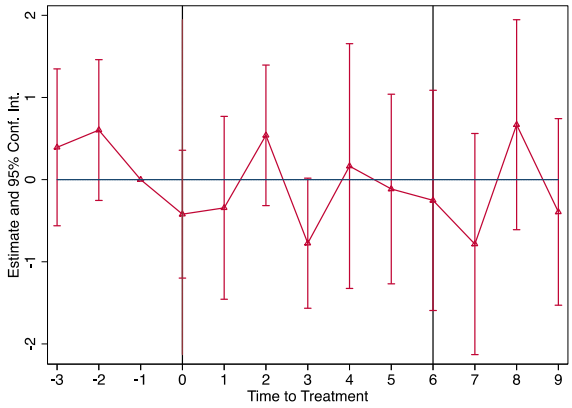
Notes: Event study estimates and 95% confidence intervals. Arrivals are aggregated for two-week periods. First vertical line indicates the beginning of the post-passage period and second vertical line indicates beginning of post-enactment period. Coefficients show the change in the total number of arrivals of low literacy men and women, and then separately by gender, compared to high literacy men and women. Standard errors are clustered at the country of nationality level.

Figure 7. Share Male, Low-Literacy vs. High Literacy Countries



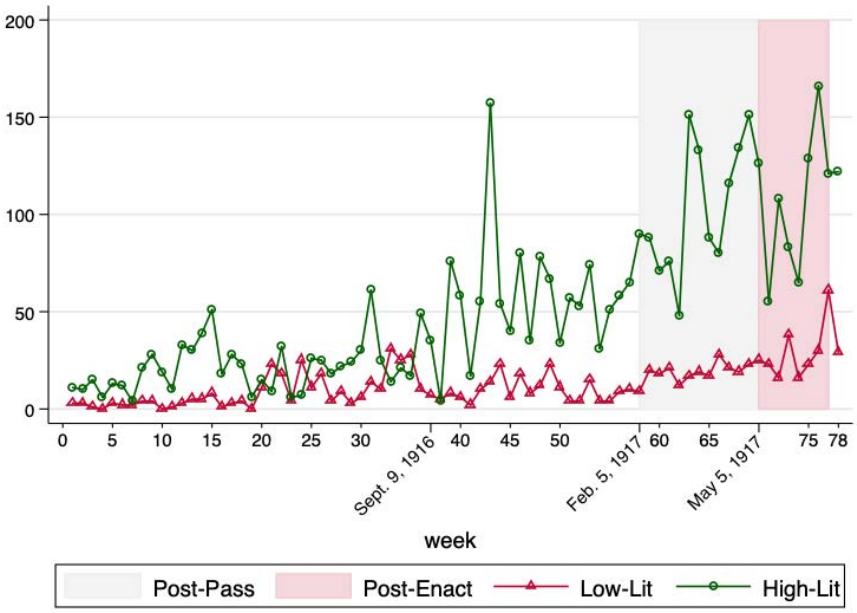
Notes: Authors' calculations based on Ellis Island Ship Manifest data. Graphs show the male share of arrivals to the United States through Ellis Island from week 37 starting on September 9, 1917, through week 78 starting on June 25, 1917, and ending on June 30, 1917 from all of Europe. Dates indicate start date of key analysis weeks.

Figure 8. 1916 Placebo Event Study Estimates



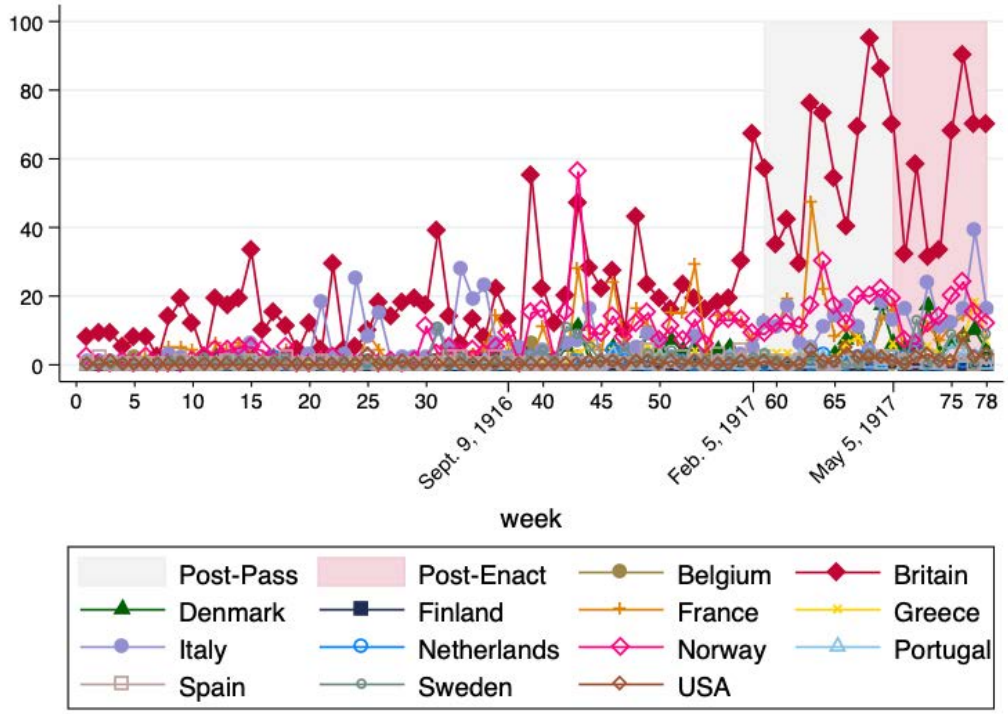
Notes: Event study estimates and 95% confidence intervals. Arrivals are aggregated for two-week periods. First vertical line indicates the beginning of the 1916 placebo post-passage period and second vertical line indicates beginning of 1916 placebo post-enactment period. Coefficients show the change in the total number of arrivals of low literacy men and women, compared to high literacy men and women. Standard errors are clustered at the country of nationality level.

Figure 9. Ship Hits, Weekly Totals



Notes: Authors' calculations based on data from Guðmundur Helgason and https://uboat.net/wwi/ships_hit/. A "ship hit" is any incident where a ship was "damaged", "sunk", or "captured" due to war activity.

Figure 10: Ship Hits, Weekly Totals by Country of Damaged, Captured, or Sunk Boat



Notes: Authors' calculations based on data from Guðmundur Helgason and https://uboat.net/wwi/ships_hit/. A "ship hit" is any incident where a ship was "damaged", "sunk", or "captured" due to war activity.

Table 1. Relevant Provisions of the Immigration Act of 1917

Provision	Description
Head Tax (Section 2)	♦ ***Increase from $4 to $8*** ♦ Levied on every immigrant and non-citizen crew member 16 and older entering United States ♦ Responsibility of the shipping company to make sure the tax is paid
Children (Section 3)	♦ No children under sixteen years of age unless accompanied by or reuniting with one or both parents
Excluded Classes (Section 3)	♦ Section 3 of the Immigration Act provides a long list of excluded classes, including: o Epileptics o Paupers o Those with tuberculosis o Criminals o Anarchists o Polygamists o Prostitutes
Literacy Test (Section 3)	♦ To be implemented on May 5, 1917 ♦ ***Applied only to those sixteen and older who were physically capable of reading*** ♦ Test was administered in immigrant's native language ♦ Immigrant had to read passage of between thirty and forty words ♦ Exemptions: o ***Father or grandfather of immigrant fifty-six and over*** o ***Wife, mother, or grandmother of immigrant*** o ***Unmarried or widowed daughter of immigrant*** o Those facing religious persecution o Those who had been living in the United States for at least five years and who returned within six months of departure o Skilled laborers of which there was a shortage of within the United States
Ship Manifests (Section 36)	♦ Ships now had to document the names of all aliens aboard the ship, including crew members
Fines (Sections 9, 18)	♦ ***Shipping companies were liable for bringing excludable immigrants*** ♦ Fine of $25-$300 plus cost of return ticket for each violation of immigration provisions
Board of Special Inquiry (Section 17)	♦ Those immigrants who do not pass initial inspection would be referred to the Board of Special Inquiry for examination ♦ Immigrants had a right to appeal the Board of Special Inquiry decisions and had a right to an attorney

Source: Immigration Act of 1917

Table 2. Schooling Rate by Gender, 1915			
	Percent with No School		
	Male	Female	Average
Albania	90.4	91.0	90.7
Austria	20.6	38.4	29.8
Balkans	55.3	80.8	68.0
Belgium	13.3	49.4	31.5
Bulgaria	22.4	58.9	40.7
Denmark	4.3	5.9	5.1
Finland	40.4	37.5	38.9
France	5.3	11.4	8.5
Germany	36.7	35.3	36.0
Greece	34.6	77.6	56.6
Hungary	54.7	27.5	40.6
Ireland	52.3	42.4	47.4
Italy	34.4	42.6	38.6
Malta	69.0	74.3	71.7
Netherlands	10.7	15.0	12.9
Norway	8.6	13.5	11.2
Poland	43.0	44.2	43.6
Portugal	48.4	77.9	64.4
Spain	37.4	62.4	50.3
Sweden	7.4	8.8	8.1
Switzerland	6.9	5.2	6.0
Turkey	91.0	98.5	94.9
United Kingdom	17.1	24.3	20.9
Notes: Data from Lee and Lee (2016).			

Table 3. Timeline of Relevant Events

Date	Description
March 1, 1916	♦ Portugal enters war ♦ Second unrestricted German U-boat campaign begins
April 14, 1916	♦ Germany ends unrestricted U-boat campaign
August 27, 1916	♦ Romania enters war
February 1, 1917	♦ Third unrestricted German U-boat campaign
February 5, 1917	♦ Immigration Act of 1917 passes
April 6, 1917	♦ United States enters war
May 1, 1917	♦ Immigration Act of 1917, all provisions except literacy test enforced
May 5, 1917	♦ Immigration Act of 1917, literacy test enforced

Sources: Hough 1983, Immigration Act of 1917

Table 4. Predicted Effects

		Low-Lit Immigration		Female Immigration	
Event	Start Date	Post-Passage	Post-Enactment	Post-Passage	Post-Enactment
Section 3 enforced	February 5, 1917	-	-	-	-
Head Tax	May 1, 1917	+	-	+	-
Fines on Shipping Companies	May 1, 1917	0	-	0	-
Literacy Test	May 5, 1917	+	-	+	-

Notes: This table shows the predicted effects of key provisions of the Immigration Act of 1917.

Table 5. Individual Arrivals, Summary Statistics

	Pre-Passage	Post-Passage	Post-Enactment
	A. Arrival Characteristics (Share)		
Age			
under 16	0.165	0.162	0.142
16-19	0.163	0.145	0.176
20-24	0.145	0.148	0.169
25-29	0.097	0.112	0.125
30-34	0.070	0.083	0.085
35-39	0.071	0.063	0.063
40-44	0.051	0.051	0.047
45-49	0.034	0.042	0.029
50-55	0.032	0.029	0.030
56+	0.165	0.162	0.142
Low Literacy Country	0.713	0.772	0.316
Married	0.414	0.457	0.387
Female	0.452	0.350	0.306
Married Women	0.322	0.380	0.450
	B. Frequency of Arrivals		
Albania	256	0	0
Austria	150	4	18
Balkans	96	25	32
Belgium	504	55	38
Bulgaria	52	0	0
Czech Republic	78	0	11
Denmark	1356	217	455
Finland	2773	120	286
France	1627	553	446
Germany	1101	52	27
Greece	14876	1309	272
Hungary	267	6	17
Ireland	4645	204	30
Italy	21727	5039	532
Malta	30	7	35
Netherlands	1512	61	1095
Norway	3230	579	985
Poland	279	3	21
Portugal	276	60	21
Spain	2608	2678	720
Sweden	4093	303	822
Switzerland	600	87	91
Turkey	384	55	7
United Kingdom	7457	1028	484
Total	69,977	12,445	6,445

Notes: Panel A of this table shows the characteristics of arrivals in each period. Panel B shows the total number of arrivals by nationality in each period.

Table 6. Analysis Timing

Dates	Week Number	Period	Comparison Period	Number of Weeks
Difference-in-Differences Time Periods				
September 9,1916 – January 28, 1917	Weeks 37 - 56	Pre-Passage		20
January 29, 1917 – May 6, 1917	Weeks 57 -70	Post-Passage	Pre-Passage	14
May 7, 1917 – June 30, 1917	Weeks 71 -78	Post-Enactment	Pre-Passage	8
Placebo Time Periods				
January 1, 1916 – January 28, 1916	Weeks 1-4	Placebo Pre-Passage		4
January 29, 1916 – May 5, 1916	Weeks 5 - 18	Placebo Post-Passage	Placebo Pre-Passage	14
May 6, 1916 – June 30, 1916	Weeks 19-26	Placebo Post-Enactment	Placebo Pre-Passage	8

January – February 1917						
Su	M	Tu	W	Th	F	Sa
28	29	30	31	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17

	Week 58
	Passage date

April – May 1917						
Su	M	Tu	W	Th	F	Sa
29	30	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19

	Week 70
	Enactment date

Notes: This table shows the key dates use in our difference in differences and individual level of analyses, as well as our placebo analysis. Difference in differences specifications use two-week arrival totals and individual level analyses aggregate by pre-passage, post-passage, and post-enactment.

Table 7. Immigrant Arrivals and the Literacy Test, Difference-in-Difference Estimates

	Ln Total	Ln Total	Inv Hyp Sin Tot	Ln Total, Excl. Italy	Ln Total, Male	Ln Total, Female
	(1)	(2)	(3)		(4)	(5)
Post-Passage	-1.707**	-1.667**	-1.778**	-1.667**	-1.164**	-2.181**
	(0.181)	(0.208)	(0.220)	(0.209)	(0.263)	(0.262)
Post-Enactment	-1.429**	-0.647**	-0.696**	-0.647**	-0.192	-1.208**
	(0.257)	(0.208)	(0.229)	(0.208)	(0.167)	(0.269)
Post-Passage x		-0.060	-0.155	-0.006	-0.072	0.560
Low Schooling		(0.330)	(0.353)	(0.340)	(0.355)	(0.408)
Post-Enactment x		-1.198**	-1.356**	-1.098*	-1.119**	-0.729
Low Schooling		(0.390)	(0.425)	(0.396)	(0.345)	(0.468)
Constant	3.989**	3.989**	4.596**	3.853**	3.249**	3.109**
	(0.100)	(0.097)	(0.105)	(0.098)	(0.093)	(0.117)
N	483	483	483	462	483	483
Mean Dep. Var.	3.148	3.148	3.669	3.039	2.670	2.183
R^2	0.742	0.753	0.754	0.754	0.779	0.657

Notes: The dependent variable in Columns 1-2 is the log number of total individuals age 16-55 arriving at Ellis Island; in column 3 it is the inverse hyperbolic sine of total arrivals; Column 4 is log number of total individuals, excluding Italy; Column 5 and 6 are log of total men and women; in Column 5 it is the share of total arrivals that were men. The unit of observation is country (of nationality) by 2-week periods for December 1916-June 1917. Post-passage is a dummy variable for weeks after Feb. 5, 1917 and before May 5, 1917. Post-Enactment is a dummy variable for weeks after May 5, 1917. These dummies are interacted with a dummy for countries with a high no schooling rate (above 30%) for either men or women, using schooling data from Lee and Lee (2016). The panel includes 23 countries and 21 2-week periods spanning September 1916 – June 1917. Standard errors are clustered at the country of nationality level.

Table 8. Linear Probability: All Arrivals

	Post-Pass	Post-Enact	Post-Pass	Post-Enact
	(1)	(2)	(3)	(4)
Age 20 to 24	-0.006	0.026*	0.004	0.020**
	(0.027)	(0.013)	(0.011)	(0.007)
Age 25 to 29	-0.002	0.021	-0.007	0.010
	(0.021)	(0.013)	(0.013)	(0.007)
Age 30 to 34	0.013	0.024	0.003	0.011
	(0.018)	(0.015)	(0.010)	(0.008)
Age 35 to 39	0.014	0.016	0.013	0.006
	(0.018)	(0.013)	(0.009)	(0.008)
Age 40 to 44	-0.030	-0.005	-0.021	-0.003
	(0.050)	(0.016)	(0.037)	(0.007)
Age 45 to 49	-0.023	-0.004	-0.005	0.005
	(0.039)	(0.018)	(0.016)	(0.008)
Age 50 to 55	0.015	-0.017	0.036*	-0.004
	(0.042)	(0.021)	(0.017)	(0.009)
Female	-0.062	-0.064*	-0.013	-0.050**
	(0.060)	(0.024)	(0.037)	(0.018)
Married	0.013	-0.001	0.002	-0.005
	(0.015)	(0.013)	(0.006)	(0.008)
Low Lit	0.024	-0.144**	-0.056*	-0.109**
	(0.052)	(0.045)	(0.020)	(0.029)
Mean Dep. Var	0.152	0.088	0.152	0.088
Nb. of Observations	64,947	60,391	64,947	60,391
R^2	0.010	0.068	0.115	0.131
Dep. Port Fixed Effects	No	No	Yes	Yes

Notes: Dependent variable is a binary indicator equal to 1 if an individual arrived in the post-passage or post-enactment period and 0 if an individual arrived in the pre-passage period. The reference category for age dummies is 16-19. Columns 3 and 4 include departure port fixed effects. Robust standard errors in parentheses. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table 9. Linear Probability: Gender

	All				Female Only				Men Only			
	Low-Lit		High-Lit		Low-Lit		High-Lit		Low-Lit		High-Lit	
	Post-Pass	Post-Enact	Post-Pass	Post-Enact	Post-Pass	Post-Enact	Post-Pass	Post-Enact	Post-Pass	Post-Enact	Post-Pass	Post-Enact
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Age 20 to 24	-0.005	0.012^{+}	0.054**	0.049*	0.008	-0.001	0.014*	0.008	-0.010	0.029	0.076**	0.083*
	(0.014)	(0.007)	(0.010)	(0.017)	(0.005)	(0.002)	(0.006)	(0.005)	(0.024)	(0.018)	(0.014)	(0.031)
Age 25 to 29	-0.017	0.009	0.060**	0.040*	-0.011	-0.001	0.017	0.008	-0.012	0.016	0.087**	0.059*
	(0.010)	(0.008)	(0.013)	(0.015)	(0.008)	(0.008)	(0.010)	(0.010)	(0.012)	(0.013)	(0.026)	(0.021)
Age 30 to 34	-0.003	0.014*	0.052**	0.032^{+}	-0.007	-0.003	0.013	0.011	0.002	0.025	0.074**	0.044
	(0.010)	(0.006)	(0.013)	(0.017)	(0.015)	(0.006)	(0.009)	(0.011)	(0.015)	(0.017)	(0.013)	(0.024)
Age 35 to 39	0.018	0.021*	0.039^{+}	0.009	0.001	0.006	0.016	0.000	0.023^{+}	0.034	0.051	0.016
	(0.013)	(0.009)	(0.019)	(0.010)	(0.019)	(0.010)	(0.013)	(0.014)	(0.013)	(0.020)	(0.028)	(0.015)
Age 40 to 44	-0.026	0.011**	0.027*	0.008	0.028*	-0.004	-0.006	0.013	-0.041	0.026*	0.042*	0.000
	(0.045)	(0.003)	(0.010)	(0.014)	(0.011)	(0.015)	(0.010)	(0.011)	(0.055)	(0.012)	(0.013)	(0.014)
Age 45 to 49	0.003	0.013**	0.011	0.027	0.005	0.006	-0.007	0.004	0.004	0.026^{+}	0.016	0.040^{+}
	(0.019)	(0.004)	(0.019)	(0.019)	(0.007)	(0.007)	(0.009)	(0.014)	(0.016)	(0.012)	(0.034)	(0.021)
Age 50 to 55	0.055**	0.013*	0.023	-0.005	0.014^{+}	0.006	-0.009	-0.005	0.077**	0.025^{+}	0.034	-0.010
	(0.018)	(0.005)	(0.020)	(0.011)	(0.008)	(0.006)	(0.019)	(0.013)	(0.024)	(0.012)	(0.033)	(0.009)
Female	0.036	-0.013^{+}	-0.122**	-0.109**								
	(0.025)	(0.006)	(0.021)	(0.019)								
Married	-0.004	-0.010	0.019	0.016	-0.009	0.009	0.038**	0.051*	0.004	-0.026^{+}	-0.005	-0.017
	(0.005)	(0.008)	(0.011)	(0.010)	(0.007)	(0.008)	(0.006)	(0.019)	(0.012)	(0.014)	(0.023)	(0.014)
Mean Dep. Var	0.160	0.041	0.133	0.182	0.136	0.024	0.071	0.116	0.177	0.053	0.186	0.239
Nb. of Observations	46,090	40,384	18,857	20,007	18,925	16,766	8,785	9,236	27,165	23,618	10,072	10,771
R^2	0.143	0.094	0.082	0.102	0.063	0.071	0.038	0.122	0.207	0.110	0.076	0.069
Dep. Port Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Dependent variable is a binary indicator equal to 1 if an individual arrived in the post-passage or post-enactment period and 0 if an individual arrived in the pre-passage period. The reference category for age dummies is 16-19. Columns 3 and 4 include departure port fixed effects. Robust standard errors in parentheses.

Table 10. Placebo Results: Individual Regressions

	Post-Pass	Post-Enact	Post-Pass	Post-Enact	Post-Pass	Post-Enact
	(1)	(2)	(3)	(4)	(5)	(6)
Age 20 to 24	-0.016	-0.046	-0.016	-0.046	-0.004	-0.022
	(0.022)	(0.039)	(0.022)	(0.039)	(0.019)	(0.032)
Age 25 to 29	-0.035**	-0.064*	-0.036**	-0.068*	-0.019+	-0.047+
	(0.008)	(0.027)	(0.008)	(0.025)	(0.009)	(0.023)
Age 30 to 34	0.004	-0.051*	0.001	-0.058**	0.015	-0.033+
	(0.023)	(0.018)	(0.022)	(0.015)	(0.020)	(0.016)
Age 35 to 39	0.025	0.034	0.024	0.031	0.036	0.043
	(0.032)	(0.050)	(0.031)	(0.047)	(0.030)	(0.049)
Age 40 to 44	0.038	0.074	0.037	0.072	0.042	0.070
	(0.033)	(0.055)	(0.034)	(0.053)	(0.033)	(0.055)
Age 45 to 49	0.024	0.072	0.022	0.069	0.029	0.067
	(0.034)	(0.051)	(0.034)	(0.049)	(0.031)	(0.049)
Age 50 to 55	0.018	0.047	0.015	0.040	0.025	0.045
	(0.033)	(0.044)	(0.032)	(0.040)	(0.028)	(0.033)
Female	-0.032	0.036	-0.034	0.033	-0.014	0.052
	(0.028)	(0.052)	(0.028)	(0.052)	(0.029)	(0.045)
Married	-0.015	-0.040+	-0.011	-0.034+	-0.011+	-0.036**
	(0.012)	(0.020)	(0.008)	(0.018)	(0.006)	(0.012)
Low Lit			-0.021	-0.033	-0.067	-0.108
			(0.037)	(0.060)	(0.043)	(0.095)
Mean Dep. Var	0.828	0.762	0.828	0.762	0.828	0.762
Nb. of Observations	41,819	30,231	41,819	30,231	41,819	30,231
R^2	0.006	0.012	0.006	0.013	0.024	0.086
Dep. Port Fixed Effects	No	No	No	No	Yes	Yes

Notes: Dependent variable is a binary indicator equal to 1 if an individual arrived in the placebo post-passage or placebo post-enactment period and 0 if an individual arrived in the pre-passage period. The reference category for age dummies is 16-19. Columns 5 and 6 include departure port fixed effects. Robust standard errors in parentheses. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

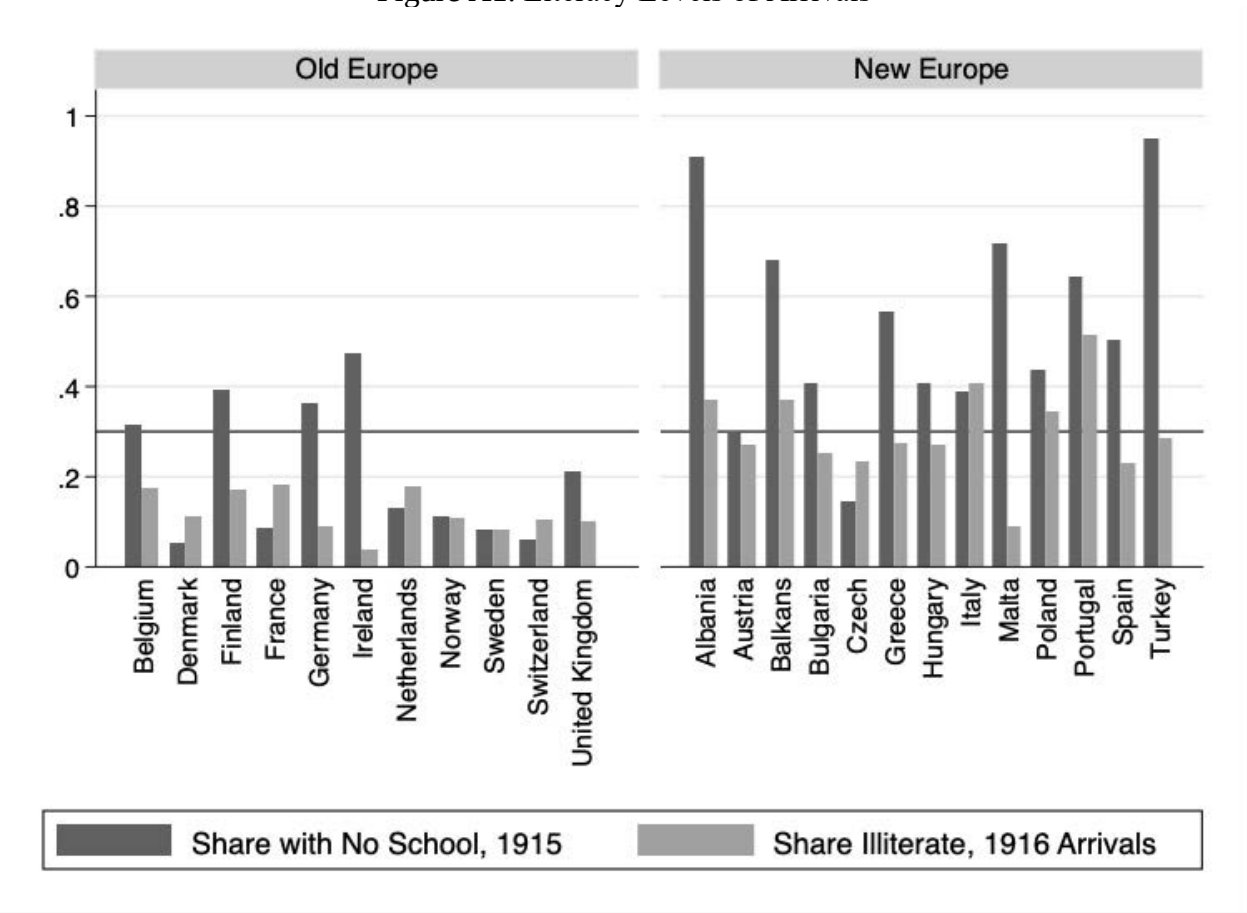
Table 11. Linear Probability: Italy

	Post-Pass	Post-Enact
	(1)	(2)
Age 20 to 24	-0.003	0.027**
	(0.010)	(0.005)
Age 25 to 29	0.002	0.035**
	(0.012)	(0.006)
Age 30 to 34	0.002	0.034**
	(0.013)	(0.007)
Age 35 to 39	0.003	0.036**
	(0.015)	(0.008)
Age 40 to 44	-0.064**	0.015*
	(0.012)	(0.006)
Age 45 to 49	-0.014	0.018**
	(0.014)	(0.007)
Age 50 to 55	0.035*	0.020**
	(0.015)	(0.007)
South	-0.022*	-0.060**
	(0.010)	(0.008)
Married	-0.020*	-0.041**
	(0.009)	(0.005)
Female	0.019**	-0.032**
	(0.007)	(0.004)
Mean Dep. Var	0.142	0.029
Nb. of Observations	15,300	13,178
R^2	0.010	0.029
Dep. Port Fixed Effects	Yes	Yes

Notes: Dependent variable is a binary indicator equal to 1 if an individual arrived in the post-passage or post-enactment period and 0 if an individual arrived in the pre-passage period. The reference category for age dummies is 16-19. Columns 1 and 2 include departure port fixed effects. Robust standard errors in parentheses. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

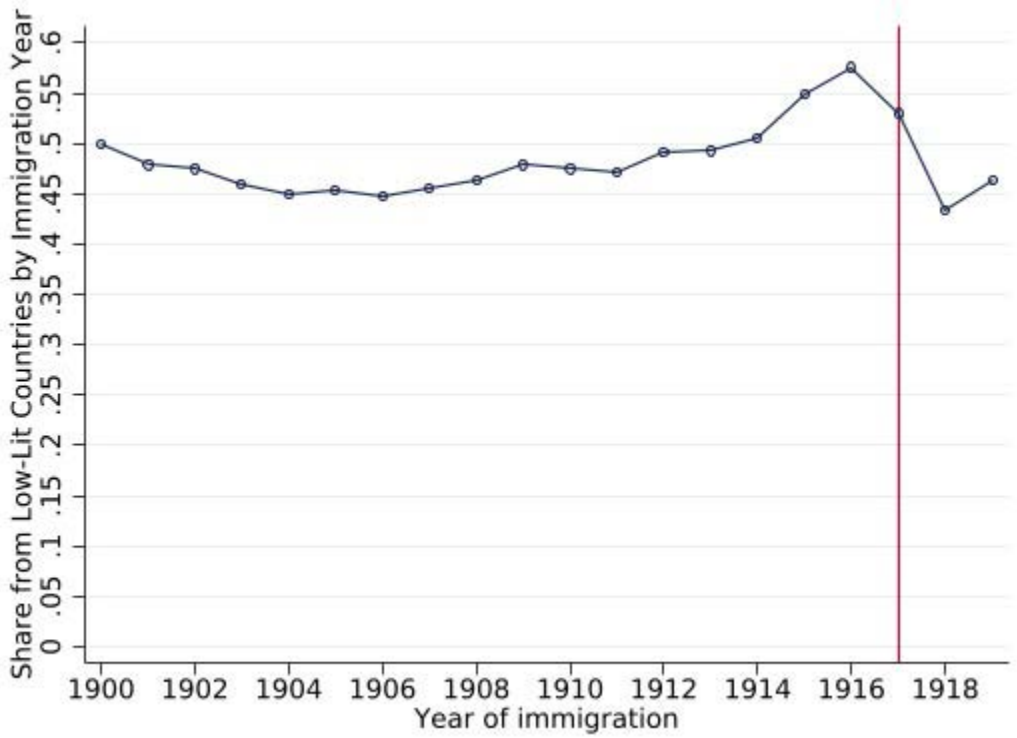
Appendix

Figure A1. Literacy Levels of Arrivals



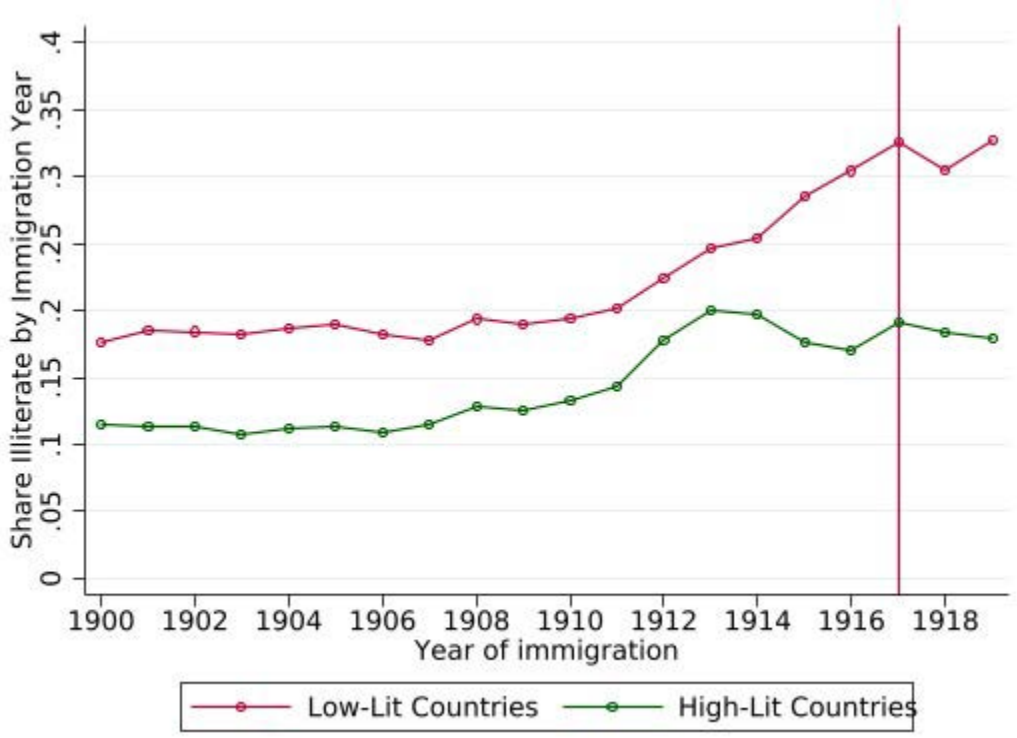
Notes: Authors' figure. Data on no schooling rate from Lee and Lee (2016) and data on illiteracy rates from 1916 immigrants from the 1920 full count census. Dark gray bars indicate average share of men and women of each country with no schooling in 1915 and light gray bars indicate the illiteracy rates among 1916 arrivals residing in the U.S. in 1920. Horizontal line indicates authors' cutoff for "low literacy" countries: those with an average share of the population with no schooling at or above 30 percent.

Figure A2. Share of Immigrants from Low-Lit Countries in 1920, by Arrival Year



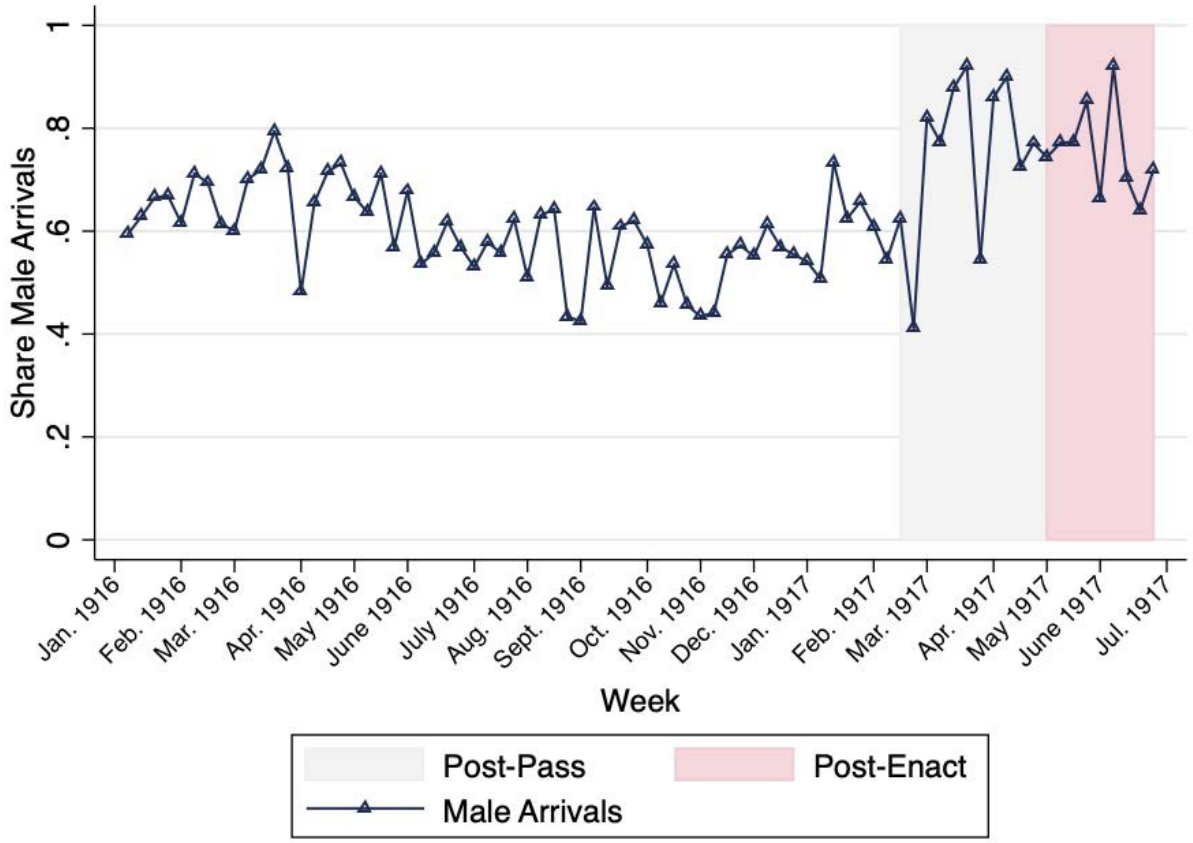
Notes: Authors' calculations based 1920 complete count census. Graphs show the 1920 share of immigrants by year of arrival from authors-defined low-literacy countries. Immigrants are limited to those from countries used in our main analyses: Albania, Austria, the Balkans, Belgium, Bulgaria, Czechoslovakia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Malta, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, and the United Kingdom

Figure A3. Share Illiterate Immigrants in 1920, by Arrival Year and Low-Lit Country Status



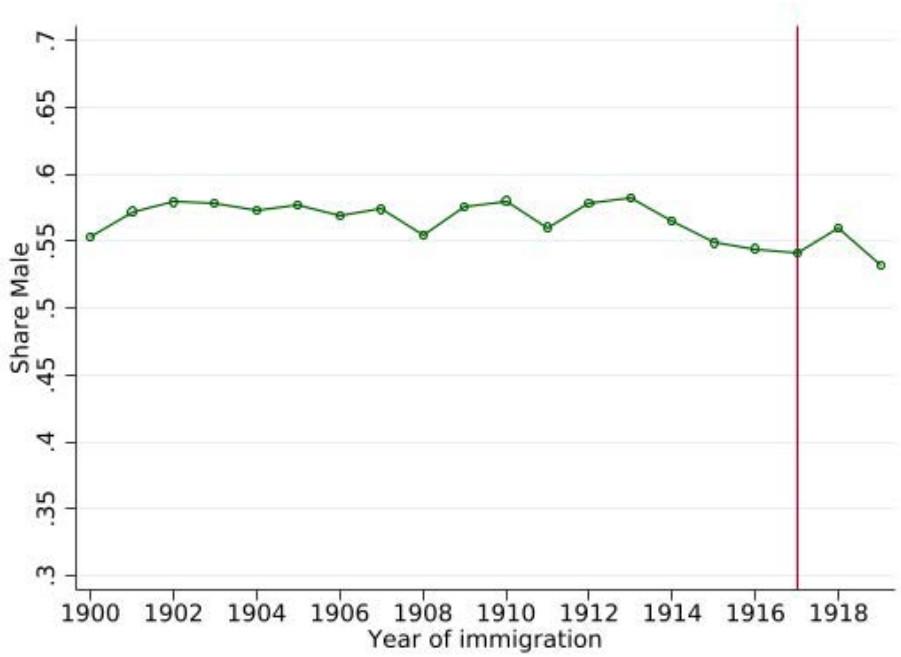
Notes: Authors' calculations based 1920 complete count census. Graphs show the 1920 illiterate share of immigrants by year of arrival and low or high literacy country status. Immigrants are limited to those from countries used in our main analyses: Albania, Austria, the Balkans, Belgium, Bulgaria, Czechoslovakia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Malta, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, and the United Kingdom

Figure A4. Share Male Arrivals, Ship Manifests



Notes: Authors' calculations based on Ellis Island Ship Manifest data. Graphs show the male share of the weekly arrivals to the United States through Ellis Island from the beginning of our data, January 1, 1916, through week 78 starting on June 25, 1917, and ending on June 30, 1917 from all of Europe. The first week of each month is indicated on the x axis.

Figure A5. Share Male Immigrants in 1920, by Arrival Year



Notes: Authors' calculations based 1920 complete count census. Graphs show the 1920 male share of immigrants by year of arrival. Immigrants are limited to those from countries used in our main analyses: Albania, Austria, the Balkans, Belgium, Bulgaria, Czechoslovakia, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Malta, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, and the United Kingdom