Kenji or Kenneth? Pearl Harbor and Japanese-American Assimilation*

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Abstract

Do immigrants assimilate in response to an exogenous shock in anti-immigrant sentiment? This paper investigates this question by examining the bombing of Pearl Harbor as a natural experiment. I generate an index for the Americanization of first names from the 1900-1930 censuses and merge this index with records from the universe of Japanese-American internees during WWII. Regression discontinuity in time estimates suggest that Japanese Americans born in the days after Pearl Harbor were more likely to have an Americanized first name relative to children born in the days before December 7th, 1941. A within-family analysis yields similar results.

JEL codes: J15, N12, Z13
Keywords: assimilation, naming practices, Japanese Americans, internment camps, Pearl Harbor

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1 Introduction

Fears that immigrants remain unassimilated have dominated recent political debate. In an Arizona speech, President Donald Trump said, "We also have to be honest about the fact that not everyone who seeks to join our country will be able to successfully assimilate. Sometimes it's just not going to work out. It's our right, as a sovereign nation, to chose immigrants that we think are the likeliest to thrive and flourish and love us," (NYT, 2016). The speech was not political cheap talk. Guidelines proposed by the Trump White House for admitting refugees recommend that "criteria that enhance a refugee's likelihood of assimilation" be taken into account when approving applications, and the Administration has banned immigration from several predominately Muslim countries, a group often thought to be unassimilated to American culture. At the same time, hate crimes and anti-immigrant sentiment have increased in recent years (Rushin and Edwards, 2018).

Identifying the effects of anti-immigrant sentiment on assimilation presents several challenges. Anti-immigrant sentiment may be endogenous to unobserved factors that also affect assimilation, such as local economic conditions. Reserve causality is also a concern, since natives may discriminate against groups that fail to assimilate. Economic theory provides ambiguous predictions on how immigrants should respond to anti-immigrant sentiment. Immigrant groups may assimilate in an attempt to pass as native and avoid discrimination. Alternatively, if avoiding discrimination is infeasible, then immigrants may to turn to their own communities for social and economic support and become increasingly isolated from natives.

To overcome these challenges, I examine a unique episode of American history that exogenously and suddenly increased anti-immigrant sentiment: the bombing of Pearl Harbor by Imperial Japanese Forces on December 7th, 1941. The attack was unan-

ticipated and surprised not only the U.S. military, but also Adolph Hitler, an ally of Japan. Thus, while Japanese Americans arguably could have predicted a conflict between the U.S. and Japan would eventually occur, it is implausible that Japanese Americans could have anticipated the timing of the Pearl Harbor attack. The attack also led to a sudden increase in anti-Japanese sentiment. In the aftermath of Pearl Harbor, there were incidents of anti-Japanese crimes, major media outlets openly encouraged discrimination, and relatively obscure anti-Japanese slurs entered common use (see section 2). While anti-Japanese sentiment pre-dated Pearl Harbor, Japanese Americans were not obviously discriminated against any more than Chinese Americans on the West Coast or blacks in the American South.

Measuring how Pearl Harbor affected Japanese-American assimilation poses several challenges. Even though the attack happened in Hawaii, much of the anti-Japanese backlash occurred on the U.S. mainland. Without clear geographic variation in exposure to anti-Japanese sentiment, I exploit the fact that the Pearl Harbor attack was unexpected and compare assimilation in the days and weeks just before Pearl Harbor to the days and weeks immediately after. Such an approach requires a measure of assimilation that changes very quickly. For such a measure, I turn to the naming practices of Japanese-American internees by birth date. During the period, Japanese-American parents would either give their child a Japanese first name (such as Kenji) or an Americanized first name (such as Kenneth). Although this is an imperfect measure, it plausibly provides some indication of whether parents are attempting to assimilate their children to American culture. Another advantage is that naming practices are an unconstrained way to signal assimilation, whereas intermarriage rates or English proficiency measure not only an immigrant's willingness, but also ability to assimilate (Fouka, 2017).

The data come from the Final Accountability Roster of Evacuees at Relocation Cen-

ters digitized by Ancestry.com, hereafter referred to as the Roster data. The Roster data comprise every Japanese-American internee who passed through the ten internment camps during WWII and include every internee's full name, exact birth date, arrival date, and the departure date.[1] The advantage of focusing on internees is that internment was a non-voluntary process, limiting concerns of individuals being selected into the sample. The Roster data also has several advantages over other data sets, such as death records or census data. Death records would not include Japanese Americans who are still alive or Japanese Americans that returned to Japan after the war. Census data post-Pearl Harbor with names are not publicly available yet, but even if they were, historical censuses did not record exact date of birth. The disadvantage is that the U.S. only incarcerated Japanese Americans on the West Coast, and not Japanese Hawaiians.[2] Thus, my estimates may not capture how the typical Japanese American family reacted if the treatment effect varied systematically with geography.

To measure how assimilated a first name is, I create the Americanized Name Index (ANI) from the 1900-1930 censuses. ANI measures assimilation by comparing the relative probabilities that white and Japanese census respondents have a first name and is analogous to the Black Name Index first used in Fryer and Levitt (2004).

Non-parametric regression discontinuity in time estimates suggest that Japanese-American internees gave their children more Americanized first names in the days immediately following the attack. I do not interpret this estimate as being solely driven by the Pearl Harbor bombings, but rather the combined effects of the bombings and a sudden increase in anti-Japanese sentiment. For example, Japanese Americans may have picked more Americanized names because the surprise attack may have decreased how much they identified with their ancestral homeland. At the same time, Japanese Americans may have picked more Americanized names in response to increased anti-

[1] For internees born in the camp, their arrival data is their birth date.

[2] There were few Japanese Americans east of the Rockies at the time.

Japanese sentiment in an attempt to avoid discrimination and exclusion from American life. The former could be thought of as a change in assimilating behavior in response to a shift in identity, whereas the latter could be thought of as strategic assimilation. I unable to disentangle these two mechanisms in this paper.

These estimates represent a causal effect so long as unobserved factors influencing name Americanization varied continuously through Pearl Harbor. Statistical tests find no evidence of strategic manipulation or that the results are driven by age heaping. It is possible that other shocks such as the Nazi invasion of Poland, the signing of Executive Order 9066, or the issuing of Loyalty Question to internees may have lead to discontinuous jumps in assimilation. However, placebo treatment tests find that Pearl Harbor lead to an uncommonly large and statistically significant jump in assimilation. Lastly, a family fixed effects model that compares siblings born before and after the attack finds that there is a break in the time trend around Pearl Harbor.

Previous work on the internment of Japanese Americans has examined how internment affected the long-run outcomes on incarcerated adults (Chin, 2005; Arellano-Bover, 2018), school-age children (Saavedra, 2015), life spans (Saavedra, 2013), and location decisions (Shoag and Carollo, 2016). While some work in sociology has examined trends in Japanese-American assimilation (see Woodrum, 1981), this work has not specifically examined the causal effects of Pearl Harbor.

Beyond the literature on Japanese-American internees, this paper relates to the larger literature on how racial and ethnic minorities respond to increases in racism, most notably Muslims after the September 11th terrorist attacks. Lauderdale (2006) finds that Arabic-American women were more likely to give birth to low birth weight infants following the terrorist attacks. Although the naming practices of Arabic-American mothers is not the focus on her paper, she also finds that the percentage of Arabic-American mothers who gave their children an Arabic given name dropped 2 percentage

points, suggesting Muslim Americans assimilated in the immediate aftermath of the attacks. Gould and Klor (2016) show that Muslims had lower inter-marriage rates and English proficiency in states that had the largest increases in hate crimes. Thus, the short-run and long-run effects of 9/11 on Muslim assimilation may have differed. By examining naming practices, I am only able to identify the short-run effects of Pearl Harbor on Japanese-American assimilation.

Several papers have analyzed WWI as an exogenous shock to anti-German sentiment. Moser (2012) finds that applicants for the NYSE with German names were more likely to be rejected following WWI. Most closely related to this study, Fouka (2017) found that German Americans picked more Americanized names for their children after the war. Furthermore, I find that the effect of Pearl Harbor on Japanese American names is similar in magnitude to the effect of WWI on German American names estimated in Fouka (2017).

Lastly, this paper relates to the literature on the causes of ethnically and racially distinctive names. This literature has mostly focused on blacks and European immigrants. Cook et al. (2014) find that blacks have long held first names that are distinctive from whites, but the set of distinctively black names has changed overtime. There is mixed evidence of the extent to which distinctively black names affect adult economic and health outcomes (Cook et al., 2016; Bertrand and Mullainathan, 2004; Fryer and Levitt, 2004). The literature on European immigrants has consistently found that immigrants with more Americanized first names have higher socioeconomic status (Abramitzky et al., 2016; Goldstein and Stecklov, 2016).[3]

The paper proceeds as follows: Section 2 documents anti-Japanese sentiment before and after the Pearl Harbor attacks. Section 3 describes the Americanized Name Index and the Roster data. Section 4 describes the identification strategy. Section 5 presents

[3]Zhang et al. (2016) show that Jewish immigrants in the early 1900s gave their children established rather than fashionable American names to signal their assimilation to American culture.

the results and robustness tests. Section 6 concludes.

2 History of Anti-Japanese Sentiment

Japanese immigrants first arrived in Hawaii and the U.S. mainland during the late 1860s but did not enter the U.S. in large numbers until the 1890s. Between 1890 and 1900, the Japanese populations in California and Hawaii increased by a factor of 10 and 5, respectively. Combining this population increase with Hawaii becoming a U.S. territory in 1898, the Japanese-American population increased from approximately 2,000 in 1890 to over 85,000 in 1900.

As Asians immigrated to the U.S., anti-Asian sentiment grew and immigration restrictions were passed. In 1882, Congress passed the Chinese Exclusion Act preventing Chinese laborers from entering the U.S. Following the rise in Japanese immigration, the United States and Japan entered the Gentlemen's Agreement in 1908. Japan agreed to stop issuing passports for Japanese laborers to enter the U.S. and the U.S. agreed not to formally ban further Japanese immigration. The Immigration Act of 1924 imposed quotas on the number of immigrants who could arrive from Europe and banned Asians and Arabs from immigrating altogether. Beyond immigration policy, California prohibited the Japanese from owning agricultural land in 1913 (Higgs, 1978).

While Japanese Americans were victims of racism, they were not obviously victimized more than other racial minorities, such as Chinese Americans, Native Americans, or African Americans until the morning of December 7th, 1941, when Imperial Japanese forces unexpectedly bombed the United States naval base of Pearl Harbor. The bombing drastically and quickly changed U.S. policy. The U.S., previously reluctant to enter another European conflict, declared war on Japan, Germany, and Italy. The FBI arrested local leaders within the Japanese-American community within hours. The

Department of Interior started constructing internment camps, and by March of 1942 incarcerated all Japanese-American civilians on the West Coast including women and children.[4]

The public's reaction to the attacks was equally swift. Japanese Americans became victims of racially motivated crimes, and whites boycotted their businesses. The first issue of LIFE Magazine following Pearl Harbor ran a story describing how to tell the difference between Chinese Americans and Japanese Americans by examining their facial features. The December 22, 1941 article read,

> *In the first discharge of emotions touched off by the Japanese assaults on their nation, U.S. citizens have been demonstrating a distressing ignorance of the delicate question of how to tell a Chinese from a Jap. Innocent victims in cities all over the country are many of the 75,000 U.S. Chinese, whose homeland is our staunch ally. So serious were the consequences threatened, that the Chinese consulates last week prepared to tag their nationals with identification buttons. To dispel some of this confusion, LIFE here adduces a rule-of-thumb from the anthropometric conformations that distinguish friendly Chinese from enemy alien Japs.*

Following Pearl Harbor and the Japanese invasion of the Philippines, which occurred 10 hours later, West Coast newspapers documented several acts of violence against Japanese Americans. The attackers were most often alleged to have been Filipino Americans. Headlines included "Japanese Couple Slain by Filipino" (The Press Democrat, 1942), "Jap, Filipino District Under Guard, 1 Slain" (Oakland Tribune, 1941a), and "Japanese Shot in Sacramento, Blames Filipino" (Oakland Tribune, 1941b). All

[4]Within the internment camps, families would share a single room, and internees shared communal bathrooms and dining halls. The camps were surrounded by barbed wire and armed guards, and there were several incidents in which internees were shot. In addition to enduring the conditions within the camps, internees lost property and the opportunity to build human capital (Chin, 2005; Saavedra, 2015).

of these headlines described separate incidents. An article in the Evening Independent summarized the violence:

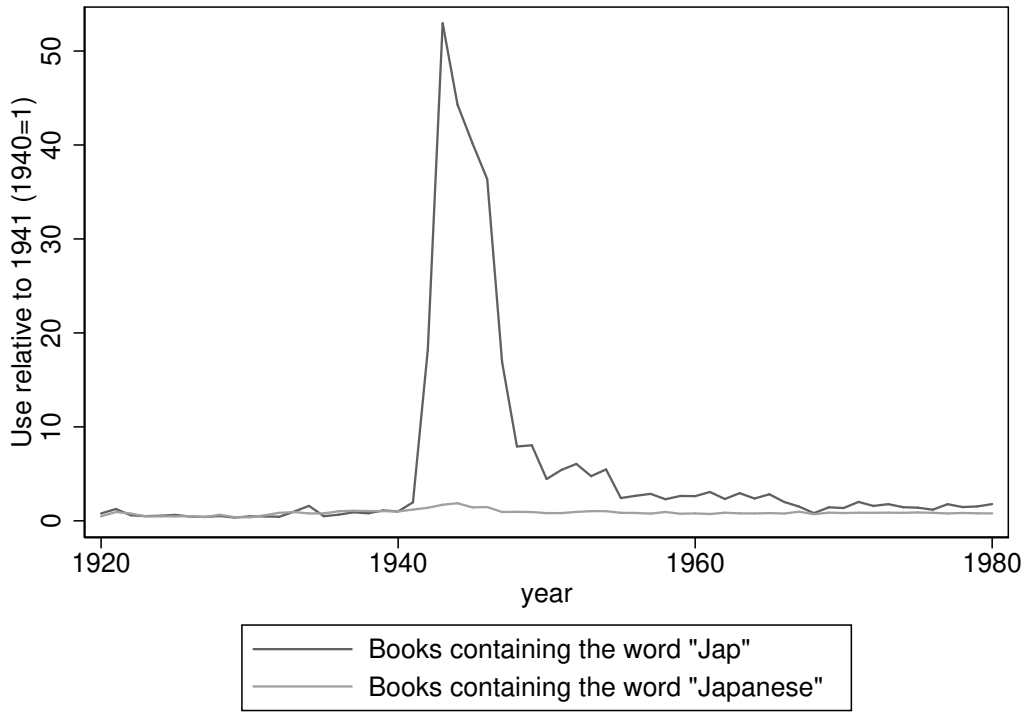
> *Just how serious, how dangerous, is the pent-up racial antagonism against the Japanese in California? Here in the heart of the Japanese population on the Pacific coast a survey disclosed that already there have been several killings, violent assaults, instances of rioting, and, in general, enough rough stuff to make the life of a Japanese seem extremely precarious.*

To quantify how much hatred towards the Japanese increased after Pearl Harbor, Figure 1 shows the percent of books by publication year in which the word "Jap" appears using data from Google N-grams. The time series is normalized so that 1941 is equal to one. The racial slur was relatively rare before the Pearl Harbor attack, drastically increased during the war years, and then returned to obscurity after the war. The use of the slur was 1722% higher in 1942 relative to 1940 usage and 5196% higher in 1943. It is conceivable these patterns do not reflect an actual increase in racism, but instead reflect an increase in discussions about the Japanese and the use of the slur merely increased proportionally with those discussions. For comparison, the Figure also displays the percent of books in which the word "Japanese" appears. While the use of the word "Japanese" increased during WWII, usage in 1942 was only 39% higher in 1942 and 71% higher in 1943. All of the historical evidence suggests that anti-Japanese sentiment suddenly and dramatically increased after Pearl Harbor.

3 Data

To measure the Americanization of a name, I use an analog of the Black Name Index developed by Fryer and Levitt (2004). The Americanized Name Index (ANI) for a first name is the conditional probability that a white census respondent has the name

Figure 1: Percent of books in Google N-grams that contain the word "Jap" by publication year



Notes: Data are from Google N-grams. Each time series is normalized so that 1940 usage equals one.

relative to the sum of the conditional probabilities that a white census respondent has the name and the conditional probability that a Japanese respondent has the name:

$$\text{ANI}_{\text{name}} = \frac{\Pr(\text{name}|\text{White})}{\Pr(\text{name}|\text{White}) + \Pr(\text{name}|\text{Japanese})}. \tag{1}$$

If $\text{ANI}_{\text{name}} = 1$, then only whites use that given name; if $\text{ANI}_{\text{name}} = 0$, then only Japanese Americans use that given name. An $\text{ANI}_{\text{name}} = 0.5$ implies that both whites and Japanese Americans use the name at the same rate. I estimate these probabilities using whites and Japanese respondents from the 1900 5% sample, 1910 1% sample, 1920 1% sample, and the 1930 1% sample of the U.S. censuses (Ruggles et al., 2015). I do not aggregate names with different spellings but the same pronunciations into a single name, since the spelling of a name might be a meaningful signal of ethnicity. Analogous first name indexes have also been used in studies measuring immigrant assimilation using given names (Abramitzky et al., 2016; Goldstein and Stecklov, 2016; Fouka, 2017).

I then merge the first name index to the Final Accountability Roster of Evacuees at Relocation Centers from Ancestry.com, which I refer to as the Roster data.[5] The Roster data contains the full name, birth date, gender, arrival date, departure date, and state of internment for the universe of Japanese-American internees who were incarcerated in one of the ten internment camps during WWII. Since internees were sometimes transferred between camps, an individual may appear in the Roster data twice. I identify and drop duplicates if there are two individuals with the same full name and date of birth. I restrict the sample to internees born between 1938 and 1945, which corresponds to approximately four years before and after the Pearl Harbor bombing, although many of these observations will not be within the MSE-optimal

[5]Shoag and Carollo (2016) uses the Roster data to examine the impact of post-internment location decisions.

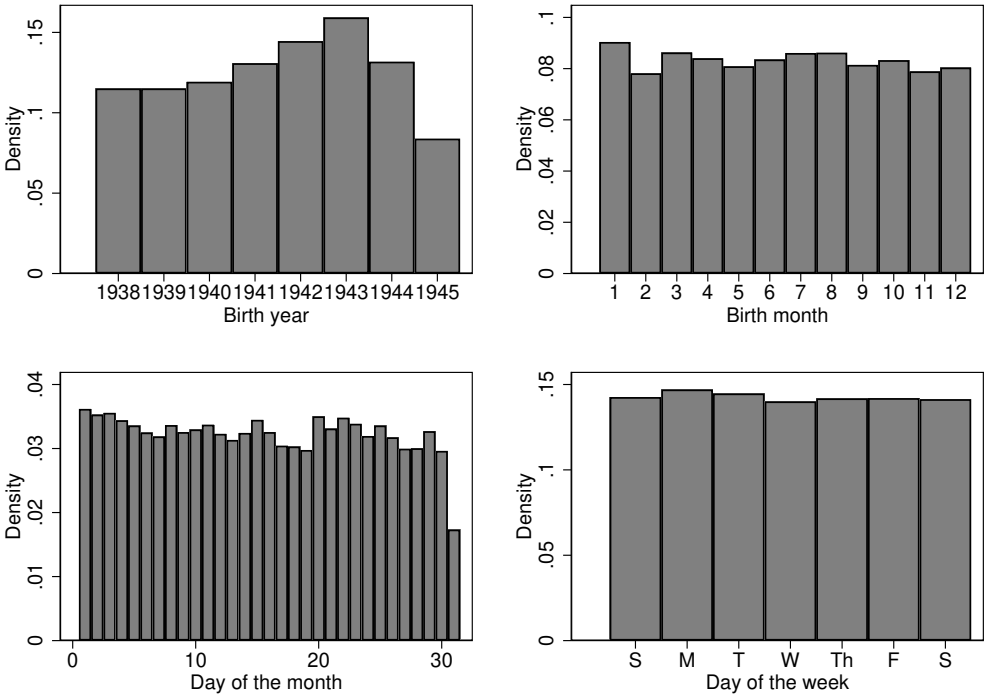
bandwidth. Because immigration from Japan was banned in 1924, these Japanese-American cohorts were exclusively *Nesei* or second-generation Japanese Americans.

One concern with the Roster data is whether the birth date is exact or rounded. In historical census data, there is a tendency for respondents to round their ages to those ending with either 0 or 5 (Myers, 1993; A'Hearn et al., 2009). Birth date heaping would potentially bias my estimates if internees with heaped birth dates were more or less likely to assimilate than internees with exact birth dates (Barreca et al., 2016). Figure 2 displays histograms of the distribution of birth year, month, day of the month, and day of the week. There is no heaping in 1940, by birth month, or day of the week. There is some slight age heaping for the first day of the month and days that are multiples of 5. For this reason, I present results using only non-heaped birth days as a robustness check.

Not all internees have a first name that appears in one of the census samples. There are two possible reasons someone may go unmatched: (1) their first name in the Roster data may be incorrectly transcribed, or (2) they may have a rare first name. These rare first names are likely to be Japanese first names since there are many more white Americans than Japanese Americans in the census. Because inspection of these names reveals that they are almost all Japanese names, I run the analysis two ways: (1) dropping all observations with an unmatched first name, and (2) setting the ANI for those with unmatched first names to zero. The two methods produce similar estimates. Examples of the most Japanese first names include Sachiko, Hiroshi, and Kenji (ANI = 0), whereas Ronald, Dennis, and Kenneth are the most Americanized first names (ANI = 1). Common intermediate names include Patricia, George, and Naomi with ANIs of 0.54, 0.55, and 0.57, respectively.

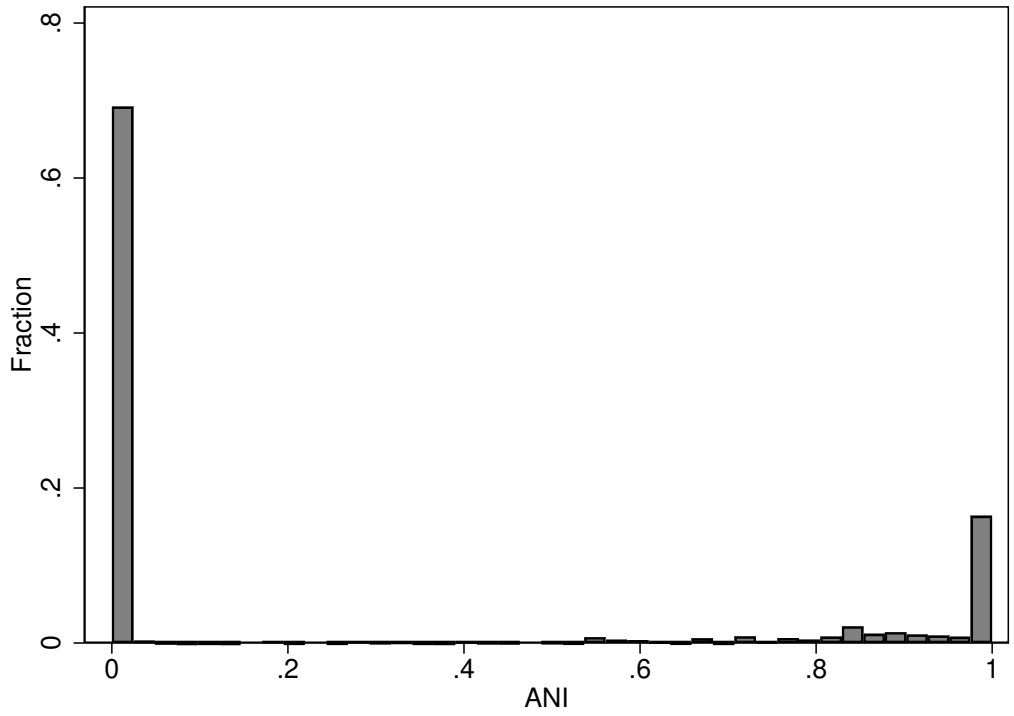
One might be concerned that these names are not really intermediate names, but rather assimilated names that Japanese Americans are drawn to. In particular, if recent

Figure 2: Distribution of birth year, month, day, and day of the week



Notes: Data are from the Final Accountability Roster of Evacuees at Relocation Centers. The sample is restricted to those born between 1938 and 1945.

Figure 3: Distribution of the Americanized Name Index for Japanese American internees



Notes: Data are from the Final Accountability Roster of Evacuees at Relocation Centers. The sample is restricted to those born between 1938 and 1945.

immigrants were unsure what names would signal a commitment to American values, then they might have named their children after George Washington. Figure 3 plots the distribution of ANI. Although there are some intermediate names, ANI is almost always close to either zero or one. Thus, ANI would likely be highly correlated with manually classifying each name as either American or Japanese.

Unfortunately, the digitized data do not contain socioeconomic variables or family identifiers.[6] To account for the fact that names may be correlated within family, I

[6]Other papers (Saavedra, 2013; Shoag and Carollo, 2016; Arellano-Bover, 2018) have used a distinct administrative database from the WRA: the *Records About Japanese Americans Relocated During World War II*. These records do contain some pre-internment socioeconomic and geographic background variables, but typically do not include internees who were born within the camps. Thus, there would be few observations to the right side of the discontinuity. Additionally, that database does not include exact birth date.

infer families by finding internees with the same last name, incarcerated in the same state, and who departed the camp on the same day. The camps slowly closed over several years and families, especially young siblings, would typically leave together. There are 1,117 unique departure dates, 3,210 last names, and 7 states. Thus, it is unlikely two internees who match on all three variables are unrelated. Lastly, I use these constructed family identifiers to infer the number of siblings at birth who were also in the sample.[7] This approach will miss siblings born before 1938 or siblings that died before the family's incarceration. I also use these family identifies to conduct a within-family analysis in subsection 5.2

Figure 4 graphs ANI for all internees born between 1900 and 1945. Japanese Americans assimilated at a steady pace from 1900 to 1910, with average ANI more than doubling during the decade. Assimilation was essentially flat for the next two decades increasing only from 0.21 to 0.25. World War 2 appears to have been a turning point in assimilation, even before the bombing of Pearl Harbor. The largest increase in assimilation, however, occurs between 1941 and 1942. This increase in assimilation is larger than all of the assimilation that occurred between 1910 and 1939 and dwarfs any previous increase. ANI then begins to fall in 1944 and 1945, however, this is likely a result of sample selection and not a true national trend. In 1943, the War Relocation Authority asked internees to fill out the "loyalty questionnaire," of which questions 27 and 28 read:

27. *Are you willing to serve in the armed forces of the United States on combat duty, wherever ordered?*

28. *Will you swear unqualified allegiance to the United States of America and faithfully defend the United States from any or all attack by foreign*

[7] I code the number of siblings as missing for 71 observations because this approach infers they had more than four siblings born between 1938 and 1945. These few cases are likely extended families who were incarcerated together.

or domestic forces, and forswear any form of allegiance or obedience to the Japanese emperor, or any other foreign government, power, or organization?

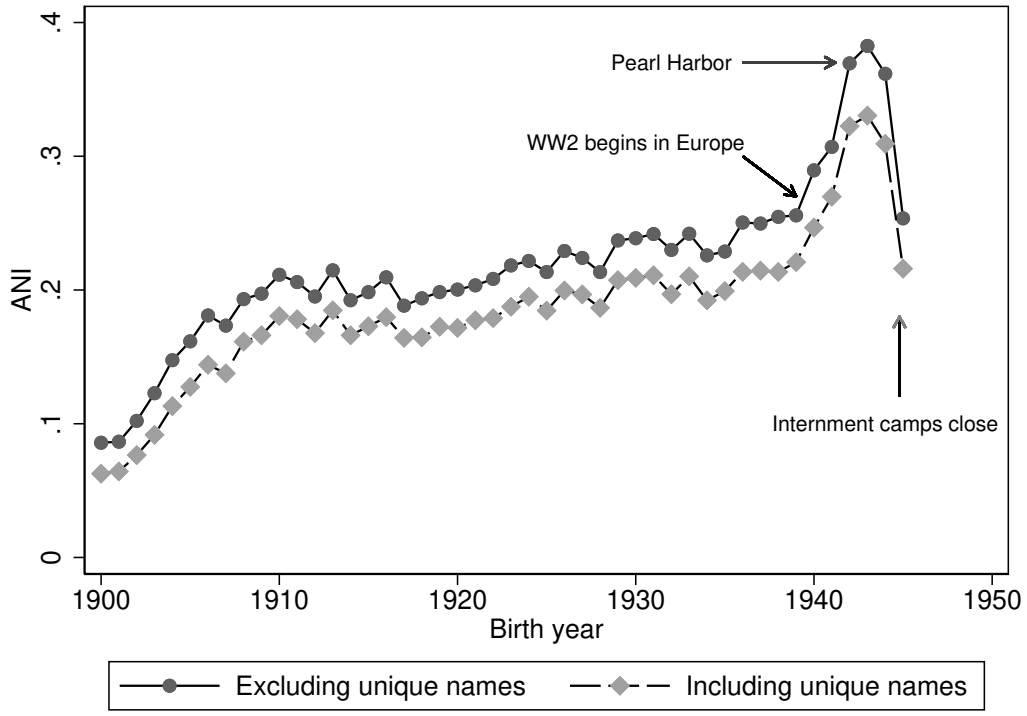
Many military-aged internees who answered both questions in the affirmative went on to serve in the 442nd Infantry Regiment, which later became the most decorated unit during the war. Those who answered in the negative were segregated in the Tule Lake camp. It is likely these questions were used when determining when a family could leave, and thus those who were the least assimilated may have been incarcerated longer than assimilated Japanese Americans.

Table 1 presents summary statistics for the final sample. Panel A displays the sample excluding unique names, whereas Panel B includes unique names. Mean ANI is 0.32 if unique names are excluded and 0.27 if unique names are included. Males compose approximately half of the sample. The average internee had approximately 0.5 siblings at birth who were also in the final sample.

4 Identification Strategy

Suppose Japanese-American parents face two possible levels of anti-Japanese sentiment, either low or high. Each set of parents has a potential name they would give their child that possibly depends on the state of world. Let $\text{ANI}_i(0)$ and $\text{ANI}_i(1)$ indicate how Americanized child i's name would be if the child was born into a world with relatively low or high levels of discrimination, respectively. Now assume that on December 7th, 1941, the level of anti-Japanese sentiment discontinuously changes from low to high, and all other unobserved characteristics affecting name choice change continuously. Then the local effect of anti-Japanese sentiment on name Americanization becomes:

Figure 4: Americanized Name Index by birth year for Japanese-American internees



Notes: Data are from the Final Accountability Roster of Evacuees at Relocation Centers and include internees who were born between 1900 and 1945. Unique names that could not be matched to the census have an ANI set to zero when they are included in the data set. The ANI decline in 1945 likely reflects that the least assimilated internees were incarcerated for longer, rather than a decline in Japanese-American assimilation nationwide.

Table 1: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Panel A: Excluding unique names					
ANI	0.316	0.438	0	1	12603
Birth date relative to Pearl Harbor	24.109	788.629	-1436	1485	12603
Male	0.496	0.5	0	1	12603
Siblings at birth	0.484	0.778	0	4	12548
Panel B: Including unique names					
ANI	0.272	0.421	0	1	14644
Birth date relative to Pearl Harbor	21.401	792.841	-1436	1485	14644
Male	0.515	0.5	0	1	14644
Siblings at birth	0.486	0.78	0	4	14573

Notes: Data are from the Final Accountability Roster of Evacuees at Relocation Centers and include internees who were born between 1938 and 1945. Unique names that could not be matched to the census have an ANI set to zero when they are included in the data set. Families are inferred from groups of internees with the same last name, departure date, and internment state. The number of siblings at birth is coded as missing if there are more than four inferred siblings.

$$\begin{aligned} \tau_{RD} &= E\left[\text{ANI}_i(1) - \text{ANI}_i(0) | T_i = 0\right] \\ &= \lim_{t \downarrow 0} E\left[\text{ANI}_i | T_i = t\right] - \lim_{t \uparrow 0} E\left[\text{ANI}_i | T_i = t\right], \end{aligned} \tag{2}$$

where T_i is the day of birth of individual i relative to Pearl Harbor. I non-parametrically estimate each limit using local linear smooths. Separate bandwidths are chosen for estimating the left and right expectation to minimize the mean square error (MSE) of the regression discontinuity estimate. Bandwidths that are too small will have lower bias but higher variance, whereas large bandwidths will have higher bias and lower variance. In addition to providing conventional non-parametric RD estimates, I use the methodology in Calonico et al. (2014a) and Calonico et al. (2014b) to provide robust bias-corrected estimates. These estimates will be unbiased and provide valid confidence intervals, but the point estimates will be suboptimal in a MSE sense. Chaplin

et al. (2018) show that regression discontinuity designs often produce estimates that are similar to randomized control trials. While I focus on a modern non-parametric approach, global parametric RD estimates using global linear or quadratic time trends provide similar estimates.[8]

The identifying assumption is that unobserved factors influencing assimilation, other than the attack itself, varied continuously from the days before and after Pearl Harbor. The RD assumption is likely to hold in this context since strategic manipulation of the running variable is essentially impossible since doing so would require foreknowledge of the attack. Figure 5 graphs the distribution of birth dates before and after Pearl Harbor. I test the hypothesis for bunching on either side of the discontinuity using Cattaneo et al. (2016). This bunching test yields a p-value of 0.57 and thus, I cannot reject the null hypothesis of no strategic manipulation of the running variable. Furthermore, Table 2 tests whether there is a discontinuity in the two control variables: gender or number of siblings at birth. There is no evidence that there is a discontinuity in these control variables around Pearl Harbor, increasingly the likelihood that unobserved factors also vary continuously.

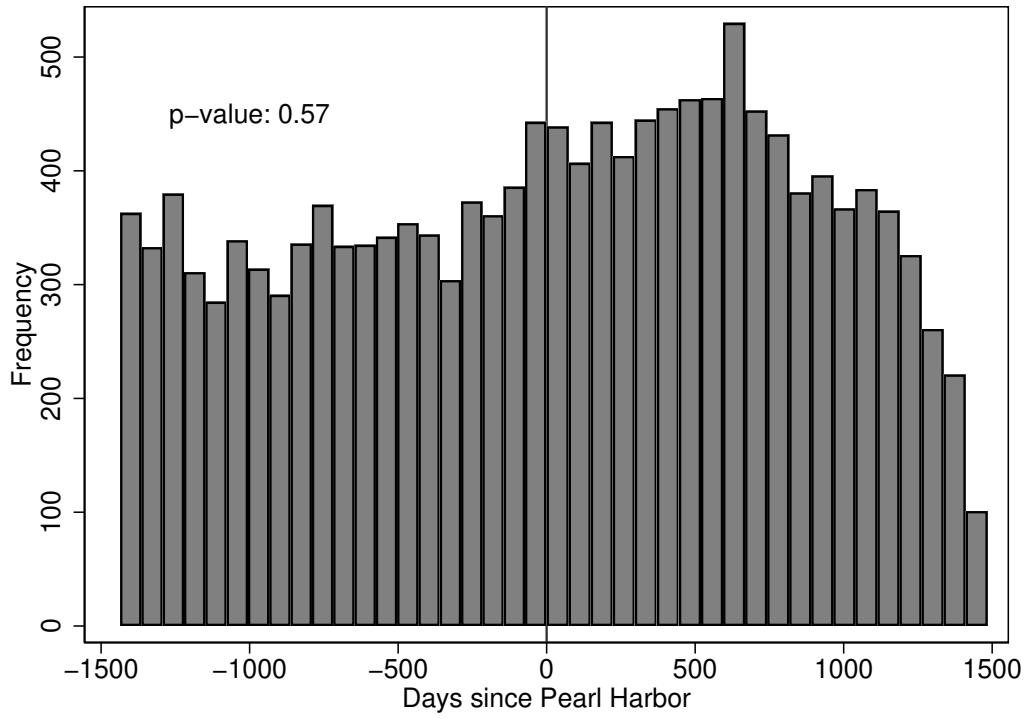
While this study has similarities to an interrupted time series (ITS) design, the approach here is distinct.[9] The data are not a proper time series. Each observation is observed only once, and typically many observations are observed on the same day. Aggregating the data to a daily time series would result in the loss of information. Additionally, there are many data generating issues that do not appear in the context of an ITS, but are common in the RD literature. For example, it is possible to observe heaping on certain days (the 1st or 15th of the month) or bunching on one side of RD threshold. In an ITS, the distribution of day-of-birth would be uniform by definition.

[8]Parametric RD regressions with higher-order polynomials can lead to poor inference (Gelman and Imbens, 2017).

[9]See Hausman and Rapson (2018) for a discussion of the difference between an ITS and RD in time designs.

It is possible for N to become large within a narrow window of the threshold, as in a regression discontinuity design, which alleviates many of the concerns in Hausman and Rapson (2018). Additionally, it is plausible that within a narrow window day of birth is effectively random. Examples of studies that do RD in day of birth include Cook et al. (2015).

Figure 5: Distribution of birth days around Pearl Harbor



Notes: Data are from the Final Accountability Roster of Evacuees at Relocation Centers. The sample is restricted to those born between 1938 and 1945.

Under this assumption, τ_{RD} is the local (i.e., immediate) causal effect of Pearl Harbor on assimilation. This estimate is not necessarily the medium- or long-run effect of Pearl Harbor on assimilation.[10] For example, Japanese Americans may have first attempted to assimilate in the aftermath of Pearl Harbor, but once they were incarcerated in internment camps, then decided that any attempts to assimilate to

[10]This is one feature an RD in time approach has with an ITS.

Table 2: RD estimates of the effect of Pearl Harbor on placebo outcomes

	(1)	(2)
Dependent variable	Male	Number of siblings at birth
MSE-optimal treatment effect	0.0516	0.0199
	(0.0329)	(0.0425)
Robust bias-corrected	0.0596	0.0186
	(0.0380)	(0.0504)
N	14644	14573
N to left	6898	6894
N to right	7746	7679
Left bandwidth	286.5	541.7
Right bandwidth	550.0	375.1

Notes: Data are from the Final Accountability Roster of Evacuees at Relocation Centers. The sample is restricted to those born between 1938 and 1945. The kernel type is triangular and the two optimal bandwidths are chosen to minimize mean square error. Standard errors are clustered at the family level.
Significance level: * $p < .1$, ** $p < .05$, *** $p < .01$

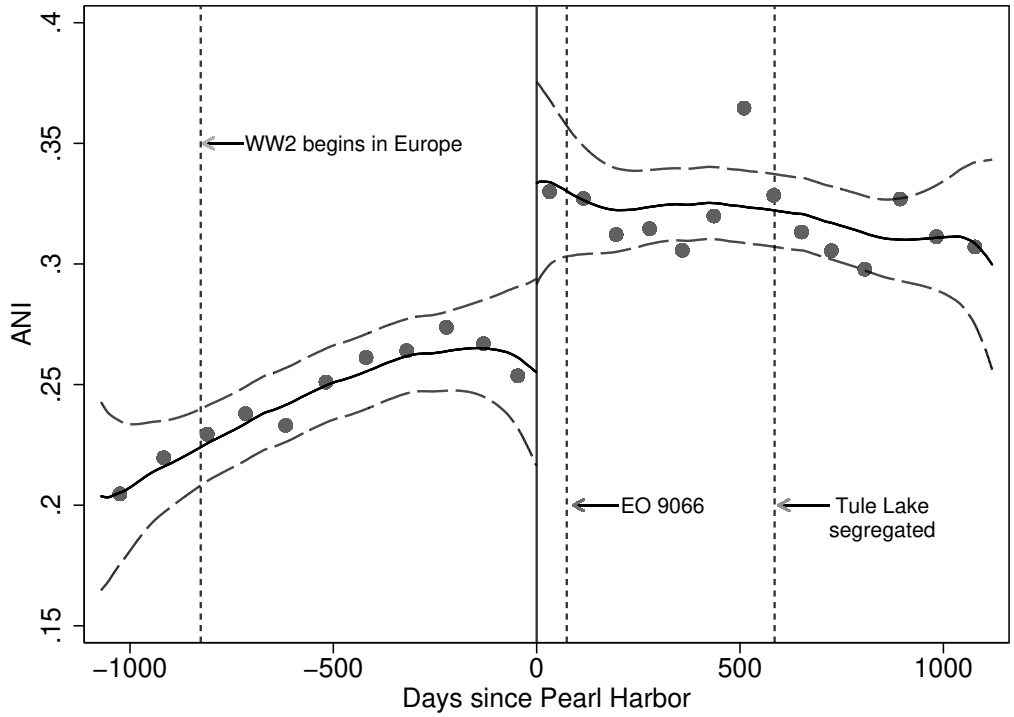
American society would be unsuccessful.

5 Results

5.1 Non-parametric RD results

The main results are visualized in Figure 6. Each dot represents a bin of internees, the solid lines show locally linear non-parametric smooths for the pre- and post-Pearl Harbor periods, and the dashed lines are 95% confidence intervals. Before Pearl Harbor, Americanization of names is trending upwards. There is a discontinuity in the days immediately before and after Pear Harbor. During the internment process, Americanization begins to trend downwards, but stays above the pre-Pearl Harbor levels. The vertical lines represent when Britain and France declared war on Germany (September 3rd, 1939), the signing of Executive Order 9066 by President Roosevelt (February 19,

Figure 6: Americanization of Japanese-American internee first names by birth date



Notes: Data are from the Final Accountability Roster of Evacuees at Relocation Centers. The sample is restricted to those born between 1939 and 1944. Each dot represents a bin of internees, solid lines show locally linear non-parametric smooths for the pre- and post-Pearl Harbor periods, and the dashed lines are 95% confidence intervals. The non-parameteric curves are estimated using a bandwidth of 150 days. Each dot is the mean within a 25th quantitle of the sample and corresponds to approximately 88 days. Britain and France declare war on Germany on September 3rd, 1939. President Roosevelt signed Executive Order 9066 on February 19, 1942. On July 15, 1943, the WRA designated Tule Lake as a maximum security relocation center for all internees who answered the loyalty question in the negative.

1942), and the segregation of Tule Lake as a maximum security relocation center (July 15, 1943). There appears to be no discontinuity in ANI when war begins in Europe. The increase in ANI does not appear to be driven by internment, as ANI increased before EO 9066 was signed. There is a brief spike in ANI before the segregation of Tule Lake (perhaps internees were influenced by the asking of the loyalty question), but it is brief in duration, small relative to the Pearl Harbor effect, and possibly random noise.

The non-parametric regression discontinuity design estimates appear in Table 3.

The first two columns present estimates excluding unique names; the last two columns include unique names and sets the ANI of unique names to zero. The odd-numbered columns include controls for gender and the number of siblings at birth. The first row displays the treatment effect using the MSE-optimal bandwidth, and the second row presents the bias-corrected estimate from Calonico et al. (2014a) and Calonico et al. (2014b). The MSE-optimal bandwidth is approximately 1.5 years depending on the specification and the kernel is triangular. The results suggest that the Americanized Name Index increased by between 0.07 and 0.09 following the attacks. The estimates are statistically significant at the 1% level for seven of the estimates and are statistically significant at the 5% level for the last estimate. These estimates are similar in magnitude to the effects of WWI on German-American naming practices estimated in Fouka (2017).

Table 4 presents the results for a variety of robustness tests. The first two columns drop internees born on either the first of the month or a day that is a multiple of five. Figure 2 displays minor heaping on these days. Barreca et al. (2016) shows that non-random heaping can bias RD results if heaping is related to the outcome variable, for example, if internees who kept accurate birth records were more likely to be assimilated to American culture. The results are somewhat larger, suggesting that ANI increased by between 0.10 and 0.11 following Pearl Harbor. These estimates are statistically significant at the 1% level. The next four columns display the original regression results but vary the bandwidth length. Decreasing the bandwidth will increase the variance of the RD estimator but reduce bias, whereas increasing the bandwidth will do the opposite. Using half the optimal bandwidth, the RD estimates are of similar magnitude but I only get statistical significance for the conventional non-parametric estimates. The last two columns use twice the optimal bandwidth. Here, the estimates suggest that ANI increased between 0.05 and 0.08 following the Pearl Harbor attacks;

Table 3: RDD estimates of the effect of Pearl Harbor on name Americanization

	(1)	(2)	(3)	(4)
MSE-optimal treatment effect	0.0797***	0.0822***	0.0692***	0.0731***
	(0.0275)	(0.0280)	(0.0248)	(0.0254)
Robust bias-corrected	0.0856***	0.0911***	0.0757**	0.0820***
	(0.0326)	(0.0330)	(0.0295)	(0.0300)
N	12603	12548	14644	14573
N to left	5922	5919	6898	6894
N to right	6681	6629	7746	7679
Left bandwidth	438.4	442.3	463.7	466.7
Right bandwidth	524.2	477.5	525.4	473.9
Unique names included	N	N	Y	Y
Controls	N	Y	N	Y

Notes: Data are from the Final Accountability Roster of Evacuees at Relocation Centers. Unique names that could not be matched to the census have an ANI set to zero when they are included in the data set. The sample is restricted to those born between 1938 and 1945. The additional controls include gender and the number of siblings at birth. Standard errors are clustered at the family level. Two bandwidths are chosen to minimize the mean squared error (MSE) of the RD treatment effect estimator. The kernel type is triangular. The first row displays the MSE-optimal treatment effect, and the second row displays the bias-corrected treatment effect from Calonico et al. (2014a).
Significance level: * $p < .1$, ** $p < .05$, *** $p < .01$

all of these estimates are statistically significant.

Table 4: Robustness of the RD estimates

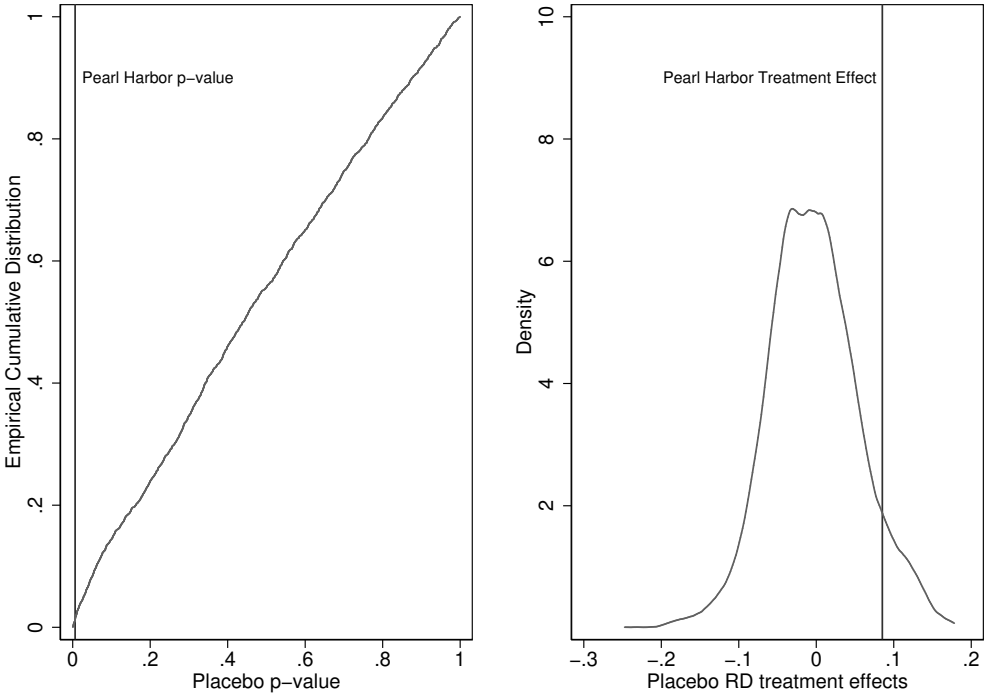
	Non-heaped data		Half optimal bw		Twice optimal bw	
MSE-optimal treatment effect	0.104***	0.0972***	0.0881**	0.0736**	0.0629***	0.0544***
	(0.0333)	(0.0308)	(0.0388)	(0.0351)	(0.0199)	(0.0180)
Robust bias-corrected	0.117***	0.111***	0.0701	0.0517	0.0764***	0.0665**
	(0.0389)	(0.0358)	(0.0560)	(0.0501)	(0.0289)	(0.0262)
N	9561	11141	12548	14573	12548	14573
N to left	4511	5273	5919	6894	5919	6894
N to right	5050	5868	6629	7679	6629	7679
Left bandwidth	326.4	328.0	221.6	233.4	886.2	933.5
Right bandwidth	504.6	476.1	238.8	237.0	955.4	947.8
Unique names included	N	Y	N	Y	N	Y

Notes: Data are from the Final Accountability Roster of Evacuees at Relocation Centers. Unique names that could not be matched to the census have an ANI set to zero when they are included in the data set. The sample is restricted to those born between 1938 and 1945. Each regression controls for gender and the number of siblings at birth. Standard errors are clustered at the family level. Two bandwidths are chosen to minimize the mean squared error of the RD treatment effect estimator. The kernel type is triangular. The first row displays the MSE-optimal treatment effect, and the second row displays the bias-corrected treatment effect from Calonico et al. (2014a). The non-heaped data drops all individuals born on the first day of the month or days that are multiples of 5. The next four columns display regressions from Table 3 using either half or twice MSE-optimal bandwidth.
Significance level: * $p < .1$, ** $p < .05$, *** $p < .01$

As a final falsification test, I examine whether there are other discontinuities during dates other than December 7th, 1941. While this test is not necessary for the RD estimator to be valid, it does provide evidence that Pearl Harbor was an unusual shock to Japanese-American assimilation, and not one of many small shocks that occurred during the war (Cattaneo et al., 2017). I estimate separate RD estimates using placebo dates from 1300 to 100 days before Pearl Harbor, and 100 to 1300 days after Pearl Harbor (for a total of 2402 placebo cutoffs). To prevent the estimates from being confused with the true Pearl Harbor treatment effect, I restrict the data to the pre-Pearl Harbor period when estimating cutoffs before Pearl Harbor, and I restrict the data to the post-Pearl Harbor period when estimating placebo cutoffs after Pearl

Harbor. The CDF of placebo p-values and betas appear in Figure 7. Few of the placebo cutoffs are statistically significant and almost none are as significant as the true RD estimate. Additionally, few placebo cutoffs have higher regression discontinuity estimates. These results suggest that Pearl Harbor was a unique shock to Japanese-American assimilation.

Figure 7: Distribution of p-value and RD estimates using placebo cutoffs



Notes: Data are from the Final Accountability Roster of Evacuees at Relocation Centers. The sample is restricted to those born between 1938 and 1945.

5.2 Within-family evidence

Unfortunately, the Roster data do not include familial controls, such as parental education or occupation. Although I do not directly observe family units in the data, I can infer family units by examining internees with the same last name, incarcerated in

the same state, and departing from the camp on the same day. As mention in section 2, there are 1,117 unique departure dates, 3,210 last names, and 7 states. Thus, it is unlikely that unrelated internees would share all three variables, although it is possible that inferred families are actually extended families. These inferred family identifiers allow me to control for time-invariant familial unobservables with family unit fixed effects.

For this analysis, I switch to a parametric regression discontinuity approach and estimate the following equation:

$$\text{ANI}_{ijt} = \alpha_j + \beta X_i + \gamma t + \delta t \times \mathbf{1}\left[t \geq 0\right] + \tau \mathbf{1}\left[t \geq 0\right] + \epsilon_i \tag{3}$$

where ANI_{ijt} is the Americanized Named Index for individual i of family unit j born on day t ($t = 0$ is Pearl Harbor). The family fixed effect is α_j and will account for any time-invariant family-level factors that determine assimilation. The parameter τ measures the break in time trend occurring at Pearl Harbor. The above equation allows for separate linear time trends on each side of the discontinuity. I also estimate the model with a quadratic time trend on each side.

The identifying assumptions for this model differ from the previous section. It is not possible to have siblings just to the right and left of the threshold, as siblings are typically born at least a year apart. Consequently, we need that the pre and post time trends are reasonable approximations for the true time trends not just locally (close to the threshold), but globally (perhaps a year or two away from the threshold). However, this model no longer needs the assumption that time-invariant parental unobservables do not vary through the threshold. We do still need to assume that time varying parental controls are continuous through the threshold.

The within-family results are in Table 5. The first two columns exclude unique

Table 5: Parametric RD with family fixed effects

	(1)	(2)	(3)	(4)
Treatment	0.0352*	0.0522	0.0421**	0.0608**
	(0.0212)	(0.0327)	(0.0174)	(0.0268)
N	6942	6942	8115	8115
Unique names included	N	N	Y	Y
Time trend	Linear	Quadratic	Linear	Quadratic
Additional controls	N	N	N	N

Notes: Data are from the Final Accountability Roster of Evacuees at Relocation Centers. The sample is restricted to those born between 1938 and 1945. Each regression includes family level fixed effects, where families are inferred by internees with the same last name, incarcerated in the same state, and departing from the camp on the same day. Standard errors are clustered at the family level.
Significance level: * $p < .1$, ** $p < .05$, *** $p < .01$

names, and the last two columns include unique names. The odd columns include a linear time trends, whereas the even columns include a quadratic. The results suggest that Pearl Harbor increased ANI by between 3.5 and 6 points. Two of the specification are significant at the 5% level, whereas a third is significant at the 10% level.

6 Conclusion and Discussion

This study investigates whether Japanese Americans assimilated in the immediate aftermath of the Pearl Harbor bombings. Using data from the universe of Japanese-American internees, regression discontinuity estimates show that Japanese Americans gave their children more Americanized first names in the days and weeks following Pearl Harbor relative to the days and weeks before. If unobserved factors that affected assimilation varied continuously across December 7th, 1941, then these estimates represent causal estimates of the short-run effect of Pearl Harbor on Japanese-American assimilation. This assumption is likely to hold as there is no evidence of strategic manipulation and there is no discontinuity in the control variables around Pearl Harbor. Placebo cutoff dates demonstrate that the jump in Japanese-American assimilation

around Pearl Harbor was larger than other jumps that may have occurred during the war. However, there are several caveats to this study.

The immediate impact of Pearl Harbor on Japanese-American assimilation may have differed from the medium- and long-run effects. After Pearl Harbor, Japanese Americans may have assimilated in an attempt to reduce anti-Japanese sentiment. Once incarcerated in internment camps, Japanese Americans were segregated from the rest of American society, with the only exceptions being the small number of white employees operating the camps and U.S. soldiers guarding the camps. When incarcerated, Japanese American would have had little choice but to seek support from within their own community. Previous studies from other historical episodes have found that in response to anti-immigrant sentiment, immigrants respond by initially assimilating, presumably to avoid any backlash, but assimilation declines in the areas in which the backlash is the harshest. Lauderdale (2006) finds that fewer Arabic-American mothers in California gave their children Arabic names after the September 11th terrorist attacks, implying Muslims assimilated, whereas Gould and Klor (2016) show that Muslims in states that had the largest increases in hate crimes following 9/11 had slower rates of assimilation a decade after the attacks. Similarly, Fouka (2017) finds that Germans Americanized their names during WWI, whereas anti-German language laws reduced long-run assimilation (Fouka, 2016). Unfortunately, using the Pearl Harbor discontinuity cannot identify the effect of Japanese-American internment on assimilation.

One might be tempted to use the discontinuity as an instrumental variable to identify the effects of first names on labor market outcomes. Previous studies have found that immigrants with more Americanized first names perform better on the labor market (Abramitzky et al., 2014, 2016; Goldstein and Stecklov, 2016). There are two problems with such an approach. First, to find the adult labor market outcomes

of these internees, I would need to link them to census records from either the 1980 or 1990 censuses. Such linkage is currently infeasible, since names are not publicly available in those censuses. Even if the data were available, the research design would be less credible. Any differences in naming practices between the days before and after Pearl Harbor can plausibly be attributed to the attack. However, the attack may have directly influenced human capital inputs other than first names. For example, stress induced from anti-Japanese sentiment or in-utero environment due the mass incarceration of Japanese Americans in internment camps likely also discontinuously changed in the aftermath of Pearl Harbor. I leave the question of whether Japanese-American assimilation affected labor market success for future research.

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