How do immigrants respond to discrimination? The case of Germans in the US during World War I

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Abstract

I study the effect of taste-based discrimination on the assimilation decisions of immigrant minorities. Do discriminated minority groups increase their assimilation efforts in order to avoid discrimination and public harassment or do they become alienated and retreat in their own communities? I exploit an exogenous shock to native attitudes, anti-Germanism in the US during World War I, to empirically identify the reactions of German immigrants to increased native hostility using two measures of assimilation efforts: naming patterns and petitions for naturalization. In the face of increased discrimination, Germans increase their assimilation investments by Americanizing their own and their children's names and filing more petitions for US citizenship. Heterogeneity results suggest that these responses are stronger for immigrants who are initially more invested in the host society.

1   Introduction

Discrimination on the basis of ethnicity and religion has been identified as one of the key impediments to the economic and social integration of immigrants. A large number of studies documents this phenomenon, but significantly less research has been devoted to understanding how immigrants react to discrimination and how they modify their efforts to assimilate in response. This is a question of both theoretical interest and policy relevance, with an answer that is not clear a priori: some members of discriminated minority groups make costly investments in assimilation, but for others, low returns to this investment can discourage assimilation and feed back into further discrimination on the part of the majority. In some extreme cases, minorities may even react by radicalizing and undertaking explicit oppositional actions to reaffirm their identity (Bisin et al., 2011).

Empirically, it is hard to disentangle the reactions of minorities from the effects of discrimination. Discrimination is usually endogenous to minority group characteristics and pre-existing assimilation trends. Even when there is an exogenous shock to discrimination, such as in the case of Islamophobia after the 9/11 attacks (Dávila and Mora, 2005; Neeraj, Kaestner and Reimers, 2005; Gould and Klor, 2015), the observed effects on the labor market and socioeconomic indicators of immigrants are equilibrium outcomes, partly owed to the response of Muslims themselves to discrimination against them and partly due to mainstream backlash against the Muslim community.

This paper aims at dealing with these empirical challenges and identifying conditions under which immigrant minorities respond to discrimination by either intensifying or reducing their efforts to assimilate. I do this by exploiting the case study of German Americans in early 20th century US. Germans constituted a large and fairly well integrated group of immigrants, until the outbreak of World War I, when they became the target of nationalist sentiment and widespread discrimination and harassment. I examine the effect of the war on the assimilation patterns of German Americans using two measures of assimilation effort: choices of first names for children and petitions for naturalization. Unlike other measures of assimilation, like wages or intermarriage patterns, these outcomes reflect the decisions of immigrants and not the constraints of the native environment. I compare Germans to other nationalities before and after WWI in a difference-in-differences framework and find that Germans respond to

increasing suspicion on the part of the native population by intensifying their assimilation efforts. First names of children born during and after the war are less distinctively German than those of earlier cohorts and the number of petitions for naturalization filed by Germans increases after 1917. Furthermore, in naturalization documents filed during and after the war, German immigrants are themselves more likely to Americanize their first names. I construct two measures of the intensity of anti-German sentiment at the state level. The first one is based on patterns of support for Woodrow Wilson in the presidential election of 1916. Wilson not only openly supported the Allied cause, but he was a vocal enemy of "hyphenated Americans" and to a large extent fomented anti-German propaganda and contributed to the persecution of German Americans suspected of disloyalty. Additionally, I compile a list of incidents of anti-German hostility reported in the press during the period 1917–1918. In states where democratic vote shares in the 1916 presidential election increased relative to previous elections, and where more harassment incidents relative to the total population took place, names of German children become more American-sounding at the start of WWI.

The pattern of intensified assimilation efforts is not uniform. Parents who choose less German names for their children have on average lived longer in the US and are more likely to be naturalized US citizens. Endogamous German couples are less likely to assimilate than mixed ones and much of the increase in both declarations and petitions for naturalization after 1917 comes from German nationals who are older and have been in the country for longer at the time of application. This indicates that assimilation responses are larger for groups that are already better integrated into US society. These groups have lower costs of assimilation effort and also face potentially larger losses from discrimination, since they are more invested in the host country. However, even among the newer immigrant arrivals and endogamous couples, there is no evidence that hostility during World War I led to alienation or reduced assimilation.

Discrimination against immigrants has been documented by a number of studies. There is evidence that immigrants, particularly those of a different religious background, are discriminated in hiring decisions (Duguet et al., 2010; Oreopoulos, 2011), by party gatekeepers who influence access to political representation (Dancygier et al., 2015), and during the process of application for citizenship (Hainmueller and Hangartner, 2013). The idea that immigrants may respond to such behavior by investing less in assimilation and retreating into their own

ethnic enclaves has found some empirical support. Adida, Laitin and Valfort (2014) identify a "discriminatory equilibrium" in France, whereby Muslims react to discrimination with alienation and mistrust towards natives. Schildkraut (2005) documents a correlation between Latinos' perceptions of discrimination and low political participation. A few studies find an association between native hostility and radicalization among Muslims in the US and Europe (Lyons-Padilla et al., 2015; Mitts, 2016). Gould and Klor (2015) find that the increase in hate crimes after 9/11 reduced the integration of Muslims in the US along dimensions such as intermarriage, female labor force participation and English language skills. This latter is the only study that exploits a temporally exogenous increase in discrimination to investigate minority assimilation patterns. I exploit a similar historical case study, but focus instead on measures of assimilation effort and not general equilibrium outcomes like intermarriage and labor force participation that are influenced by immigrants' decisions only in part.

At the same time, research suggests that minorities do exercise their option of assimilating in order to avoid discrimination. "Passing" for white was a strategy for improving one's economic situation that was sometimes employed among Blacks in the US during the time of Jim Crow (Mill and Stein, 2015; Nix and Qian, 2015). Immigrants in the US during the era of mass migration Americanized their names and in so doing achieved better labor market outcomes, a fact which implies that there was a penalty on foreign-sounding names (Biavaschi, Giulietti and Siddique, 2013; Algan, Mayer and Thoenig, 2013; Abramitzky, Boustan and Eriksson, 2016). Apart from purely rational motivations for assimilating in the face of discrimination, studies in social psychology highlight some psychological ones: ostracism from a group can drive excluded group members to reduce investment in group identity, but also often leads to compensatory behavior and extreme identification with the group. The direction of the response is shown to depend on initial degree of group identification (Williams and Sommer, 1997; Gómez et al., 2011). This pattern can potentially explain why, for example, Muslims, one of the groups targeted by xenophobic sentiment in the West today, report on average a high degree of identification with their host countries. In France, Muslims, more than other religions, report feeling closer to French people than members of their own religion or nationality (OIP polls, 1998-2001) and in the UK, the vast majority of British-born Muslims identify as British first (Manning and Roy, 2010). To the extent that these self-reported identity measures reflect desirability bias, the difference between Muslims and other groups could also be

interpreted as a measure of assimilation effort. This study contributes to the literature in two ways: unlike correlational studies, it uses an exogenous change in hostile native attitudes, unrelated to previous assimilation patterns, in order to identify immigrant responses. Unlike studies that exploit the effect of 9/11, it uses measures of assimilation that are purely under the control of the discriminated group, and thus can isolate immigrant responses from the constraints that natives impose on immigrants in social and economic settings.

The rest of the paper proceeds as follows. Section 2 discusses the historical background of German immigration in the US and anti-German sentiment during World War I. Section 3 presents the data and empirical strategy. Section 4 examines the effect of the war on German assimilation and section 5 presents heterogeneity in responses by immigrant characteristics. Section 6 discusses the implications of the findings for theories of assimilation and discrimination and, finally, section 7 concludes.

2   World War I and anti-germanism in the US

The mass presence of Germans in the US dates back to the 1850s (Conzen, 1980). By 1910, they were the largest immigrant group in the country and, unlike the newer arrivals of Italians and other Southern Europeans, they were fairly established and well integrated. Abramitzky, Boustan and Eriksson (2014) compute occupational-based earnings penalties for different nationalities in the US and find first-generation Germans to have one of the lowest differences from natives, and one which practically disappears for those that have been in the country for over 30 years. According to Higham (1998), *"Public opinion had come to accept the Germans as one of the most assimilable and reputable of immigrant groups. Repeatedly, older Americans praised them as law-abiding, speedily assimilated, and strongly patriotic... In 1908, a group of professional people, in rating the traits of various immigrant nationalities, ranked the Germans above the English and in some respects judged them superior to the native whites."*

The outbreak of World War I and Germany's aggressions towards Belgium increased support for the Allies in the US, though did not immediately lead to suspicion against German Americans. In fact, German American leaders, churches and associations such as the National German American Alliance were vocal supporters of US neutrality in the first years of WWI and campaigned for it with rallies, fundraisers and bazaars for the German Red Cross

(Luebke, 1999). Public opinion against Germans in the country first started to shift after the sinking of the ocean liner RMS Lusitania by a German U-boat in 1915, which resulted in the death of hundreds of American passengers. With the entry of the US in WWI in 1917, this opinion shift turned into full blown hostility.

Numerous incidents of harassment of German Americans are recorded during the war period, the most infamous of which was the lynching of Robert Praeger, a German national, by a large mob in Collinsville, Illinois, in 1918. Germans all over the country were forced to buy liberty bonds or publicly declare their loyalty to the country by kissing the American flag and denouncing the Kaiser (Luebke, 1974). The Bureau of Investigation, and its "citizens' auxiliary" American Protective League, a large network of volunteer spies that numbered 250,000 members in its peak in 1918, mobilized in order to monitor disloyalty among the German American population. These efforts were assisted by many other nationalist and patriotic organizations of the time, such as the National Security League or the American Defense Society. Thousands of non-naturalized Germans were arrested and interned during WWI. Moser (2012) finds evidence of discrimination in the New York Stock Exchange, where applications to trade were more frequently rejected when they were submitted by applicants with German-sounding names. Kazal (2004), in his study of Philadelphia Germans, mentions countless incidents of job loss for individuals who were perceived to be supportive of Germany or to have made disloyal statements. During the peak of anti-German hysteria states banned the German language in their schools, towns removed German books from libraries, and hamburgers briefly became "liberty steaks".

Most historical sources agree that German Americans responded to this generalized hostility by hiding their ethnic identity. Many German associations removed any reference to Germany from their titles, as in the case of Germania Life Insurance Company of New York which became Guardian Life Insurance Company (Sowell, 1996). Germans changed their own names to hide their ethnic background. Second-generation Philadelphian German George Washington Ochs (a man with an already rather patriotic first name) changed his last name to Oakes. His petition to the court reads: *"Your petitioner has no purpose or reason in changing the spelling of his father's name, except the desire to relieve his sons of a Teutonic appellation which he believes will arouse hostility and prove an unnecessary burden in their future social, personal, commercial, and professional relations"* (Kazal, 2004). Similar motiva-

tions drove the actions of many other German Americans. The following sections investigate these behaviors more systematically.

3 Measuring assimilation effort

I use the first names given by German parents to their US-born children as a proxy of assimilation effort. Names are markers of culture and have been shown to systematically differ for different ethnic, racial, and social groups (Lieberson, 2000; Head and Mayer, 2008; Cook, Logan and Parman, 2013). Unlike intermarriage or other indicators of integration that depend on native attitudes and behavior, the naming choice is fully under the control of the parents. Furthermore, to the degree that parents are attached to their culture, choosing a non-ethnic name for one's children is a costly signal of assimilation. Several studies show that there is a labor market penalty associated with foreign-sounding names (Abramitzky, Boustan and Eriksson, 2016; Algan, Mayer and Thoenig, 2013). If immigrant parents are aware of this – and extensive name Americanization among immigrants to the US suggests that they are (Biavaschi, Giulietti and Siddique, 2013) –, then this penalty can proxy for the monetary value they assign to their children having a name indicative of their ethnic origin.

To capture the ethnic content of names, I compute an index of name distinctiveness that was first used by Fryer and Levitt (2004), and more recently by Abramitzky, Boustan and Eriksson (2016) and Fouka (2016) to measure cultural assimilation among immigrants in the US. The index measures the frequency of a name within an ethnic group relative to its frequency in the population at large. For Germans, it is computed as follows:

$$GNI_{name,c} = \frac{Pr(name|German_c)}{Pr(name|German_c) + Pr(name|non-German_c)} * 100$$

A value of 0 implies that a name is never found among individuals of German origin, while a value of 100 implies instead that a name is never encountered among non-Germans. I use the 1920 and 1930 1% IPUMS samples (Ruggles et al., 2010) to compute the GNI of men born in the US between 1880 and 1930 who had at least one parent born in Germany. The subscript c denotes a birth cohort. For each year of birth, the information used for the computation of the index comes only from people born before that year. The aim is to capture what parents perceived as a German name at the time they made their naming decisions, without

contamination from changes in naming patterns in later generations. Table 1 lists the highest scoring names encountered at least 50 times among second-generation Germans in the sample who were born before (left panel) and after (right panel) the US entered World War I. While most names are distinctively German, they become less so after 1917. This partly captures a general assimilation trend among Germans in the US, but, as will be shown later, it is also reflective of a sharper break around the war time, which was not experienced by other immigrant groups. Table 2 presents summary statistics for other characteristics of the sample of second-generation Germans.

To more systematically examine name changes and compare Germans to other nationalities, I create a *Foreign Name Index* (FNI), computed in the same way as the GNI for each of the following immigrant groups: Italian, Irish, Belgian, French, Swiss, Portuguese, English, Scottish, Welsh, Danish, Norwegian, Swedish, Finnish, Austrian and Russian. I define a US-born person's ethnicity on the basis of his father's birthplace, unless his father is born in the US and his mother is born abroad. In such cases I assign to second-generation immigrants the ethnicity of the mother. Figure 1 shows averages of the FNI by ethnicity in the IPUMS data. My empirical strategy then amounts to a difference-in-differences specification of the form:

$$FNI_{igc} = \alpha + \beta T_{igc} + \lambda_g + \theta_c + \varepsilon_{igc} \qquad (1)$$

where T_{igc} is an indicator for German-origin individuals born in or after 1917, the year when the US entered World War I, and λ_g and θ_c are ethnic group and birth cohort fixed effects, respectively. The interaction coefficient β captures the differential effect of World War I on the ethnic content of names given to children by parents of German origin.

The second outcome I examine is the number of petitions for naturalization filed by German nationals during and after the war. Naturalization petitions are a good proxy for assimilation effort because they allow us to observe separately the decision of the immigrant to apply for citizenship from the decision of the courts to grant it to them. In 1906, the path to citizenship for immigrants to the US was standardized by the Bureau of Immigration and Naturalization and most naturalization cases were handled by federal courts. Immigrants

would usually file a *Declaration of Intention* (known as "first papers") upon arrival or shortly thereafter. Within 5 years, they were eligible to file a petition for naturalization ("second papers"), which was the last step required of the immigrant before the court finalized the naturalization process. I use data on the number of petitions filed by immigrants between 1911 and 1925 from the genealogical website Ancestry.com. Ancestry.com makes available a large catalogue of digitized images of naturalization petitions from several US states, searchable online via a number of criteria. I create counts of petitions filed by nationality, year of petition, state of residence (in which the petition was filed) and year of immigration to the US. The unit of observation in the final dataset is a nationality-year-state-immigration year cell. Information is available for four states: California, Maryland, Pennsylvania and Virginia. While the collection of Ancestry.com contains records from other states as well, it is only for these four states that one is able to search separately for naturalization petitions as opposed to other naturalization documents that are less relevant to the pertinent study question, such as certificates of arrival and naturalization certificates issued after a petition has been approved. I collect information for the major nationalities represented in the Ancestry.com collections: Austria-Hungary, Belgium, Bulgaria, Canada, Denmark, England, Finland, France, Germany, Greece, the Netherlands, Ireland, Italy, Norway, Poland, Portugal, Romania, Russia, Scotland, Spain, Sweden, Switzerland, Turkey and Wales. Figure 2 shows total numbers of petitions in the Ancestry.com collections by nationality for the entire 1911-1925 period.

Additionally, I extract a sample of 3,101 naturalization records from the collections of the District Court for the Eastern Division of the Northern district of Illinois, and the District Court for the Eastern district of Pennsylvania, which have been made publicly available in the form of scanned images by FamilySearch.org. In particular, for each year between 1911 and 1925, I extract a 1% random sample of the total number of naturalization petitions filed in that year in the state, as reported in the Annual Reports of the Commissioner of Naturalization. Together with each petition, I transcribe the corresponding declaration of intention and certificate of arrival whenever available. This dataset thus allows me to observe the entire naturalization process and the evolution of applicant characteristics, including reported names, over time. To systematically assess name Americanization as a proxy for assimilation effort, I use the 1920 and 1930 1% IPUMS sample to create an *Americanization Index*

(AMI), following Biavaschi, Giulietti and Siddique (2013). Unlike the GNI, this index does not capture distinctiveness, but frequency of a name in the American-born population, and is thus a simpler measure of conformity with American naming norms.[1] An increase in the AMI from the time of arrival to the US to the time an immigrant files her first papers denotes the adoption of a name that is more common among native-born Americans than the immigrant's given name. In practice, that is often the Americanized version of a foreign name (e.g. a change from Josef to Joseph), but it can also be an unrelated generic American name (e.g. a change from Utka to Louis). The Americanization Index is computed as:

$$AMI_{ic} = \frac{S_{ic}}{\max(S_{1c}, ..., S_{Kc})}$$

where

$$S_{ic} = \sum_k \mathbb{1}(Name_i = Name_k)$$

The numerator denotes the number of native-born Americans that have the same name as immigrant i in the 1920 and 1930 census and the denominator denotes the maximum frequency of a first name among native-born Americans in 1920 and 1930. The index is bounded between 0 and 1, with higher values denoting more American names. The subscript c denotes a birth cohort. As with the GNI, I compute the AMI using information on names of individuals born before the year a declaration was filed, in order to capture what immigrants perceived to be an American name at the time they filed their first papers.

Figure 3 plots counts of naturalization documents from the Illinois and Pennsylvania collections over time, and Table 3 presents summary statistics for those immigrants for whom both a declaration of intention and a petition for naturalization are found in the court records.

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[1] An additional reason to use the frequency-based AMI instead of the FNI is to deal with the fact that many immigrant names in the naturalization data never appear in the census. While I assign the AMI a zero value for those names, their respective FNI is missing. Intuitively, a name cannot be distinctive of any nationality if neither immigrants nor natives in the census have that name. Any results reported using the AMI are similar when the FNI is used instead, but often insignificant since the number of observations is substantially lower in the latter case.

4 Results

4.1 Main estimates

The main finding is illustrated graphically in Figure 4. The left panel plots the average and the right panel the median GNI by birth cohort for US-born male children with at least one German parent. There is a clear assimilation trend throughout the period of reference from 1880 on, which is, however, punctuated by a break roughly coinciding with the entry of the US in the war. A similar pattern is revealed by the evolution of the median GNI: this is fairly stable until 1918, when it drops precipitously and remains at a low level until the late 1920s. Figure 5 presents the results of a more systematic effort to identify a breakpoint in the GNI time series. The figure plots p-values from a Wald test for a break in the linear trend in each of the years 1900-1925. A range of low p-values identifies the period 1918–1921 as a structural break in naming patterns. The sharp reaction of names to the war validates their use as a measure of assimilation effort that reflects a choice on the part of the parents. A slow response of naming patterns to the war could reflect e.g. changes in intermarriage rates among Germans, which could be endogenous to native attitudes. An abrupt change instead is more consistent with a change in immigrant behavior.

I then proceed to compare Germans to other ethnic groups in the US. Table 4 reports the results of a difference-in-differences estimation as specified in equation 1. Column (1) reports a simple comparison between cohorts born before and after 1917 across Germans and other ethnicities. Column (2) additionally controls for a linear trend in naming patterns. Germans have on average a lower FNI than other ethnic groups. This partly reflects overlap in naming patterns across Germans and other ethnicities, like Anglo-Saxons or Scandinavians, and partly the fact that many third or higher generation Germans with potentially German-sounding names are classified as natives in the census. This was less likely for less established immigrant groups from Eastern or Southern Europe. The interaction coefficient suggests a higher drop in the FNI for Germans born during and after WWI. Columns (3) and (4) progressively introduce birth cohort and ethnicity fixed effects. The magnitude of the interaction coefficient implies a change equivalent to that from Werner or Julius – both names in the 90th percentile of the pre-war GNI distribution – to a name like Carl, the Americanized version of the German Karl that is much less indicative of German origin. To account for potential differences in naming

trends across ethnicities, in column (5) I use as a dependent variable the residual of the FNI from a linear ethnicity-specific trend, fitted to the pre-war period. While this reduces the size of the coefficient, the effect of the war remains large and significant. In column (6) I control for state-of-birth fixed effects, without much change in the estimated interaction.[2]

These results do not hinge on the method used to compute the FNI. In Appendix Table A.2 I show that the effect of the war on naming patterns is robust to calculating the ethnic distinctiveness of a name using only the names of the foreign-born or the names of the foreign-born and of those with foreign-born fathers. Similarly, results are not affected if I assume that immigrants decide their naming choices based on the names of children born in the 20 or 10 previous years. I also perform the analysis using the Soundex phonetic equivalent of first names. The Soundex algorithm assigns the same phonetic representation to names that are pronounced similarly, but have a different spelling. The fact that there is a drop in the FNI of Germans after 1917 (albeit slightly smaller) when the FNI is computed based on the Soundex implies that name assimilation manifests not just as changes in spelling (e.g. from Karl to Carl), but mainly as choices of different, more American-sounding names.

The pattern revealed by naturalization petitions is similar to that of names. Table 5 compares numbers of petitions filed by Germans and other nationalities before and after the war in a difference-in-differences framework analogous to that specified in equation 1. Germans file more petitions for naturalization on average, which could be due to their larger numbers or the fact that they are more assimilated than other immigrant groups. The interaction coefficient is also positive, implying that the difference between Germans and other nationalities after 1917 increases by approximately 20 additional petitions per state and year.

Figure 6 plots the interaction coefficient from a flexible specification similar to the one in Column (4) of Table 5, but with interactions of an indicator for German nationals with year fixed effects. The figure reveals a general absence of pre-trends before 1917. After the US enters the war, the number of petitions increases differentially for Germans and this increase is sustained until 1925. The figure also reveals a large differential drop in the year 1918: in this year, the US granted citizenship through expedited naturalization procedures to a

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[2]Results are very similar, or even slightly larger in some specifications, for women. See Appendix Table A.1.

large number of foreign-born soldiers who enlisted in the US Army. The expedited process waived the residency requirement, and thus the obligation to file a declaration of intention, and allowed many soldiers to become naturalized on the same day in which they filed their petition. This exceptional provision did not apply to non-naturalized Germans, who were considered "enemy aliens", under the Alien and Sedition Acts of 1798, which were invoked by President Wilson (Kazal, 2004). To deal with this exceptional increase in the number of petitions for everyone but Germans in 1918, regressions in columns (1) and (2) of Table 5 which do not include year fixed effects, nonetheless include a 1918 year indicator.

The detailed records of Illinois and Pennsylvania allow us to track an individual immigrant's name over time, as it is recorded upon arrival, and later at the time of declaration and petition. In practice, the vast majority of immigrants chose to Americanize their name at the time they filed a declaration of intention, with only very few changing their name between declaration and petition.[3] For this reason, I focus on declarations of intention filed after 1911 and examine various measures of name Americanization at the time of declaration. This restricted focus inevitably reduces sample size, since only 1464 individuals have a complete set of records that includes both the certificate of arrival and later naturalization papers. I compare name Americanization among Germans and other immigrants in a difference-in-differences specification of the form

$$A_{int} = \gamma + \delta D_{int} + \mu_n + \kappa_t + \epsilon_{int} \tag{2}$$

where A_{int} is a measure of name Americanization, D_{int} is an indicator for German immigrants filing a declaration of intention after 1917, and μ_n and κ_t are nationality and year of declaration fixed effects, respectively. δ captures the differential change in name Americanization for Germans compared to immigrants of other nationalities. Table 6 presents the results. Columns (1) and (2) look at the change in a name's conformity to American norms between arrival and declaration. The dependent variable in column (1) is an indicator that equals one if the log AMI of a name at declaration is greater than its log AMI at the time of arrival; in

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[3]In the sample, there are only 86 (out of 3,101) cases of first name changes at the time of petition.

column (2) it is a continuous measure of change.[4] In both cases I control for the logarithm of a name's AMI at the time of arrival. Immigrants with names closer to the American norm would have less of an incentive to Americanize their name. Column (1) shows that names of Germans who file a declaration of intention become on average more American after 1917. Irrespective of the measure used, Germans tend to change their names to an Americanized counterpart disproportionately more than other immigrants after 1917.

The declaration and petition documents were often filled out by a clerk and not by the immigrant herself.[5] At the same time, the certificates of arrival were filled out based on the passenger lists of the ship the immigrant arrived in, so – unless the ship departed from a country other than the immigrant's origin country, as was often the case – they should contain fewer misspelled names. These features of the documents may make for a mechanical increase in the AMI between certificate and declaration. While this does not explain the differential increase for Germans after 1917, in columns (4)–(6) of Table 6 I report results using the Soundex phonetic equivalent of names, to account for the fact that immigration officers may have been inadvertently Americanizing names in the naturalization records. This does not substantially affect the results.

Figure 7 plots coefficients on indicators for every two-year bin in the data, resulting from a regression otherwise identical to those in Table 6. First names do not show any noticeable change at the outbreak of WWI in Europe, but become significantly Americanized in 1917-1918. This effect does not carry over to the post-war years, though estimates for years other than 1917 are noisy, since declarations filed by Germans are disproportionately concentrated in that year (22% of the total, compared to 1%-11% for every other year). Overall, these patterns in name changes are consistent with those found among the second generation and suggest that Germans responded to the war with efforts to hide their identity and send signals of patriotism.

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[4]I use the natural logarithm of the AMI to account for the fact that the index has a skewed distribution, with a mass at 0. To avoid loss of data when AMI=0, I use ln(AMI+x), where x is a small positive number. Results are robust to using levels instead of logs.

[5]In a 1921 congressional hearing, MR J.C.F. Gordon, chief naturalization examiner in the third district of Philadelphia states: *"...in my office...We give the alien all the assistance possible, filling out his papers for him and properly advising him..."*.

4.2 Ruling out alternative explanations

The above findings suggest that assimilation efforts are positively correlated with general hostility. There are other complementary explanations of the results. One is return migration to Germany. Bandiera, Rasul and Viarengo (2012) find the out-migration rate of Germans in the decade 1910-1920 to be higher than 100%. If those less assimilated move out of the country leaving the more assimilated behind, then both Americanization of children's names and petitions for naturalization would increase.[6] Together with voluntary out-migration, fear of deportation might have also been driving the decisions of German immigrants. Though actual cases of deportation in the period were few, they were in principle authorized by the Alien and Sedition Act. If the likelihood of deportation was higher for non-naturalized citizens, as was presumably the case, then those would have a higher incentive to maintain ties with Germany, in the form of German names for children. However, it is also true that the incentive to assimilate in order to avoid deportation would have been higher for the same individuals.

To directly assess whether assimilation during wartime can be entirely explained away by selective out-migration, I exploit the fact that, for a subset of families, I can observe children born both before and after the war. Comparing differences in the FNI of older and younger siblings, for Germans and other nationalities, allows me to isolate the effect of wartime hostility on parental decisions while keeping the sample composition constant. For this purpose, I restrict my attention to a subset of the 1920 and 1930 1% IPUMS samples, consisting of men who live with their parents and with at least one male sibling at the time of the census. For this subsample, I use a specification identical to equation 1, only now including a family fixed effect. To the extent that out-migration distorted the characteristics of the population of Germans that chose to remain in the US, this specification will account for this distortion by considering changes in naming patterns within family over time.

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[6]The concern is in fact slightly more subtle. Using the 1920 and 1930 census already implies that I only observe the selected sample of families who did not emigrate in 1918. However, even within this sample, those with children born right before the war were likely more constrained and less able to emigrate. For this subset, selection is less important than for those without young children who could emigrate at will. One would then expect that children born after 1917 come from more assimilated parents, a pattern that is confirmed in the data. Second-generation Germans born after 1917 are more likely to have parents who have been in the country for longer and who are naturalized US citizens. Results available upon request.

Table 7 presents the results. Columns (1) and (2) report the baseline specification in the restricted subsample of families with more than one male child present in the household at the time of the census. The effect of the war on names is generally smaller, but comparable to that in the larger sample reported in Table 4. Columns (3) to (5) introduce family fixed effects. The within family effect is half in magnitude, which implies that changes in the composition of the German population over time are largely responsible for observed assimilation patterns. Inclusion of fixed effects, however, is not enough to explain away the entire effect, which remains positive and highly significant. This suggests that, even accounting for out-migration, families of Germans who remained in the US did change their naming decisions in response to the war. Inclusion of indicators for an individual's birth order or state of birth have only a marginal effect on the coefficient magnitude.

The data on petitions does not allow us to test directly how much of the post-1917 increase is due to out-migration of Germans unwilling to become US citizens. It does, however, allow us to rule out another alternative explanation for the observed surge in petitions. 1917 marks the beginning of a series of controls on immigration imposed in the US. These initially included literacy requirements, introduced by the Immigration Act of 1917, and later culminated in the 1924 immigration quotas, which favored established immigrant groups at the expense of newer arrivals from Southern and Eastern Europe, as well as from Asia. Part of the increase in naturalization petitions filed by Germans could be due to their numbers increasing among incoming immigrants, as immigration restrictions favored them over other nationalities. To address this concern, I normalize petitions by the number of immigrant arrivals in each nationality-year cell. To account for the five year residency requirement for filing a petition, I construct two measures for eligible recent arrivals using data from the reports of the Bureau of Immigration, compiled by Ferenczi and Willcox (Willcox, 1929). I first use the total number of arrivals of a specific nationality in the 5 to 10 years before the petition was filed. Secondly, I make use of the empirical distribution of years in the US at the time of filing a petition. I construct a weighted sum of nationality specific arrivals in prior years, where the weight of year t corresponds to the share of immigrants that file a petition t years after their arrival to the US. Normalized petitions are then equal to the total number of petitions divided by the measure of eligible recent arrivals. Table 8 presents results using these two alternative measures of normalized petitions as dependent variables in specifications identical to those in

Table 5. Estimated effects remain substantially unaffected by this normalization.

Is increased assimilation after 1917 a response to discrimination or to the fact that Germany was finding itself on the losing side of the war and German-Americans wanted to detach themselves from it? Evidence from nationals of other countries that became involved in WWI does not support the latter interpretation. Appendix Figure A.1 plots the mean FNI by ethnicity for all ethnic groups in the sample. The only other ethnic groups that change their naming patterns exactly when the US enters the war are the Norwegians and the Swedes. While both Norway and Sweden remained neutral during WWI, the experience of Norwegian and Swedish Americans was very similar to that of Germans. Their communities in the Midwest and Minnesota came under attack and were accused of disloyalty for their attachment to their native language and for their support of American neutrality. By 1918 they found their languages banned from school curricula and the majority of their newspapers went out of circulation (Gillespie Lewis, 2004; Chrislock, 1981). At the same time, nationals of Germany's major ally in WWI, Austria-Hungary, did not display a noticeable shift in naming patterns. Despite being on the losing side of the war, the fact that Austria-Hungary was a multiethnic empire protected its citizens from being readily singled out and targeted for discrimination. These patterns are also inconsistent with other explanations, such as German Americans investing more in their American identity because the war increased their costs of return to their homeland. While the same considerations are present for Austro-Hungarians, their assimilation efforts do not follow the same pattern.[7]

4.3 State-level anti-German sentiment

I construct two state-level measures of anti-Germanism. The first one uses patterns of support for Democratic incumbent Woodrow Wilson in the 1916 Presidential election. Wilson's campaign against "hyphenated Americans", which intensified after his second term in office and the country's entry in WWI, is best illustrated by his 1915 State of the Union address. *"There*

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[7]Russians are another group that displays changes in naming patterns around World War I. Most of this change, however, is due to a change in the group's composition. Appendix Figure A.2 shows that the trend in the FNI closely follows the share of those with Yiddish-speaking fathers in the data. It seems that most characteristically Russian names pre-1910 are in fact characteristically Jewish. The FNI within the groups of those with Yiddish and non-Yiddish speaking fathers is stable around 1917. Unfortunately, I cannot examine these patterns after 1920 since information on mother tongue is only available in the 1920 census.

are citizens of the United States, ... born under other flags but welcomed under our generous naturalization laws to the full freedom and opportunity of America, who have poured the poison of disloyalty into the very arteries of our national life." Such men, he advised Congress, *"must be crushed out ... the hand of our power should close over them at once."* The Wilson administration and the President himself openly supported the anti-hyphen movement that after 1917 manifested in acts of harassment and violence against German Americans suspected of disloyalty.

As the map of the 1916 election reveals, the states that did not support Wilson in 1916 were disproportionately concentrated in the Midwest and Great Plains, all regions with large German American populations. Indeed, German Americans in their majority rallied behind the republican candidate Charles E. Hughes (Luebke, 1974). Instead of vote shares, which, apart from German-specific negative attitudes, also capture broader partisan divisions across states, I use a measure that captures the increase in the vote share for Woodrow Wilson between 1912 and 1916. This is constructed as follows:

$$Wilson_s = \frac{1 - W_s^{12}}{1 - W_s^{16}}$$

where W_s^{12} is a state-level vote share for Wilson in the presidential election of 1912 and W_s^{16} is the respective vote share in the election of 1916. While this measure is similar to the simple difference in vote shares between 1912 and 1916, it disproportionately weighs increases in states that registered a higher initial support for Wilson. This accounts for the fact that any given increase in the vote share in percentage point terms is harder to achieve when a state starts from an already high initial vote share.

I assign this measure to individuals based on their state of birth. Figure 8 plots the median GNI by birth cohort, for states with below and above average change in support for Wilson in 1916. The pattern is once again striking: while the trends are roughly parallel before the war, 1918 constitutes a break in the trend for both groups of states, but is more pronounced in states that showed a higher increase in support for Wilson, thus expressing more pro-war and anti-German sentiment. Panel A of Table 9 analyzes the same pattern more systematically in a differences-in-differences framework, comparing how the difference in the GNI of Germans born before and after the war varies by the change in vote shares for Wilson in

1916. The interaction coefficient is consistently negative and statistically significant, denoting a substantially larger drop in name Germanness after the war in states where anti-German sentiment was more prevalent. In column (2) I control for the potential time-varying effect of the share of the German population in the state, which is plausibly correlated with both (lower) support for Wilson and assimilation. I insert interactions of birth cohort fixed effects with the 1910 share of first and second generation Germans in a state's total population, computed from county-level census totals (Haines and ICPSR, 2010). The inclusion of these controls increases both the magnitude and the precision of the estimate. While the change in native attitudes towards Germans spurred by the war can be considered exogenous in the aggregate, state-level anti-Germanism is potentially endogenous to pre-existing trends in German assimilation. In an attempt to control for pre-war assimilation of Germans at the state level, in column (3) I include interactions of birth cohort fixed effects with the average GNI among second-generation Germans born in each state before 1914. This is meant to capture any time-varying differential effects on the GNI of pre-existing assimilation measured using the same proxy of names. This control does not affect the estimates and, when included together with the time-varying share of Germans in 1910, it increases their size. In column (5) I include state-of-birth-specific linear trends. While these seem to explain part of the differential changes in naming patterns, the effect of voting patterns remains strong and significant.

Voting patterns in the 1916 presidential election could have been affected by more factors than foreign policy and anti-Germanism. I attempt to construct a more accurate proxy of native hostility against German immigrants, by compiling a list of incidents of public harassment from newspapers. I use ProQuest's Historical Newspapers archive and search for articles appearing after 1914 that contain the stems of the phrases "German" and "kiss the flag" or "tar and feather". Tarring and feathering or forcing someone to kiss the American flag in public were two of the most common forms of violence exercised by mobs against foreign nationals who refused to buy liberty bonds or were otherwise suspected of disloyalty. I find mentions of 96 distinct such incidents between 1917 and 1918, in both high circulation newspapers like the New York Times and in local press. Figure 9 depicts the locations of these incidents. Most of them were concentrated in the Midwest, particularly in the state of Illinois, where the largest communities of German immigrants were located. I compute the number

of incidents per thousand residents by state, and assign this measure to an individual's state of birth. Panel B of Table 9 performs the same difference in differences analysis as before, using this new measure of discrimination. A higher incidence of public hostility is associated with a decrease in the GNI of German Americans born after 1917, and the effect is largely unchanged by the inclusion of interactions of 1910 state-level controls and birth cohorts or of linear state trends.

Overall, though one should be cautious with a causal interpretation of these state-level results, due to the potential endogeneity of anti-Germanism at the state level, the findings are nevertheless suggestive of the same pattern: Germans reacted to either measure of discrimination and hostility by signaling assimilation through the choice of less distinctive names for their children after 1917.

5   Who assimilates?

A priori, it is unclear which groups of immigrants should be more likely to respond to hostility with assimilation. On the one hand, those closer to natives in terms of social and economic characteristics have a lower cost of assimilation effort, both psychic and material. Severing one's ties to Germany by americanizing their children's names is easier for immigrants who are more invested in the US, have lived there for longer or are married to a native spouse. Similarly, navigating the bureaucracy of the naturalization procedure is easier for immigrants with better knowledge of the country's institutions. At the same time, it is less assimilated immigrants who are more likely to experience discrimination and thus have a higher incentive to assimilate in order to avoid it.

Figure 10 shows that assimilation is a more likely response for already assimilated immigrants. The figure plots the GNI of sons by parental characteristics: parents' ethnic background, father's citizenship status and father's length of stay in the US. Naming choices respond steeply to the war for mixed couples, but not for all-German ones. Similarly, there is a larger drop in the GNI for sons of naturalized fathers and for those whose fathers have lived in the US for more than the median number of years. Table 10 presents the same results in a regression framework, both by fathers' and by mothers' characteristics. All regressions include birth cohort fixed effects. Generally, parental characteristics are correlated with the

GNI in the expected way: mixed couples have children with lower GNI than endogamous ones and more years in the US imply less German names for children. The exception is naturalized status, which is correlated with more German names. In each case – with the exception of endogamy where the post-war effect on the GNI is not statistically significant – the change in the GNI after the war is larger for the more established groups of immigrants. Furthermore, an effect is present for both fathers and mothers. Citizenship of fathers has a larger impact on post-war assimilation than that of mothers, but the pattern is reversed for length of stay in the US.

A similar picture is painted by the profile of Germans who applied for citizenship in the wake of the war. Using the Ancestry.com petition data, Figure 11 plots the average difference between immigration and petition year, by year of petition. Starting around 1917, petitions are increasingly filed by Germans who have been in the US for longer, while this pattern is less pronounced for other nationalities. Table 11 shows this more systematically. German petitioners for citizenship have lived longer in the US than other immigrant groups at the time of petition, but this difference increases after 1917. The data from the Illinois and Pennsylvania district courts looks qualitatively similar, both for petitions and for declarations of intention. As Figure 12 shows, immigrants who filed a declaration of intention after 1917 are older and have been in the US for longer than earlier applicants at the time of declaration, with this increase being more pronounced among Germans than among applicants from other nationalities. Average years in the US reach a peak in 1917 for petitions as well. The bottom right panel of the figure shows that Germans who file a petition at the start of WWI and in 1917 had let on average more time elapse between first and second papers. Immigrants who had started the naturalization process 8 or more years ago, rush to complete it at the wake of the war.

Once again, one has to be careful in interpreting the above effects causally, since wartime hostility likely manifested differently for more and less assimilated Germans. Given, however, that the latter were more likely to be discriminated, these results suggest that the cost of assimilation effort is a more likely driver of outcomes than the intensity of discrimination. Another way to interpret these findings is that more established immigrants face higher potential losses from discrimination and thus higher returns to any assimilation decision.

6   Discussion

How informative is the case of German Americans for the dynamics of discrimination and assimilation today? Anti-Germanism during World War I is better described by a preference-based model of discrimination, like Becker's canonical approach. While statistical discrimination (Arrow, 1973; Phelps, 1972; Coate and Loury, 1993), which is motivated by lack of information on certain groups' characteristics and reduces the return of their investment in skill acquisition, might be an important driver of immigrants' low integration today, there is also sufficient evidence that anti-immigrant sentiment is motivated mostly by cultural and not by economic concerns (Sniderman, Hagendoorn and Prior, 2004; Hainmueller and Hopkins, 2014). If taste-based factors motivate native behavior, and if immigrants have the option of hiding their identifying ethnic or religious characteristics in order to fit in, then evidence from the German American case suggests that they will do so, and that such decisions will be mostly made by individuals who have lower costs in sending assimilation signals.

More broadly, most models of discrimination do not allow for an assimilation choice for members of the discriminated group. One exception is Eguia (2015), who models discrimination as a rational screening strategy, and shows that such a filtering mechanism is successful in allowing only the highest skill individuals to become members of the majority or dominant group. This model, however, does not account for any taste-based discrimination mechanism. Fearon (2013) models social mimicry, or the decision of agents to pass as members of another group, when that group has a technology for detecting mimics. The model predicts that passing rates will be decreasing in the quality of the target's detection technology. To the extent that German Americans were physically and culturally close to Anglo-Saxons, the cost involved for natives who wanted to detect potential infiltrators or spies would have been high enough to allow for the high rates of assimilation that we observe empirically. This fact also potentially delineates the differences of the German American case from e.g. the case of Muslims in the West, which shares many similar features otherwise. The Germans' lower physical and cultural distance from the native average implied lower assimilation costs – e.g. name changes were much easier given existing similarities between German and American names – or, conversely, a higher return to any given assimilation effort.

7 Conclusion

I examine the responses of immigrants to taste-based discrimination using the case of German Americans in early 20th century US. World War I was an exogenous shock to natives' attitudes and during the war period many Germans suffered widespread harassment. I show that the war coincides temporally with a large and persistent drop in the ethnic distinctiveness of names of children born in the US to German parents, and an increase in name changes and in the number of petitions for naturalization filed by Germans in comparison to other immigrant groups. Name assimilation was higher in states that during the 1916 presidential election registered higher support for Woodrow Wilson, the presidential candidate that targeted hyphenated identities and demanded signs of loyalty from the German American community, and in states where more incidents of harassment against Germans took place during the war. Both name assimilation and efforts to obtain US citizenship were higher for immigrants who had a more "assimilated" profile, as indicated by intermarriage rates and length of stay in the US.

These findings have implications for our understanding of minority behavior and the dynamics of discrimination. While observed integration patterns like intermarriage rates and labor market outcomes are equilibrium outcomes that depend both on immigrants' decisions and the behavior of natives, both names and petitions for naturalization reflect purely immigrant choices. The results suggest that the association between discrimination and low integration that is observed in equilibrium would be even stronger in the absence of immigrant assimilation efforts. To the extent that we can extrapolate these findings from Germans to other immigrant groups, this research offers evidence that immigrants largely respond to hostility by increased efforts to assimilate and invalidates claims that for certain groups, and due to the lack of their own efforts, "there is no real assimilation".[8] World War I has had a profound impact on the German group in the US and its effects, on average, are comparable to the effects of 9/11 for the large and heterogeneous group of Muslim Americans. At the same time, the heterogeneity of responses among the immigrant population suggests that the

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[8]Trump claims assimilation among American Muslims is 'close' to 'non-existent', The Washington Post, June 16 2016.

costs of assimilation effort are important drivers of immigrant decisions.

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Figures and Tables

Figure 1. Foreign name index by ethnicity
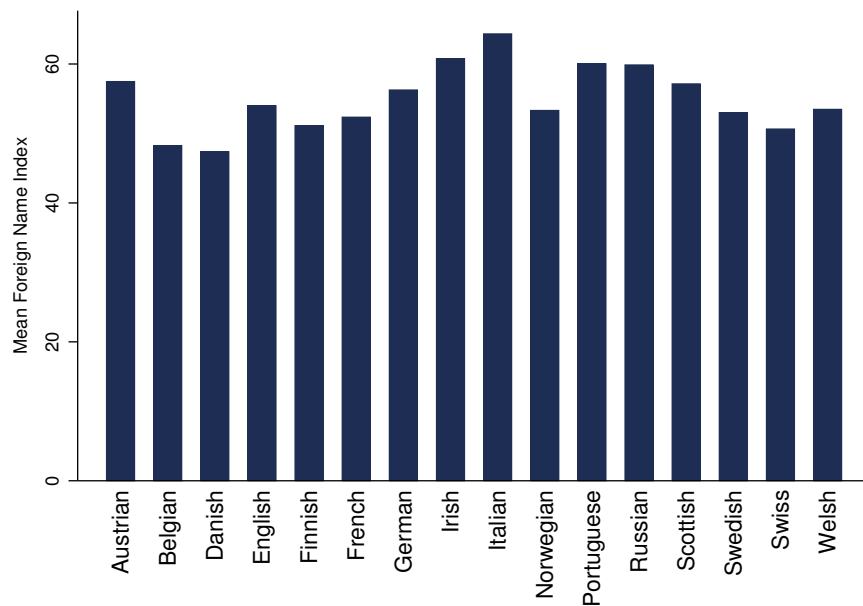
**Notes:** The figure plots the mean FNI by ethnic group among second-generation immigrant men in the US born 1880-1930. Individuals are assigned the ethnicity of the father, unless the father is US-born in which case ethnicity is assigned on the basis of the mother's birthplace. Data are from the 1920 and 1930 1% IPUMS samples (Ruggles et al., 2010). For details on the calculation of the FNI see Section 3.

Figure 2. Petitions by nationality, 1911-1925
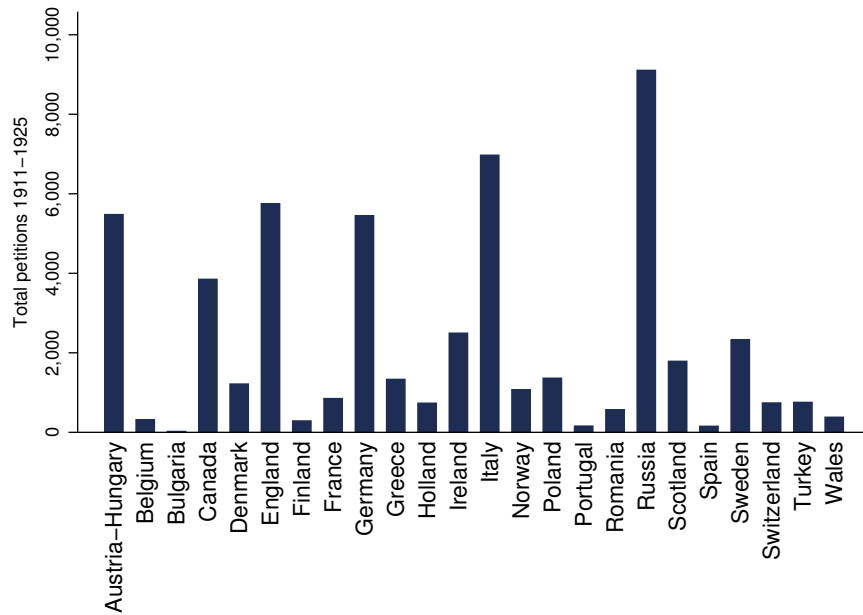
Notes: The vertical bars show the total number of petitions for naturalization filed by immigrants of each nationality between 1911 and 1925, and that have been digitized by Ancestry.com. Records come from the states of California, Maryland, Pennsylvania and Virginia.

Figure 3. Pennsylvania and Illinois naturalization documents
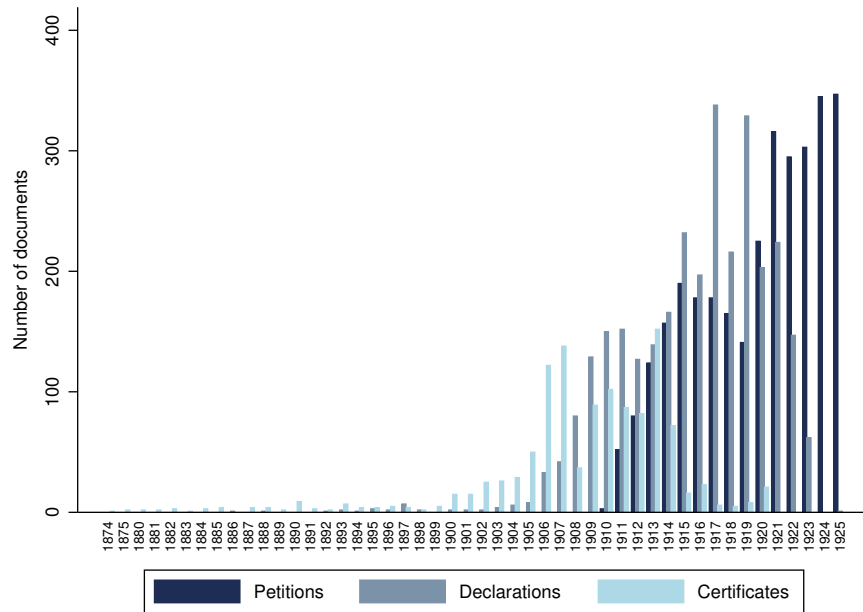
Notes: The vertical bars show the total number of naturalization documents in the sample of naturalization records of the Illinois and Pennsylvania district courts.

Figure 4. Mean and median GNI of second-generation German men
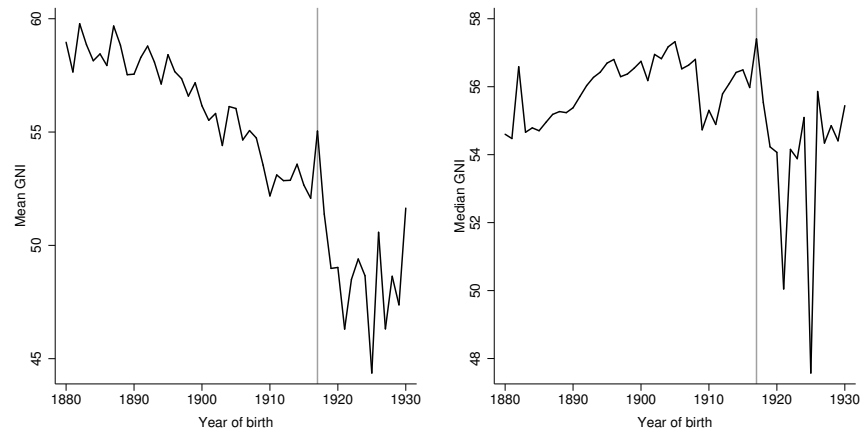
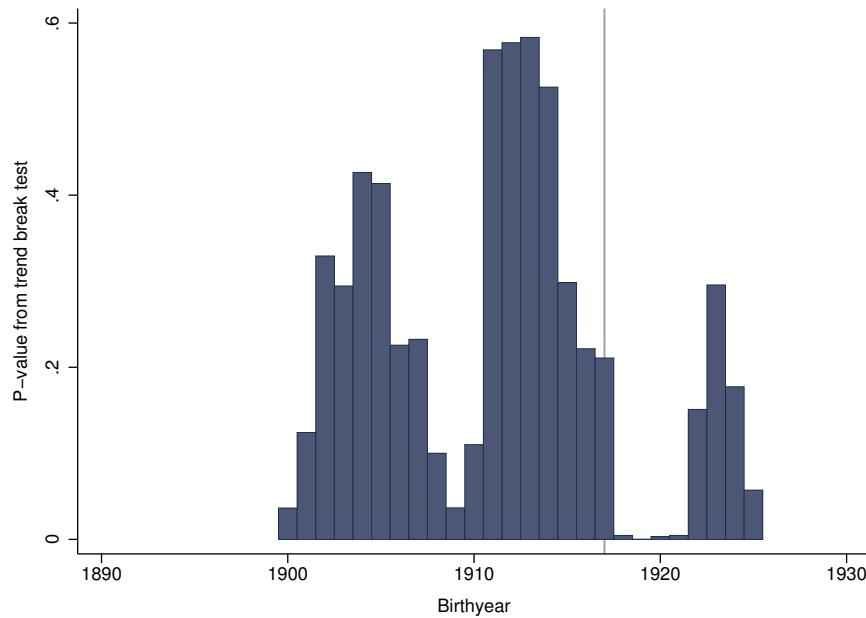**Notes:** The figure plots the mean (left panel) and median (right panel) GNI by year of birth for US-born men with at least one German-born parent. The grey vertical line corresponds to 1917, the year when the US entered WWI.

Figure 5. Testing for a trend break in the GNI of second-generation Germans

Notes: The figure plots p-values from a Wald test of a break in the linear trend over the periods defined by each year between 1900 and 1925. The data consists of second generation Germans born 1890-1930. The grey vertical line corresponds to 1917.

Figure 6. Evolution of German petitions for naturalization
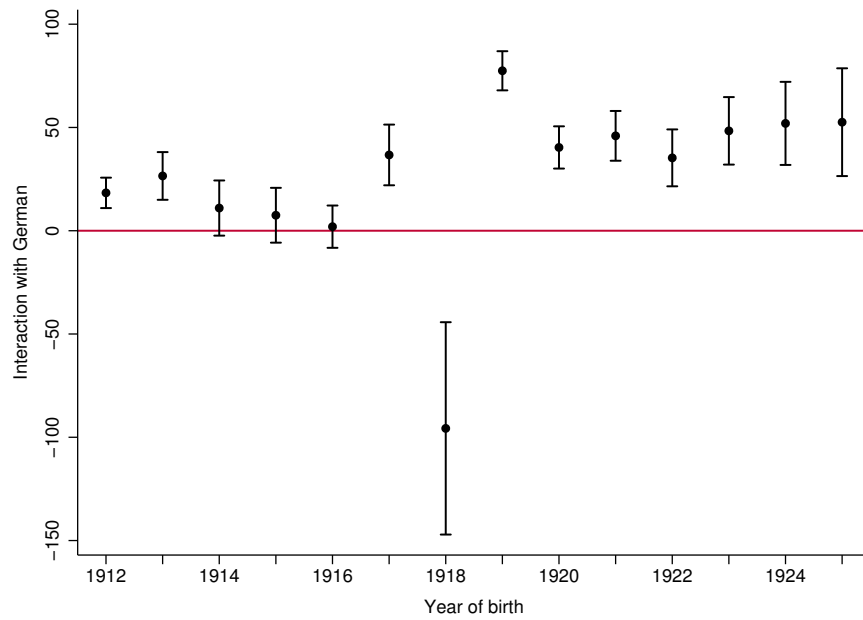
Notes: The figure reports coefficient estimates and 90% confidence intervals from a regression of the total number of petitions by nationality-year-state cell on nationality, year and state fixed effects and interactions of year indicators with a dummy for petitions filed by Germans.

Figure 7. Change in AMI between arrival and declaration
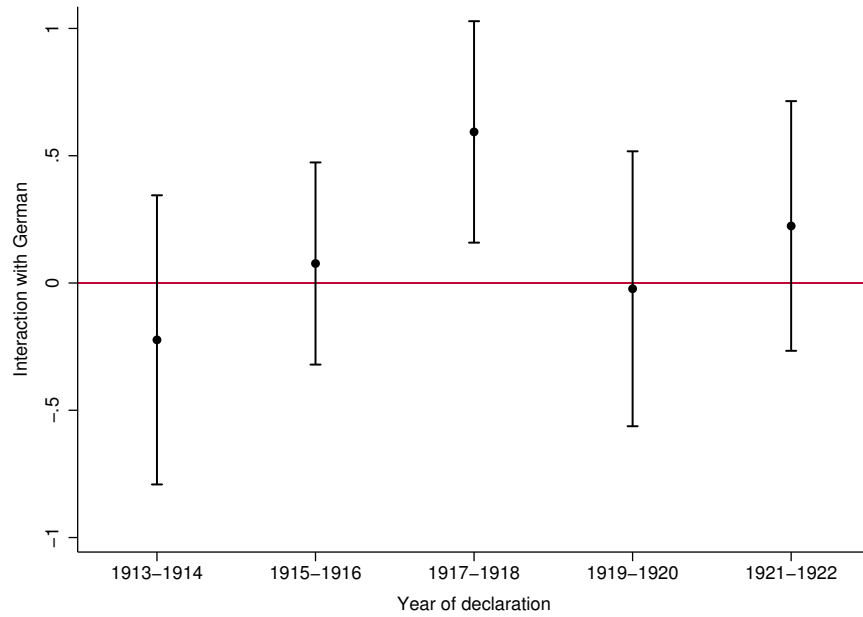
Notes: The figure reports coefficient estimates and 90% confidence intervals from a regression of the change in the log AMI between arrival and declaration on indicators for nationality and two-year bins of declaration indicators and a set of interactions of two-year bins with an indicator for German nationals. The regression controls for the log AMI of the first name in the certificate of arrival. The sample consists of Germans that filed a declaration of intention between 1911 and 1923 in the Northern Illinois and Eastern Pennsylvania district courts.

Figure 8. Evolution of naming patterns and state-level support for Woodrow Wilson
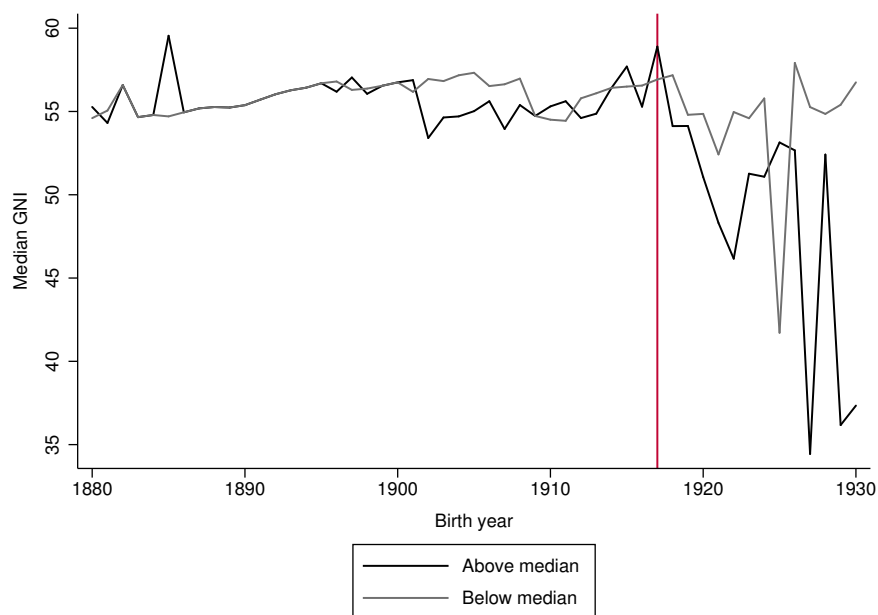
Notes: The figure plots the median GNI by birth cohort for a sample of second-generation German men. The black line corresponds to states with above median change in support for Woodrow Wilson in the 1916 presidential election, and the grey line to states with below median change in support. The red vertical line is drawn at 1917.

Figure 9. Harassment incidents against Germans, 1917-1918

Notes: The figure depicts towns where at least one incident of public harassment against Germans took place during World War I, as reported in the press. Source: ProQuest Historical Newspapers.

Figure 10. Evolution of naming patterns by characteristics of the parents
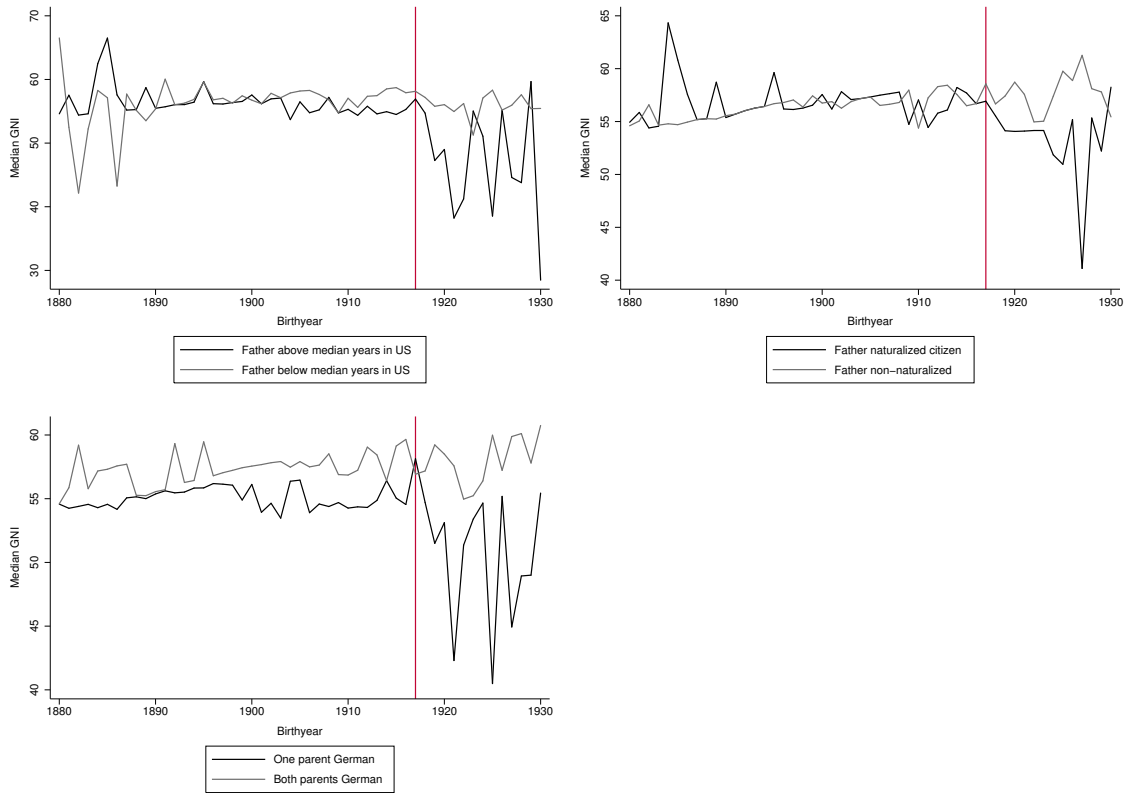
Notes: The graphs plot the median GNI by birth year and by characteristics of the parents for a sample of US-born men with at least one German-born parent. In the upper panel, the sample is restricted to men with German-born fathers.

Figure 11. Average years in the US at time of petition
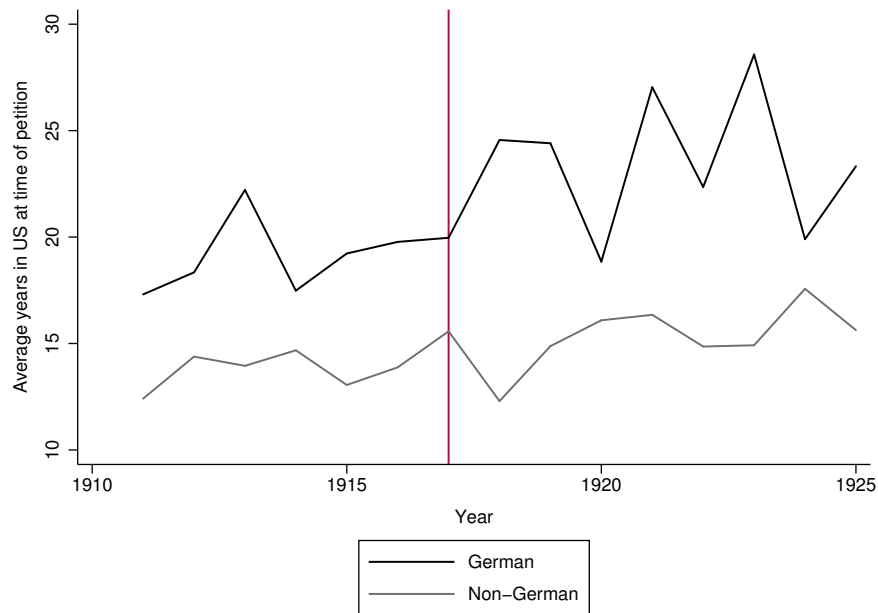
Notes: The figure plots the average difference between year of petition and year of arrival for Germans (black line) and other nationalities (grey line). The data consist of petition counts by nationality-year-arrival year-state cell.

Figure 12. Changes in applicant characteristics
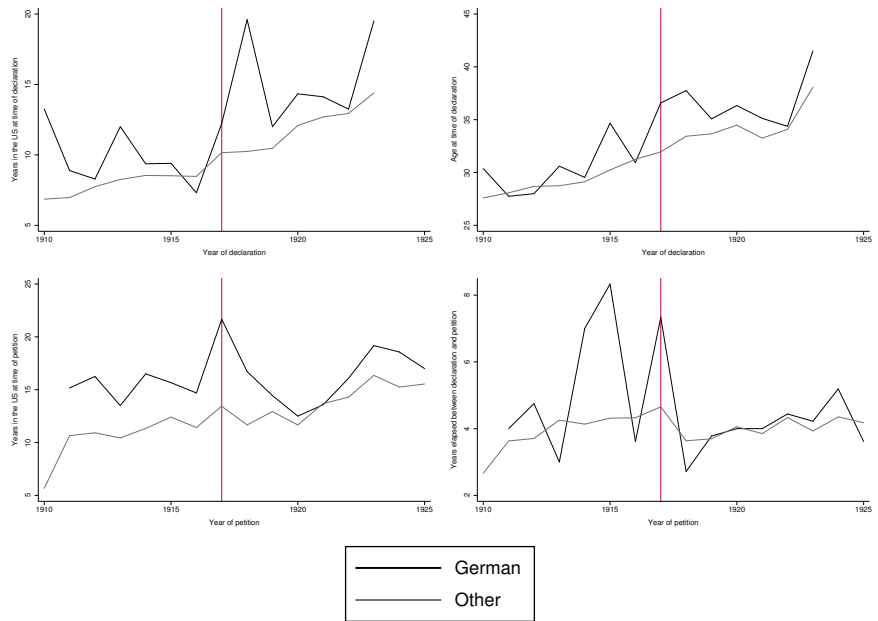
Notes: The figure plots the evolution of characteristics of applicants by year of declaration (upper panel) and year of petition (lower panel) for a sample of immigrants who filed for naturalization between 1911 and 1923 in the Northern Illinois and Eastern Pennsylvania district courts.

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Table 1. Most German names before and after World War I

Before 1917			After 1917	
Name	GNI		Name	GNI
August	93.39		Henry	77.84
Otto	92.41		Carl	75.45
Hugo	92.33		Albert	68.36
Herman	91.02		Paul	63.56
Conrad	91.17		Edward	61.53
Gustave	90.75		William	59.02
Christian	90.66		George	59.38
Emil	88.1		Frank	58.64
Rudolph	87.1		Walter	57.47
Adolph	86.59		Arthur	55.98

Notes: The table shows the values of the German Name Index (GNI) for the 10 most distinctive male names among second-generation Germans born 1880-1916 (left panel) and 1917-1930 (right panel). The ranking is computed among names that appear at least 50 times in the data. Data is from the 1920 and 1930 1% IPUMS samples.

Table 2. Summary statistics: IPUMS data

	Mean	S.D.	N
GNI	56.095	20.833	35752
One parent German	0.52	0.499	37711
Father US citizen	0.212	0.408	24580
Years of father in US	17.877	12.112	11224
Mother US citizen	0.344	0.475	25129
Years of mother in US	14.114	12.084	10450

Notes: The table reports summary statistics for men born in the US between 1880 and 1930 who have at least one German-born parent. Data is from the 1920 and 1930 1% IPUMS samples.

Table 3. Summary statistics: Illinois and Pennsylvania naturalization documents

	Mean	S.D.	N
Years in the US at declaration	10.184	7.114	2524
Age at declaration	32.207	9.103	2287
Years between declaration and petition	3.879	1.701	2527
Log AMI at arrival	-7.170	3.595	1464
Log AMI at declaration	-4.689	3.553	2532

Notes: The table reports summary statistics for immigrants who filed a declaration of intention between 1911 and 1923 in the Northern Illinois and Eastern Pennsylvania district courts.

Table 4. World War I and naming patterns

Dep. variable:	FNI					
	[1]	[2]	[3]	[4]	[5]	[6]
Born 1917 or later	1.296***	0.627**				
	(0.192)	(0.244)				
German	-0.939***	-0.787***	-0.699***			
	(0.148)	(0.151)	(0.151)			
German × born 1917 or later	-8.218***	-8.354***	-8.579***	-6.255***	-4.081**	-3.906**
	(0.457)	(0.458)	(0.458)	(1.501)	(1.402)	(1.433)
Observations	131099	131099	131099	131099	131099	131099
R-squared	0.00326	0.00341	0.00444	0.0323	0.00333	0.0126
Linear time trend	N	Y	N	N	N	N
Year of birth FE	N	N	Y	Y	Y	Y
Ethnicity FE	N	N	N	Y	Y	Y
Linear ethnicity trends	N	N	N	N	Y	Y
State of birth FE	N	N	N	N	N	Y

Notes: The sample consists of men born in the US 1880-1930 to a foreign-born father, or a native-born father and a foreign-born mother. Individuals are assigned the ethnicity of the father, unless the father is US-born. The sample consists of the following ethnic groups: Italian, Irish, Belgian, French, Swiss, Portuguese, English, Scottish, Welsh, Danish, Norwegian, Swedish, Finnish, Austrian and Russian. The dependent variable in columns (5)-(6) is the residual from a regression of the FNI on linear ethnicity-specific trends fitted to the pre-1917 period. Heteroscedasticity-robust standard errors are reported in columns (1)-(3) and robust standard errors clustered at the ethnic group level are reported in columns (4)-(6). Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5. Petitions for naturalization

Dep. variable:	Number of petitions				
	[1]	[2]	[3]	[4]	[5]
German	29.39***	42.98***	42.92***		
	(8.827)	(9.135)	(9.204)		
After 1917	23.93***	30.87***			
	(4.815)	(5.519)			
German × after 1917	25.59***	23.18***	24.04***	20.38***	22.56**
	(6.162)	(6.595)	(6.453)	(6.757)	(8.667)
Observations	950	950	950	950	950
R-squared	0.0517	0.216	0.225	0.480	0.348
Residence state FE	N	Y	Y	Y	Y
Year FE	N	N	Y	Y	Y
Country of origin FE	N	N	N	Y	Y
Linear nationality trends	N	N	N	N	Y

Notes: The unit of observation is a nationality-state-year cell (where state and year refer to the time and place when a petition was filed). Columns (1) and (2) include an indicator for the year 1918. Data comprises the following nationalities: Austria-Hungary, Belgium, Bulgaria, Canada, Denmark, England, Finland, France, Germany, Greece, Netherlands, Ireland, Italy, Norway, Poland, Portugal, Romania, Russia, Scotland, Spain, Sweden, Switzerland, Turkey and Wales. The dependent variable in column (5) is the residual from a regression of petitions on linear nationality-specific trends fitted to the pre-1917 period. Standard errors are clustered at the nationality level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6. Name Americanization

Dep. variable:	First name			Soundex phonetic equivalent		
	Higher log AMI in declaration	Change in log AMI	Log AMI	Higher log AMI in declaration	Change in log AMI	Log AMI
	[1]	[2]	[3]	[4]	[5]	[6]
German × after 1917	0.0689*** (0.0182)	0.529*** (0.176)	0.484** (0.176)	0.0989*** (0.0241)	0.381*** (0.126)	0.754*** (0.0793)
Observations	1464	1464	2532	1464	1464	2532
R-squared	0.381	0.383	0.246	0.282	0.358	0.137

Notes: The sample consists of immigrants who filed a declaration of intention in the Northern Illinois and Eastern Pennsylvania district courts between 1911 and 1923. All regressions include nationality and year of declaration fixed effects. Columns (1), (2), (4) and (5) control for the log AMI of the name in the certificate of arrival. The dependent variable is an indicator for a log AMI higher at the time of declaration that at the time of arrival in columns (1) and (4), the change in log AMI between certificate of arrival and declaration in columns (2) and (5) and the log AMI at declaration in columns (3) and (6). Robust standard errors clustered at the nationality level in parentheses. Significance levels: *** p< 0.01, ** p< 0.05, * p< 0.1.

Table 7. Accounting for out-migration

Dep. variable:	FNI				
	[1]	[2]	[3]	[4]	[5]
German × born 1917 or later	-4.993*** (1.326)	-4.892*** (1.295)	-2.511*** (0.313)	-2.698*** (0.343)	-2.704*** (0.342)
Observations	55126	55126	55126	55126	55126
R-squared	0.0440	0.0570	0.00688	0.00851	0.00869
State of birth FE	N	Y	N	N	Y
Birth order FE	N	N	N	Y	Y
Family FE	N	N	Y	Y	Y

Notes: The sample consists of men born in the US 1880-1930 to a foreign-born father, or a native-born father and a foreign-born mother, who live in the same household as their father and at least one male sibling at census time. All regressions include birth year and ethnicity indicators. Ethnicity is assigned on the basis of the father, unless the father is US-born. The sample consists of the following ethnic groups: Italian, Irish, Belgian, French, Swiss, Portuguese, English, Scottish, Welsh, Danish, Norwegian, Swedish, Finnish, Austrian and Russian. Standard errors are clustered at the ethnicity level. Significance levels: *** p< 0.01, ** p< 0.05, * p< 0.1.

Table 8. Petitions for naturalization normalized by immigrant arrivals

Dep. variable:	Petitions as share of arrivals		Petitions as share of weighted arrivals	
	[1]	[2]	[3]	[4]
German × after 1917	0.000859**	0.000787**	0.00768***	0.00698**
	(0.000342)	(0.000340)	(0.00268)	(0.00255)
Observations	887	887	887	887
R-squared	0.137	0.202	0.170	0.325
Residence state FE	N	Y	N	Y

Notes: The unit of observation is a nationality-state-year cell (where state and year refer to the time and place when a petition was filed). The dependent variable in columns (1) and (2) is the total number of petitions in each cell divided by the total number of immigrant arrivals of the same nationality in the period 5 to 10 years before the petition was filed. In columns (3) and (4) the denominator is the weighted average of arrivals in the 5 to 10 years before, where the weights are determined by the empirical distribution of years in the US at the time of the petition. The sample consists of the following nationalities: Austria-Hungary, Belgium, Bulgaria, Canada, Denmark, England, Finland, France, Germany, Greece, Netherlands, Ireland, Italy, Norway, Poland, Portugal, Romania, Russia, Scotland, Spain, Sweden, Switzerland, Turkey and Wales. Standard errors are clustered at the nationality level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 9. State-level anti-German sentiment and naming patterns

Dep. variable:	GNI				
Panel A	State-level support for Woodrow Wilson				
	[1]	[2]	[3]	[4]	[5]
Wilson	-5.674**	-5.423*			
	(2.627)	(3.032)			
Wilson × born 1917 or later	-11.78*	-15.87**	-15.09**	-19.21***	-14.49**
	(6.766)	(6.752)	(6.872)	(6.013)	(6.254)
Observations	35623	35623	35623	35623	35623
R-squared	0.0210	0.0242	0.0287	0.0307	0.0110
Panel B	State-level harassment incidents				
Incidents per thousand	-185.0	-232.1			
	(176.6)	(178.5)			
Incidents per thousand ×	-810.6**	-778.9**	-770.5**	-882.9**	-848.1**
born 1917 or later	(359.6)	(347.1)	(382.9)	(389.1)	(370.8)
Observations	35678	35678	35678	35678	35678
R-squared	0.0202	0.0233	0.0285	0.0304	0.0108
State FE	N	N	Y	Y	Y
Year of birth FE × 1910 German share	N	Y	Y	Y	Y
Year of birth FE × 1910 GNI	N	N	N	Y	Y
Linear state trends	N	N	N	N	Y

Notes: The sample consists of men born in the US 1880-1930 with at least one German-born parent. All columns include birth year fixed effects. *Wilson* is a measure of increase in a state's support for Woodrow Wilson between the presidential elections of 1912 and 1916 and is defined in Section 4.1. *Incidents per thousand* is the number of reported harassment incidents against Germans per thousand residents in the state during WWI. *1910 German share* is the share of first and second generation Germans in the total population of the state in 1910. Data for the calculation of this variable are from ICPSR. *1910 GNI* is the average GNI of second generation Germans born in the state before 1914. The dependent variable in column (5) is the residual from a regression of the GNI on linear state-specific trends fitted to the pre-1917 period. Standard errors are clustered at the state-of-birth level. Significance levels: *** p< 0.01, ** p< 0.05, * p< 0.1.

Table 10. Heterogeneity by parents' characteristics

Dep. variable:			GNI		
	[1]	[2]	[3]	[4]	[5]
One parent German	-6.222***				
	(0.231)				
One parent German × born 1917 or later	-0.696				
	(0.911)				
Father US citizen		2.111***			
		(0.371)			
Father US citizen × born 1917 or later		-6.068***			
		(1.402)			
Mother US citizen			0.0570		
			(0.333)		
Mother US citizen × born 1917 or later			-4.202***		
			(1.247)		
Father years in US				-0.129***	
				(0.0203)	
Father years in US × born 1917 or later				-0.147***	
				(0.0435)	
Mother years in US					-0.0693***
					(0.0193)
Mother years in US × born 1917 or later					-0.214***
					(0.0537)
Observations	35752	23331	23866	10593	9894
R-squared	0.0407	0.00665	0.0233	0.0335	0.0372

Notes: The sample consists of men born in the US 1880-1930 with at least one German-born parent. All regressions include birth year indicators. Columns (2) and (4) restrict the sample to men with a German-born father, and columns (3) and (5) to men with a German-born mother. Heteroscedasticity-robust standard errors in parentheses. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 11. Average years in the US at time of petition

Dep. variable:	Average years in the US			
	[1]	[2]	[3]	[4]
German	5.419***	5.195***	5.175***	
	(0.643)	(0.625)	(0.623)	
After 1917	1.979***	2.137***		
	(0.394)	(0.368)		
German × after 1917	2.457***	2.349***	2.379***	2.210***
	(0.386)	(0.375)	(0.365)	(0.334)
Observations	939	939	939	939
R-squared	0.126	0.173	0.188	0.377
Residence state FE	N	Y	Y	Y
Year FE	N	N	Y	Y
Country of origin FE	N	N	N	Y

Notes: The unit of observation is a nationality-state-year cell (where state and year refer to the time and place when a petition was filed). Columns (1) and (2) include an indicator for the year 1918. Data comprises the following nationalities: Austria-Hungary, Belgium, Bulgaria, Canada, Denmark, England, Finland, France, Germany, Greece, Netherlands, Ireland, Italy, Norway, Poland, Portugal, Romania, Russia, Scotland, Spain, Sweden, Switzerland, Turkey and Wales. Standard errors are clustered at the nationality level. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.
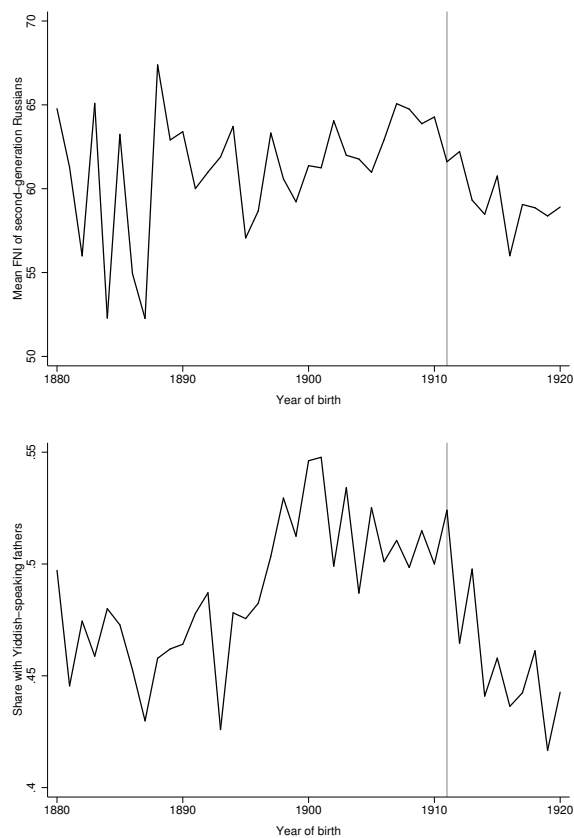
A   Appendix – Additional Figures and Tables

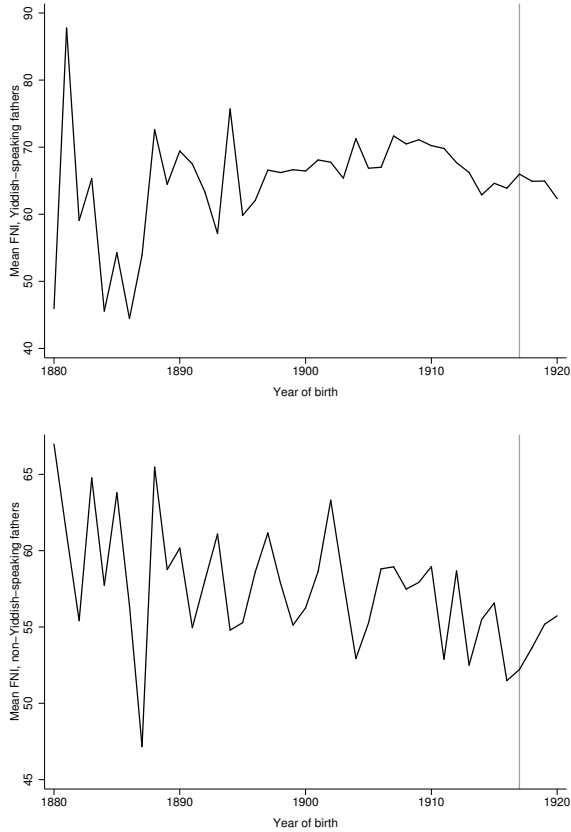Figure A.1. Mean FNI by nationality
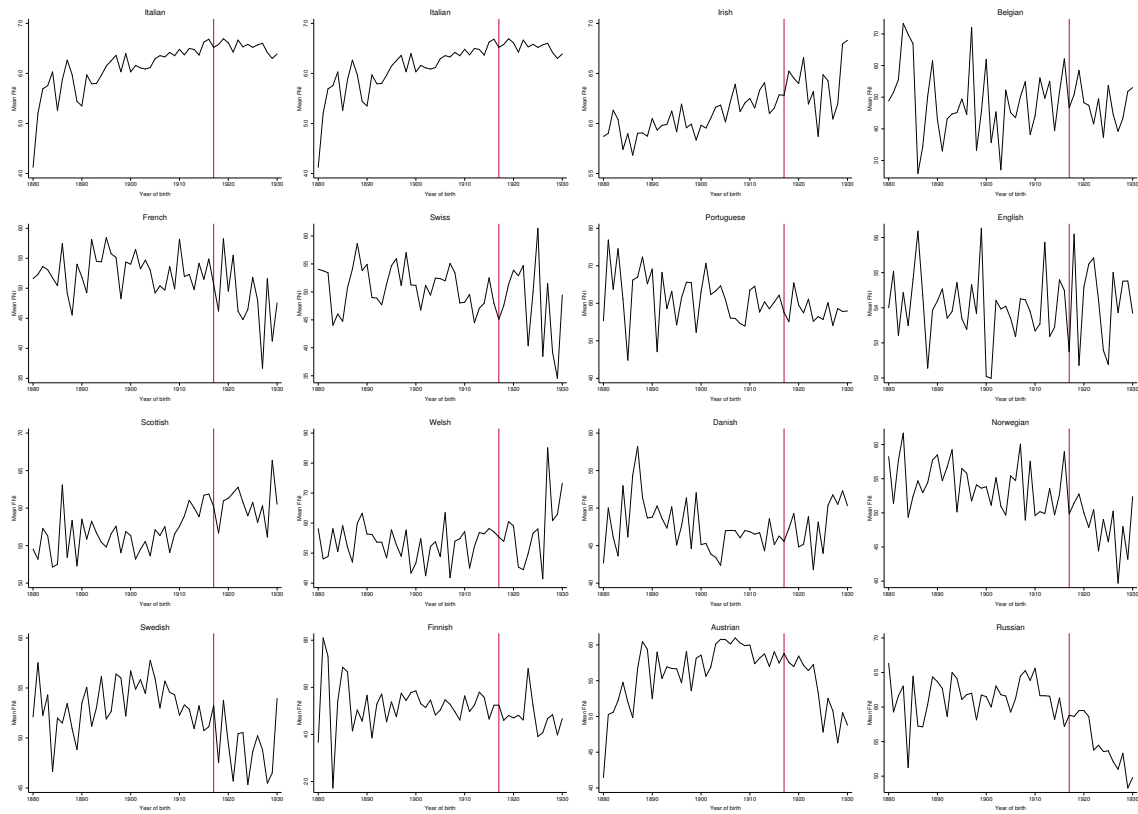
Notes: The figure plots the mean FNI by year of birth for US-born men with at least one foreign-born parent. The grey vertical line corresponds to 1917, the year when the US entered WWI. Data is from the 1920 and 1930 1% IPUMS samples.

Figure A.2. Russian immigrant group composition and FNI

Notes: The figure plots the mean FNI by year of birth for US-born men with at least one Russian-born parent (upper panel) and the share of second-generation Russians whose father has Yiddish as his mother tongue. The grey vertical line is drawn at 1911. Data is from the 1920 and 1930 1% IPUMS samples.

Figure A.3. FNI by father's monther tongue among second-generation Russians

Notes: The figure plots the mean FNI by year of birth for US-born men with a Russian-born father whose mother tongue is Yiddish (upper panel) or a language other than Yiddish (lower panel). The grey vertical line corresponds to 1917, the year when the US entered WWI. Data is from the 1920 and 1930 1% IPUMS samples.

Table A.1. World War I and naming patterns among women

Dep. variable:	FNI					
	[1]	[2]	[3]	[4]	[5]	[6]
Born 1917 or later	-0.196	0.236				
	(0.185)	(0.232)				
German	-1.028***	-1.126***	-1.045***			
	(0.145)	(0.148)	(0.149)			
German × born 1917 or later	-8.979***	-8.890***	-9.108***	-7.767***	-5.345***	-5.105***
	(0.463)	(0.464)	(0.463)	(1.240)	(1.110)	(1.116)
Observations	131621	131621	131621	131621	131621	131621
R-squared	0.00384	0.00391	0.00500	0.0276	0.00367	0.0122
Linear time trend	N	Y	N	N	N	N
Year of birth FE	N	N	Y	Y	Y	Y
Ethnicity FE	N	N	N	Y	Y	Y
Linear ethnicity trends	N	N	N	N	Y	Y
State of birth FE	N	N	N	N	N	Y

 Notes: The sample consists of women born in the US 1880-1930 to a foreign-born father, or a native-born father and a foreign-born mother. Individuals are assigned the ethnicity of the father, unless the father is US-born. The sample consists of the following ethnic groups: Italian, Irish, Belgian, French, Swiss, Portuguese, English, Scottish, Welsh, Danish, Norwegian, Swedish, Finnish, Austrian and Russian. The dependent variable in columns (5)-(6) is the residual from a regression of the FNI on linear ethnicity-specific trends fitted to the pre-1917 period. Heteroscedasticity-robust standard errors are reported in columns (1)-(3) and robust standard errors clustered at the ethnic group level are reported in columns (4)-(6). Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.2. FNI robustness

Method used to compute the FNI	Coefficient on German × born 1917 or later	Observations
Dependent variable is FNI		
Baseline	-7.767***	131621
	(1.240)	
Foreign-born	-6.743***	115493
	(1.662)	
Foreign-born and foreign-born fathers	-6.720***	115493
	(1.672)	
Using 20 previous birth cohorts	-6.255***	131096
	(1.501)	
Using 10 previous birth cohorts	-6.239***	131060
	(1.501)	
Using name Soundex phonetic code	-5.707***	139675
	(1.226)	

Notes: The sample consists of men born in the US 1880-1930 to a foreign-born father, or a native-born father and a foreign-born mother, unless otherwise noted. It comprises the following ethnic groups: Italian, Irish, Belgian, French, Swiss, Portuguese, English, Scottish, Welsh, Danish, Norwegian, Swedish, Finnish, Austrian and Russian. All regressions include ethnicity and birth cohort fixed effects. Standard errors are clustered at the ethnic group level. Significance levels: *** $p< 0.01$, ** $p< 0.05$, * $p< 0.1$.

Data Sources

Ancestry.com data on petitions for naturalization come from the following sources:

California

*Naturalization Records of the U.S. District Court for the Southern District of California, Central Division (Los Angeles), 1887-1940.*NARA Microfilm Publication M1524, 244 rolls. Records of District Courts of the United States, Record Group 21. National Archives, Washington, D.C.

*Naturalization Records in the Superior Court of San Diego, California, 1883-1936.*NARA Microfilm Publication M1613, 19 rolls. National Archives Gift Collection, Record Group 200. National Archives, Washington, D.C.

*Naturalization Records in the Superior Court of Los Angeles, California, 1876-1915.*NARA Microfilm Publication M1614, 28 rolls. National Archives Gift Collection, Record Group 200. National Archives, Washington, D.C.

Maryland

Naturalization Petitions of the U.S. District Court for the District of Maryland, 1906-1930. NARA Microfilm Publication M1640, 43 rolls. Records of District Courts of the United States, Record Group 21. National Archives, Washington D.C.

Pennsylvania

Naturalization Petitions of the U.S. Circuit and District Courts for the Middle District of Pennsylvania, 1906-1930. NARA Microfilm Publication M1626, 123 rolls. Records of District Courts of the United States, Record Group 21. National Archives, Washington, D.C.

Virginia

Naturalization Petitions of the U.S. District Court for the Western District of Virginia (Abingdon), 1914-1929. NARA Microfilm Publication M1645, 2 rolls. Records of District Courts of the United States, Record Group 21. National Archives, Washington, D.C.

Naturalization Petitions of the U.S. District and Circuit Courts for the Eastern District of Virginia (Richmond), 1906-1929. NARA Microfilm Publication M1647, 10 rolls. Records of District Courts of the United States, Record Group 21. National Archives, Washington, D.C.

Naturalization Petitions of the U.S. District Court for the Western District of Virginia (Charlottesville), 1910-1929. NARA Microfilm Publication M1646, 1 roll). Records of Dis-

trict Courts of the United States, Record Group 21. National Archives, Washington D.C.

Naturalization Petitions of the U.S. District Court for the Eastern District of Virginia (Alexandria), 1909-1920. NARA Microfilm Publication M1648, 5 rolls. Records of the District Courts of the United States, Record Group 21. National Archives, Washington D.C.

FamilySearch.org data on naturalization documents come from the following collections:

Illinois

Illinois, Northern District Petitions for Naturalization, 1906-1994. Images. *FamilySearch.* http://FamilySearch.org : 14 June 2016. Citing U.S. District Court for the Eastern Division of the Northern District of Illinois, 3/3/1905, NAID 593882. Records of District Courts of the United States, 1685 - 2009, RG 21. National Archives at Chicago.

Pennsylvania

Pennsylvania, Eastern District Petitions for Naturalization, 1795-1931. Images. *Family-Search.* http://FamilySearch.org : 14 June 2016. Citing NARA microfilm publication M1522. Washington, D.C.: National Archives and Records Administration, n.d.