# Leadership and Social Norms: Evidence from the *Forty-Eighters* in the Civil War *

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**Abstract**

A growing theoretical literature emphasizes the role that prominent individuals play in shaping beliefs and social norms. We provide empirical evidence for such 'civic leadership.' We focus on the *Forty-Eighters*, a group of political refugees from Germany's failed 1848 revolutions, and their role in the struggle for the abolition of slavery in the U.S. Our primary outcome is volunteering for the Union Army. Given the enormously high death toll during the Civil War, this measure provides a powerful measure of social convictions against slavery. Using different empirical strategies, we show that towns where *Forty-Eighters* settled in the 1850s increased their Union Army enlistments by three per hundred adult males over the course of the war. Detailed biographical information allows us to distinguish *'intellectual'* and *'fighting'* leaders; the former appear to have exerted their influence through publishing, the latter through the formation of local social clubs, but it was the fighting leaders who really drove people to enlist. Using machine learning techniques to infer soldiers' ancestry, we find that the *Forty-Eighters* had the biggest impact on the enlistment of German Americans, moderate impact on American men, and no impact on the enlistment of Scandinavian, Irish and Italian men. This differential effect carried over into the field of battle: A *Forty-Eighter* in their hometown decreased soldiers' likelihood of desertion, but only for those of German ancestry.

Keywords: Leadership, Social Norms, Persuasion, Social Capital, Machine Learning
JEL Codes: D72, J61, N41

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# 1 Introduction

A growing body of theoretical literature on learning in social networks points to the role of 'leaders' in the formation and equilibrium selection of social norms, beliefs and convictions (Jackson and Wolinsky, 1996; Bala and Goyal, 2000; Galeotti and Goyal, 2010). These leaders typically have no organizational or institutional authority. Rather, their influence arises from their central position in a social network which allows them to direct information flows and influence equilibrium beliefs (Murphy and Shleifer, 2004). In social networks, leaders' defining characteristics are their conviction, talent for communication and knowledge (Akerlof and Holden, 2016) which contribute to their visibility and prominence (Acemoglu and Jackson, 2015). We refer to individuals who use their central position in social networks to change social norms as *civic leaders*.[1]

There is ample empirical evidence for the importance of leadership in formal organizations. For example, Bertrand and Schoar (2003) study how CEOs affect company performance or Jones and Olken (2005) measure what effect political leaders have on their nations' economies. By contrast, there is only limited evidence on the effect of civic leadership in the evolution of social norms.[2] This is likely due to the difficulty in determining civic leaders and measuring their impact. Think of prominent individuals like Abraham Lincoln and Nelson Mandela. Both are justly regarded as leaders who helped change the social norms against slavery and Apartheid in their societies. However, since they were also leaders of their political organizations, it is hard to disentangle their individual role as civic leaders from their organization's influence. This bears the risk of overstating the effect of civic leadership. Unobserved trends in the evolution of social norms present another challenge. Prominent individuals may be remembered as flag-bearers of societal change but this does not necessarily imply that they caused it. Perhaps, they were just in the right place at the right time.

To our knowledge, this is the first paper to estimate a causal effect of civic leadership on individual beliefs and social norms as a whole. We do this in a historical setting that involved high personal stakes: the American Civil War. The struggle for the abolition of slavery was the most acrimonious political battle in U.S. history, and culminated in what has been labeled the most

[1] There is no common label in the literature. Acemoglu and Jackson (2015) refer to 'prominent agents,' Akerlof and Holden (2016) to 'movers and shakers,' and Galeotti and Goyal (2010) simply to 'the few.'

[2] The paper closest to ours is Jack and Recalde (2015) who study the effect of elected community leaders' behavior on voluntary public goods contributions.

horrific war in U.S. history (see Costa and Kahn 2003). Between 1861 and 1865, over two million Northern and 750,000 Southern men took up arms to fight. This was about 12% of the northern and 8% of the southern population respectively. Participating in the war was costly, one out of five men died. In total, 620,000 men lost their lives, as many as in almost all other American wars combined (Hacker, 2011). Yet, almost 95 percent of soldiers were volunteers. Since the financial incentives to fight in the war were low—Union Army privates earned about $13 per months and payment was irregular—the question arises: what drove mean to risk their lives?[3] According to (McPherson, 1997, p.5), the "volunteers' values remained rooted in the homes and communities from which they sprang to arms and to which they longed to return." A sense of duty and honor clearly mattered to these values. We take this argument one step further and show that civic leaders rallied people to the anti-slavery cause and led men to to volunteer for the Union army.

There was often no strong economic motive to join the Union Army since the pay of 11$ per months for privates was not high, and payment was irregular. The decision to volunteer was primarily driven by norms and convictions.[4] Between 1861 and 1865, ten percent of the male U.S. population took up arms to fight over the issues of slavery and Southern secession.[5] In total, 620,000 men died in the Civil War, as many as in almost all other American wars combined (Hacker, 2011). The Civil War's death toll was high not only in absolute but also in relative terms: One out of every five white men who participated died. Given this, Union Army enlistments are as powerful a measure of social convictions as one can imagine.

The civic leaders we study are a well-defined group of U.S. immigrants, the so-called *Forty-Eighters*, who came to the U.S. as political refugees from the failed German Revolutions of 1848-49.[6] Looking at this specific group of immigrants has several advantages: First, as newly arrived immigrants the *Forty-Eighters* were not part of political organizations in the U.S. Instead, they wielded

[3] At an average inflation rate of 2.14% per year, $11 in 1860 are roughly equivalent to $300 in 2018. In the South, there were stronger economic motives since it was the Southern institutions that were threatened by the war. Hall, Huff, and Kuriwaki (2017) provide evidence showing that slave-ownership was a significant determinants of joining the Confederate army.

[4] In the South, By contrast, there were stronger economic motives since it was the Southern institutions that were threatened by the war. Hall et al. (2017) provide fascinating evidence showing that slave-ownership was a significant determinants of joining the Confederate army.

[5] Over the course of four years, over two million Northern men fought for the Union Army against just under one million Southern men in the Confederate Army.

[6] The 1848 revolution was not limited to Germany. There were uprisings in Ireland, Poland, France and Italy. However, political exiles from Germany were seen by historians as unique in being motivated by their high libertarian ideals compared to primarily patriotic and nationalistic motives (Wittke, 1970).

their influence as civic leaders in local communities.[7] Second, the *Forty-Eighters* were forced into sudden flight to escape prosecution thus arriving empty handed, unprepared, and without prior knowledge of their destination. As we will discuss in more detail, this unpreparedness provides us quasi-experimental variation in their spatial distribution across destination regions in the U.S. Third, the *Forty-Eighters*' active participation in the German Revolutions of 1848 and 1849—the cause of their subsequent expulsion— marks them as civic leaders and clearly demonstrates their strong convictions and leadership characteristics. In the words of Zucker, the *Forty-Eighters*' foremost historian, they were "political beings" and "intellectually speaking, three aspects dominated the scene from which [they] fled into the freedom of the United States: (*i*) liberty, (*ii*) democracy, and (*iii*) national unity" (Zucker, 1950, p.9,22). The same 'three aspects' became the unifying themes of the Republican Party—slavery, access to 'free soil', and opposition to Southern secession—and the *Forty-Eighters* quickly emerged to be leaders in their new communities who promoted their beliefs and convictions .[8]

Our empirical analysis measures what effect the *Forty-Eighters* had on individuals' willingness to fight for a change in social norms. We combine enlistment data from a recently digitized collection of all men who served in the Union Army with newly collected data on the spatial distribution of *Forty-Eighters* across 4,300 towns in the Union states. To measure the latter, we coded information from four biographical accounts of the *Forty-Eighters* (Zucker, 1950; Wittke, 1970; Raab, 1998; Baron, 2012) and complemented it with individual searches on *Ancestry.com*. These detailed biographies allow us to create a unique panel of 493 individuals who located across 87 towns. Finally, we supplement our analysis with demographic controls at the town-level because the 1850 and 1860 censuses are two rare exceptions where historical U.S. Census data was reported below the county level (Fishman, 2009). We estimate sizable effects. The presence of one additional *Forty-Eighter* in a town raised enlistments for the Union Army by three per hundred adult males over the duration of the war. The historical record suggests that the *Forty-Eighters* mainly appealed to Germans from earlier immigration waves to follow their example and oppose the social norm of slavery. Our analysis provides ample evidence in support of this reading.

[7] There is only a handful of individuals that took prominent roles in the Republican party. We exclude those cases from our analysis.

[8] The question of 'free soil' was intimately linked to that of slavery; the short-lived *Free Soil* party was the precursor to the Republican party.

An obvious concern with our analysis is that the *Forty-Eighters* may have selected into destination regions. For example, if they chose to settle in towns where the political climate was turning against slavery, this would lead to upward bias estimates. While initially plausible, this concern dissolves under closer scrutiny of the historical situation. As mentioned above, the *Forty-Eighters* had to leave Europe hastily to escape prosecution. Unlike other German immigrants, the *Forty-Eighters* thus did not have existing family ties or social connections upon their arrival, and were often in immediate need of finding employment (Wittke, 1970, ch.6). The *German Society of New York* (where almost 90% of *Forty-Eighters* arrived) reported "in 1850 and 1851 a sudden steep increase in requests for assistance to people totally deprived of all means, mostly political refugees flocking to America after the failure of the revolutions" (Wust, 1984, p.31). Penniless and in need of a job, most *Forty-Eighters* moved shortly after their arrival to wherever the *Labor Bureau* found them employment (usually somewhere in the Mid-West). In a time when information traveled slowly, it is unlikely that the *Forty-Eighters* were matched with politically active communities who shared their liberal ideals. This argument is additionally strengthen by the historical record suggesting that the majority of Germans of the older immigration were either uneducated and politically ignorant (Börnstein, 1881) or conservatives who regarded the *Forty-Eighters* as "leftists, 'fanatics of equality,' 'haunted by the ideas of Rousseau, 'the slaves of their democratic theories,' and not only reformers but utterly impractical dreamers." (Wittke, 1970, , p.162).

To verify the historical record more formally, we present a number of tests for the randomness of the *Forty-Eighters* location choice. First, we present balancing tests on a number of observable covariates. Second, we use a simple location choice model and a machine learning algorithm to pre-select those variables most predictive of the *Forty-Eighters*' location as controls from the full set of possible observed covariates. We include these controls through all regressions. Third, we pursue a *Propensity Score Matching* (PSM) strategy, where we compare treated towns only to towns that are sufficiently similar to be included in a matched sample. Reassuringly, all test support our reading of the historical record.

One remaining concern is that the *Forty-Eighters* went to locations that provided work for *all* German immigrants arriving during this time. We would be concerned about this correlated trend if this wave of immigrants shared the *Forty-Eighters*' convictions. Luckily, we can address this concern directly because our controls include a measure of German communities across towns in

1850, 1860 and the change between those years. A related concern is that the 493 political refugees in our biographical records are the more prominent 'tip of the iceberg.' It may very well be the case that other politically motivated German immigrants who escaped the historians' attentions had also taken a leadership role in the U.S.[9] To address this concern we use German emigration lists and determine German immigrants who arrived in U.S. ports between 1849 and 1852 and then located them in U.S. towns using the 1860 full-count U.S. Census.

To further understand the estimated effect of civic leadership, we look at two specific channels that have been emphasized in the historical narrative surrounding the *Forty-Eighters*: their involvement in (*i*) publishing and in (*ii*) German social clubs, especially the highly political *Turner Societies*.[10] These two channels roughly map into the leadership literature's distinction between leaders that persuade through information and knowledge (Murphy and Shleifer, 2004; Loeper, Steiner, and Stewart, 2014) and those that persuade through 'resoluteness', action and sacrifice (Hermalin, 1998; Bolton, Brunnermeier, and Veldkamp, 2012).[11] Using the biographical information, we distinguish between *Forty-Eighters* that were active in publishing and those that were not. We use the label '*intellectual*' leaders for *Forty-Eighters* that were active in publishing. We find that the presence of 'intellectual' *Forty-Eighters* significantly raised the number of a town's German newspapers in the 1860s, controlling for the 1850 German newspaper circulation. We find no effect on English-speaking newspapers. As expected, other *Forty-Eighters* had no effect on newspapers. Perhaps more surprisingly, we find that the total effect on the formation of local *Turner Societies* is entirely driven by the 'non-intellectual' types.

We also perform a similar exercise, dividing the *Forty-Eighters* into those that did and did not fight in military battles during the revolutions in Germany. We find a similar distinction were 'fighting' *Forty-Eighters* had a large and significant effect on the formation of the local *Turner Societies*, and non-fighters had no effect at all. Focusing on the effect on our main outcome, enlistment,

[9] Zucker's book mentions 318 individuals. Reiter identified 1,001 German political refugees who shipped to the U.S. (Nagel, 2012a, ch.2.1). Zucker states that "an estimate of 3,000–4,000 political emigrants would have been ample to include all the leaders as well as lesser followers" (p.45).

[10] The Turner movement emerged at the beginning of the 19th century in the German states during the time of the Napoleonic occupation with the goal to strengthen physical and moral powers through the practice of gymnastics. This movement spilled over to the United States with the arrival of the *Forty-Eighters*, with the first American *Turnverein* founded in 1849 (Metzner, 1894).

[11] This mapping is admittedly rough, but membership in the *Turner Societies* indeed entailed a lot of tangible action and sacrifice, e.g. forming bodyguards for Lincoln's public appearances during his 1860 presidential campaign, at a time when violent outbreaks were the norm rather than the exception at such events. See discussion in section 2.

there is no clear difference in the effect of 'intellectual' and 'non-intellectual' leaders. Past battle experience, however, counted. The effect on enlistment was entirely driven by 'fighting' *Forty-Eighters*.

In summary it appears that it was 'non-intellectual', 'fighting' types who mobilized the grass-roots local Turner societies, and who drove the *Forty-Eighters*' effect on Union Army enlistment. We rule out the possibility that these types were more politically engaged in the U.S. than the 'intellectual' types. Instead, the evidence suggests that the 'fighting' types were more persuasive, consistent the leadership literature's emphasis on conviction, resoluteness, and a 'sense of direction', combined with a willingness to 'lead by sacrifice' and 'lead by example' (Bolton et al., 2012; Dewan and Myatt, 2008; Hermalin, 1998).

In a final exercise, we shed light on the scope of the *Forty-Eighters*' influence on social norms. The historical record suggests that the *Forty-Eighters*' social network was centered around the German-American community but they were eager to reach out beyond this group. They were active supporting the Republican party and the broader anti-slavery movement, gave public speeches in English and launched articles in the English-speaking press (Curti, 1949; Zucker, 1950; Wittke, 1970; Baron, 2012). To examine how much cultural barriers affected the *Forty-Eighters*' influence within local communities, we decompose all enlistments from the same town by soldiers' ancestry which is unreported. To infer this information, we trained a machine learning algorithm on the full-count 1860 U.S. Census (where ancestry is reported) and then predicted the soldiers' ancestry. We then calculate the number of enlisted men of each ancestry by town and express it as share of the adult male population of that ancestry reported in the 1860 Census. In line with the historical record, the *Forty-Eighters*' effect was most pronounced amongst German-American men. Moreover, they had no effect on men of Scandinavian, Irish or Italian ancestry, and only a small and marginally insignificant effect on men of American ancestry. Pushing further in this direction, we ask whether this differential effect carried over into the field of battle. Consistent with the evidence on enlistment, we find that the presence of a *Forty-Eighter* in their hometown reduced soldiers' likelihood of desertion but only for soldiers of German ancestry.

Our paper contributes to different strands of the literature. First, it contributes to the literature on social learning and the diffusion of social norms (see Young, 2009). More narrowly, our findings provide empirical support for theories that emphasize the importance of individual leadership in

social learning. These theories suggest that information flows in social networks are typically organized by a small set of prominent agent (Galeotti and Goyal, 2010)–in our case civic leaders– who stand out because of (i) the visibility of their actions (Acemoglu and Jackson, 2015), or (ii) their ability to build social ties and unite individuals in a common endeavor (Akerlof and Holden, 2016; Jackson and Wolinsky, 1996; Bala and Goyal, 2000).[12]

Second, we relate to a broader literature on leadership inside organizations which asks what makes a successful leader. We transfer these insights to the case of civic leaders who emerge outside an organizational structure. The literature on leadership in organizations finds that important leadership characteristics are 'conviction' or 'resoluteness' (Bolton et al., 2012) and a 'sense of direction' (Dewan and Myatt, 2008). These insights apply to the *Forty-Eighters* as well. Said characteristics, combined with a willingness to 'lead by sacrifice' and 'lead by example' (Hermalin, 1998), helped them build connections and center a social network around them.

Third, our paper contributes to a political economy literature on persuasion (DellaVigna and Gentzkow, 2010). Leaders, through their visibility and connectedness, have a central position in social network which allows them to direct information flows and influence equilibrium beliefs (Loeper et al., 2014; Murphy and Shleifer, 2004). In our context, civic leaders tried influence agents' beliefs locally through grassroots organizations and on a larger scale through newspaper editorships. It is important to note that we can show the *Forty-Eighters*' effect on social norms and on newspapers but cannot ultimately document to what extent the former was driven by the latter. There is reason to be cautious: Gentzkow, Shapiro, and Sinkinson (2011) find no evidence that partisan newspapers affected party vote shares in the 19th century U.S., although their data's starting point in 1869 is our end-point.[13]

Finally, we relate to the empirical literature on knowledge diffusion that commonly uses the arrival of narrowly defined immigrant groups as natural experiments to study the transmission of knowledge embedded in 'knowledge elites'.[14] Examples include Hornung (2014) who studies the late 17th century migration of skilled Huguenots from France to Germany; Moser, Voena, and

[12]There is also a separate literature that studies agents' "preferential attachment" to certain connected leaders in the context of attention. For example, in Calvó-Armengol, Martí, and Prat (2015) agents decide strategically whom to pay attention to.

[13]For a review of the partisan nature of U.S. newspapers in the 19th century, see Gentzkow, Glaeser, and Goldin (2006).

[14]This literature is small compared to the literature studying the general equilibrium market adjustments to immigration-induced changes in the work force. See Friedberg and Hunt (1995) for a review.

Waldinger (2014) who look at the influx of German Jewish scientists into the U.S. after 1939; or Borjas and Doran (2012) who study at the effect of the post-1990 influx of Russian mathematicians into the U.S. With a broader focus, Nunn, Qian, and Sequeira (2017) use the interaction of timing in source countries' push factors and the moving U.S. frontier to study the long-run consequences of the age of mass migration. Our paper is closely related to this literature in that we use a similar exogenous immigration-shock. We differ, however, in our focus on the diffusion of social norms rather than knowledge. A further point of distinction is our focus on barriers to diffusion. Our finding that the *Forty-Eighters*' effect was heavily concentrated in German-American communities provides initial evidence for ancestry as an important barrier to the diffusion of social learning (Spolaore and Wacziarg, 2009).

The remainder of the paper is organized as follows. Section 2 introduces the historical background and describes the *Forty-Eighters*' situation in both German lands and the United States. Section 3 discusses the main data on the *Forty-Eighters* and on Union Army enlistment. Section 4 discusses identification. Section 5 provides the results. Section 6 concludes.

## 2 Background to the *Forty-Eighters*

From the early 19th century on, a rising nationalist movement across the German states started propagating a political union and a more balanced distribution of power between the ruling monarchs and their subjects. However, it was only in February 1848 that uproars in France spilled over to the German states and sparked a revolution. What became known as *March Revolution* started with first revolutionary uprisings in Baden which quickly spread into other states. We defer a discussion of the details of the German Revolutions to Online Appendix A. The important fact for the paper is that after the failed revolution, ten thousand political refugees escaped to Switzerland and sought asylum. Those who could not escape were often executed or sentenced to long prison terms. Soon after their escape, it became clear that Switzerland could not permanently host the political refugees (Jung, 2015; Nagel, 2012b; Reiter, 1992). Instead, "diplomatic pressures from neighboring powers forced Switzerland to weaken in its policy of giving hospitality to political offenders, and many left [...] and crossed the Atlantic to America" (Wittke 1970, p.27). This expulsion is nicely illustrated in a contemporary political cartoon from 1849 (see Figure 1 in Online

Appendix A) which shows the absolutistic rulers sweeping the *Forty-Eighters* out of Europe.

The *Forty-Eighters* were a specific cohort of German immigrants to the U.S. (Wittke, 1970, p.4) defines them as "those who in some way actually participated in the liberal movements and the Revolutions of 1848 and 1849, and left their homes because of a conflict with the established authorities, or because they realized that henceforth it would be either too dangerous or too intolerable to remain." Implicitly, we adopt this definition. From a practical standpoint, we code up all the biographical information found in four historical compendia on the *Forty-Eighters*, which include 493 individuals, and complete their U.S. biographies using *Ancestry.com*. A detailed description of biographical data sources is provided in Appendix A.1.

Figure 1 tracks the arrival of the *Forty-Eighters* in the U.S., and shows how rapidly they arrived. Of the almost 500 men, more than 80% arrived in the space of less than two years.

What were the characteristics of these individuals? The *Forty-Eighters* were by all accounts a rather diverse group, consisting not only of intellectuals but also of small proprietors and urban craftsmen. What they shared were primarily their political convictions, which were strong enough to see them expelled from Europe. The strength of their convictions set them apart from other German immigrants who came to the United States to escape economic hardship.

Why did the *Forty-Eighters* engage with the political battles in the 1850s United States? A letter by Anton Füster, one of the key figures of the March revolution in Vienna in 1848, written a year after he arrived in America (Tóth, 2014, cited on p.202), is illustrative: "Only a year ago, we were reverently singing the German national anthem. Now it sounds different. What is the German Fatherland? Is it Austria? No, I was forced to flee from there. Is it Prussia? No. There I was arrested. Is it Saxony? No. There warrants were issued against me. Is it the free city of Hamburg? No. There I was driven out by the police. Where is the German fatherland? In America!" This engagement with the political battles in the U.S. distinguished German revolutionaries from Irish, Polish or Italian immigrants who were also involved in the 1848 uprisings. While the revolutionary goals of these latter groups were primarily patriotic and nationalistic, the *Forty-Eighters* were motivated by their high libertarian ideals (Wittke, 1970).

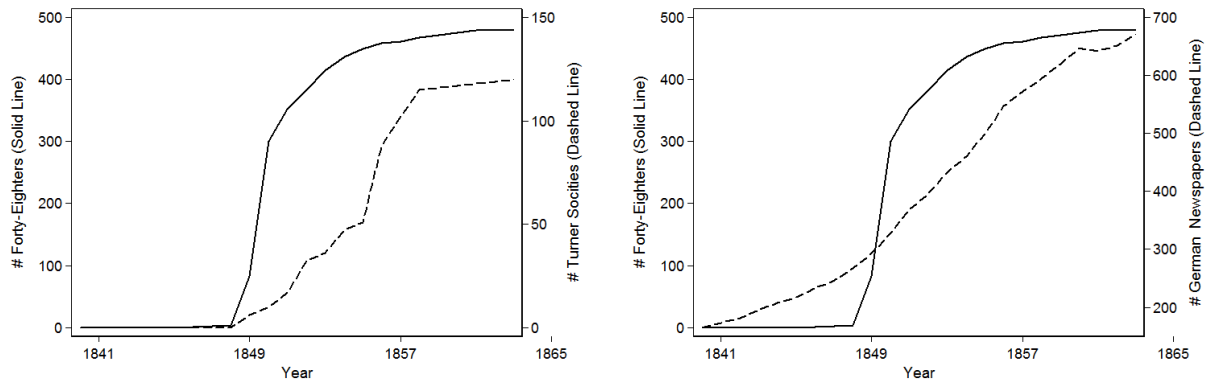
How did the *Forty-Eighters*' convictions map into the political battles in the 1850s United States? According to Wittke (1970, p.192), the *Forty-Eighters* "appraised the situation in terms of their revolutionary idealism, and concluded that the United States was involved in a sectional

controversy over basic human rights in which one part of the nation defended the exact antithesis of democracy and equality." Various quotes by *Forty-Eighters* document that human slavery was to their mind a moral evil. Carl Schurz, one of the most prominent *Forty-Eighters*, calling it "one shrill discord." Friedrich Knapp's editorial in the *New York Abendzeitung* illustrates how abolition links to the *Forty-Eighters*' revolutionary ideals: "The problem of slavery is not the problem of the Negro. It is the eternal conflict between a small privileged class and the great mass of the non-privileged, the eternal struggle between aristocracy and democracy" (quoted in Zucker, 1950, p.121).

With the emergence of the Republican Party, the *Forty-Eighters* saw their beliefs represented by a political party and they worked hard to convert both other Germans as well as Americans to their beliefs. With the election of Lincoln as the first Republican president in November 1860, the *Forty-Eighters* saw their next revolution arising. When seven Southern states seceded and the Civil War broke out in April 1861, they were among the first to enlist for the Union Army, encouraging others to follow their example. The enthusiasm for the war nicely illustrated by a quote from Carl Schurz: "...a tremendous problem and...a mighty cause! I am happy to live in this country at this time. In comparison with the splendid goal, what are our little sufferings and our individual sacrifices? Slavery is being driven out of its last citadel; the insulted dignity of human nature has been avenged. The people of the new world are taking an immeasurable step forward in its cleansing and ennobling."

How did the *Forty-Eighters* influence others' social norms and convictions? On this question, two factors stand out clearly in all historical accounts. One, the *Forty-Eighters* were very likely to find employment in the newspaper business, often founding newspapers themselves. Because the majority of newspapers in the 1850s openly declared their political leanings, such work afforded newspaper editors significant ability to shape their readers' views, although it needs to be stated that quantitative evidence for this is far from conclusive (Gentzkow et al., 2011). Two, the *Forty-Eighters* were very active in their local social clubs. These included card clubs, music societies, sharpshooter organizations, library associations. Bretting (1981, p.201) lists over 50 German social clubs between 1835–1859 in New York City alone. However, by far the most politically important and influential were the so-called *Turner Societies* ('*Turnvereine*'). The first U.S. *Turnverein* was founded in 1849 and subsequently, many more Turner Societies were founded across the U.S.,

Figure 1: The *Forty-Eighters*' Arrival, *Turner Societies*, and German Newspapers




*Notes*: The left panel plots the arrival of the *Forty-Eighters* (scaled on the left axis) together with the emergence of the American *Turner Societies*, the first of which was founded in 1849. The right panel plots the arrival of the *Forty-Eighters* together with the growth of German Newspapers in the U.S. (scaled on the right axis) , the first of which was founded as early as the 18th century.

creating a social network that at the time wielded substantial political leverage. The abolition of slavery soon became the main goal of the U.S.-wide organization of *Turner Societies*. Most Turners were active supporters of the newly founded Republican Party during the 1850s and 60s. At a time when violent outbreaks at political gatherings were common, Turners frequently formed bodyguards for anti-slavery activists during public speeches; Turners were Lincoln's bodyguards for his first inauguration (Zucker, 1950; Baron, 2012) and when the Civil War started in 1861, they formed special "Turner Regiments" (Hofmann, 1995, p.158). Wittke (1970, p.225) estimates that 60-80 percent of the Turners enlisted for the Civil War.

Figure 1 plots the arrival of the *Forty-Eighters* together with these two potential mechanisms. While such aggregate series need to be taken with a grain of salt, the picture is certainly consistent with the idea that the *Forty-Eighters* had an impact on both of these outcomes. Visually, this is more striking for the *Turner Societies* because the first was founded in 1849 (by a *Forty-Eighter*). A second jump in the number of *Turner Societies* is discernible in 1856, the first year the newly formed Republican Party entered the presidential election race. This is consistent with the historical narrative which describes the *Turner Societies* as highly political clubs at this time, despite their purported motive of being primarily concerned with physical exercise (Hofmann, 1995).

## 3 The Main Data

This section describes our newly collected biographical accounts of the *Forty-Eighters* along with our main outcome variable, Union Army enlistment at the town level.

**Exposure to the *Forty-Eighters*:** We are interested in the *Forty-Eighters*' role as civic leaders and how they influenced the equilibrium selection of beliefs and convictions in their social network. In a time where distance-related travel and transportation costs are still quite high, social networks were of limited spatial scope which means that we need detailed geographic data to model the *Forty-Eighters*' sphere of influence. Fortunately, the Census years 1850 and 1860 are the only two Censuses in the 19th century where the Census Bureau published basic demographic information at a more disaggregate level than counties, namely towns (Fishman, 2009). We focus our analysis on the Union states where we observe a total of 7,294 towns which form the basis of our analysis. A detailed description of the data is provided in Appendix A.2.

Our proxy for civic leadership is town $k$'s exposure to *Forty-Eighters*. To measure exposure, we coded the biographies of 493 *Forty-Eighters* from Zucker (1950), Wittke (1970), Raab (1998) and Baron (2012) and complemented them with individual searches on *Ancestry.com*. This leaves us with a comprehensive panel dataset that documents the *Forty-Eighters* residence locations over time (along with additional biographical information about their training, occupations and political activities).

Our main regressor of interest uses the individual biographies to collapse the *Forty-Eighters* into a town-level data-set, measuring the aggregate number of *Forty-Eighters* that settled in a given town $k$

$$T_k = \sum_{i \in F} D_{ik}, \tag{1}$$

where $i$ is an individual *Forty-Eighter* in the set $F$ of *Forty-Eighters* we have coded, and $D_{ik}$ equals 1 if $i$ settled in town $k$.

Figure 1 showed that the *Forty-Eighters*' time of arrival fell within a very narrow window. As we will document, it also a fact that the *Forty-Eighters* did not move around much after they had settled in their first location outside of the port of arrival. Nonetheless, not all *Forty-Eighters* settled down at exactly the same time, and not all stayed in a single town. While expression (1) provides an uncluttered short-hand of our treatment, we apply a more precise definition to the data which

accounts for variation in the years that a *Forty-Eighter* spent in a town:

$$T_k = \sum_{i \in F} \sum_{t=1850}^{1861} \frac{1}{11} D_{itk}, \tag{2}$$

where and $D_{itk}$ equals 1 if $i$ lived in town $k$ in year $t$. If $i$ settled in town $k$ in 1850 and still lived there at the outbreak of the war, then $\sum_{t=1850}^{1861} \frac{1}{11} D_{itk} = D_{ik} = 1$

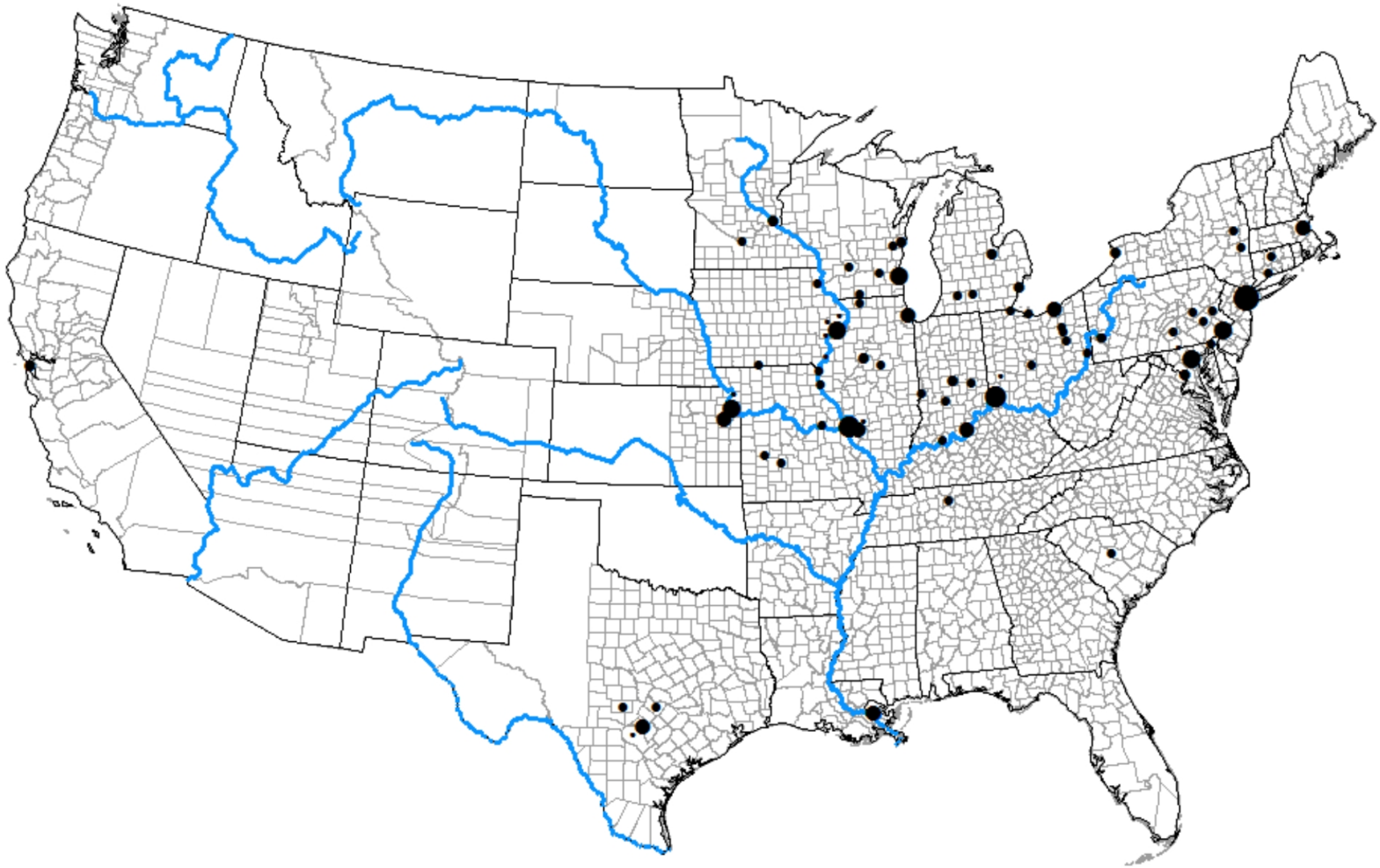
We can slice (2) so as to ask if the effect of the first *Forty-Eighter* was larger than the effect of the second. However, because most stayed in a single town between their arrival and the outbreak of the war, we do not get enough traction from the data to separately ask if a *Forty-Eighter*'s effect increased in the number of years he lived in a town.

The distribution of towns which hosted a *Forty-Eighter* at any time is characterized by many zeros. Overall, we observe 87 towns where at least one *Forty-Eighters* settled for some time, nine of them located in the South or the West. Figure 1 illustrates the *Forty-Eighters*' spatial distribution in the U.S. and Table 2 shows in more detail that the distribution of settlement was also quite skewed across the 87 towns. 74 percent of the *Forty-Eighters* went to just the six large urban centers New York City, Cincinnati, Saint Louis, Philadelphia, Baltimore, and Milwaukee. Cincinnati, Saint Louis, Philadelphia and Milwaukee received larger numbers of *Forty-Eighters* relative to other similar-sized cities like Boston or Washington DC because they were the big cities with larger German communities. New York and Baltimore were not particularly German cities but were the primary arrival ports of Germans. In the *Germans to America* passenger data collection,[15] New York City and Baltimore together account for over 90 percent of the 4.1 million German arrivals from 1850–1895. New York City alone accounts for 85 percent. It is thus not surprising that roughly one-quarter of the *Forty-Eighters* permanently stayed in New York. We always disregard New York City from our analysis because there is no plausible control town for it.

**The Enlistment Data:** Our main outcome variable at the town level is the number of enlistments for the Union Army. The data stem from a newly digitized collection of the universe of *Union Army enlistments*, including more than two million men who served in the Union Army. The Union Army enlistment data is based on the original reports that were issued separately by each state's *Adjutant General's Office*. Some states did not systematically report soldiers' hometown

[15] We provide a detailed description of this data source in Appendix A.8

Table 1: The *Forty-Eighter*'s spatial distribution in the U.S.



*Notes*: The map shows the spatial distribution of *Forty-Eighters* across 82 U.S. towns. Counties are marked with light grey outlines and states with black outlines.

Table 2: Distribution of Treatment

| State | Town | # | State | Town | # |
|---|---|---|---|---|---|
| ~~Alabama~~ | ~~Mobile~~ | 0.33 | Missouri | Benton | 1.00 |
| ~~California~~ | ~~San Francisco~~ | 3.67 | Missouri | Hermann | 1.00 |
| Connecticut | Hartford | 0.50 | Missouri | Saint Joseph | 0.08 |
| Connecticut | New Haven | 1.50 | Missouri | Saint Louis | 32.42 |
| District of Columbia | Washington | 5.92 | New Jersey | Hoboken | 1.08 |
| Illinois | Bellville | 7.83 | New Jersey | Newark | 7.50 |
| Illinois | Bloomington | 1.08 | New York | New York City | 123.33 |
| Illinois | Chicago | 13.33 | New York | Brooklyn | 2.67 |
| Illinois | Freeport | 0.83 | New York | Buffalo | 2.75 |
| Illinois | Peoria | 3.25 | New York | Hudson | 0.75 |
| Illinois | Quincy | 1.08 | New York | Schenectady | 1.00 |
| Illinois | Springfield | 0.17 | New York | Yonkers | 0.58 |
| Illinois | Warsaw | 1.08 | Ohio | Cincinnati | 36.42 |
| Indiana | Bloomington | 1.00 | Ohio | Cleveland | 8.92 |
| Indiana | Indianapolis | 3.58 | Ohio | Columbus | 2.50 |
| Indiana | Rushville | 1.00 | Ohio | Danbury | 0.75 |
| Indiana | Terre Haute | 1.00 | Ohio | Dayton | 2.00 |
| Indiana | Troy | 1.08 | Ohio | Franklin | 1.00 |
| Iowa | Buffalo | 0.42 | Ohio | Massillon | 0.33 |
| Iowa | Burlington | 0.67 | Ohio | Sandusky | 0.83 |
| Iowa | Davenport | 15.00 | Ohio | Toledo | 1.00 |
| Iowa | Dubuque | 0.08 | Ohio | Zanesville | 1.00 |
| Iowa | Farmersburg | 1.00 | Pennsylvania | Allegheny | 1.00 |
| Iowa | Guttemburg | 0.50 | Pennsylvania | Allentown | 1.00 |
| Iowa | Keokuk | 0.08 | Pennsylvania | Carlisle | 2.00 |
| Iowa | Muscatine | 0.17 | Pennsylvania | Littlestown | 0.08 |
| Iowa | New Buda | 2.92 | Pennsylvania | Minersville | 0.42 |
| Iowa | Springfield | 0.58 | Pennsylvania | Philadelphia | 19.00 |
| Iowa | Waterford | 0.33 | Pennsylvania | Pittsburg | 1.33 |
| Kansas | Atchison | 0.08 | Pennsylvania | Reading | 1.00 |
| Kansas | Lawrence | 6.50 | ~~South Carolina~~ | ~~Columbia~~ | 0.92 |
| Kansas | Leavenworth | 11.50 | ~~Texas~~ | ~~Austin~~ | 1.17 |
| Kentucky | Louisville | 9.92 | ~~Texas~~ | ~~Fredericksburg~~ | 1.50 |
| ~~Louisiana~~ | ~~New Orleans~~ | 1.25 | ~~Texas~~ | ~~New Braunfels~~ | 4.25 |
| Maryland | Baltimore | 16.00 | ~~Texas~~ | ~~San Antonio~~ | 0.92 |
| Maryland | Elkton | 0.92 | ~~Virginia~~ | ~~Wheeling~~ | 0.92 |
| Massachusetts | Boston | 7.17 | Wisconsin | Green Bay | 0.08 |
| Michigan | Detroit | 4.00 | Wisconsin | Manitowoc | 2.50 |
| Michigan | Kalamazoo | 0.75 | Wisconsin | Milwaukee | 14.92 |
| Michigan | Lansing | 0.42 | Wisconsin | Monroe | 0.75 |
| Michigan | Saginaw | 2.92 | Wisconsin | New Holstein | 0.92 |
| Minnesota | New Ulm | 2.42 | Wisconsin | Sheboygan | 0.58 |
| Minnesota | St. Paul'S | 3.17 | Wisconsin | Watertown | 1.25 |
| | | | Wisconsin | Westfield | 1.75 |

*Notes*: The table reports on the distribution of the *Forty-Eighters*, reporting the (rounded) average of the annualized presence of *Forty-Eighters* in a town between 1848–1860. In total, there are 87 towns. The distribution of the *Forty-Eighters*'s is skewed towards larger cities. The seven cities that received the most *Forty-Eighters* were New York City, Cincinnati, Saint Louis, Philadelphia, Baltimore, Milwaukee and Davenport. Sixty-six cities had between 1–3 *Forty-Eighters*. Hashed-out towns are in the South or West.

Table 3: Sample of Towns

| # | States | #Towns | in % | # | States | #Towns | in % |
|---|---|---|---|---|---|---|---|
| 1 | Delaware | 4 | 0.09 | 10 | Missouri | 63 | 1.45 |
| 2 | Illinois | 309 | 7.12 | 11 | New Hampshire | 35 | 0.81 |
| 3 | Indiana | 631 | 14.55 | 12 | New Jersey | 36 | 0.83 |
| 4 | Iowa | 134 | 3.09 | 13 | New York | 678 | 15.63 |
| 5 | Kentucky | 7 | 0.16 | 14 | Ohio | 836 | 19.27 |
| 6 | Maine | 46 | 1.06 | 15 | Pennsylvania | 805 | 18.56 |
| 7 | Maryland | 3 | 0.07 | 16 | Rhode Island | 10 | 0.23 |
| 8 | Massachusetts | 46 | 1.06 | 17 | Vermont | 45 | 1.04 |
| 9 | Michigan | 422 | 9.73 | 18 | Wisconsin | 228 | 5.26 |

*Notes*: Total number of Towns: 4,338

information. As a result, we lack hometown information for about half the observations. In those cases, we use the observed spatial distribution of home towns in the regiment to infer missing information.[16] On average, a regiment drew soldiers from eight towns. See section Appendix A.3 for a detailed discussion.

There are two potential concerns with the way we infer missing hometown information. First, the inferred allocation induces noise. To account for this, we weight all regressions by the share of enlistments without missing information in every town. Second, the procedure implies that we only consider towns where we observe at least one enlisted soldier. This reduces our effective sample from 7,294 to 4,338. Table 3 shows the distribution of towns by state. Southern and Western states are excluded by construction. In addition, some states like Connecticut never reported soldiers' hometown in the original *Adjutant General's Reports*, and are therefore not in table 3.

## 4 Identification

In this section, we introduce our identification strategy. In our baseline specification, we estimate equations of the form:

$$E_k = \beta \cdot T_k + \delta \boldsymbol{X}_k + \eta_s + \epsilon_k, \tag{3}$$

[16] Dropping these observations does not affect our results.

where $E_k$ is our main outcome, town $k$'s share of the population that enlists for the Union army, $T_k$ measures the presence of civic leaders, $\boldsymbol{X}_k$ is a vector of town-level control variables, $\eta_s$ are state fixed effects and $\epsilon$ represents the error term. The key concern with this estimation is that the *Forty-Eighter* might have selectively chosen their destination location which would imply that $cov(T_k, \epsilon) \neq 0$. More specifically, we are concerned that $\beta$ might be upward-biased because the *Forty-Eighters* selected into locations that were more open to their liberal ideas. The following paragraphs discuss this concern in detail and provide formal tests to check this validity.

**Assessing the *Forty-Eighters'* Location Decisions:**

The historical narrative provides strong evidence that the *Forty-Eighters'* had to leave Europe hastily to escape prosecution, which led to their very concentrated arrival in the U.S. in the space of only two years; see Figure 1. Thus, they did not have time to plan their emigration, and usually had no existing social connections in the country when they arrived. As a result, they were often in much more immediate need of finding gainful employment than the average immigrant. Their first stop would usually be the *German Society* in their port of arrival. By historical accident, the *Forty-Eighters'* arrival coincided with an increased effort by the *German Societies* to find work outside of the cities for German immigrants. This was caused by two scandals in 1847 and 1848 when a groups of paupers from Grosszimmern and Griesheim in Hesse had arrived in New York City and refused to leave the city's Poor House. Following these events, the German society was fiercely attacked by New York officials and newspapers who accused the 'Dutchmen' of loading this group of people on New York (Wust, 1984, p.30). As a result, the German Society formed a *Labor Bureau* to quickly match arriving immigrants with employers across the country and make them leave New York City.[17] According to (Wust, 1984, p.32), "the employment service provided 2,200 jobs in 1846, 4,950 jobs in 1849 and 9,435 in 1853."[18] In the 1850s, job opportunities for Germans were typically located in the Mid-West and included jobs as office clerk, on the railroad, on a farm. Chapter six in Wittke describes the economic hardship of several individual *Forty-Eighters* in the early years after their arrival, and he laments the many "scholars able to quote Homer but

[17] Since the immigrants did typically not speak English very well, there was a limited pool of job and German employers were a preferred choice.

[18] Wust (1984) mentions that the archives of the *German Society of New York City* had every Annual Report from 1845 on when he wrote. Unfortunately, the Society today has a staff of one, no archives and no library. We contacted other *German Societies* like the largest one in Philadelphia to attempt to locate this collection, but without success. For the time being, it appears to be lost.

forced to work with pick and shovel as day laborers on canals and railroads" (Wittke, 1970, p.66).

Based on this logic, it is tempting to conclude that the *Forty-Eighters* first location of settlement outside of their port of arrival should have been quasi-random. We therefore construct an alternative treatment

$$T_k = \sum_{i \in F} \frac{1861 - \tau_{ki}}{11}, \tag{4}$$

where expression (4) considers only locations $k$ of *Forty-Eighters*' first residence, and $\tau_{ki}$ is the year in which individual $i$ arrived in town $k$. It turns out that the correlation between expression (4) and our main treatment (2) is extremely tight, precisely because most of the *Forty-Eighters* stayed in the town they first settled in, at least up to the outbreak of the war. It is therefore not movements between 1850–1861, but the decision of where to first settle that is critical to identification.

In summary, the historical record suggests that the *Forty-Eighters*' location in the U.S. between 1850–1861 had a strong random component, being in large part driven by economic need and work opportunities. However, while their location may have appeared random to the historian, and even to the *Forty-Eighters* themselves, it may not have been econometrically random if work opportunities correlated with unobserved factors that also drove political trends and social norms, and therefore the outcomes we study. In the following, we investigate this concern quantitatively.

**A Location Model and Balancing Tests:** One identification strategy we will pursue is thus to estimate a location model followed by a matching exercise, where we compare towns that were treated with a *Forty-Eighter* with placebo-*Forty-Eighter* towns which did not host a *Forty-Eighter* but otherwise look identical (in terms of initially observable characteristics). In doing so, we assume characteristics from the 1850 Census to be pre-treatment. This is justified because the 1850 Census was enumerated in 1849 and figure 1 shows that the vast majority of *Forty-Eighters* arrived at their U.S. port of entry in 1850 or later.

The control/matching variables we consider come from four sources: (1) From Fishman (2009) we have a rich set of town-level population controls variables, including white, colored and total population broken down by gender. We also geo-coded all towns so that we can include longitude and latitude. (2) In addition, we can obtain some town-level variables from the *full-count Censuses* for 1850 and 1860. The full-count Censuses are a bad way to establish the universe of towns in the U.S. because Census enumerators included lots of unincorporated areas under the

'township' label. However, with the universe of towns established through Fishman (2009), the vast majority of places in the Census can be mapped to it. The currently available full-count censuses do not include a lot of information on individuals, but they do include place of birth. in the 1850 Census, there were 570,591 individuals who report Germany as place of birth. In the 1860 Census respectively, there were 865,600. We use this place of birth information to train the machine learning algorithm that we use to predict soldiers' ancestry. Based on these, we measure a town's initial presence of German communities as well as the change in the share of German-born individuals between 1850 and 1860. (3) To additionally locate the specific arrival cohort of German immigrants that arrived with the *Forty-Eighters* (from 1849–1852), we digitized the *Germans to America* collection for those years and used the immigrants' name, age and gender to match them with individuals in the full-count 1860 Census. A detailed explanation of the matching procedure is provided in Appendix A.8. (4) Lastly, from Haines Michael (2010) we have a rich set of *county*-level controls for 1850, including a county's population share living in larger towns, controls on the urban-rural divide, the size and value of farms, and connectedness via railways and waterways. For details on the data-source, see Appendix A.4.

Rather than choosing ourselves among the large set of potential place-specific control variables from this data we employ a machine learning algorithm to select the optimal set of control variables, i.e. to limit the pool of control variables to those with meaningful explanatory power for the *Forty-Eighters*' location choice. Specifically, we follow Lindsey, Sheather, et al. (2010) and use the *Furnival-Wilson leaps-and-bounds algorithm* to select the set of control variables based on *Akaike's information criterion*.

Table 4 reports the results of a simple location model where we predict the *Forty-Eighters* location with univariate regressions on the *town*-level and *county*-level characteristics selected in this way. The first column reports univariate coefficients and *p-values*. The second column reports on the R-Squared. It is obvious that *Forty-Eighters* were more likely to locate in urban centers, and closer to existing German communities. As well, they appear to have co-located with other Germans who either arrived in the U.S. or changed location from 1850–1860. This is even more true when we focus on the narrower sample of Germans who arrived in 1849–1852. The presence of German-American communities is therefore an obviously important consideration. From an econometric viewpoint, it may be that German-American communities were more strongly

gravitating towards an anti-slavery standpoint which could mean that we wrongly assign a civic leadership role to *Forty-Eighters* who merely settled in areas with political pre-trends.[19]

***Propensity Score Matching*:** In columns 3–5 of 4 we compare the population means in the variables of the towns with and without *Forty-Eighters*. There is a lot of imbalance, in particular with respect to town sizes and German communities. A second strategy is therefore to select a better controls group using *Propensity Score Matching* (PSM). We match on the four variables that have the most predictive power in column 1 of Table 4: a town's population size, and the three measures of existing and changing German communities. Columns 6–8 re-do the comparison in columns 3–5 for the Propensity Score matched sample only. This dramatically improves balance. For most variables we can no longer reject that they are drawn from the same population. The three measures of German communities continue to be somewhat imbalanced, but this is where the improvement is largest, going from *t-statistics* of 6.55 to 1.67, from 3.64 to 1.88 and from 4.17 to 2.45.

## 5 Results

Table 5 reports the results of estimating (3), the effect of the *Forty-Eighters* as defined in expression (2), on Union Army volunteering. Specifically, the outcome is a town's total enlistments relative to its adult male population in 1860.

In table 5 below (and all subsequent tables), columns 1–4 present results for the full sample. Column 1 includes only state fixed effects. Column 2 additionally controls for only for a town's size. Column 3 adds the three controls for both pre-existing and co-evolving German communities. Lastly, column 4 adds the other controls chosen by the variable selection model discussed in section 4.

Columns 5–8 are structured in the same way but now using a matched sample of control towns that are most similar to our treated towns. For each treated observation, we include its five nearest neighbors as control set. The nearest neighbor propensity score matching weights units by their propensity-score proximity to the treated unit with closer neighbors receiving a higher weight.

[19] The opposite concern may arise if the *Forty-Eighters*' influence was concentrated on German-Americans but was not spatially concentrated. For example, if German-American communities were socially connected across space, e.g. through the nation-wide Turner organizations and through the German press, then even if the *Forty-Eighters*' influence on German-Americans was substantial it may have may have been quite uniform across communities. In that case, regressions that include German-American communities would over-control.

Table 4: Location Model: Regress *Forty-Eighters* on Covariates

| | Univariate Regression | | Full Sample | | | PSM-Sample | | |
|---|---|---|---|---|---|---|---|---|
| Regressor | Univariate Coeffient | $R^2$ | Mean: Treated | Mean: Control | t-stat: Diff. | Mean: Treated | Mean: Control | t-stat: Diff. |
| *Town* : log Population $_{1850}$ | 0.022*** | 0.032 | 7.34 | 6.82 | 2.60 | 8.40 | 8.22 | 0.70 |
| | [0.000] | | | | | | | |
| *Town:* log Count Germans $_{1850}$ | 0.013*** | 0.041 | 4.25 | 2.29 | 6.55 | 5.72 | 5.15 | 1.67 |
| | [0.000] | | | | | | | |
| *Town:* **Δ** Count Germans $_{1850\text{-}60}$ | 0.000*** | 0.154 | 721.19 | 2.73 | 3.64 | 1363.75 | 494.65 | 1.88 |
| | [0.000] | | | | | | | |
| *Town* : German Arrivals $_{1849\text{-}52}$ | 0.007*** | 0.201 | 7.22 | 0.19 | 4.17 | 28.32 | 8.11 | 2.45 |
| | [0.000] | | | | | | | |
| County: Vote-Share Repub $_{1848}$ | 0.135*** | 0.013 | 0.02 | 0.00 | 1.35 | 0.11 | 0.09 | 0.49 |
| | [0.009] | | | | | | | |
| County: Longitude | -0.001*** | 0.002 | -84.54 | -82.62 | -2.00 | -84.75 | -80.39 | -5.05 |
| | [0.003] | | | | | | | |
| County: Urbanization $_{1850}$ | 0.003*** | 0.001 | 2.66 | 2.26 | 2.95 | 2.78 | 2.80 | -0.16 |
| | [0.004] | | | | | | | |
| County: log($ Manuf Output) $_{1850}$ | 0.003*** | 0.002 | 3.38 | 2.86 | 4.52 | 3.52 | 3.49 | 0.22 |
| | [0.001] | | | | | | | |
| County: Foreign-Born Pop $_{1850}$ | 0.088*** | 0.008 | 0.16 | 0.07 | 4.32 | 0.20 | 0.17 | 1.34 |
| | [0.000] | | | | | | | |
| County: log Population $_{1850}$ | 0.001 | 0.000 | 9.62 | 9.74 | -0.79 | 9.98 | 10.40 | -2.32 |
| | [0.663] | | | | | | | |
| County: log (Manuf Empl) $_{1850}$ | 0.153 | 0.002 | 0.03 | 0.02 | 1.03 | 0.04 | 0.04 | -0.27 |
| | [0.105] | | | | | | | |
| County: D(Railway-Connected) | 0.003 | 0.000 | 0.52 | 0.43 | 1.12 | 0.55 | 0.61 | -0.89 |
| | [0.320] | | | | | | | |
| Observations | 4,338 | | 44 | 4,294 | | 44 | 129 | |

*Notes*: (*a*) We use the Furnival-Wilson leaps-and-bounds algorithm to select relevant covariates for matching and/or to control for. We apply *Akaike's information Criterion*. (*b*) First first column of the table reports coefficients from univariate regressions on the subset of covariates thus chosen. The second column reports the corresponding R-Squared. (*b*) Columns 3–5 compare the population means in the variables of the towns with and without *Forty-Eighters* and we find a lot of imbalance. Columns 6–8 re-do this comparison for the Propensity Score matched sample only, which improves balance considerably.

Treated units cannot be control units but control units can serve as controls for multiple treatments. Consequently, the final dataset does not contain six times the number of treated units.

The regressor is normalized to take value 1 for one *Forty-Eighter* who had lived the from 1850, the median arrival year in the data, and the outbreak of the Civil War in 1861 in one town. Columns 1–4 report on the full sample. Columns 5–8 report on results from only the propensity-score-matched sample. The top-panel reports on the main outcome, the share of a town's adult men who enlisted. The bottom-panel reports the log of enlisted men as the outcome. The estimate in the top panel implies that one *Forty-Eighter* who settled in a town raised the town's Union Army enlistments by between three and four men per hundred adult males over the course of the war. The estimate in the bottom panel implies that a *Forty-Eighter* increased total enlistments by somewhere between twelve to thirty percent. In the full sample (col 1–4), the incremental introduction of added controls reduces this estimated effect In the matched sample (col 5–8), it unsurprisingly does not.

The location of the broader 1849–1852 arrival cohort was strongly predictive for the location of the *Forty-Eighters* in Table 4. As well, one may well have expected them to have some effect on enlistment as well, if at least some of them were motivated to leave Germany for similar reasons as the *Forty-Eighters*. However, when we also condition on the existing German communities, these other German arrivals around the same time really seem to have no effect at all This suggests that the individual *Forty-Eighters* whose biographies were recorded by historians did indeed play a 'special' role in shaping public opinion, consistent with our view of them as civic leaders.

Given the skewed distribution of *Forty-Eighters*, with six towns receiving between 12–30, but the vast majority only one or two, it is natural to ask if the effect of the *Forty-Eighters* was non-linear. When we repeat the baseline regression including the $\text{Treatment}_k$ as defined in (**??**) as well as its square, we find that it is indeed not. As Table 6 shows, both $\text{Treatment}_k$ and $\text{Treatment}_k^2$ are highly significant, with *p-values* well below one percent. However, the marginal effect of additional *Forty-Eighters* does not drop off as rapidly as one may have thought. The coefficient on $\text{Treatment}_k$ is $23.45$ and that on $\text{Treatment}_k^2$ is $-1.372$, implying that the linear effect of $3.470$ estimated in table 5 applies to a town with about 14 *Forty-Eighters* ($\frac{23.45-3.47}{1.372}$). The same conclusion arises from comparing the results for the log of enlisted men ($\frac{1.8-0.354}{0.1} = 14.5$).

In Online Appendix D table 1, we report results when we consider $T_k$ as defined in expression

Table 5: Effect of *Forty-Eighters* on Union Army Enlistments

| Outcome: | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| | *Enlisted Men / Adult Male Population* $_{1860}$ in % (0-100) | | | | | | | |
| # Fourty-Eighters | 3.470*** | 3.303*** | 2.772*** | 2.759*** | 3.228*** | 2.526*** | 3.943*** | 3.722*** |
| | [0.000] | [0.000] | [0.001] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] |
| *Town* : log Population $_{1850}$ | | -6.673* | 0.702** | 0.249 | | -25.984 | 9.329*** | 11.790*** |
| | | [0.057] | [0.038] | [0.500] | | [0.112] | [0.000] | [0.000] |
| *Town:* Count Germans $_{1850}$ | | | 0.003 | 0.008** | | | -0.003 | -0.002 |
| | | | [0.431] | [0.020] | | | [0.665] | [0.732] |
| *Town:* **Δ** Germans $_{1850\text{-}60}$ | | | 0.003 | 0.004 | | | -0.007 | -0.005 |
| | | | [0.419] | [0.264] | | | [0.192] | [0.340] |
| *Town* : German Arrivals $_{1849\text{-}52}$ | | | -0.041 | -0.065 | | | -0.256 | -0.301 |
| | | | [0.911] | [0.861] | | | [0.759] | [0.685] |
| Controls # | - | 1 | 4 | 12 | - | 1 | 4 | 12 |
| fixed effects: | state | state | state | state | state | state | state | state |
| matching: | - | - | - | - | PSM | PSM | PSM | PSM |
| Observations | 4,338 | 4,338 | 4,338 | 4,338 | 173 | 173 | 173 | 173 |
| R-squared | 0.147 | 0.152 | 0.152 | 0.177 | 0.288 | 0.398 | 0.456 | 0.493 |
| Outcome: | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
| | *log: Enlisted Men* | | | | | | | |
| # Fourty-Eighters | 0.354*** | 0.253*** | 0.121** | 0.134** | 0.336*** | 0.226*** | 0.227*** | 0.194*** |
| | [0.000] | [0.000] | [0.033] | [0.011] | [0.000] | [0.000] | [0.000] | [0.002] |
| Observations | 4,338 | 4,338 | 4,338 | 4,338 | 173 | 173 | 173 | 173 |
| R-squared | 0.439 | 0.591 | 0.593 | 0.610 | 0.444 | 0.731 | 0.742 | 0.773 |

*Notes*: (*a*) Columns 1–4 report on the full sample. Columns 5–8 report on results from only the propensity-score-matched sample. For each of set of results, we always include state fixed effects because enlistment was organized at the state level. We then incrementally introduce controls for local population size, the size of and change in local German communities and finally all controls selected by the algorithm described in section 3. (*b*) The top-panel reports on the main outcome, the share of a town's adult men who enlisted. The bottom-panel reports the log of enlisted men as the outcome. (*c*) Standard errors are clustered at the county-level. *p-values* are in square brackets. *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Non-Linear Version of Table 5

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| Outcome: | *Enlisted Men / Adult Male Population* $_{1860}$ in % (0-100) | | | | | | | |
| # Fourty-Eighters | 23.451*** | 22.023*** | 22.674*** | 21.495*** | 21.927*** | 17.879*** | 20.331*** | 18.651*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.001] | [0.000] | [0.002] |
| # Fourty-Eighters-Squared | -1.372*** | -1.283*** | -1.351*** | -1.271*** | -1.277*** | -1.043*** | -1.151*** | -1.036** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.003] | [0.005] | [0.014] |
| Controls # | - | 1 | 4 | 12 | - | 1 | 4 | 12 |
| fixed effects: | state | state | state | state | state | state | state | state |
| matching: | - | - | - | - | PSM | PSM | PSM | PSM |
| Observations | 4,338 | 4,338 | 4,338 | 4,338 | 173 | 173 | 173 | 173 |
| R-squared | 0.159 | 0.162 | 0.161 | 0.186 | 0.423 | 0.474 | 0.496 | 0.537 |

| | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
|---|---|---|---|---|---|---|---|---|
| Outcome: | *log: Enlisted Men* | | | | | | | |
| # Fourty-Eighters | 1.806*** | 1.066*** | 0.994*** | 0.936*** | 1.532*** | 0.808*** | 0.988*** | 0.767*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] |
| # Fourty-Eighters-Squared | -0.100*** | -0.056*** | -0.059*** | -0.054*** | -0.082*** | -0.039*** | -0.053*** | -0.040*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.001] | [0.004] |
| Observations | 4,338 | 4,338 | 4,338 | 4,338 | 173 | 173 | 173 | 173 |
| R-squared | 0.445 | 0.593 | 0.590 | 0.608 | 0.523 | 0.747 | 0.734 | 0.775 |

*Notes*: (*a*) Columns 1–4 report on the full sample. Columns 5–8 report on results from only the propensity-score-matched sample. For each of set of results, we always include state fixed effects because enlistment was organized at the state level. We then incrementally introduce controls for local population size, the size of and change in local German communities and finally all controls selected by the algorithm described in section 3. (*b*) The top-panel reports on the main outcome, the share of a town's adult men who enlisted. The bottom-panel reports the log of enlisted men as the outcome. (*c*) Standard errors are clustered at the county-level. *p-values* are in square brackets. *** p<0.01, ** p<0.05, * p<0.1.

(4). The results are practically identical. This, as shown in Panel B of the same table is because expressions (2) and (4) are indeed very tightly correlated, because the *Forty-Eighters* for the most part stayed in the town they first located in, at least before the outbreak of the war.

**Voting for the Republican Party:** There are anecdotes that the *Forty-Eighters* played an important role in generating support for the Republican Party in German American communities. Earlier German immigrants opposed the Republican Party because many Republican leaders had ties to the nativist *Know-Nothing* movement, which had been intensely hostile to immigrants during the 1850s, stressing the effect of immigration upon American wages.[20] Nevertheless, authors like Thompson and Brown (page 137-8 in Zucker, 1950) claim that the *Forty-Eighters* helped mobilize a critical mass of German-Americans who supported Lincoln's election in 1860. This opinion is echoed in an article by a correspondent for the New York Herald reporting from Springfield, Illinois, on December 9, 1860, : "In Ohio, Illinois, Indiana, Iowa, and Wisconsin, native Republicans now openly acknowledge that their victory was, if not wholly, at least to a great extent, due to the large accessions they received in the most hotly contested sections from the German ranks." Unfortunately, we can only estimate the effect of the *Forty-Eighters* on voting outcomes at the county-level.[21] See Online Appendix D Table 2 The county-level results do suggest a pronounced effect of the *Forty-Eighters* on republican votes. We cautiously take these estimates as supportive evidence but we caution that the county-level analysis (i) might cover up relevant town-level variation and (ii) cannot achieve as good a balance between treatment and control units.

**Mechanisms:** We next investigate *how* the *Forty-Eighters* affected mens' willingness to risk their lives in the Civil War. The literature on leadership suggests that leadership may manifest itself through the dissemination of knowledge by more informed individuals (Murphy and Shleifer, 2004; Loeper et al., 2014). An alternative expression of leadership is 'leading by example', i.e. through sacrifice and action (Hermalin, 1998; Bolton et al., 2012). To distinguish these two leadership types, we focus our attention on two specific channels that have been emphasized in the

[20] The *Know-Nothings* were particularly hostile to German immigrants who one pamphlet stated "were driving 'white people' out of the labor market, and, 'with their garlic sausage, sauerkraut and beer', forced Americans to accept a lower standard of living" (Wittke, 1970, p.183).

[21] We attempted collecting voting outcomes at the *state-level electoral districts* as a different unit of analysis. This is a nice alternative when state-level electoral districts are small. For example, Alsan, Eriksson, and Niemesh (2018) use this level of analysis in Massachusetts to study the rise of the Know-Nothing Party in the 1850s. However, it turns out that in most states these districts are in fact larger than counties and , so that nothing can be gained in this way for an analysis of many states. For more details, see Appendix A.5.

historical narrative surrounding the *Forty-Eighters*: their involvement in (*i*) journalism and in (*ii*) 'grassroots' organizations, the so called *Turner Societies*.[22]

To establish these mechanisms, we exploit different data sources. To investigate the *Forty-Eighters*' effect on newspapers, we peruse the followin three sources: The earliest survey of U.S. Newspapers that post-dates the *Forty-Eighters*' arrival is the first volume of *Rowell's Newspaper Compendium*. We digitized this first volume and located all newspaper listed in it at the town level. It is obviously critical to control for the existence of newspapers before the *Forty-Eighters*' arrival. Fortunately, Kennedy (1852) created a universal survey of the U.S. newspapers as part of the 1850 Census. This was only done once in the 19th century and it is fortunate that it was in 1850 because this gives us a survey of the U.S. newspaper landscape just before the *Forty-Eighters*' arrival. We were also interested in the German-speaking press specifically. For the German-speaking press, we perused Arndt (1965), which includes the full history of the German-American press.[23] From this source we constructed the town-level circulation of German-speaking newspapers and journals in 1850 and in 1869, to mirror the dates of Kennedy (1852) and the first volume of *Rowell's Newspaper Compendium*.[24]

Data on Turner Societies stem from the U.S. *Turner Society* foundation which published a yearbook called (Metzner, 1894). We used this publication to code the history of U.S. *Turner Societies*.[25]

Table 7 investigates these mechanisms. For each outcome, we re-run the most conservative specification with all controls, i.e. columns 4 and 8 in table 5. Columns 1–2 show that in a town where a *Forty-Eighter* settled, the likelihood that a *Turner Verein* was founded sometime between 1849–1861 was seven percent larger. Columns 3–4 show that in a town where a *Forty-Eighter* settled, the number of German-speaking newspapers increased by around 0.3. Given the *Forty-Eighters*' well-documented penchant for founding newspapers (in addition to becoming editors of existing ones), this number seems eminently reasonable. A noteworthy is that German newspapers are the only outcome we consider that is significantly impacted by other arriving Germans. This is quite natural since newspaper circulation has both a demand and a supply side and even if

[22] *Turner Societies* were American-German gymnastic clubs whose members were not only athletic, but also political. The German *Turner* movement spilled over to the United States with the arrival of the *Forty-Eighters*. The first American *Turnverein* was founded in 1849 (Metzner, 1894).

[23] Arndt lists all German-language newspapers and political journals including the dates of their first and last issue.

[24] See Appendix A.7 for additional details.

[25] See Appendix A.6 for details.

Table 7: Effect of *Forty-Eighters* on Turner Society Foundings and Newspapers

| Outcome: | (1) *D(Turner Soc. Found)* | (2) *D(Turner Soc. Found)* | (3) *# German Newspapers* $_{1869}$ | (4) *# German Newspapers* $_{1869}$ | (5) *# U.S. Newspapers* $_{1869}$ | (6) *# U.S. Newspapers* $_{1869}$ |
|---|---|---|---|---|---|---|
| # Fourty-Eighters | 6.734*** | 7.841*** | 0.276*** | 0.200** | 0.032 | -0.149 |
| | [0.000] | [0.000] | [0.000] | [0.026] | [0.854] | [0.569] |
| Lagged Outcome $_{1850}$ | | | 1.378*** | 1.804*** | 1.219*** | 1.714*** |
| | | | [0.000] | [0.000] | [0.000] | [0.000] |
| *Town* : log Population $_{1850}$ | 0.140 | 3.305 | 0.003 | 0.012 | -0.015 | -0.998** |
| | [0.313] | [0.102] | [0.696] | [0.949] | [0.494] | [0.021] |
| *Town:* Count Germans $_{1850}$ | 0.015 | 0.020 | 0.000 | -0.001 | 0.001** | 0.003** |
| | [0.147] | [0.137] | [0.689] | [0.183] | [0.035] | [0.045] |
| *Town:* **Δ** Germans $_{1850\text{-}60}$ | 0.004 | 0.001 | 0.000 | -0.000 | 0.002** | 0.003** |
| | [0.196] | [0.878] | [0.446] | [0.438] | [0.042] | [0.034] |
| *Town* : German Arrivals $_{1849\text{-}52}$ | -0.549 | -1.098 | 0.047** | 0.187*** | -0.016 | -0.090 |
| | [0.342] | [0.299] | [0.017] | [0.004] | [0.765] | [0.550] |
| Controls # | 12 | 12 | 12 | 12 | 12 | 12 |
| fixed effects: | state | state | state | state | state | state |
| matching: | - | PSM | - | PSM | - | PSM |
| Observations | 4,338 | 173 | 4,338 | 173 | 4,338 | 173 |
| R-squared | 0.342 | 0.699 | 0.827 | 0.860 | 0.677 | 0.793 |

*Notes*: TBA

the other German arrivals were politically inactive, they still provided a new readership for German newspapers.[26] Interestingly, the estimated effect on the English-language press in columns 5–6 is much smaller and consistently insignificant. This is consistent with the historical record, which suggests that while *Forty-Eighters* frequently worked for English-language newspapers, they were not likely to found new ones (Wittke, 1973).

Next, we push the analysis of mechanisms one step further, utilizing the rich biographical information we have on the *Forty-Eighters* to distinguish different styles of civic leadership. For this purpose, we coded up a dummy variable for whether an individual *Forty-Eighter* was an active writer, either as a journalist or book author. This was the case for 103 of the *Forty-Eighters*. We refer to these 103 as 'intellectual' leaders. We refer to others as 'grassroots' leaders. We then

[26] This fact is consistent with the argument in (Tóth, 2014, p.205) that "[The *Forty-Eighters*] played key roles in shaping German American public opinion. Newspapers proliferated, however, primarily, because along with new authors came a new readership. The number of German American periodicals rose not only because suddenly the number of Germans grew who were willing to edit and publish them but also because the hundreds of thousands of immigrants arriving at this time greatly increased an already existing demand for German-language newspapers. The new authors came at an opportune moment: just about the time when their potential audience was about to increase significantly." The evidence in Panel C suggests that the arrival of the *Forty-Eighters* was indeed a supply-shock to the German-American newspaper landscape and was separate from the simultaneous demand shock from the arrival of many more German immigrants at the same time.

constructed two separate town-level treatments that separately aggregated the 103 and the 442 *Forty-Eighters*.

In addition, we also coded for each *Forty-Eighter* whether they were involved in military battles during the revolutions in Germany, which was the case for about half of the *Forty-Eighters*. We believe this is a strong proxy for an individual's credibility, resoluteness and conviction, all characteristics that are associated with successful leadership.

Table 8 reports on regressions of our main outcomes on the *Forty-Eighter* treatment broken down in these two ways. Panel A focuses on the distinction between 'intellectual' and 'grassroots' leaders. Panel A shows a striking bifurcation in the effect of the two different types of leaders on the two mechanisms we investigate: Column 1–2 show that effect of *Forty-Eighters* on the founding of *Turner Vereine* is entirely driven by the 'grassroots' leaders. By contrast, column 3–4 show that the effect of *Forty-Eighters* on newspapers in Panel B is entirely driven by the 'intellectual' leaders. This latter difference is of course somewhat mechanical in how the 'intellectual' and 'grassroots' are defined. The former, however, is not mechanical. In columns 5–8 we investigate the effect on our main outcome, Union Army enlistment. In column 5, there is not enough residual variation to separate the two. Columns 6–8 however, pretty strongly suggest that the 'grassroots' leaders have a stronger effect on Union Army enlistment than the 'intellectual' types.

Panel B performs a similar breakdown for the the distinction between *Forty-Eighters* who did and did not fight in Germany in 1848–1849. Here we see the same stark difference in the effect on the founding of *Turner Vereine*. By contrast, there is not enough residual variation to separate the effect of the two groups on newspapers. In columns 5–8 we find very strong evidence that the enlistment effect is driven by those *Forty-Eighters* who actually fought for the cause in Germany. This is consistent with the idea in the leadership literature that conviction, resoluteness, and a 'sense of direction', combined with a willingness to 'lead by sacrifice' and 'lead by example' create persuasive leaders (Bolton et al., 2012; Dewan and Myatt, 2008; Hermalin, 1998).

To rule out the possibility that intellectual types or the *Forty-Eighters* who did not fight in Germany were less engaged with the struggle against slavery and the Civil War, we also had two teams of research assistants separately code up whether individual *Forty-Eighters* were 'overall politically engaged'. This variable correlated positively with being an 'intellectual' types and did not correlate with military experience in Germany, suggesting that these patterns are not driven

Table 8: Leader Types

Panel A. Outcomes by *Forty-Eighter* Occupation

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| Outcome: | *D(Turner Soc. Found)* | | *# German Newspapers* | | *Enlisted Men / Pop* | | *log: Enlisted Men* | |
| *# Intellectual* types | 9.815 | 10.316 | 2.353*** | 1.581** | 8.174 | 20.789** | -0.330 | 0.508 |
| | [0.542] | [0.578] | [0.000] | [0.019] | [0.549] | [0.042] | [0.633] | [0.214] |
| # `Non-*Intellectual*' types | 6.442*** | 7.654*** | 0.078 | 0.095 | 2.246 | 2.433** | 0.178* | 0.170** |
| | [0.000] | [0.000] | [0.278] | [0.360] | [0.165] | [0.028] | [0.060] | [0.024] |
| Controls # | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| fixed effects: | state | state | state | state | state | state | state | state |
| matching: | - | PSM | - | PSM | - | PSM | - | PSM |
| Observations | 4,338 | 173 | 4,338 | 173 | 4,338 | 173 | 4,338 | 173 |
| R-squared | 0.342 | 0.699 | 0.827 | 0.860 | 0.179 | 0.485 | 0.606 | 0.761 |

Panel B. Outcomes by *Forty-Eighter* Battle Experience

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| Outcome: | *D(Turner Soc. Found)* | | *# German Newspapers* | | *Enlisted Men / Pop* | | *log: Enlisted Men* | |
| *# Didn't Fight* | -1.556 | -2.503 | 0.793 | 0.621 | -11.703** | -7.890* | -0.427** | -0.013 |
| | [0.808] | [0.675] | [0.171] | [0.207] | [0.020] | [0.081] | [0.042] | [0.935] |
| *# Fought in Germany* | 18.497** | 22.591*** | -0.458 | -0.401 | 23.279*** | 20.280*** | 0.930*** | 0.489** |
| | [0.033] | [0.004] | [0.579] | [0.572] | [0.001] | [0.003] | [0.002] | [0.043] |
| Controls # | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |
| fixed effects: | state | state | state | state | state | state | state | state |
| matching: | - | PSM | - | PSM | - | PSM | - | PSM |
| Observations | 4,338 | 173 | 4,338 | 173 | 4,338 | 173 | 4,338 | 173 |
| R-squared | 0.342 | 0.699 | 0.827 | 0.860 | 0.182 | 0.508 | 0.607 | 0.762 |

*Notes*: TBA

by differential engagement among the *Forty-Eighters*, but more likely with a differential ability to persuade.

**Results by Ethnic Group:** We now investigate *whom* the *Forty-Eighters* influenced to enlist in the Union Army. It seems likely that the *Forty-Eighters*' effect was most concentrated on German-American communities, given the high level of political and social segregation between different immigrant groups in the U.S. at the time (Shertzer, 2016). Furthermore, historians have argued that Germans were especially enthusiastic when it came to enlisting to fight in the Civil War. Gould (1869) argues that they were the largest group of foreign-born soldiers in the Union Army. He further recounts that enlistments were particularly high in Wisconsin, Illinois, Ohio and Missouri where we see a concentrations of *Forty-Eighters*.

At the same time, the historical narrative surrounding the *Forty-Eighters* argues that they had

at least some effect on the political convictions of Native-born men because they were fairly well integrated into the broader political movements of the time, in particular in the Republican party and the broader American anti-slavery movement (Curti, 1949; Zucker, 1950; Wittke, 1970; Baron, 2012). Decomposing the effect of the *Forty-Eighters* by immigrant group is not straightforward because the Union army enlistment data contains no information about a soldier's country of origin or birth.

We therefore used the full 1860 U.S. Census (where we observe country of birth) to train a machine learning algorithm to predict men's country of origin. See Online Appendix C.1 for a detailed description of the machine learning algorithm. We then apply this algorithm to the Union army data to generate Army enlistments by town for the big four immigrant groups (German, Irish, Italian and Scandinavian) as well as Native Americans as residual category. We then divide the predicted group-specific enlistment numbers by a town's group-specific adult male population, which we glean from the 1860 U.S. Census.

We end up with just short of 100,000 Scandinavians and over 300,000 Germans and Irish individuals respectively. This resembles the observation that most towns have some Irish and German populations in the 1860 Census while we observe significantly less towns with native Scandinavians. Finally, we have only got about 1,000 soldiers that end up being coded as Italians and less than 200 towns have Italian populations in the 1860 Census. While Italians respond in the same way as the Irish and Scandinavians, we do not report these results given the small sample.

Table 9 reports the results of this exercise. Across columns, it replicates the three main specifications for each of the five groups thus defined. Panel A reports OLS results, and Panel B reports IV results. We do not report the results for the *propensity-score* matched sample of control towns because the number of potentially matched observations now varies by group. The reason for this is that not every immigrant group was present in all towns. As mentioned above, Italians were highly concentrated in a handful of cities, and even Scandinavians were much more spatially concentrated in the 1860 U.S. Census than Germans. Columns 1–3 in Panel A show that the *Forty-Eighters*' impact was indeed most pronounced amongst German men. In fact, the results for German men are considerably more significant than the overall results reported in column 1–3 of table 5. Strikingly, columns 4–6 and 7–9 show that the *Forty-Eighters* had no impact at all on the enlistment of Scandinavian and Irish men. Finally, columns 10–12 show some evidence of a

Table 9: Decomposing the Effect on Enlistments by Immigrant Group

Panel A. Results by Group, % Enlisted Men / Adult Male Population$_{1860}$ (0-100)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Outcome: | *Germans: Enlistment/Adult Males* | | | *Scandinavians* | | | *Irish* | | | *Other / Native* | | |
| # Fourty-Eighters | 6.543** | 5.767** | 6.127** | 31.942 | 28.986 | 29.386 | 0.215 | -0.807 | -0.472 | 0.019 | 0.017 | 0.019* |
| | [0.028] | [0.017] | [0.011] | [0.241] | [0.243] | [0.243] | [0.848] | [0.512] | [0.691] | [0.126] | [0.136] | [0.077] |
| Observations | 3,742 | 3,737 | 3,737 | 856 | 852 | 849 | 4,055 | 4,049 | 4,049 | 4,337 | 4,331 | 4,331 |

Panel B. When Adjust Machine Learning to label 2nd-Generation as Immigrants

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Outcome: | *Germans: Enlistment/Adult Males* | | | *Scandinavians* | | | *Irish* | | | *Other / Native* | | |
| # Fourty-Eighters | 6.919** | 6.110** | 6.495** | 29.841 | 27.029 | 27.429 | 0.214 | -0.827 | -0.490 | 0.019 | 0.016 | 0.018* |
| | [0.028] | [0.018] | [0.011] | [0.244] | [0.247] | [0.246] | [0.852] | [0.510] | [0.686] | [0.125] | [0.135] | [0.077] |
| Observations | 3,742 | 3,737 | 3,737 | 856 | 852 | 849 | 4,055 | 4,049 | 4,049 | 4,337 | 4,331 | 4,331 |

*Notes*: TBA

smaller effect on American-born men, particularly in the specification with state fixed effects in column 12.

One concern is that the machine learning algorithm is trained on *birthplaces* of men in the Census. This implies that in the training data-set, second-generation German immigrants (i.e. the U.S.-born children of German immigrants) are coded as American, which can blur the line between the two groups. This could explain why we find the *Forty-Eighters* to have had an effect on American men. If this was the case, then the *Forty-Eighters*' effect may in fact have been entirely limited to German-American communities, implying that the impact of civic leadership was more sharply limited by ethnic community than Panel A suggests.

To address this, we re-programmed the machine learning algorithm in the following way:

1. Run the machine learning algorithm on the Census training dataset as before.

2. Instead of taking each individual's (reported) nationality as given, re-label it according to the algorithm's predicted nationality; i.e. an American-born man who was predicted to be German based on their name is re-labeled to in fact being German.

3. Trained the algorithm again on the newly modified training dataset where we had changed the nationality of German-sounding men to be German.

4. Finally, apply the re-trained algorithm to the Union Army enlistment data.

If the effect on American men in column 12 (and to a lesser degree columns 10–11) was in fact driven by second-generation German men, then it should disappear in this modified version of the data. As would be expected, we find that re-labeling second-generation German immigrants as Germans further increases the magnitude of the effect on Germans in columns 1–3. It also reduces the magnitude of the effect on American men in columns 10–12 by about five percent ($\frac{18-19}{19}$). The *Forty-Eighters*' effect on American men (that we can now think of as being of non-German descent) does not go away from this change, although it does become smaller. Overall, while the effects in columns 10–12 are marginal we do interpret them as indicative that the *Forty-Eighters* had a small but positive impact on political convictions outside the German-American communities. Nonetheless, it is pretty clear that *Forty-Eighters*' effect on Union Army enlistment worked primarily in German-American communities, a fact which is consistent with a broad body of ev-

idence that ethnicity is a significant barrier to the diffusion of knowledge and culture (Spolaore and Wacziarg, 2009).

**Convictions in Battle:** All results reported so far focus on enlistments at the town level as a measure of convictions towards the fight against slavery. An equally important measure is how sticky these convictions were once men had chosen to fight. One obvious way to measure soldiers' loyalty to their convictions is to follow Costa and Kahn (2003) and look at their propensity to desert.

In the Union Army we can locate about 1.005 millions soldiers from over 16,000 companies in their towns of residence. This is roughly half the entire number of men who served in the Union Army. In addition, we observe a soldier's rank, town of residence, their company, and whether they deserted.[27] Finally, we apply the machine learning algorithm described above to infer soldiers' ethnic identity. The machine learning algorithm finds 228,957 soldiers to be of German origin, 41,592 to be Scandinavian, 251,854 to be Irish, and 498,658 to be American.[28] In total, 7.5 percent of the soldiers deserted, amounting to a total of 75,365.

Motivated by the finding in table 9 that the *Forty-Eighters*' effect on enlistment was strongest for German-Americans, we again focus on the *Forty-Eighters* effect on different ethnic groups. Specifically, we regress soldier $i$'s loyalty in the Union Army on an interaction between his ethnicity and his home-town $j$'s *Forty-Eighters*-treatment

$$\text{D(Desert)}_i = \beta_E' \textit{Forty-Eighters}_j \times \text{E}_i + X_i + \epsilon_i, \tag{5}$$

where $\text{E}_i$ is a vector of three dummies for the three ethnic groups under consideration: Germans, Scandinavians and Irish. Americans serve as reference category. Individual soldier characteristics $X_i$ include soldier $i$'s un-interacted $\text{E}_i$. The interaction term is motivated by historians' observation that different ethnic groups displayed different levels of 'loyalty' in the Union Army For example, Costa and Kahn (2003) argue that Germans were less likely to desert because "Germans who fled the revolutions of 1848 were more likely than Irish or British immigrants who migrated for economic reasons to view the United States as the best hope for the survival of a form of re-

[27] By contrast, Costa and Kahn (2003) used a sample of 303 randomly drawn companies, corresponding to just over 30,000 men. One benefit of their dataset is the rich set of covariates.

[28] We only identify 502 soldiers with a name of Italian origin and thus omit them as above.

publican government." The other individual characteristic we observe is a soldier's rank, which we code as two dummies for officer and private; the omitted category includes all other ranks between the two. Lastly, we consider specifications where we include fixed effects for a soldier's company or a soldier's home-town.

Company fixed effects are an obvious choice because companies were the fighting units of the Union Army. They typically consisted of 100 men, with less than a handful being commissioned officers (McPherson, 2003). Company fixed effects capture two realities. One, desertion was often a function of battle-engagement and battle-engagement varied most sharply at the level of the company. Two, to the extent that desertion was a social phenomenon, i.e. soldiers decided to desert together in small bands, it would occur at the level of the company where they knew each other. By contrast, the motivation for fixed effects at the level of the home-town is that the *Forty-Eighters* treatment varies at the home-town level.[29]

Table 10 reports on the results of estimating (5). The top rows shows the main coefficients of interest, i.e. the interaction $\textit{Forty-Eighters}_j \times \mathrm{E}_i$. The results indicate that the presence of a *Forty-Eighter* in a soldier's home town made this soldier 0.17 percent less likely to desert, but only only if the soldier was American-German. The presence of a *Forty-Eighter* had no positive influence on the loyalty of Irish and Scandinavian soldiers. In column 2 we control for a soldier's rank. Officers were across the board less likely to desert, while privates were most likely to desert. This may reflect the fact that "the sense of duty and honor and the potential for public shame was greater among the more socially prominent" officers (Costa and Kahn, 2003). Beyond that, it should also reflected the fact that privates were the ones in the on the front lines who faced the highest risk to die. In column 3 we add company fixed effects. As expected, company fixed effects matter a lot. Their inclusion raises the R-squared by more than an order of magnitude. The estimated effect of the *Forty-Eighters* on German soldiers' loyalty decreases but the sign pattern on the key outcomes remains unchanged.

One concern is that the baseline effect of *Forty-Eighter* on desertion in column 1–3 is positive. This may be driven by any number of unobserved regional factors. In column 4 we therefore include town fixed effects which absorb any unobserved town-level determinants of loyalty to the

[29] It is worth noting again that if the *Forty-Eighters*'s effect were not constrained to their town of residence, then we may be over-controlling as far as the *Forty-Eighters*'s total effect on soldier loyalty goes.

Table 10: Desertion of Individual Soldiers

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Outcome: | | | D(Desertion) | | |
| #Fourty-Eighters | 0.27*** | 0.28*** | 0.38*** | | |
| | [0.0000] | [0.0000] | [0.0000] | | |
| #Fourty-Eighters x German Soldier | -0.17*** | -0.17*** | -0.07*** | -0.03*** | -0.05*** |
| | [0.0000] | [0.0000] | [0.0000] | [0.0057] | [0.0001] |
| x Scandinavian Soldier | -0.01 | -0.01 | -0.03 | -0.02 | -0.03 |
| | [0.8692] | [0.8166] | [0.3356] | [0.5125] | [0.4003] |
| x Irish Soldier | 0.01 | 0.01 | 0.02 | 0.04 | 0.02 |
| | [0.6998] | [0.7375] | [0.3306] | [0.1187] | [0.2125] |
| D(Officer) | | -3.34*** | -3.53*** | -3.97*** | -3.68*** |
| | | [0.0000] | [0.0000] | [0.0000] | [0.0000] |
| D(Private) | | 4.37*** | 3.33*** | 3.73*** | 3.34*** |
| | | [0.0000] | [0.0000] | [0.0000] | [0.0000] |
| German Soldier | 0.02 | -0.03 | -0.41*** | -0.45*** | -0.53*** |
| | [0.8163] | [0.7518] | [0.0000] | [0.0010] | [0.0000] |
| Scandinavian Soldier | 0.71*** | 0.65*** | 0.97*** | 0.92*** | 0.88*** |
| | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] |
| Irish Soldier | 2.65*** | 2.54*** | 1.28*** | 1.80*** | 1.13*** |
| | [0.0000] | [0.0000] | [0.0000] | [0.0000] | [0.0000] |
| cluster | company | company | company | town | company |
| fixed effects | - | - | company | town | comp & town |
| Observations | 1,004,607 | 1,004,607 | 1,004,607 | 1,004,607 | 1,002,050 |
| R-squared | 0.004 | 0.009 | 0.124 | 0.050 | 0.136 |

*Notes*: In the Union Army we can directly locate 1.005 millions soldiers, roughly half the entire number of men who served Union Army, in their towns of residence.

Union Army. It is worth noting that town fixed effects on their own explain less than company fixed effects, as evidenced by a comparison of the R-squared across columns 3 and 4. In the end, it is evident that both company and town fixed effects should be included, which we do in our preferred specification in column 5.

Across columns 1–5, we find that German-American soldiers were the least likely to desert in the baseline, even less than American soldiers. By contrast, both Irish and Scandinavian soldiers were more likely to desert than American soldiers. (We place less emphasis on Italian soldiers given their very small numbers.) This corroborates the general judgement on soldier loyalty brought forward by historians (Costa and Kahn, 2003).

Overall, the evidence in table 10 is complimentary to that in table 9. The key finding across columns 1–5 is that the presence of *Forty-Eighters* in a town affected not only the likelihood of men in that town to enlist, but also increased enlisted men's loyalty to their convictions once they had gone into battle. In both instances, *Forty-Eighters* appear to have influenced primarily German-American men; in particular, they had no effect on men in the other major immigrant groups.

## 6 Discussion & Conclusion

In this paper we investigate the effect of civic leadership. A well-established theoretical literature shows the important role that 'leaders' play in shaping society's social norms, beliefs and convictions. However, while there is a rich empirical literature documenting the importance of leadership inside organizations, e.g. companies, there is practically no empirical evidence on the importance of 'civic leaders' in society at large.

The absence of empirical evidence on civic leadership is likely related to the difficulty to (i) define civic leaders in a way that is not ad-hoc and (ii) to measure their effects on a meaningful and consistently measured outcome. We focus on an empirical setting that addresses both concerns: (i) we study civic leaders who emerged from a well-defined group of U.S. immigrants who came as political refugees from the failed German Revolutions of 1848-49. We define the so-called *Forty-Eighters* as civic leaders because of their role in the German revolutions and not ad-hoc upon their arrival in the U.S.; (ii) since the *Forty-Eighters*' political convictions–freedom and equality–were clearly defined by the aspiration of the German revolutions, there is a clear and consistent

mapping from their civic leadership objective to the outcomes we study.

Our main outcome is voluntary enlistment for the Union Army in the U.S. Civil War. Given the enormously high death toll during the Civil War, Union Army enlistments are a powerful measure of social convictions. At the same time, the objectives of U.S. Union Army clearly reflect the *Forty-Eighters*' 'revolutionary idealism', i.e. their belief in liberty, democracy, and national unity.

Using a number of identification strategies, we show that U.S. towns where *Forty-Eighters* settled in the 1850s increased their Union Army enlistments by six per hundred adult males over the course of the war from 1861–1865. Using detailed biographical information to distinguish *Forty-Eighters* who classify as *persuasion* or *grass-roots* leader types, we find that *persuasion* types had a big impact on the circulation of local newspapers, while *grass-roots* types had a big impact on the formation of local social clubs. Using machine learning techniques to infer soldiers' nationality, we find that the *Forty-Eighters* had the biggest impact on German-Americans' participation rates in the Civil War. Beyond that, they had some impact on American-born men of non-German ancestry, but they had no influence on Scandinavian, Irish and Italian men's probability to participate in the war.

In summary, this paper provides the first systematic empirical investigation of the importance of 'civic leadership' in shaping social norms, beliefs and convictions. It does so using a well-defined set of 'civic leaders', a clear mapping between their objectives and society's response, and the outcome is an individually costly and thus meaningful reflection of social convictions.

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# Appendix A Data

## Appendix A.1 The *Forty-Eighters*

We started with the 318 accounts listed in the explicitly biographical book by Zucker (1950). We complement this source with names from Wittke's (1970)'s book on the *Forty-Eighters*' influence in U.S. politics which includes over 400 individual names. Raab's (1998) index of revolutionaries in the German state of Baden gives us another 43 names. Finally, Baron's (2012) book on German immigrants' support for Lincoln includes a name index with over 300 individual *Forty-Eighters*. All three sources overlap in large part with Zucker (1950) but each also contained some new names. In total, we end up with a list of around 500 individuals and we use *Ancestry.com* to follow these individuals over their life and code their locations in Germany and the United States. We can locate 493 in the towns they settled in. In Online Appendix B we list in abbreviated form the biographies of the *Forty-Eighters*.

## Appendix A.2 The Fishman (2009) Town Data

We peruse *Population of Counties, Towns, and Cities in the United States, 1850 and 1860* (Fishman, 2009). This data was coded up by Fishman (2009) as part of Bob Fogel's *Early Indicators Project*. In total, it contains 11,964 towns (excluding the South and West). However, only 7,294 of these towns are reported in the Census in both 1850 and 1860. The ones that are only reported in one of the two years are typically small towns that had disappeared by 1860 or towns that had been recently founded in 1860. We thus only retain the 7,294 towns that are reported in both years. Another important consideration to us is data quality.

## Appendix A.3 Civil War Volunteering

For this we scraped the entirety of the data newly collected and posted at `http://www.civilwardata.com`. This data collection project digitized the sources discussed in Appendix A.3. This amounted to records for 2.5 million men serving in the Union Army. For 1.35 million of these we were able to directly locate them in a town in our dataset. For 200,000 we could locate them only in a county and then assigned them to a county's towns according to population-shares. For 1.2 million men we did not have location information but we always had regiment information for every soldier. Based on the 1.35 million soldiers where we had location information we assigned each of 2,328 regiments a distribution of towns from which it drew men. (The average regiment drew men from 8 towns). We then located the 1.2 million men with no location information based on this distribution. With this we can compute a town's total number of enlistment men, we can distinguish volunteers from draftees, and we can calculate an average enlistment date to each town. Of the remaining half we locate about 20 percent by county only and then allocate them to towns by population weights. The remaining 80 percent can only be located via their regiments which implies more noisy data. We therefore weight regressions by the share of a towns' enlisted soldiers that directly report the hometown. For a substantial subset of towns that share is zero so that these observations receive zero weight in the regressions. We therefore further prune our base sample to include only the 4,338 towns who are reported as soldiers' home towns in the data. Table 3 shows how these towns are distributed across states.

## Appendix A.4 Historical County and City Level Controls for Initial Conditions and 1850–1860 Changes

At the city level we only have population counts by race and gender, from Fishman (2009).

1850 County-Level Controls are from the *Historical, Demographic, Economic, and Social Data: The United States, 1790-2002* (Haines Michael, 2010).

- Economic: Urbanization, Manufacturing employment and output, farmland's share of area, farm equipment value
- Geography: River and rail access, longitude, latitude
- Demographics: population size, foreign born, German-born, # churches
- Outcome-specific: 1848 Republican vote share, baseline newspaper distribution

## Appendix A.5 Political Landscape

The political landscape of the U.S. was every-shifting during the 1840s and 1850s: The *Liberty Party* had emerged as an abolitionist party in 1840. In 1848, the majority of the *Liberty Party* formed a grand coalition with other factions into the *Free Soil Party*. The *Free Soil Party* was staunchly anti-slavery but supported a broader platform that included supporting a homesteading on the frontier and the transcontinental railroad with a terminus in Chicago as opposed to St. Louis. Finally, in 1854 the *Free Soil Party* formed a grand coalition with other factions into the *Republican Party*. The *Republican Party* did not become really influential until the 1856 presidential election. Table 11 reports which parties ran in each of the presidential elections between 1840 and 1872. Historical presidential and congressional election data is readily available at the county level from the *Electoral Data for Counties in the United States: Presidential and Congressional Races, 1840-1972* (Clubb, Flanigan, and Zingale, 1987).

We attempted collecting voting outcomes at the *state-level electoral districts* as a different unit of analysis, but this proved futile. One downside is that the data availability and quality varies a lot by state. In some state we can obtain vote margins, in others the best we can get is a dummy variable for the party affiliation of the winner. A second downside is that in the larger states state-level electoral districts are not even finer than counties so that we cannot even improve on the county-data. Illinois for example had great historical voting data but has 61 electoral districts as opposed to its 96 counties, so there is no point trying to collect this data.

We report some county-level results on the effect on the *Forty-Eighters*' effect on voting for the Republican Party inside Online Appendix D

## Appendix A.6 *Turner Societies*

German immigrants had a strong sense for their cultural heritage and social organizations as they knew them from home were one way to preserve this heritage. These clubs included card clubs, music societies, sharpshooter organizations, library associations, and so-called *Turnvereine* ('Turner Societies'). The latter were probably the most prominent kind of social clubs with many *Forty-Eighters* being members if not their founders. One of the first *Turnvereine* was founded in Cincinnati in 1849 by Friedrich Heckler, a prominent *Forty-Eighter* who had led the revolution in the German state of Baden (Barney, 1982). Subsequently, more Turner Societies were founded across the entire U.S., thus creating a social network with substantial political leverage.

Table 11: Changing Political Landscape in the 1850s United States

| Years: | 1840 | 1844 | 1848 | 1852 | 1856 | 1860 | 1864 | 1868 | 1872 |
|---|---|---|---|---|---|---|---|---|---|
| American | | | | | X | | | | |
| Constitutional Union | | | | | | X | | | |
| Democrat | X | X | X | X | X | X | X | X | X |
| Freesoil | | | X | X | | | | | |
| Liberty | | X | | | | | | | |
| Republican | | | | | X | X | X | X | X |
| Whig | X | X | X | X | | | | | |

Note: The columns represent presidential elections. Listed in the rows are all parties listed in the ICPSR voting data in this timeframe. An 'X' denotes that a party was on the ballot in a presidential election. The Liberty Party merged into the Free-Soil Party. The anti-slavery members of the American Party joined the Republican Party after 1858, the pro-slavery wing supported the Constitutional Union Party.

The origin of the Turner Society goes back to Friedrich Ludwig Jahn—sometimes referred to as *Turnvater* Jahn—who defined gymnastic principles for physical fitness. He opened a first outdoor gymnasium (*Turnplatz*) in Berlin-Hasenheide in 1811 and the Turner movement spread quickly to other locations in Germany. What sounds like a leisure movement focussed on athletics was in reality highly political. Jahn was a patriot who believed that physical education would raise young gymnasts physical and moral powers and their sense for national identity. He was hoping that this would prepare them for military service and the liberation of the German lands from Napoleon and France. But Jahn was also a liberal who dreamt of overthrowing the feudal order of serfdom and reorganizing Germany into a unified nation state, a republic. While the Prussian authorities supported the first purpose, they were less impressed with the nationalist movement and banned Turnen between 1819-1842. After the ban was lifted, Turner societies became centres of political discussions and activities and it is not surprising that they were the breeding ground for the revolution with many *Forty-Eighters* being members of the Turner association.

The *Forty-Eighters* established the Turner movement in the U.S. and the Turner network that linked a significant number of Germans across the U.S. helped them spread their liberalist ideals. Among their main goals in the United States was to fight American nativism and to abolish slavery. Consequently, most Turners were active supporters of the newly founded Republican Party during the 1850s and 60s. Among others, they helped protecting anti-slavery activists during public speeches; Turners were Lincoln's bodyguards for his first inauguration (Zucker, 1950; Baron, 2012) and when the Civil War started in 1861, they formed special "Turner Regiments" (Hofmann, 1995, p.158) and Wittke (1970, 225) estimates that 60-80 percent of the Turners enlisted for the Civil War. We describe the data on the *Turner Vereine* in Appendix A.6.

## Appendix A.7 Newspapers

For the German-speaking press, we separately coded up the full history of the German-American press recorded in Arndt (1965).[30]

Rowell's books have been entirely digitized and are available on the Library of Congress' website.[31] The first of Rowell's books was published for 1869. We found one earlier comparably uni-

[30] Arndt lists newspapers and political journals by U.S. county, including the dates of their first and last issue.
[31] See http://lcweb2.loc.gov/diglib/vols/loc.gdc.sr.sn82007064/default.html.

versal survey of the U.S. newspapers which Kennedy (1852) had published as part of the 1850 Census. Describe what we did.

Our individual biographies show that a significant number of *Forty-Eighters* had a journalistic background and either took over editorial positions in existing U.S. newspapers or started their own outlets. Clearly, this was a powerful way to influence the equilibrium belief in the networks of Germans in the U.S. (Baron, 2012).

To quantify the importance of newspapers in persuading other Germans to (*i*) support the Republican Party and (*ii*) participate in the Civil War, we digitize a new newspaper census for the year 1850. In combination with the first edition of *Rowell's Newspapers Compendium* in 1869, this gives us an idea of change in the number and circulation of newspapers in regions that experienced an inflow of *Forty-Eighter*. To further assess whether German-speaking newspapers were more important than English-speaking newspapers, we collected separately a panel of all German-language newspapers recorded in Arndt (1965). See Appendix A.7 for details.

## Appendix A.8 The *Germans to American* Data and Mapping it to the 1860 U.S. Towns

Here we describe the matching process which merges the Germans-to-America passenger arrival lists with Germans in the full-count 1860 Decennial U.S. Census The algorithm performs the following steps:

1. clean name and location information
2. split the sample into male and female sub-samples
3. use Stata's `reclink2` command (Wasi, Flaaen, et al., 2015) to match passenger list and Census information via bi-gram based on
   - first name [6] and last name [16]
   - age in 1860 [14]
   - first letter of first name [3] and last name [3] (blocking variables)

   where numbers in brackets are the relative weight with which each variable enters the matching algorithm.
4. assess match quality by computing
   - the token soundex of first and surname
   - the age difference between passenger and Census match

   and keep those matches where the token soundex of both first and surname is non-zero and the age difference is within a $\pm 2$ years interval

Step 1 helps to improve match quality. Step 2 reduces the dimension of the matching problem. In principle, this could have been done within Stata and the options of the `reclink2` command but in practice I found that it is much more efficient to split the sample.

Step 3 matches names of individuals in the passenger lists and the Census by computing a bi-gram score.[32] The choice of matching variables was mainly dictated by whatever information was

[32] See the help file of Stata's `matchit` command under section *Remarks* for an overview of different matching algorithms such as bi-gram, n-gram, token, etc.

available in both data sets. However, first and surname, and age are typical quantities to match on (e.g. Feigenbaum (2016) ). Note that I did not transform the names by using the soundex or NYSIIS. While transforming names into phonetic codes helps with spelling mistakes,[33] it also removes useful information. Mikail and Michael will have the same soundex code because they sound similar even though one name is clearly Russian whereas the other is not. It has been shown that matching on soundex or NYSIIS transformed names typically performs worse than on untransformed names (Bailey, Cole, Henderson, and Massey, 2017).

The choice of weighting different variables is somewhat arbitrary. There is more variation in surnames than first names, hence the difference in information content motivates the difference in weights but there is no guidance as to what exact numbers should be put here. Wasi et al. (2015)and the `reclink2` documentation provide a discussion.

Blocking on the first letter of first and surname reduces the dimension of the matching problem but will miss individuals who have a typo in the first letter of their names.[34] Otto will match with Otho but not with Utto.

Step 4 seeks to reduce the false positive rate, i.e. matches that were made but which are not correct. Matches were dropped if the soundex of first and surname was zero, and if the matched Census observation was outside a $\pm 2$ years interval around the age of the corresponding passenger. Hence matches of John Smith aged 31 with Henry Smith (31) or John Smith (35) would have been discarded while a match with John Smith (32) would have been kept. Such criteria are also used in the machine learning algorithm by Feigenbaum (2016) even though he applies these filters before performing the match in order to reduce the dimensionality of the matching problem.

Because of a lack of one 'gold standard method' for performing record linkage, there are several different algorithms which are often tweaked and altered by following applications. We discuss these in Online Appendix C.

[33] Phonetic codes assign a unique code to names that sound similar. For example, the soundex code `C365` here includes Catharina, Catharine, Cathrin, Cathrine, ...

[34] Blocking means that a potential match has to agree on certain criteria to be considered as a valid match. Observations which do not agree on the chosen criteria are discarded and the dimension of the matching problem is reduced. Blocking is commonly used in record linking (see Sariyar and Borg (2010).

# Online Appendix

# to

# "Leadership and Social Norms: Evidence from the *Forty-Eighters* in the Civil War"

# Online Appendix A The 1848–1849 Revolutions in Germany

Somewhat surprised by the revolutionary movement, rulers of smaller German states—what we know as Germany today comprised 39 independent states which were part of the German Confederation— were fast to give in. Eventually, also King Frederick William IV of Prussia agreed to pass a constitution, establish a parliament, and support German unification. In March 1849, almost one year after the beginning of the revolution, the Constitutional Assembly in Frankfurt issued a first constitution. It was designed as foundation of a liberal constitutional state with a strong parliament to control the government and the Prussian king at the head. 28 of the German states passed the constitution but the Prussian king, despite his earlier agreement, refused to "pick up a crown from the gutter" and rejected the constitution on 28 April 1949. In the following counter-revolution, the absolutistic rulers fought the revolutionaries and re-established the situation before the March Revolution. After some last uprisings, most notably in Baden, Palatine, Saxony and Württemberg, the revolutionary momentum eventually abated in the summer of 1849.[35]

When the Prussian-led troops eventually quelled the last uprisings in the southwest of Germany, 10,000 German revolutionaries escaped to Switzerland. There are different reasons why Switzerland was a good choice for the revolutionaries. Importantly, it was geographically close, considered a safe country of asylum, and, following the so-called *Sonderbund War* ('Sonderbundkrieg'),[36] Switzerland had already transformed into a federal republic with a democratic constitution. However, the substantial inflow of revolutionaries from German states, Italy and France presented a serious organizational and financial challenge to Switzerland. Even worse, the refugees presence raised concerns that Prussia and Austria could use their military power to force Switzerland to expel or deliver the revolutionaries. Faced with this threat, Switzerland put pressure on regular soldiers, who had little to fear, to return their home countries. Leaders of the revolution like Gustav Struve, Lorenz Brentano or August Willich were expelled and, with the help of France, shipped to the United States. As a result, the number of German refugees in Switzerland decreased rapidly from more than 8350 at the beginning of September 1849 to roughly 2,000 in January 1850 and as little as 883 refugees in August 1850.(Jung, 2015; Nagel, 2012; Reiter, 1992) This expulsion is nicely illustrated in a cartoon (Figure 1) where Prussian soldiers led by Friedrich Wilhelm IV sweep the revolutionaries out of Europe.

While the majority of revolutionaries emigrated straight to the United States, a smaller fraction went on exile in London, hoping to spark another revolution in Europe. However, with the French coup d'état of 2 December 1851 which lead to the proclamation of the Second French Empire, they abandoned this hope and many followed their comrades to the United States (Nagel, 2012). This explains why we observe a second wave of indigent immigrates of German heritage around that time.

[35] See Dahlinger (1903), Valentin (1930) and Whitridge (1949) for seminal accounts of the revolutions of 1848–1849.

[36] The *Sonderbund War* ended the attempted succession of seven Catholic Cantons into a separate alliance ('Sonderbund') which was formed in opposition to a new Constitution for the Swiss Confederation proposed by the Protestant cantons.

Online Appendix Figure 1: Cartoon by Ferdinand Schröder on the end of the revolution in Europe in 1849




*Notes*: The political cartoon by Ferdinand Schröder titled "Rundgemlde von Europa im August MDCCCXLIX" shows how the absolutistic rulers force the *Forty-Eighters* to leave Europe on a boat from Le Havre. It was first published in *Düsseldorfer Monatshefte*, 1849.

## Online Appendix B Individual Biographies

Here we list all *Forty-Eighters* sorted by last name and (first name). We list only location information, i.e. each individual's town, county and state of residence at each point in time.

**ALMSTEDT** (HEINRICH) *1849-1870: Washington, DC, District Of Columbia; 1871-1884: Saint Louis, St. Louis, Missouri.* •

**AMSBERG** (GEORGE VON) *1859-1864: Hoboken, Hudson, New Jersey; 1865-1876: Jersey, Hudson, New Jersey.* •

**ANGELRODT** (ERNST) *1850-1869: Hermann, Gasconade, Missouri.* •

**ANNEKE** (EMIL P.) *1849-1850: New York, New York, New York; 1851-1855: Minersville, Schuylkill, Pennsylvania; 1856-1856: Detroit, Wayne, Michigan; 1857-1866: Lansing, Ingham, Michigan; 1867-1870: Grand Rapids, Kent, Michigan; 1871-1888: East Saginaw, Saginaw, Michigan.* •

**ANNEKE** (FRITZ) *1850-1872: Milwaukee, Milwaukee, Wisconsin.* •

**ANNEKE** (MATHILDE FRANZISKA GIESLER-) *1850-1884: Milwaukee, Milwaukee, Wisconsin; 1853-1865: Newark, Essex, New Jersey.* •

**ANSCHUETZ** (CARL) *1858-1870: New York, New York, New York.* •

**ANSELM** (ALBERT) *1852-1878: Davenport, Scott, Iowa; 1879-1902: Saint Louis, St. Louis, Missouri.* •

**ARNOLD** (FRANZ) *1850-1885: Chicago, Cook, Illinois.* •

**AULENBACH** (KARL) *1850-1881: Zanesville, Muskingum, Ohio.* •

**BACKHOFF** (FRANZ) *1852-1863: Saint Louis, St. Louis, Missouri.* •

**BALATKA** (HANS) *1861-1899: Chicago, Cook, Illinois.* •

**BARUS** (KARL) *1857-1902: Cincinnati, Hamilton, Ohio.* •

**BAUER** (CARL FRIEDRICH) *1850-1885: Pittsburg, Allegheny, Pennsylvania; 1886-1888: Milwaukee, Milwaukee, Wisconsin.* •

**BAUER** (LOUIS) *1850-1902: Saint Louis, St. Louis, Missouri.* •

**BAUMBACH** (LUDWIG VON) *1858-1883: Milwaukee, Milwaukee, Wisconsin.* •

**BAYRHOFFER** (KARL THEODOR) *1853-1888: Monroe, Green, Wisconsin.* •

**BECKER** (AUGUST ) *1854-1860: Baltimore, Ind. City: Baltimore, Maryland; 1861-1871: Cincinnati, Hamilton, Ohio.* •

**BECKER** (GOTTFRIED ) *1861-1867: Chicago, Cook, Illinois.* •

**BEHLENDORF** (FREDERICK) *1861-1869: Saint Louis, St. Louis, Missouri; 1870-1872: Chicago, Cook, Illinois; 1873-1889: Grand Rapids, Kent, Michigan.* •

**BEHR** (ALFRED VON) *1861-1863: Saint Louis, St. Louis, Missouri.* •

**BEHR** (HANS HERMANN ) *1851-1904: San Francisco, San Francisco, California.* •

**BEHRENDT** (KARL HERMANN ) *1852-1878: New York, New York, New York.* •

**BERENDS** (JULIUS) *1854-1875: San Antonio, Bexar, Texas; 1876-1891: Cincinnati, Hamilton, Ohio.* •

**BERGER** (HEINRICH) *1849-1902: New York, New York, New York.* •

**BERGMANN** (CARL) *1850-1876: New York, New York, New York.* •

**BERNAYS** (CARL L.) *1849-1861: Saint Louis, St. Louis, Missouri; 1862-1879: Washington, DC, District Of Columbia.* •

**BEST** (ADAM) *1849-1880: Cincinnati, Hamilton, Ohio.* •

**BEST** (MICHAEL) *1853-1865: Saint Louis, St. Louis, Missouri; 1862-1906: Saint Louis, Ind. City: St. Louis, Missouri.* •

**BETZ** (PHILIPP) *1853-1902: Davenport, Scott, Iowa.* •

**BEYSCHLAG** (CARL) *1852-1866: Indianapolis, Marion, Indiana; 1867-1902: Saint Louis, St. Louis, Missouri.* •

**BIEBUSCH** (HENRY) *1850-1882: Lawrence, Douglas, Kansas.* •

**BIELING** (JOHANN H.) *1850-1902: New York, New York, New York.* •

**BIEN** (JULIUS) *1850-1909: New York, New York, New York.* •

**BINDER** (HEINRICH) *1853-1865: Chicago, Cook, Illinois; 1866-1870: Saint Louis, St. Louis, Missouri; 1871-1888: Detroit, Wayne, Michigan; 1889-1901: New York, New York, New York.* •

**BISKY** (FRIEDRICH LUDWIG) *1851-1860: Columbus, Franklin, Ohio; 1861-1863: New York, New York, New York.* •

**BLANDWOSKI** (CONSTANTIN) *1851-1861: New York, New York, New York.* •

**BLENKER** (LUDWIG) *1851-1863: New York, New York, New York.* •

**BLESCH** (PHILIP) *1850-1907: Columbus, Franklin, Ohio.* •

**BLOEDE** (GUSTAV) *1851-1902: New York, New York, New York.* •

**BLUME** (ERNST CHRISTIAN FRIEDRICH) *1850-1902: Baltimore, Ind. City: Baltimore, Maryland.* •

**BOEBEL** (HANS) *1866-1902: Milwaukee, Milwaukee, Wisconsin.* •

**BOERNSTEIN** (HEINRICH) *1850-1892: Saint Louis, St. Louis, Missouri.* •

**BOGEN** (LUDWIG) *1865-1886: New Ulm, Brown, Minnesota.* •

**BOLLMANN** (LOUIS) *1850-1902: Bloomington, Monroe, Indiana.* •

**BONDI** (AUGUST ) *1849-1856: Saint Louis, St. Louis, Missouri; 1857-1870: Walker, Ellis, Kansas; 1871-1880: Walnut, Crawford, Kansas; 1881-1907: Salina, Saline, Kansas.* •

**BRAND** (FR.) *1850-1902: Boston, Suffolk, Massachussetts.* •

**BRAUSE** (CARL VON) *1850-1902: Manitowoc, Manitowoc, Wisconsin.* •

**BRENDEL** (FRIEDRICH) *1851-1852: Saint Louis, St. Louis, Missouri; 1853-1912: Peoria, Peoria, Illinois.* •

**BRENTANO** (LORENZ) *1851-1859: Kalamazoo, Kalamazoo, Michigan; 1860-1891: Chicago, Cook, Illinois.* •

**BRETHAUER** (OTTO) *1849-1882: New York, New York, New York.* •

**BRICKEL** (ANDREW) *1850-1898: New York, New York, New York; 1899-1902: Buffalo, Erie, New York.* •

**BRODBECK** (CONRAD) *1850-1902: Dayton, Montgomery, Ohio.* •

**BROOKMAN** (ANTON) *1850-1903: Newark, Essex, New Jersey.* •

**BRUHL** (GUSTAV) *1850-1902: Cincinnati, Hamilton, Ohio.* •

**BUSH** (ISIDOR) *1850-1898: Saint Louis, St. Louis, Missouri.* •

**BUTZ** (CASPAR) *1850-1854: Detroit, Wayne, Michigan; 1855-1885: Chicago, Cook, Illinois.* •

**CALBE** (WILHELM LOEWE) *1850-1902: New York, New York, New York.* •

**CANISIUS** (THEODORE) *1859-1859: Marine, Madison, Illinois; 1860-1885: Springfield, Sangamon, Illinois.* •

**CLAUSSEN** (HANS REIMER) *1851-1894: Davenport, Scott, Iowa.* •

**CONHEIM** (MAX) *1850-1902: New York, New York, New York.* •

**CONRAD** (CONSTANTIN) *1850-1850: New Orleans, Orleans, Louisiana; 1851-1858: Cincinnati, Hamilton, Ohio; 1859-1905: Pittsburg, Allegheny, Pennsylvania.* •

**D'UTASSY** (FREDERICK GEORGE) *1849-1892: New York, New York, New York.* •

**DAENZER** (CARL) *1855-1872: Saint Louis, St. Louis, Missouri.* •

**DECKELMAN** (HENRY) *1850-1902: Leavenworth, Leavenworth, Kansas.* •

**DEGENER** (EDUARD) *1851-1877: New Braunfels, Comal, Texas; 1878-1890: San Antonio, Bexar, Texas.* •

**DEMBITZ** (LOUIS) *1850-1902: Louisville, Jefferson, Kentucky.* •

**DENGLER** (ADOLF) *1849-1884: Bellville, St. Clair, Illinois.* •

**DENZLER** (FRIEDRICH) *1849-1902: Leavenworth, Leavenworth, Kansas.* •

**DERLETH** (ALOIS) *1850-1860: Saint Louis, Ind. City: St. Louis, Missouri.* •

**DESHAUER** (JOSEPH) *1850-1902: Chicago, Cook, Illinois.* •

**DETTWEILER** (HERMANN) *1850-1878: Louisville, Jefferson, Kentucky.* •

**DIEPENBECK** (RUDOLF) *1851-1875: Detroit, Wayne, Michigan.* •

**DIETRICH** (HEINRICH) *1849-1902: New York, New York, New York.* •

**DIETSCH** (THEODOR) *1850-1857: Louisville, Jefferson, Kentucky.* •

**DIETZ** (JOHANN W.) *1855-1855: New York, New York, New York; 1856-1870: Burlington, Des Moines, Iowa; 1871-1902: Chicago, Cook, Illinois.* •

**DIETZSCH** (EMIL) *1854-1890: Chicago, Cook, Illinois.* •

**DOEHN** (RUDOLF) *1849-1895: Saint Louis, St. Louis, Missouri.* •

**DOLLMATSCH** (R.) *1850-1902: Saint Louis, St. Louis, Missouri.* •

**DOMSCHKE** (BERNARD) *1851-1854: Boston, Suffolk, Massachussetts; 1855-1869: Milwaukee, Milwaukee, Wisconsin.* •

**DORSCH** (EDUARD) *1850-1870: New York, New York, New York; 1871-1887: Monroe, Monroe, Michigan.* •

**DOUAI** (CARL DANIEL ADOLF) *1853-1853: New Braunfels, Comal, Texas; 1854-1856: San Antonio, Bexar, Texas; 1857-1860: Boston, Suffolk, Massachussetts; 1861-1888: New York, New York, New York.* •

**DREIHAUS** (GEORG) *1849-1870: Philadelphia, Philadelphia, Pennsylvania.* •

**DRESEL** (JULIUS) *1849-1861: New Braunfels, Comal, Texas; 1862-1869: San Antonio, Bexar, Texas; 1870-1891: Sonoma, Sonoma, California.* •

**DRESEL** ([FRIEDRICH] OTTO) *1850-1853: Massillon, Stark, Ohio; 1854-1881: Columbus, Franklin, Ohio.* •

**DULON** (RUDOLF) *1854-1877: New York, New York, New York.* •

**ECKSTEIN** (FRIEDRICH) *1852-1902: Cincinnati, Hamilton, Ohio.* •

**EHRHART** (LORENZ) *1850-1908: Allegheny, Allegheny, Pennsylvania.* •

**EICKEMEYER** (RUDOLF) *1851-1854: New York, New York, New York; 1855-1895: Yonkers, Westchester, New York.* •

**EICKHOFF** (ANTON) *1849-1850: New Orleans, Orleans, Louisiana; 1851-1861: Saint Louis, St. Louis, Missouri; 1862-1901: New York, New York, New York.* •

**EIFLER** (KARL) *1850-1888: New York, New York, New York.* •

**EISENLOHR** (GUSTAV WILHELM) *1851-1860: New Braunfels, Comal, Texas; 1861-1880: Cincinnati, Hamilton, Ohio; 1881-1881: Dallas, Dallas, Texas.* •

**ELSNER** (HUGO VON) *1849-1896: Bloomington, Mclean, Illinois.* •

**ENGELHARDT** (LUDWIG) *1850-1902: New York, New York, New York.* •

**ENGELMANN** (ADOLF) *1849-1890: Bellville, St. Clair, Illinois.* •

**ENGELMANN** (PETER) *1851-1902: Milwaukee, Milwaukee, Wisconsin.* •

**ESSELEN** (CHRISTIAN) *1853-1853: New York, New York, New York; 1854-1859: Detroit, Wayne, Michigan.* •

**FABER** (PAUL) *1849-1891: St. Paul'S, Ramsey, Minnesota.* •

**FAEHTZ** (ERNST F.) *1851-1865: Elkton, Cecil, Maryland; 1866-1882: Baltimore, Ind. City: Baltimore, Maryland.* •

**FALLER** (ALOYS) *1849-1870: Warsaw, Hancock, Illinois; 1871-1882: New York, New York, New York.* •

**FEIGEL** () *1850-1902: Newark, Essex, New Jersey.* •

**FEIN** (GEORG) *1846-1860: Baltimore, Ind. City: Baltimore, Maryland; 1861-1869: Bellville, St. Clair, Illinois.* •

**FEJERVARY** (NICHOLAS) *1850-1895: Davenport, Scott, Iowa.* •

**FIALA** (JOHANN T.) *1853-1873: Saint Louis, St. Louis, Missouri; 1874-1911: San Francisco, San Francisco, California.* •

**FIEDLER** (ANTON B.) *1853-1897: Chicago, Cook, Illinois.* •

**FINK** (ALBERT) *1850-1857: Baltimore, Ind. City: Baltimore, Maryland; 1858-1897: Louisville, Jefferson, Kentucky.* •

**FISHER** (ADAM) *1850-1902: Leavenworth, Leavenworth, Kansas.* •

**FLAD** (HENRY) *1850-1865: New York, New York, New York; 1866-1898: Saint Louis, St. Louis, Missouri.* •

**FOERSCH** (J. A.) *1850-1902: New York, New York, New York.* •

**FORSCH** (LOUIS) *1850-1902: New York, New York, New York.* •

**FRAHM** (MATHIAS) *1850-1899: Davenport, Scott, Iowa.* •

**FRANK** (Aaron) *1850-1902: New York, New York, New York.* •

**FRANKFURTH** (WILHELM) *1849-1885: Milwaukee, Milwaukee, Wisconsin.* •

**FRATNY** (FRIEDRICH) *1850-1902: Milwaukee, Milwaukee, Wisconsin.* •

**FREUDENBERG** (CARL GOTTFRIED) *1849-1885: New York, New York, New York.* •

**FRICKE** (HEINRICH C.) *1854-1880: Chicago, Cook, Illinois.* •

**FUESTER** (ANTON) *1850-1881: New York, New York, New York.* •

**GAMBS** (JOHANNES) *1858-1879: New York, New York, New York.* •

**GAYLORD** (L. F.) *1850-1902: Leavenworth, Leavenworth, Kansas.* •

**GEBRAETZ** (GEORG) *1876-1881: Newark, Essex, New Jersey.* •

**GEHM** (CARL) *1850-1902: Bellville, St. Clair, Illinois.* •

**GEIWITZ** (GEORG) *1849-1890: Baltimore, Ind. City: Baltimore, Maryland.* •

**GERHARD** (FRIEDRICH) *1850-1902: New York, New York, New York.* •

**GERHARDT** (JOSEPH) *1852-1881: Washington, DC, District Of Columbia.* •

**GERNSBACH** (WEIL VON) *1850-1902: San Francisco, San Francisco, California.* •

**GERWIG** (ADOLF) *1850-1862: Cincinnati, Hamilton, Ohio.* •

**GIESLER** (E.) *1850-1902: New York, New York, New York.* •

**GILLIG** (KARL EMIL) *1851-1861: Milwaukee, Milwaukee, Wisconsin; 1862-1883: Peoria, Peoria, Illinois.* •

**GILSA** (LEOPOLD VON) *1853-1870: New York, New York, New York.* •

**GINDELE** (JOHN G.) *1853-1872: Chicago, Cook, Illinois.* •

**GIRSCH** (FREDERICK) *1850-1870: New York, New York, New York; 1871-1891: East Chester, Westchester, New York; 1892-1895: Pelham, Westchester, New York.* •

**GOEHLMANN** (MARTIN G.) *1858-1885: Waterford, Clinton, Iowa.* •

**GOEPPER** (WILHELM) *1849-1879: Louisville, Jefferson, Kentucky.* •

**GOHRINGER** (KARL) *1867-1902: Pittsburg, Allegheny, Pennsylvania.* •

**GOLDMARK** (JOSEPH) *1851-1881: New York, New York, New York.* •

**GRAF** (KARL) *1850-1885: Cincinnati, Hamilton, Ohio.* •

**GREINER** (THEODOR LUDWIG) *1850-1902: Newark, Essex, New Jersey.* •

**GROSCHEL** () *1850-1902: New York, New York, New York.* •

**GRUBER** (HEINRICH) *1850-1902: Brooklyn, Kings, New York.* •

**GUELICH** (THEODOR) *1852-1861: Davenport, Scott, Iowa; 1862-1893: Burlington, Des Moines, Iowa.* •

**GUENTHER** (JOHANN GEORG) *1849-1872: Milwaukee, Milwaukee, Wisconsin.* •

**HAAS** (HEINRICH C.) *1850-1902: Leavenworth, Leavenworth, Kansas.* •

**HACKELMANN** (P. A.) *1850-1902: Rushville, Rush, Indiana.* •

**HAGEN** (THEODOR) *1855-1871: New York, New York, New York.* •

**HAIMBACH** (PHILIPP) *1852-1904: Philadelphia, Philadelphia, Pennsylvania.* •

**HAMM** (THEODOR) *1855-1903: St. Paul'S, Ramsey, Minnesota.* •

**HAMMER** (ADAM VON) *1849-1878: Saint Louis, St. Louis, Missouri.* •

**HAMMERMEISTER** (HEINRICH) *1850-1860: New York, New York, New York.* •

**HARTMANN** (KARL) *1849-1863: Cleveland, Cuyahoga, Ohio.* •

**HARTMANN** (MORITZ) *1856-1902: Lawrence, Douglas, Kansas.* •

**HARTUNG** (ADOLPH VON) *1876-1902: Baltimore, Ind. City: Baltimore, Maryland.* •

**HASSAUREK** (FRIEDRICH) *1850-1885: Cincinnati, Hamilton, Ohio.* •

**HATTERSCHEIDT** (JOHN P.) *1850-1902: Cincinnati, Hamilton, Ohio; 1858-1859: Leavenworth, Leavenworth, Kansas.* •

**HAUSSNER** (CHARLES FREDERICK) *1856-1866: Chicago, Cook, Illinois; 1867-1911: Chicago, Hamilton, Illinois.* •

**HECKER** (FRIEDRICH) *1850-1881: Bellville, St. Clair, Illinois.* •

**HEDDE** (FRITZ) *1855-1857: Davenport, Scott, Iowa; 1858-1908: Grand Island, Hall, Nebraska.* •

**HEILPRIN** (MICHAEL) *1857-1902: New York, New York, New York.* •

**HEINZEN** (KARL PETER) *1851-1853: New York, New York, New York; 1854-1859: Louisville, Jefferson, Kentucky; 1860-1880: Boston, Suffolk, Massachussetts.* •

**HELFENSTEIN** (J.) *1850-1902: New York, New York, New York.* •

**HENNE** (ROBERT) *1852-1885: Davenport, Scott, Iowa.* •

**HEXAMER** (ADOLF) *1849-1859: New York, New York, New York.* •

**HEXAMER** (ALEXANDER) *1850-1902: New York, New York, New York.* •

**HEXAMER** (ERNST) *1849-1856: New York, New York, New York; 1857-1912: Philadelphia, Philadelphia, Pennsylvania.* •

**HEXAMER** (FRITZ M.) *1849-1895: New York, New York, New York; 1896-1910: Stamford, Fairfield, Connecticut.* •

**HEXAMER** (WILHELM) *1849-1859: New York, New York, New York; 1860-1870: Hoboken, Hudson, New Jersey.* •

**HIELSCHER** (THEODOR) *1852-1864: Indianapolis, Marion, Indiana; 1865-1870: Chicago, Cook, Illinois; 1871-1873: New Ulm, Brown, Minnesota; 1874-1900: Minneapolis, Hennepin, Minnesota; 1901-1907: Eagle Pass, Maverick, Texas.* •

**HILLGAERTNER** (GEORG) *1854-1862: Chicago, Cook, Illinois; 1863-1865: Saint Louis, St. Louis, Missouri.* •

**HIRSCHFIELD** (JOSEPH) *1850-1902: New York, New York, New York.* •

**HOBELMANN** (FRIEDRICH AUGUST) *1850-1902: Cincinnati, Hamilton, Ohio.* •

**HOCHHEINER** (HENRY) *1850-1912: Baltimore, Ind. City: Baltimore, Maryland.* •

**HOFF** (HEINRICH) *1850-1852: New York, New York, New York.* •

**HOFFBAUER** (WILHELM) *1851-1860: Saint Louis, St. Louis, Missouri; 1861-1875: Guttemburg, Clayton, Iowa; 1876-1892: Dubuque, Dubuque, Iowa.* •

**HOFFMANN** (ERNST F.) *1849-1876: New York, New York, New York; 1877-1902: Davenport, Scott, Iowa.* •

**HOFFMANN** (FRANCIS) *1850-1902: Chicago, Cook, Illinois.* •

**HOFFMANN** (GEORG RICHARD) *1850-1902: Louisville, Jefferson, Kentucky.* •

**HOHLFELD** (JOHANN F.) *1849-1861: Saint Louis, St. Louis, Missouri.* •

**HOMBURG** (CONRADIN) *1850-1902: Indianapolis, Marion, Indiana.* •

**HOTTINGER** (ANTON) *1852-1852: Pittsburg, Allegheny, Pennsylvania; 1853-1856: Cincinnati, Hamilton, Ohio; 1857-1862: Guttemburg, Clayton, Iowa; 1863-1911: Chicago, Cook, Illinois.* •

**HUHN** (HEINRICH) *1863-1865: Saint Louis, St. Louis, Missouri; 1866-1902: Washington, Franklin, Missouri.* •

**HUTH** () *1850-1902: Boston, Suffolk, Massachussetts.* •

**JACOBI** (ABRAHAM) *1854-1919: New York, New York, New York.* •

**JACOBI** (FRITZ) *1850-1902: New York, New York, New York.* •

**JACOBS** (WILHELM HEINRICH) *1851-1882: Milwaukee, Milwaukee, Wisconsin.* •

**JAZELLA** (APPOLONIA) *1850-1902: New York, New York, New York.* •

**JERZMANOWSKI** (JOSEPH) *1850-1902: New York, New York, New York.* •

**KAEMMERLING** (GUSTAV) *1849-1902: Troy, Perry, Indiana.* •

**KAHN** () *1850-1902: New York, New York, New York.* •

**KAHRMANN** (J. S.) *1850-1902: Davenport, Scott, Iowa.* •

**KALISCH** (ISIDOR) *1850-1880: New York, New York, New York; 1881-1886: Newark, Essex, New Jersey.* •

**KAMM** (FRIEDRICH) *1850-1902: New York, New York, New York.* •

**KAPFF** (EDUARD) *1849-1902: New York, New York, New York.* •

**KAPFF** (SIXTUS) *1849-1877: New York, New York, New York.* •

**KAPP** (FRIEDRICH) *1851-1884: New York, New York, New York.* •

**KAUFMANN** (SIGISMUND) *1849-1889: New York, New York, New York.* •

**KAUFMANN** (THEODOR) *1851-1864: New York, New York, New York; 1865-1866: Saint Louis,*

*St. Louis, Missouri; 1867-1896: Boston, Suffolk, Massachussetts.* •

**KELLNER** (GOTTLIEB THEODOR) *1852-1856: New Ulm, Brown, Minnesota; 1857-1898: Philadelphia, Philadelphia, Pennsylvania.* •

**KIEFER** (CHRISTIAN FRIEDRICH) *1850-1878: Philadelphia, Philadelphia, Pennsylvania.* •

**KIEFER** (HERMANN) *1850-1889: Detroit, Wayne, Michigan; 1890-1911: Ann Arbor, Washtenaw, Michigan.* •

**KILLIAN** (JOSEPH) *1850-1902: Allentown, Lehigh, Pennsylvania.* •

**KLEINER** (MEINRAD) *1850-1873: Cincinnati, Hamilton, Ohio.* •

**KLIPPART** (J. H.) *1850-1878: Cleveland, Cuyahoga, Ohio.* •

**KNODERER** (Carl August) *1850-1863: Reading, Berks, Pennsylvania.* •

**KOB** (CHARLES FRIEDRICH) *1850-1855: Hartford, Hartford, Connecticut; 1856-1857: Boston, Suffolk, Massachussetts; 1858-1858: Atchison, Atchison, Kansas; 1859-1861: Leavenworth, Leavenworth, Kansas.* •

**KOCH** (EDMUND IGNATZ) *1851-1902: New York, New York, New York.* •

**KOCH** (RUDOLF) *1850-1902: New York, New York, New York.* •

**KOENIG** (F. C.) *1856-1877: Peoria, Peoria, Illinois.* •

**KOERNER** (GUSTAV) *1834-1834: Saint Louis, St. Louis, Missouri; 1835-1896: Bellville, St. Clair, Illinois.* •

**KOERNER** (JOSEPH ALOYS) *1851-1882: New York, New York, New York.* •

**KORNER** (HERMANN JOSEPH ALOYS) *1852-1902: New York, New York, New York.* •

**KOVEN** (WILHELM) *1850-1902: New York, New York, New York.* •

**KOZLEY** (EUGEN ARTHUR) *1849-1883: New York, New York, New York.* •

**KRACKOWITZER** (ERNST) *1850-1857: Brooklyn, Kings, New York; 1858-1875: New York, New York, New York.* •

**KRAUS** (ALBERT) *1850-1902: Benton, Dallas, Missouri.* •

**KREISMAN** (HERMANN) *1850-1902: Chicago, Cook, Illinois.* •

**KREZ** (KONRAD) *1852-1854: New York, New York, New York; 1855-1885: Sheboygan, Sheboygan, Wisconsin; 1886-1897: Milwaukee, Milwaukee, Wisconsin.* •

**KRIEGE** (HERMANN) *1850-1850: New York, New York, New York.* •

**KROEGER** (JACOB) *1849-1885: Davenport, Scott, Iowa.* •

**KRUER** (A.) *1850-1902: New York, New York, New York.* •

**KRYZANOWSKI** (WLADIMIR) *1849-1878: Washington, DC, District Of Columbia; 1879-1887: New York, New York, New York.* •

**KUDLICH** (HANS) *1854-1917: Hoboken, Hudson, New Jersey.* •

**LAMBACH** (HEINRICH) *1849-1899: Davenport, Scott, Iowa.* •

**LANGE** (ALBERT) *1850-1869: Terre Haute, Vigo, Indiana.* •

**LANGE** (JOHANN FRIEDRICH GOTTLOB LANGE) *1850-1879: New York, New York, New York.* •

**LAUENSTEIN** (KARL) *1850-1902: Cincinnati, Hamilton, Ohio.* •

**LEHLBACH** (FRIEDRICH AUGUST) *1850-1875: Newark, Essex, New Jersey.* •

**LEIST** (FRIEDRICH) *1849-1902: Baltimore, Ind. City: Baltimore, Maryland.* •

**LESER** (FRITZ) *1854-1880: Saint Louis, St. Louis, Missouri; 1881-1902: Philadelphia, Philadelphia, Pennsylvania.* •

**LEUCHTWEISS** (AUGUST ) *1849-1902: Cincinnati, Hamilton, Ohio.* •

**LEUSSLER** (ROBERT) *1849-1873: Saint Louis, St. Louis, Missouri.* •

**LEXOW** (FRIEDRICH) *1853-1861: New York, New York, New York; 1862-1870: Jersey, Hudson, New Jersey; 1871-1872: North Bergen, Hudson, New Jersey.* •

**LEXOW** (RUDOLF) *1852-1902: New York, New York, New York.* •

**LIEBER** (OSCAR MONTGOMERY) *1851-1862: Columbia, Richland, South Carolina.* •

**LIEVRE** (EUGENE) *1850-1902: New York, New York, New York.* •

**LINDEMAN** (GEORGE) *1850-1902: Cincinnati, Hamilton, Ohio.* •

**LINDEMANN** (HERMANN VON) *1850-1893: Saint Louis, Ind. City: St. Louis, Missouri.* •

**LOEHR** (FERDINAND VON) *1853-1877: San Francisco, San Francisco, California.* •

**LOES** (FRANZ E.) *1853-1883: Philadelphia, Philadelphia, Pennsylvania.* •

**LOEWE AUS CALBE** (WILHELM) *1854-1886: New York, New York, New York.* •

**LOHMANN** (HEINRICH) *1850-1889: Baltimore, Ind. City: Baltimore, Maryland.* •

**LOOS** (ALEXANDER) *1853-1870: Hudson, Columbia, New York; 1871-1877: Philadelphia, Philadelphia, Pennsylvania.* •

**LOOSE** (HEINRICH) *1849-1882: New York, New York, New York.* •

**LOWENBERG** (FRANZ SCHMIDT VON) *1850-1853: Saint Louis, St. Louis, Missouri.* •

**LUCAS** (JACOB) *1852-1861: Saint Louis, St. Louis, Missouri; 1862-1870: Peoria, Peoria, Illinois; 1871-1902: Pekin, Tazewell, Illinois.* •

**LUDVIGH** (SAMUEL) *1850-1869: Baltimore, Ind. City: Baltimore, Maryland.* •

**LUEDEKING** (CARL) *1852-1885: Saint Louis, St. Louis, Missouri.* •

**LUNGKWITZ** (HERMANN) *1851-1891: Fredericksburg, Gillespie, Texas.* •

**MAAS** (BENJAMIN) *1850-1850: New York, New York, New York; 1851-1891: New Orleans, Orleans, Louisiana.* •

**MAERKLIN** (EDUARD) *1849-1892: Milwaukee, Milwaukee, Wisconsin.* •

**MAISCH** (JOHN MICHAEL) *1851-1893: Philadelphia, Philadelphia, Pennsylvania.* •

**MARX** (JOSEPH E.) *1850-1902: Toledo, Lucas, Ohio.* •

**MATZKA** (GEORG) *1854-1883: New York, New York, New York.* •

**MAYERHOEFER** (WILHELM) *1849-1877: New York, New York, New York; 1878-1880: Louisville, Jefferson, Kentucky.* •

**MEHL** (JOHN) *1850-1902: New York, New York, New York.* •

**MEHL** (MARTIN) *1850-1902: New York, New York, New York.* •

**MEINIGER** (KARL) *1849-1883: Cincinnati, Hamilton, Ohio.* •

**MELOSCH** () *1850-1902: New York, New York, New York.* •

**MENNINGER** (JOHN) *1850-1902: New York, New York, New York.* •

**MERSEY** (AUGUST ) *1856-1866: Bellville, St. Clair, Illinois.* •

**METTERNICH** (GERMAIN) *1852-1862: New York, New York, New York.* •

**MEYER** (HERMANN) *1853-1902: New York, New York, New York.* •

**MIEDING** (KARL) *1850-1902: Milwaukee, Milwaukee, Wisconsin.* •

**MILLER** (HEINRICH) *1850-1896: Louisville, Jefferson, Kentucky.* •

**MINDING** (JULIUS) *1850-1902: New York, New York, New York.* •

**MOHR** (CHARLES THEODOR) *1853-1857: Louisville, Jefferson, Kentucky; 1858-1900: Mobile, Mobile, Alabama; 1901-1901: Ashville, Buncombe, North Carolina.* •

**MOLITOR** (STEPHAN) *1850-1873: Cincinnati, Hamilton, Ohio.* •

**MORDES** (FLORIAN) *1850-1850: New Braunfels, Comal, Texas.* •

**MORWITZ** (EDWARD) *1851-1893: Philadelphia, Philadelphia, Pennsylvania.* •

**MOSCHZISKER** (FRANZ A. VON) *1853-1863: Baltimore, Ind. City: Baltimore, Maryland; 1864-1867: Washington, DC, District Of Columbia; 1868-1871: Philadelphia, Philadelphia, Pennsylvania; 1872-1876: Rochester, Monroe, New York; 1877-1880: Utica, Oneida, New York.* •

**MUELLER** (CHRISTIAN L. H.) *1850-1902: Davenport, Scott, Iowa.* •

**MUELLER** (EDUARD) *1850-1871: New York, New York, New York; 1872-1886: Rochester, Monroe, New York.* •

**MUELLER** (JACOB) *1850-1905: Cleveland, Cuyahoga, Ohio.* •

**MUELLER** (NIKOLAUS) *1849-1875: New York, New York, New York.* •

**MUELLER** (WILHELM) *1849-1902: Baltimore, Ind. City: Baltimore, Maryland.* •

**MUHLCBACH** (JOSEPH) *1850-1858: New York, New York, New York.* •

**MULD** (L.) *1850-1902: New York, New York, New York.* •

**MURER** (JOHN) *1855-1856: New York, New York, New York; 1857-1902: Buffalo, Scott, Iowa.* •

**NAST** (THOMAS) *1851-1857: New York, New York, New York.* •

**NEUBERT** (KARL) *1850-1902: Bellville, St. Clair, Illinois.* •

**NEUSTAEDTER** (JOHANN ALBERT) *1852-1885: Saint Louis, St. Louis, Missouri.* •

**NIX** (JACOB) *1849-1897: New Ulm, Brown, Minnesota.* •

**OBERMANN** (KARL) *1852-1901: Cincinnati, Hamilton, Ohio.* •

**OELS** (ADOLPH ROSIER VON) *1851-1852: New York, New York, New York.* •

**OLSHAUSEN** (THEODOR) *1852-1856: Davenport, Scott, Iowa; 1857-1869: Saint Louis, St. Louis, Missouri.* •

**OSTERHAUS** (PETER JOSEPH) *1850-1861: Bellville, St. Clair, Illinois; 1862-1917: Saint Louis, St. Louis, Missouri.* •

**OSWALD** (MICHAEL) *1850-1902: Lawrence, Douglas, Kansas.* •

**OTTENDORFER** (OSWALD) *1851-1900: New York, New York, New York.* •

**PABISCH** (FRANZ JOSEPH) *1863-1879: Cincinnati, Hamilton, Ohio.* •

**PEISSNER** (ELIAS) *1850-1863: Schenectady, Schenectady, New York.* •

**PELZ** (EDUARD) *1851-1876: New York, New York, New York.* •

**PETERS** (CHRISTIAN H. F.) *1868-1890: Kirkland, Oneida, New York.* •

**PETERSEN** (LORENZ) *1855-1880: Springfield, Cedar, Iowa.* •

**PETRI** (RICHARD) *1851-1857: Fredericksburg, Gillespie, Texas.* •

**PETZ** () *1850-1902: Leavenworth, Leavenworth, Kansas.* •

**PEYER** (JOHANNES) *1850-1902: Cincinnati, Hamilton, Ohio.* •

**PFAENDER** (WILHELM) *1849-1850: Cincinnati, Hamilton, Ohio; 1851-1905: New Ulm, Brown, Minnesota.* •

**PFEIFFER** (P.) *1850-1902: Boston, Suffolk, Massachussetts.* •

**PFEIFLFER** (ALEXANDER) *1852-1902: Cincinnati, Hamilton, Ohio.* •

**PILAT** (IGNAZ ANTON) *1852-1870: New York, New York, New York.* •

**PLESSNER** (MICHAEL CARL THEODOR) *1850-1894: Saginaw, Saginaw, Michigan.* •

**POESCHE** (THEODOR) *1854-1858: Philadelphia, Philadelphia, Pennsylvania; 1859-1863: Saint Louis, Ind. City: St. Louis, Missouri; 1864-1899: Washington, DC, District Of Columbia.* •

**POHLE** (CARL ADOLF JULIUS) *1849-1859: New York, New York, New York.* •

**POMUTZ** (GEORGE) *1850-1882: New Buda, Decatur, Iowa.* •

**POSCHNER** (FRIEDRICH) *1849-1873: Cincinnati, Hamilton, Ohio.* •

**PRAGER** (DAVID) *1850-1902: Lawrence, Douglas, Kansas.* •

**PRAHL** (CHARLES) *1854-1900: New York, New York, New York; 1901-1904: Clinton, Hunterdon, New Jersey.* •

**PRANG** (LOUIS) *1851-1909: Boston, Suffolk, Massachussetts.* •

**PREETORIUS** (EMIL) *1855-1905: Saint Louis, St. Louis, Missouri.* •

**PREISER** () *1850-1902: Cincinnati, Hamilton, Ohio.* •

**PREUSSNER** (CARL) *1850-1902: Milwaukee, Milwaukee, Wisconsin.* •

**PUCHNER** (RUDOLF) *1851-1913: New Holstein, Calumet, Wisconsin.* •

**QUERNER** (EMIL) *1853-1886: Philadelphia, Philadelphia, Pennsylvania.* •

**RAMMING** (HEINRICH) *1852-1856: New York, New York, New York; 1857-1902: Davenport, Scott, Iowa.* •

**RANST** () *1850-1902: Leavenworth, Leavenworth, Kansas.* •

**RAPP** (WILHELM) *1853-1891: Baltimore, Ind. City: Baltimore, Maryland; 1892-1907: Chicago, Cook, Illinois.* •

**RASTER** (HERMANN) *1852-1867: New York, New York, New York; 1853-1853: Buffalo, Erie, New York; 1868-1891: Chicago, Cook, Illinois.* •

**RAU** (GOTTLIEB) *1850-1902: New York, New York, New York.* •

**RAUCH** (CHARLES) *1853-1902: St. Paul'S, Ramsey, Minnesota.* •

**REIBETANTZ** (CARL JULIUS) *1849-1894: Baltimore, Ind. City: Baltimore, Maryland.* •

**REICHARD** (JOSEPH MARTIN) *1850-1872: Philadelphia, Philadelphia, Pennsylvania.* •

**REICHARDT** (FRIEDRICH) *1850-1876: Cincinnati, Hamilton, Ohio.* •

**REICHMANN** (RUDOLPH) *1881-1908: Toledo, Tama, Iowa.* •

**REIFSCHNEIDER** (FELIX) *1850-1902: New York, New York, New York.* •

**REITER** (PHILIPP) *1850-1902: Philadelphia, Philadelphia, Pennsylvania.* •

**RESCH** (KARL) *1850-1902: Louisville, Jefferson, Kentucky.* •

**RICHTER** (ERHARD) *1850-1902: New York, New York, New York.* •

**RIEPE** (WILHELM) *1850-1902: Davenport, Scott, Iowa.* •

**RIETZ** (CARL) *1850-1877: Saginaw, Saginaw, Michigan; 1878-1902: Chicago, Cook, Illinois.* •

**RITTER** (LOUIS) *1855-1902: Cleveland, Cuyahoga, Ohio.* •

**RITTIG** (JOHANN) *1853-1857: Cincinnati, Hamilton, Ohio; 1858-1885: New York, New York, New York.* •

**RITTLER** (A. W.) *1850-1872: New York, New York, New York.* •

**ROCHOTTE** (HEINRICH) *1850-1902: Cleveland, Cuyahoga, Ohio.* •

**ROESER** (CARL) *1854-1873: Manitowoc, Manitowoc, Wisconsin; 1874-1897: Washington, DC, District Of Columbia.* •

**ROESER** (OTTO) *1851-1885: Saginaw, Saginaw, Michigan.* •

**ROESLER** (GUSTAV ADOLF) *1851-1855: New York, New York, New York.* •

**ROESSLER** (FRIEDRICH) *1854-1870: New York, New York, New York.* •

**ROGGENBUCKE** (OSKAR VON) *1855-1860: New Braunfels, Comal, Texas; 1861-1883: Comfort, Kendall, Texas.* •

**ROMBAUER** (ROBERT J.) *1849-1902: Saint Louis, St. Louis, Missouri.* •

**ROMBAUER** (THEODORE) *1850-1855: Davenport, Scott, Iowa.* •

**ROSA** (RUDOLF VON) *1851-1865: Washington, DC, District Of Columbia; 1866-1902: New York, New York, New York.* •

**ROSER** (KARL) *1854-1902: Milwaukee, Milwaukee, Wisconsin.* •

**ROSKOTEN** (ROBERT) *1850-1897: Peoria, Peoria, Illinois.* •

**ROSSWOG** (CONSTANTIN) *1849-1902: New York, New York, New York.* •

**ROTHACKER** (WILHELM) *1851-1859: Wheeling, Ohio, West Virginia.* •

**ROTHE** (EMIL) *1850-1852: New York, New York, New York; 1853-1869: Watertown, Jefferson, Wisconsin; 1870-1895: Cincinnati, Hamilton, Ohio.* •

**ROTTECK** (CARL) *1858-1859: Muscatine, Muscatine, Iowa; 1860-1860: Burlington, Des Moines, Iowa; 1861-1902: Keokuk, Lee, Iowa.* •

**RUDOLPH** (JOSEPH) *1850-1853: Cincinnati, Hamilton, Ohio; 1854-1854: Saint Louis, St. Louis, Missouri; 1855-1855: Dubuque, Dubuque, Iowa; 1856-1902: Chicago, Cook, Illinois.* •

**RUHL** (KARL) *1850-1852: New York, New York, New York; 1853-1902: Philadelphia, Philadelphia, Pennsylvania.* •

**RUPPIUS** (OTTO) *1853-1864: Milwaukee, Milwaukee, Wisconsin.* •

**RUSCH** (NICHOLAS) *1848-1863: Davenport, Scott, Iowa; 1864-1864: New York, New York, New York.* •

**RUTHS** (PHILIPP) *1850-1874: Cincinnati, Hamilton, Ohio.* •

**SAHM** (KARL) *1854-1883: New York, New York, New York.* •

**SALOMON** (CARL EBERHARD) *1850-1881: Saint Louis, St. Louis, Missouri.* •

**SALOMON** (EDWARD) *1856-1869: Milwaukee, Milwaukee, Wisconsin; 1870-1908: New York, New York, New York.* •

**SALOMON** (FRIEDRICH S.) *1851-1860: Manitowoc, Manitowoc, Wisconsin; 1861-1880: Saint Louis, St. Louis, Missouri; 1881-1897: Salt Lake City, Salt Lake, Utah.* •

**SANDER** (ENNO) *1854-1912: Saint Louis, St. Louis, Missouri.* •

**SCHADE** (LOUIS) *1852-1903: Washington, DC, District Of Columbia; 1857-1858: Chicago, Cook, Illinois; 1859-1859: Burlington, Des Moines, Iowa.* •

**SCHADT** (OTTO) *1849-1902: Saint Louis, Ind. City: St. Louis, Missouri.* •

**SCHEFFELT** (MICHAEL) *1850-1853: Buffalo, Erie, New York.* •

**SCHEIBEL** (G.) *1850-1902: New York, New York, New York.* •

**SCHEM** (ALEXANDER JAKOB) *1850-1881: Carlisle, Cumberland, Pennsylvania.* •

**SCHIEFERDECKER** (JULIUS) *1872-1881: Milwaukee, Milwaukee, Wisconsin.* •

**SCHIEREN** (JOHN NIKOLAUS) *1857-1863: New York, New York, New York.* •

**SCHIMMELPFENNIG** (ALEXANDER) *1854-1865: Philadelphia, Philadelphia, Pennsylvania.* •

**SCHLAEGER** (EDUARD) *1853-1854: Wheeling, Ohio, West Virginia; 1855-1902: Chicago, Cook, Illinois.* •

**SCHLEICHER** (KARL) *1849-1882: Westfield, Sauk, Wisconsin.* •

**SCHLUND** (FIDEL) *1849-1867: Chicago, Cook, Illinois; 1868-1882: Newark, Essex, New Jersey.* •

**SCHMIDT** (CARL WILHELM) *1852-1887: Cleveland, Cuyahoga, Ohio.* •

**SCHMIDT** (ERNST) *1858-1900: Chicago, Cook, Illinois; 1864-1870: Saint Louis, St. Louis, Missouri.* •

**SCHMITT** (FRANZ) *1850-1902: New York, New York, New York.* •

**SCHMITT** (NIKOLAUS) *1849-1869: Philadelphia, Philadelphia, Pennsylvania.* •

**SCHMOLZE** (KARL HEINRICH) *1849-1859: Philadelphia, Philadelphia, Pennsylvania.* •

**SCHNAUFFER** (CARL HEINRICH) *1852-1854: Baltimore, Ind. City: Baltimore, Maryland.* •

**SCHNEIDER** (GEORG) *1850-1851: Saint Louis, St. Louis, Missouri; 1852-1905: Chicago, Cook, Illinois.* •

**SCHNEIDER** (JOHANN) *1850-1858: New Braunfels, Comal, Texas; 1859-1862: Austin, Travis, Texas.* •

**SCHNEIDER** () *1850-1902: New York, New York, New York.* •

**SCHOEPF** (ALBIN FRANCIS) *1859-1902: Washington, DC, District Of Columbia.* •

**SCHOLER** (JACOB) *1855-1860: New York, New York, New York; 1861-1885: Littlestown, Adams, Pennsylvania.* •

**SCHOTT** (CHARLES ANTHONY) *1849-1901: Washington, DC, District Of Columbia.* •

**SCHRAIDT** (KASPAR) *1853-1886: Danbury, Ottawa, Ohio.* •

**SCHRAMM** (KARL) *1850-1902: New York, New York, New York.* •

**SCHROEDER** (FREDERICK A.) *1850-1899: Brooklyn, Kings, New York.* •

**SCHROETER** (EDUARD) *1851-1853: Milwaukee, Milwaukee, Wisconsin; 1854-1902: Westfield, Sauk, Wisconsin.* •

**SCHUENEMANN-POTT** (FRIEDRICH) *1855-1881: Philadelphia, Philadelphia, Pennsylvania.* •

**SCHUETTNER** (NIKOLAUS) *1849-1870: Saint Louis, St. Louis, Missouri.* •

**SCHULTZ** (EDUARD) *1849-1902: Milwaukee, Milwaukee, Wisconsin.* •

**SCHULTZ** (HERMANN THEODORE) *1851-1902: Austin, Travis, Texas.* •

**SCHURZ** (CARL) *1853-1855: Philadelphia, Philadelphia, Pennsylvania; 1856-1866: Watertown, Jefferson, Wisconsin; 1867-1867: Detroit, Wayne, Michigan; 1868-1877: Saint Louis, St. Louis, Missouri; 1878-1881: Washington, DC, District Of Columbia; 1882-1906: New York, New York, New York.* •

**SCHUSSELE** (CHRISTIAN) *1849-1879: Philadelphia, Philadelphia, Pennsylvania.* •

**SCHUSTER** (CHRISTIAN F.) *1849-1870: New York, New York, New York; 1871-1904: Brattleborough, Windham, Vermont.* •

**SCHWAN** (HEINRICH) *1850-1905: Cleveland, Cuyahoga, Ohio.* •

**SEEGER** () *1850-1902: Cincinnati, Hamilton, Ohio.* •

**SEELAND** () *1850-1902: Leavenworth, Leavenworth, Kansas.* •

**SEIFFERT** (KARL) *1851-1881: Newark, Essex, New Jersey.* •

**SEILER** (SEBASTIAN) *1861-1890: New Orleans, Orleans, Louisiana.* •

**SENGES** (ADAM) *1854-1902: New York, New York, New York.* •

**SERENBETZ** (FRANCIS) *1850-1902: Humboldt, Allen, Kansas.* •

**SERODINO** (HERMANN FRANZ) *1850-1879: Cincinnati, Hamilton, Ohio.* •

**SIBER** (EDUARD) *1871-1902: Cincinnati, Hamilton, Ohio.* •

**SIGEL** (FRANZ) *1853-1860: New York, New York, New York; 1861-1865: Saint Louis, St. Louis, Missouri; 1866-1870: Baltimore, Ind. City: Baltimore, Maryland; 1871-1902: Morrisania, Bronx, New York.* •

**SOHNER** (KARL) *1851-1902: Indianapolis, Marion, Indiana.* •

**SOLGER** (REINHOLD) *1854-1863: Boston, Suffolk, Massachussetts; 1864-1866: Washington, DC, District Of Columbia.* •

**SORGE** (FRIEDRICH ADOLPH) *1853-1862: New York, New York, New York; 1863-1906: Jersey, Hudson, New Jersey.* •

**STADLER** (WILHELM) *1850-1902: New York, New York, New York.* •

**STAHEL-SZAMWALD** (JULIUS) *1860-1912: New York, New York, New York.* •

**STARKLOFE** (HUGO) *1850-1902: Saint Louis, St. Louis, Missouri.* •

**STEINBERG** (T. J.) *1850-1902: Lawrence, Douglas, Kansas.* •

**STEINWEDEL** (WILHELM) *1849-1902: Quincy, Adams, Illinois.* •

**STENGEL** (WILHELM) *1851-1879: Louisville, Jefferson, Kentucky.* •

**STIFEL** (CHARLES G.) *1850-1900: Saint Louis, St. Louis, Missouri.* •

**STIGER** (JOSEPH LEOPOLD) *1850-1902: Cleveland, Cuyahoga, Ohio.* •

**STILL** (GEORGE W.) *1850-1902: Leavenworth, Leavenworth, Kansas.* •

**STOCKMANN** (C. O.) *1856-1873: New Haven, New Haven, Connecticut.* •

**STOECKEL** (GUSTAVE) *1850-1907: New Haven, New Haven, Connecticut.* •

**STRAUBENMUELLER** (JOHANN) *1855-1863: Baltimore, Ind. City: Baltimore, Maryland; 1864-1897: New York, New York, New York.* •

**STRAUCH** (ADOLPH) *1853-1883: Cincinnati, Hamilton, Ohio.* •

**STRUVE** (AMALIA) *1852-1862: New York, New York, New York.* •

**STRUVE** (GUSTAV) *1852-1870: New York, New York, New York.* •

**SZOLD** (BENJAMIN) *1860-1902: Baltimore, Ind. City: Baltimore, Maryland.* •

**TAFEL** (ALBERT) *1850-1902: Cincinnati, Hamilton, Ohio.* •

**TAFEL** (GUSTAV) *1849-1908: Cincinnati, Hamilton, Ohio.* •

**TAFEL** (HUGO) *1850-1902: Cincinnati, Hamilton, Ohio.* •

**TAFEL** (KARL) *1850-1851: Cincinnati, Hamilton, Ohio; 1852-1902: Sandusky, Erie, Ohio.* •

**TAFEL** (LEONHARD) *1873-1902: New York, New York, New York.* •

**TAFEL** (RICHARD) *1850-1902: Cincinnati, Hamilton, Ohio.* •

**TAFEL** (RUDOLPH) *1850-1902: Cincinnati, Hamilton, Ohio.* •

**TAUSSIG** (JAMES) *1849-1902: Saint Louis, St. Louis, Missouri.* •

**TESOR** (AUGUST) *1850-1902: New York, New York, New York.* •

**THALMESSINGER** (MEYER) *1849-1906: New York, New York, New York.* •

**THELEN** () *1850-1902: Leavenworth, Leavenworth, Kansas.* •

**THIEME** (AUGUST ) *1850-1879: Cleveland, Cuyahoga, Ohio.* •

**TIEDEMANN** (HEINRICH) *1849-1902: Philadelphia, Philadelphia, Pennsylvania.* •

**TRAU** (JOHANN PHILIPP) *1851-1883: Philadelphia, Philadelphia, Pennsylvania.* •

**TUERCKE** (KARL AUGUST) *1859-1886: Cincinnati, Hamilton, Ohio.* •

**TYSSOWSKI** (IVAN) *1850-1902: New York, New York, New York.* •

**TZSCHIRNER** (HERMANN) *1850-1902: New York, New York, New York.* •

**UHL** (JAKOB) *1850-1902: New York, New York, New York.* •

**UJHAZY** (LASZLO) *1850-1850: New York, New York, New York; 1851-1870: New Buda, Decatur, Iowa.* •

**ULFFERS** (HERMANN) *1875-1879: Detroit, Wayne, Michigan.* •

**ULKE** (HENRY) *1853-1860: New York, New*

*York, New York; 1861-1910: Washington, DC, District Of Columbia.* •

**UMBSCHEIDEN** (FRANZ) *1853-1874: Newark, Essex, New Jersey.* •

**UNGER** (PETER) *1849-1902: Baltimore, Ind. City: Baltimore, Maryland.* •

**VALENTINY** (KARL HEINRICH) *1851-1882: New York, New York, New York.* •

**VARGA** (FRANK) *1850-1902: New Buda, Decatur, Iowa.* •

**VETTE** (WILHELM) *1849-1871: Detroit, Wayne, Michigan; 1872-1885: Milwaukee, Milwaukee, Wisconsin.* •

**VILLARD** (HENRY) *1854-1900: Cincinnati, Hamilton, Ohio.* •

**VILTER** (ERNEST) *1850-1902: Lawrence, Douglas, Kansas.* •

**VIOLAND** (ERNST) *1850-1875: Peoria, Peoria, Illinois.* •

**VOGT** (WILHELM) *1850-1871: Louisville, Jefferson, Kentucky.* •

**VOLCK** (ADELBERT JOHN) *1850-1880: Dayton, Montgomery, Ohio; 1881-1912: Baltimore, Ind. City: Baltimore, Maryland.* •

**VORTRIEDE** (HEINRICH KARL JULIUS) *1858-1899: Buffalo, Erie, New York.* •

**WAGNER** (HEINRICH WALDEMAR) *1860-1902: New York, New York, New York.* •

**WAGNER** (PHILIPP) *1850-1895: Boston, Suffolk, Massachussetts.* •

**WAGNER** (WILHELM) *1852-1877: Freeport, Stephenson, Illinois.* •

**WANNER** (GOTTLIEB) *1851-1879: Cincinnati, Hamilton, Ohio.* •

**WAPPICH** (LEOPOLD) *1849-1902: Buffalo, Erie, New York.* •

**WEBBER** (J. B.) *1850-1902: Farmersburg, Clayton, Iowa.* •

**WEBER** (GUSTAV CARL ERICH) *1850-1853: Saint Louis, St. Louis, Missouri; 1854-1856: New York, New York, New York; 1857-1912: Cleveland, Cuyahoga, Ohio.* •

**WEBER** (JACOB) *1850-1902: New York, New York, New York.* •

**WEBER** (MAX) *1851-1901: New York, New York, New York.* •

**WEDEKIND** (FRIEDRICH WILHELM) *1850-1865: San Francisco, San Francisco, California; 1866-1888: New York, New York, New York.* •

**WEDISWEILER** () *1850-1902: New York, New York, New York.* •

**WEIGEL** (PHILIPP F.) *1851-1881: Saint Louis, St. Louis, Missouri; 1882-1902: Denver, Denver, Colorado.* •

**WEIL** (L.) *1850-1902: Leavenworth, Leavenworth, Kansas.* •

**WEILER** (HENRY) *1850-1902: Lawrence, Douglas, Kansas.* •

**WEITLING** (WILHELM) *1847-1871: New York, New York, New York.* •

**WERMERSKIRCH** (WM. M.) *1850-1902: New York, New York, New York.* •

**WERNERT** (J. B.) *1850-1902: Cincinnati, Hamilton, Ohio.* •

**WESENDONCK** (HUGO) *1850-1860: Philadelphia, Philadelphia, Pennsylvania; 1861-1900: New York, New York, New York.* •

**WEYDEMEYER** (JOSEPH) *1852-1865: New York, New York, New York; 1856-1858: Milwaukee, Milwaukee, Wisconsin; 1859-1860: Chicago, Cook, Illinois; 1866-1866: Saint Louis, St. Louis, Missouri.* •

**WIEDINGER** (BERNHARD MARIA) *1852-1860: Philadelphia, Philadelphia, Pennsylvania; 1861-1861: Saint Joseph, Buchanan, Missouri; 1862-1894: Chicago, Cook, Illinois.* •

**WIEDRICH** (MICHAEL) *1851-1899: Buffalo, Erie, New York.* •

**WIESNER** (ADOLPH) *1851-1860: Baltimore, Ind. City: Baltimore, Maryland.* •

**WILHELMI** (FRANZ) *1850-1868: Saint Louis, St. Louis, Missouri; 1869-1870: Saint John'S, Franklin, Missouri; 1871-1883: Washington, Franklin, Missouri.* •

**WILLICH** (AUGUST ) *1854-1858: New York, New York, New York; 1859-1878: Cincinnati, Hamilton, Ohio.* •

**WILLLMAN** (ANDREAS) *1850-1902: New York, New York, New York.* •

**WILSON** (B.) *1850-1902: New York, New York, New York.* •

**WISS** (GEORGE EDWARD) *1850-1902: Baltimore, Ind. City: Baltimore, Maryland.* •

**WISSERT** (JOSEPH) *1850-1902: New York, New York, New York.* •

**WITTICH** (ALBERT) *1849-1877: Cincinnati, Hamilton, Ohio.* •

**WOHLGEMUTH** (F.) *1850-1902: New York, New York, New York.* •

**WOLFF** (ALBERT) *1853-1902: St. Paul'S, Ramsey, Minnesota.* •

**WRATISLAW** (EDWARD C.) *1849-1867: New York, New York, New York; 1868-1871: Bridgeport, Fairfield, Connecticut; 1872-1902: New Haven, New Haven, Connecticut.* •

**WUTSCHEL** (FRANZ) *1849-1902: New York, New York, New York.* •

**ZENTMAYER** (JOSEPH) *1856-1888: Philadelphia, Philadelphia, Pennsylvania.* •

**ZERRAHN** (CARL) *1855-1909: Boston, Suffolk, Massachussetts.* •

**ZIEGLER** (KARL T.) *1849-1882: Newark, Essex, New Jersey.* •

**ZIMMERMANN** (JOHANN) *1849-1884: Cincinnati, Hamilton, Ohio.* •

**ZIPPERLEN** (ADOLPH) *1850-1905: Franklin, Summit, Ohio.* •

**ZITZ** (FRANZ H.) *1856-1861: New York, New York, New York; 1862-1877: Jersey, Hudson, New Jersey.* •

**ZITZER** (JOHANN) *1850-1865: Carlisle, Cumberland, Pennsylvania; 1866-1883: Baltimore, Ind. City: Baltimore, Maryland.* •

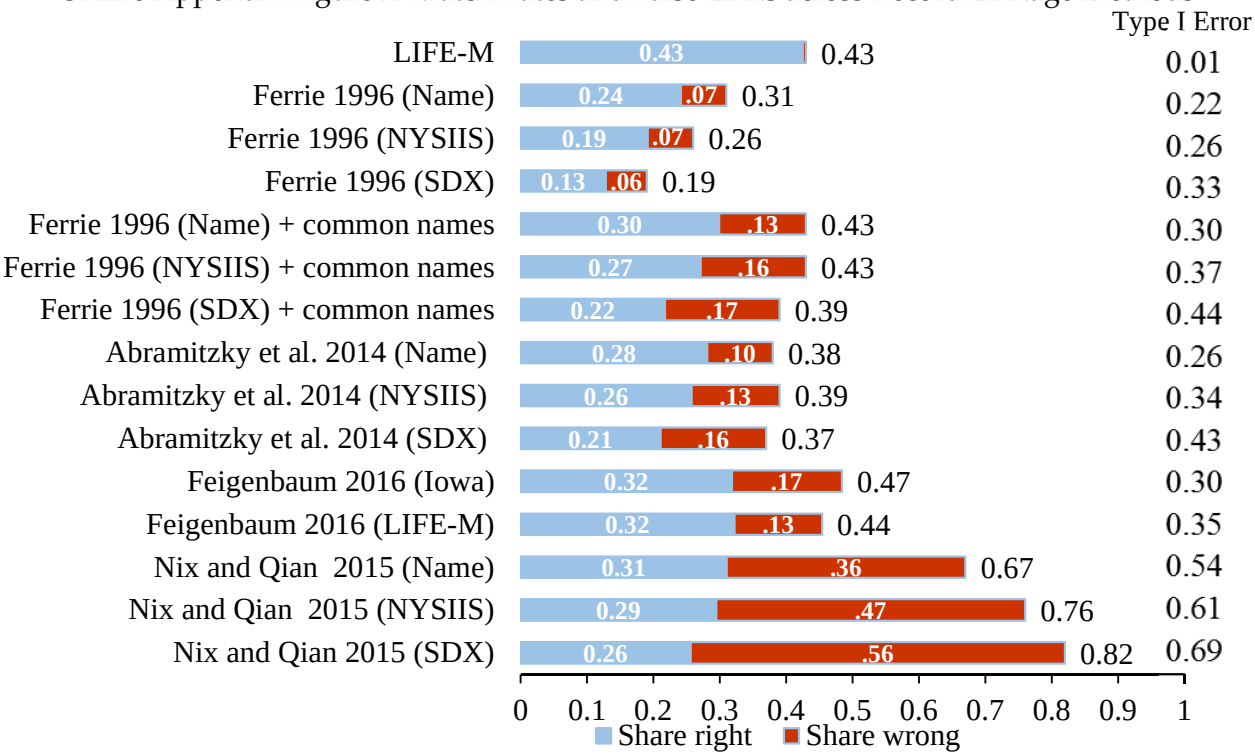
**ZUNDT** (ERNST ANTON) *1858-1858: Green Bay, Brown, Wisconsin; 1859-1864: Milwaukee, Milwaukee, Wisconsin; 1865-1868: Saint Louis, Ind. City: St. Louis, Missouri; 1869-1902: Jefferson, Cole, Missouri.* •

# Online Appendix C Alternative Linkage Methods for Robustness Checks

One problem with record linkage methods is that we do not yet have a commonly agreed method for performing the matching process. This has led to the development of several different algorithms which are often tweaked and altered by following applications. Bailey et al. (2017) review several of these methods and show that no algorithm can consistently produces samples that are representative of the underlying population. This includes linking records by hand. Secondly, most methods produce high rates of false links and these linking errors are not random but related to baseline characteristics of individuals. Figure 2 from Bailey et al. (2017) summarizes the performance of different record linkage algorithms by plotting their share of correct and incorrect matches, and the type I error rate.

The lowest error rate is achieved by Ferrie (1996) who links only individuals with uncommon names. This reduces the dimensionality problem, issues of name ties, and produces fairly accurate matches. A natural robustness check is thus to re-link the passenger lists and Census data using his approach. The downside is the reduction in sample size and an arbitrary choice of what defines an *uncommon* name. The robustness check in this section follows the spirit of Ferrie (1996) by selecting uncommon names from the passenger lists which are the top 10 and 20% of uncommon names in the frequency distribution of surnames. After this selection has been made, the steps from the previous matching algorithm are followed.

Online Appendix Figure 2: Match Rates and False Links across Record Linkage Methods




*Notes*: Comparison of different record linkage algorithms using the ground truth data from the LIFE-M survey. Type I errors are the false match rate over the total match rate and measure the chance of false positives, i.e. matches that were made when they should not. Methods are compared using original names, and names that were transformed via phonetic score using NYSIIS or soundex (SDX). The algorithms are described in detail in Bailey et al. (2017).

## Online Appendix C.1 Inferring Soldiers' Nationality Using a Machine Learning Algorithm

This section describes how we trained a Machine Learning Algorithm on the 1860 Full Count U.S. Census discussed in Appendix A.2 (where we observe place of birth) and then applied to Algorithm to the Union Army Enlistment Data discussed in Appendix A.4 (where we do not).

A vast corpus of computer science and statistical learning literature is devoted to the question if characters of a word can be used to investigate how words are classified. In comparison to proper nouns of other types (such as company names), personal names have many more conventional structures than others. For example, German names tend to include "berg" or "mann", while Mexican names often have "guez" or "arro". At the same time, naming conventions become less stable and much more difficult to identify when a model predicts a specific nationality given a specific individual name.

Despite the availability and simplicity of name data, few studies utilize personal names to predict individual nationality or ethnicity. Using decision trees, Ambekar, Ward, Mohammed, Male and Skiena (2009) and Treeratpituk and Giles (2012) classify ethnic groups on a corpus of news data. Chang, Rosenn, Backstrom and Marlow (2010) develop a Bayesian classifier with name data from U.S. Census. Harris (2015) predicts ethnicity based on proportions of each unique name within ethnic groups.

One of the key challenges with predicting nationality while using name information is that important patterns (i.e., combinations of $n$ specific name characters, $n$-grams) are not known a priori. The standard way developed in statistics and econometrics to approach this problem usually includes two-steps. At the first step, all potential combinations of characters of a given length $n$, $n$-grams, are extracted from the corpus of names and are used as binary covariates. At the next step, a statistical model (e.g., logistic regression, ridge-regression, random forest, etc) is applied to a processed data for calculating predictions. This approach, however, requires a significant computation capacity and often fails even on industrial supercomputers.

Mikolov, Karafiát, Burget, Cernock and Khudanpur (2010) and Bahdanau, Cho and Bengio (2014) show that recurrent neural networks is cost-effective alternative to other approaches to language modeling. Recurrent neural networks iteratively introduce additional n-grams as covariates and keep, update the prediction and keep them only if the quality of prediction increased higher than a certain threshold. Thus, they effectively keep and operate over important patterns only. Bahdanau et al. (2014) show that recurrent neural networks outperform most of the standard models of statistical learning on a large-size data-sets for tasks such as machine translation while not suffering from over-fitting (see also, Hochreiter and Schmidhuber (1997)). Kim, Jernite, Sontag and Rush (2016) , Chiu and Nichols (2015), and Lee, Kim, Ko, Choi, Choi and Kang (n.d.) use character level embedding with a recurrent neural network for a set of classification tasks, including personal name classification.

We build on the results from Hochreiter and Schmidhuber (1997), Chiu and Nichols (2015), and Lee et al. (n.d.) to develop a recurrent neural network based model which predicts nationality using an individual's first name and last name. Using character embedding, our model automatically extracts character-level features for the fistname and lastname to predict the propensity with which a person belongs to a specific nationality (Germany, Scandinavia, Italy, Ireland, or 'Other/USA'). We trained our model with back-propagation through time (Werbos, 1990).

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Online Appendix Table 1: IV Results

Panel A. Results When Using $T_k$ as Defined in Expression (4)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| Outcome: | *Enlisted Men / Adult Male Population* $_{1860}$ in % (0-100) | | | | | | | |
| $T_k$, defined in eq (4) | 3.632*** | 3.463*** | 2.836*** | 2.846*** | 3.363*** | 2.655*** | 3.735*** | 3.552*** |
| | [0.000] | [0.000] | [0.001] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] |
| Controls # | - | 1 | 4 | 12 | - | 1 | 4 | 12 |
| fixed effects: | state | state | state | state | state | state | state | state |
| matching: | - | - | - | - | PSM | PSM | PSM | PSM |
| Observations | 4,338 | 4,338 | 4,338 | 4,338 | 173 | 173 | 173 | 173 |
| R-squared | 0.147 | 0.152 | 0.152 | 0.177 | 0.288 | 0.398 | 0.456 | 0.493 |
| | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) |
| Outcome: | *log: Enlisted Men* | | | | | | | |
| $T_k$, defined in eq (4) | 0.371*** | 0.267*** | 0.131** | 0.146*** | 0.351*** | 0.240*** | 0.225*** | 0.198*** |
| | [0.000] | [0.000] | [0.031] | [0.010] | [0.000] | [0.000] | [0.000] | [0.001] |
| Observations | 4,338 | 4,338 | 4,338 | 4,338 | 173 | 173 | 173 | 173 |
| R-squared | 0.439 | 0.592 | 0.588 | 0.606 | 0.439 | 0.731 | 0.703 | 0.761 |

Panel B. Regressing $T_k$ (2) on (4) First Stage Results

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|---|---|---|---|---|---|---|---|---|
| Outcome: | *# Fourty-Eighters* | | | | | | | |
| $T_k$, defined in eq (4) | 1.054*** | 1.054*** | 1.029*** | 1.028*** | 1.056*** | 1.055*** | 1.008*** | 1.007*** |
| | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] | [0.000] |
| Observations | 4,338 | 4,338 | 4,338 | 4,338 | 173 | 173 | 173 | 173 |
| R-squared | 0.996 | 0.996 | 0.997 | 0.997 | 0.997 | 0.997 | 0.998 | 0.998 |

*Notes*: (*a*) Columns 1–4 report on the full sample. Columns 5–8 report on results from only the propensity-score-matched sample. For each of set of results, we always include state fixed effects because enlistment was organized at the state level. We then incrementally introduce controls for local population size, the size of and change in local German communities and finally all controls selected by the algorithm described in section 3. (*b*) Standard errors are clustered at the county-level. *p-values* are in square brackets. *** p<0.01, ** p<0.05, * p<0.1.

# Online Appendix D Additional Results

Online Appendix Table 2: County-Level Voting Results

| | Δ Republican VoteShare (1848-1860) | | | Δ Democratic VoteShare (1848-1860) | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| # FourtyEighters | 1.040*** | 0.819** | 0.594** | -0.177 | -0.294 | -0.229 |
| | (3.312) | (2.174) | (1.987) | (-1.191) | (-1.290) | (-1.029) |
| Controls | - | #:11 (Akaike's) | #:14 (Adjust R-sq) | - | #:11 (Akaike's) | #:14 (Adjust R-sq) |
| N: | 1,014 | 1,014 | 1,014 | 1,014 | 1,014 | 1,014 |
| $R^2$ | 0.007 | 0.421 | 0.619 | 0.001 | 0.241 | 0.266 |

*Notes*: TBA

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