LEADERSHIP AND SOCIAL MOVEMENTS:
THE *FORTY-EIGHTERS* IN THE CIVIL WAR

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ABSTRACT

This paper studies the role of leaders in the social movement against slavery that culminated in the U.S. Civil War. Our analysis is organized around a natural experiment: leaders of the failed German revolution of 1848-49 were expelled to the U.S. and became anti-slavery campaigners who helped mobilize Union Army volunteers. Towns where *Forty-Eighters* settled show two-thirds higher Union Army enlistments. Their influence worked thought local newspapers and social clubs. Going beyond enlistment decisions, *Forty-Eighters* reduced their companies' desertion rate during the war. In the long run, *Forty-Eighter* towns were more likely to form a local chapter of the NAACP.

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Between 1861 and 1865, the United States' North and South fought each other over the issue of slavery in the American Civil War. One in five adult men—2.2 million in the North alone—took up arms to fight in the Union Army. Fighting was costly on both sides: In total, 620,000 men lost their lives, as many as in all other American wars combined (Hacker, 2011; Costa and Kahn, 2003). At the same time, the financial incentives to fight in the war were low. Union Army privates earned about $13 per month—less than a farmhand (Edmunds, 1866, 512)—and payment was irregular. In the South, there were stronger economic motives at least for some, since the war was about the survival of Southern institutions and property (Hall, Huff and Kuriwaki, 2019). Yet, almost 95 percent of Northern soldiers were volunteers. What, then, drove men to risk their lives in the fight against slavery and Southern secession, despite high personal costs and low economic compensation?

In this paper, we study the role that individual leaders played in determining local enlistment decisions at this critical juncture. We focus on the *Forty-Eighters*, leaders in the German revolutions of 1848–49 who were subsequently expelled to America for their activities. By historical serendipity, the egalitarian and pro-republican convictions that got the *Forty-Eighters* expelled from Europe in 1849 mapped closely into the political struggles that would come to a head in the U.S. a decade later.[1] During the first few years after their arrival in the U.S., the *Forty-Eighters*' political convictions lay dormant as their lives were dominated by the practical necessities of earning a livelihood in their new home. This changed when the Kansas-Nebraska Act of 1854 blew the lid off the sectional political conflict around slavery (Foner, 1970).[2] This lead the *Forty-Eighters* to "revive the spirit of the failed struggle for liberty in the fight against slavery" (Baron, 2012, 3). By the time this conflict culminated in the Civil War, the *Forty-Eighters* had become influential campaigners against slavery, and mobilizers of Union Army volunteers (Zucker 1950, Wittke 1973, Levine 1980, 256, Kamphoefner and Helbich 2006, 38, Goodheart 2011, 257).

To quantify the *Forty-Eighters*' mobilization effect and shed light on underlying mechanisms that helped them spread the 'liberal contagion', we combine several newly created datasets at the town-level. First, we compile a list of almost 500 *Forty-Eighters* from historical sources and

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[1]In the words of their foremost historian, "three aspects dominated the scene from which [the *Forty-Eighters*] fled into the freedom of the United States: liberty, democracy, and national unity" (Zucker, 1950, p.9).

[2]This act ended the second American party system in which the Democratic and the Whig Party were the main opponents. By the 1856 presidential election, the Whigs had disappeared and the election was decided between the Democrats and two parties that had not yet existed in 1852, one of them the anti-slavery Republican Party.

complete their U.S. biographies through individual searches in genealogical online sources. This tells us the towns where the *Forty-Eighters* settled and spread their liberal ideas. Secondly, we geo-located the town-level extracts from the 1850 and 1860 censuses and merged them with our *Forty-Eighters* database to create a dataset of U.S towns in 1860. Thirdly, we use the full universe of over 2 million men in the Union Army rosters to construct a town-level database of local enlistment.

The main empirical concern in estimating the *Forty-Eighters'* effect on individual enlistment decisions is spatial sorting. If the *Forty-Eighters* had settled in areas where anti-slavery and pro-republican convictions were independently becoming stronger, we would overestimate their effect. We address this concern in two ways. First, we select from the large number of untreated towns a matched sample of control towns that are closest to being 'statistical twins' of the treated towns. This reduces selection effects; and the more balanced covariate distribution reduces noise and renders the outcome less sensitive to small changes in the model specification (Imbens and Rubin, 2015). Our matching is informed by a variable selection model that reveals factors that influenced the *Forty-Eighters'* choice of where to settle, i.e. they were more likely to co-locate with other recent German immigrants in the Mid-West and choose less rural locations. Once we condition on these location factors, we end up with a well-balanced sample of treatment and control locations.[3]

While matching aids identification, it alone does not establish causality. To overcome remaining concerns about unobserved drivers of the *Forty-Eighters'* location choice, we suggest an instrumental variable (IV) strategy based on random social ties that the *Forty-Eighters* formed on their ten-week transatlantic voyage to America. Idiosyncratic connections made on the voyage were particularly influential for the *Forty-Eighters* because of the haphazard nature of their departure from Europe: they mostly traveled alone (as we observe in ship-list data), they had little time to plan ahead, and they lacked family ties in the United States, meaning they usually embarked on their voyage with no planned destination in America.[4] Using the universe of German immigrant ship-lists from the 'Germans to America' collection, we link 152 *Forty-Eighters* to 136 ships, and instrument the *Forty-Eighters* location choice with the distribution of their co-passengers' intended destinations in the U.S., which were recorded at the immigration lines in the port of entry.[5] We

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[3]This approach omits all larger treated towns, e.g. Philadelphia or Cincinnati, because they have no statistical twin in the same state, generating a matched sample of 55 treated towns and around 200 control towns.

[4]Battiston (2018) shows that even on the much briefer two-week steam-ship transatlantic crossings in the 20th century, social ties formed with co-passengers had a significant impact on immigrants' future path in the U.S.

[5]Very few *Forty-Eighter* reported a planned destination themselves and we omit these cases.

condition our IV estimates on the distribution of reported destinations of passengers on more than 1,700 *other* German immigrant ships that arrived in the same 1848–1852 time-window. In this way, we disentangle the idiosyncratic component of what the *Forty-Eighters'* co-passengers knew about U.S. destinations.

Ordinary least squares (OLS) estimates on the matched sample suggest that having one or more *Forty-Eighter* in a town raised Union Army enlistments by two thirds, or eight extra enlistees per 100 adult men. By contrast, the estimated effect in the full sample is about 90 percent, suggesting that the matching strategy successfully removes some biasing variation. As a placebo test, we investigate the effect of other German immigrants who arrived in the same time-window and whom we can match to the Census. We find that their locations strongly correlate with the *Forty-Eighters*, but in a statistical 'horse-race' between the two groups, we find that only the *Forty-Eighters* mattered for local enlistments. Turning to the IV strategy, we find that the instrument has considerable predictive power, even conditional on the distribution of stated destinations from passengers on all other German immigrant ships arriving at the same time. The IV results broadly confirm the enlistment effect we find in the OLS; they are no more than ten percentage points larger and but we cannot statistically reject that they are equal.

With the effect on enlistments established, we turn to an analysis of underlying mechanisms by which the *Forty-Eighters* influenced local enlistment choices. The historical narrative suggests four salient channels: (i) through local newspapers (as founders, editors, or contributors); (ii) their involvement in local social and political clubs, especially the *Turner Societies* ('Turnvereine'); (iii) as orators giving rousing public speeches; and (iv) by enlisting themselves in the war effort and encouraging others to do so with them. We construct different measures to assess these four channels. For the first channel, we collect data on the circulation of local German-language newspapers before and after the *Forty-Eighters'* arrival. For the second channel, we collect data on the formation of local Turner Societies. Both channels turn out to be relevant and a simple mediation analysis suggests that these first two channels (as measured) explain around one-third of the *Forty-Eighters'* total effect on enlistments. Gaining identification on the remaining two channels is more challenging because they investigate the timing of *Forty-Eighters'* 'acts of leadership' (speeches and enlistment decisions), which may themselves been endogenous to other unobserved events. To determine instances of public speeches, we searched historical newspaper archives for reports on

Forty-Eighters giving public speeches or organizing pro-Union events. After public speeches, we see enlistment rates increase by sixty percent in the following two weeks. After *Forty-Eighters'* enlistments, we see enlistment rates increase by fifty percent in the following two weeks. With the caveat on identification in mind, we interpret these pieces of evidence as suggesting the potential relevance of the other two channels discussed in the historical records.

In a last set of exercises, we look at additional and longer-run impacts of the *Forty-Eighters*, going beyond local enlistment decisions. First, we peruse the Union Army rosters to follow regiments where the *Forty-Eighters* enlisted as leaders on the battle field. In this exercise, we revisit the duration-analysis of soldier desertion in Costa and Kahn (2003), and test whether *Forty-Eighters* who were commanding officers reduced their troops' desertion rates in battle.[6] We find that *Forty-Eighters* who lead by example significantly reduced their companies' desertion rate through the course of the war, again supporting the interpretation that their liberal ideas inspired others. Secondly, we investigate the persistence of the liberal contagion spread by the *Forty-Eighter*. As a later outcome that ties closely into the anti-slavery issue, we use the formation of town-level chapters of the *National Association for the Advancement of Colored People* (NAACP), the first of which was founded in 1909. Despite the long time gap, we find strong evidence that NAACP chapters were more likely to be founded in *Forty-Eighter* towns. We cautiously interpret this as indicative for a lasting change in social norms.

Our analysis of the influence of the *Forty-Eighters* on anti-slavery culture and enlistment choices connects with the historical literature on the socio-political origins of the Civil War, including Wiley (1952), Foner (1970), McPherson (1997), Costa and Kahn (2010), Goodheart (2011), and Doyle (2014). The *Forty-Eighters* are mentioned frequently in this literature, and there is a number of historical studies specifically devoted to them (Zucker, 1950; Wittke, 1970; Kamphoefner, 1991).[7] Our study utilizes the *Forty-Eighters'* unique circumstance to show more broadly the important role that individual leadership played in the spread of the anti-slavery movement as well as in the mobilization of volunteers for the war. While "great men" historical accounts would emphasize the importance of Abraham Lincoln or Ulysses Grant, our paper emphasizes the impact of grass-roots

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[6]We observe the population of over 2 million Union Army enlistments, while Costa and Kahn (2003) perused a random sample of 30,000 men.

[7]Costa and Kahn (2003, 523) for example argue that "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 republican government."

civic leadership at the local level.

Our paper also contributes to a theoretical literature on the importance of leaders in social movements (Loeper, Steiner and Stewart, 2014; Acemoglu and Jackson, 2015; Akerlof and Holden, 2016). Testing for the importance of leaders is challenging because one typically cannot distinguish if prominent individuals are in fact leaders (i.e. influence others) or simply flag-bearers of underlying social change; this is a version of the well-known 'reflection problem' (Manski, 1993).[8] Our setting allows us to address this because we identify leaders based on their actions during the German Revolution, i.e. *before* we investigate their role in the Civil War.

We also complement a literature on the formation of collective action in networks. A set of empirical studies focused on modern-day social-media networks sheds light on the diffusion of collective action in high frequency and at a very granular level (Enikolopov, Makarin and Petrova, 2020; Cantoni et al., 2019). In comparison, we study a similar question in a setting of unique historic importance and where action entailed uniquely high stakes (risking one's life by enlisting). Closest to us in this respect is García-Jimeno, Iglesias and Yildirim (2018), who study the 1870s U.S. temperance movement.

Lastly, our paper belongs to an empirical literature which uses the arrival of narrowly defined immigrant groups as natural experiments to study the transmission and diffusion of knowledge. Examples include Hornung (2014), who studies the late-17th-century migration of skilled Huguenots from France to Germany; Moser, Voena and Waldinger (2014), who look at the influx of German Jewish scientists into the U.S. after 1939; or Borjas and Doran (2012) who study the effect of the post-1990 influx of Russian mathematicians into the U.S. We use a similar exogenous immigration shock, but focus on the diffusion of beliefs and behavior rather than knowledge.

The remainder of the paper is structured as follows. Section 1 introduces the historical background. Section 2 summarizes the main data sources and definitions. Section 3 lays out the empirical strategy. Section 4 presents the baseline results, Section 5 presents evidence on mechanisms, and Section 6 concludes.

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[8]Studies that investigate the turnover of formalized or institutional leadership (i.e. CEOs or public officials) are unaffected by this problem, but also address a different question (Bertrand and Schoar, 2003; Jones and Olken, 2005; Jha and Wilkinson, 2012; Jack and Recalde, 2015).

1 Background

1.1 The German Revolutions of 1848–1849

Beginning in the early 19th century, a new social and political movement across Europe started advocating for a Republican form of government that would result in a more balanced distribution of power between the ruling monarchs and their subjects.[9] In German lands, leaders of this movement varied from moderate liberals whose views were heavily influenced by the enlightenment to radical democrats whose ideas became formative for later socialist movements (Real, 1983, chIV). This movement gained momentum in the 1830s and 1840s. In German lands, its collision course with the establishment culminated in March 1848, when political unrest spilled over from France and sparked the *March Revolution*. The revolutions started with first uprisings in Baden and quickly spread to other states. We provide some discussion of the German revolutions in Appendix A.1. For our purpose, the key observation is that by the summer of 1849 they had failed, which marks the beginning of systematic persecution and prosecution of those involved in the revolution (Siemann, 2006). Many were sentenced to long prison terms, and some were sentenced to death Wittke (1973, 65).[10] Sentences were commuted for those who agreed to leave German lands for good (Reiter 1992, p.218, Raab 1998). Wittke (1973, 46-49) recounts how in Hessian courts, revolutionary "offenders were released on condition that they depart for America," and in Württemberg judges "inquired of rebels whether they preferred immigration to America to serving out their sentences, and when they chose the former offered them money for the journey."

There was also a sizable group of revolutionaries who were participating in the Baden Revolution in the South-West and who escaped to Switzerland after their defeat in the summer of 1849. Switzerland was one of only two republics in Europe at the time (Goodheart, 2011, 356), and the only country within reach that was sympathetic to the revolutions. However, the Swiss authorities quickly felt the fiscal burden of supporting the refugees and they faced increasing external pressure from Germany and France to expel the revolutionaries (Jung, 2015; Nagel, 2012). On July 16th 1849, the Swiss parliament passed an Act expelling 14 of the most prominent revolutionary leaders from its borders (Reiter, 1992, footnote 172). Of these 14, ten ended up being among the *Forty-*

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[9]The movement further propagated a political union between the many German states.

[10]Raab (1998) discusses a large number of biographies of individuals involved in the revolution. Of the 1,880 cases describing a court prosecution for treason, only 21 mention a death-sentence.

Eighters we study. Explicitly stated in the act was the deliberation that if the revolutionary leaders were expelled, the rest would follow. Switzerland negotiated precise terms with France under which revolutionaries could make their way to their port of embarkation in Le Havre, often accompanied by representatives of the Swiss authorities who would pay the ship fare to the U.S. at the departure port (Reiter, 1992, 223).[11] This expulsion is nicely illustrated in a political cartoon from 1849 (Appendix Figure A1) that depicts the absolutist rulers sweeping the revolutionaries out of Switzerland and then further out of Europe. To make sure the expellees remained in the U.S., German police authorities started circulating 'black lists' of revolutionaries after 1852.[12]

1.2 The *Forty-Eighters* and the Antebellum U.S. Political Conflicts

Wittke (1970, 4) defines the *Forty-Eighters* as those German-Americans "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." A key feature of the natural experiment we are exploiting is the historical serendipity that the *Forty-Eighters'* strongly held convictions of republicanism, liberty, and equality in Europe would *map into* the political struggles in the U.S. a decade later. This is important because the same ideals the *Forty-Eighters* had fought for in Europe now found a natural (and measurable) continuation in the U.S.

The years when the *Forty-Eighters* arrived in the U.S. and established themselves personally and professionally in their newly adopted home were years of relative political quiet as far as slavery went. While slavery had been a hot-button political issue during the 1844–1848 administration, it had died down after the 1848 election, and even more so with the 'compromise of 1850' (California joining the Union as a non-slave state). In 1854, however, the Kansas-Nebraska bill propelled slavery back onto the political center stage. The act repealed the Missouri Compromise that had prohibited slavery in the North, which led to the formation of the Republican Party and the subsequent disintegration of the Whig Party (Foner 1970, 94, Srinivasan 2017, 120-121). Over the

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[11]While the German and French governments pressured the revolutionaries to disembark for the U.S., some—who had either their own means or financial support from other sources—chose to go to London, awaiting renewed revolutionary outbreaks. However, when Louis Napoleon's coup d'etat ended France's Second Republic in 1852, many of these holdouts gave up hope and also set sail for the U.S. (Frei, 1977, 427).

[12]Rupieper (1977) emphasizes that these black lists were very incomplete. More important was their symbolic significance, signaling an intent to keep revolutionaries from returning to German lands for good. No systematic records of these lists appear to have survived.

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next six years, the sectional conflict over slavery came to a head, as we further describe in Appendix A.2. This lead the *Forty-Eighters* to "revive the spirit of the failed struggle for liberty in the fight against slavery" (Baron, 2012, 3).

Zucker and Wittke emphasize that the *Forty-Eighters* became pivotal in articulating 'rational' arguments for emancipation, by tying the slavery issue into a broader debate on liberty and equality. An editorial by Friedrich Kapp in the *New York Abendzeitung* illustrates this: "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, 121). Such arguments resonated far more with most Americans than the previously dominant moralistic arguments presented by puritan abolitionists on the back of the *Second Great Awakening* (Kamphoefner and Helbich 2006, 3). The *Forty-Eighters* thus contributed to the spread of a wide-ranging "culture of anti-slavery activism" in the middle of the 1850s (Goodheart, 2011, 118). This cultural diffusion culminated in large scale *Wide Awake* marches in early 1860, more than a year before the outbreak of the Civil War.[13]

The *Forty-Eighters* were also instrumental in swaying the immigrant vote, and particularly the German-American vote, for the Republican Party in the 1860 election (Wittke 1973, 14, Kamphoefner and Helbich 2006, 4). This was important because German-Americans had traditionally supported the Democratic Party, and were additionally put off by the Republican Party when after 1857 it absorbed large numbers of anti-immigrant 'Know-Nothings'. The *Forty-Eighters* demanded a formal repudiation of nativism by the Republican Party at its Chicago convention in May 1860; effectively "forcing the party to choose between Eastern nativists and the German vote in the West" (Wittke, 1973, 213). This repudiation became known as the 'Dutch plank' in the Republican Party platform (Baron, 2012, 5).[14] As a result, the German-American vote swung Republican, while the nativists "were absorbed into a party which made no concessions to them" (Foner, 1970, 258).[15] Appendix A.3 provides more historiography on the role of the *Forty-Eighters* in the 1860 Election

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[13]Their rational arguments probably also contributed to hardening the political lines around slavery because they highlighted the *inevitability* of ultimately having to resolve legal inconsistencies in the constitution either in favor of republican institutions or in favor of slavery for all states in the Union.

[14]Wittke (1973, 213) lists the prominent attendees of the German Club's pre-convention 1860 meeting; they were almost to a man among the *Forty-Eighters* in our data.

[15]Lincoln himself understood the importance of the *Forty-Eighters*. Pratt's analysis of Lincoln's personal finances concluded that Lincoln had set his mind on the Republican presidential nomination by early 1859, and that he had taken a secret ownership stake in the German-language *Illinois Staatszeitung* for that purpose.

and in the Civil War.

1.3 The Mechanisms of the *Forty-Eighters*' Influence

Four channels of influence and persuasion stand out in the historical narrative on the *Forty-Eighters*: (i) they founded and contributed to local newspapers; (ii) they founded and were involved in local social and political clubs, especially the *Turner Societies* ('Turnvereine'); (iii) they gave rousing public speeches; and (iv) they enlisted themselves in the war effort and encouraged others to do the same. the following discusses each channel in turn.

Newspapers: Many *Forty-Eighters* had already been publicists and editors in Germany. As a result, they were disproportionately represented in the newspaper business and "took control of the German newspapers, founded many new ones, and redirected public opinion" (Baron, 2012, 3). (It is worth emphasizing in this context that most German-language newspapers were in fact bilingual, and were read by both English-speakers and German-Americans.) At this time, newspapers emerged as the most important source of information as well as a forum for public debate (Gentzkow, Glaeser and Goldin, 2006; Gentzkow, Shapiro and Sinkinson, 2011). Newspapers became so widely read that Ulysses Grant noted with pride that the Union Army was "composed of men [...] who knew what they were fighting for" because they were reading newspapers regularly (McPherson, 1997, 94). Evidence of the *Forty-Eighters*' political contributions in newspapers abounds: in April 1861, on the eve of the war's outbreak, Ottile Assing wrote in the *Allgemeine Zeitung* that "everyone whose sense of humanity and justice has not been poisoned by that national plague, slavery, must concede that the bloodiest war has to be favored over so called peace which we have 'enjoyed' under the slave-holders' despotic rule" (Öfele, 2004, 2). Eighteen months later, Heinrich Börnstein welcomed Lincoln's Emancipation Proclamation in the *Anzeiger des Westens*, writing that "by this proclamation, Mr. Lincoln made [...] every soldier in this army into an emancipator, into a soldier of freedom." The left panel of Figure 1 displays the time-series of the total number of German-language newspapers in the U.S. together with our data on the arrival of the *Forty-Eighters*.[16] In line with our argument, the figure shows a steep increase in German-language newspapers around the time the the *Forty-Eighters* arrived in the U.S.

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[16]We coded up the town-level circulation of German-language newspapers and journals from Arndt (1965), which includes the full history of the German-American press. Arndt lists all German-language newspapers and political journals, including the dates of their first and last issues.
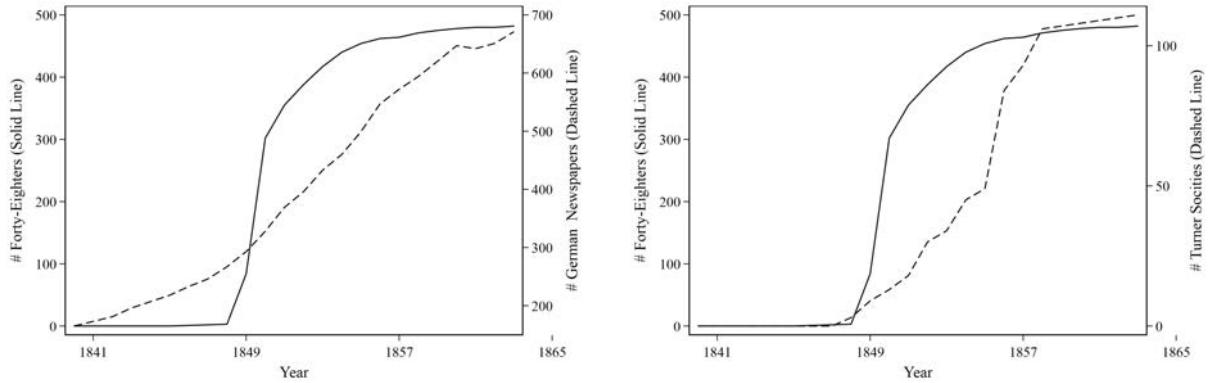
Figure 1: The *Forty-Eighters'* Arrival, German Newspapers, and Turner Societies

Notes: The left panel plots the arrival of the *Forty-Eighters* (solid line, scaled on the left axis) together with the growth of German-language newspapers in the U.S. (dashed line, scaled on the right axis). The right scale starts at 165 German-language newspapers in 1840. The right panel plots the arrival of the *Forty-Eighters* (solid line, scaled on the left axis) together with the emergence of the *Turner Societies* in the U.S., the first two of which were founded in 1848 (dashed line, scaled on the right axis).

Social clubs: Most *Forty-Eighters* were active in local social and political clubs. At this time, social clubs and associations played a prominent role in American social life, a phenomenon that was noted as early as 1835 by de Toqueville. These clubs were an important channel for the transmission of beliefs, norms and convictions in American society (Putnam, 2001; White, 2017). Social clubs were also important for German-Americans, who joined and founded a phletoria of 'free men's societies', singing clubs, book clubs, shooting clubs etc. Bretting (1981, 201) lists over 50 different German social clubs in Philadelphia alone. Some of these clubs were not political, but others were, and the Turner Societies ('*Turnvereine*') were a prominent example. Turner Societies 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. The movement became more politicized during the 1830s, and Turner Societies became important vehicles of political organization during the revolutions in Germany. The right panel of Figure 1, which we coded up from the annual reports of the national Turner Societies (Metzner, 1890—1894), shows that the emergence of Turner Societies in the U.S. coincided with the *Forty-Eighters'* arrival. The first American Turner Society was founded in 1848, followed by an explosion in their number especially after 1854, when the *Forty-Eighters* revived their political engagement (Wittke, 1973, ch10). Historians agree that the *Forty-Eighters* were directly involved in founding many societies

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and in turning them into highly political organizations (Wittke 1973, ch11, Kamphoefner and Helbich 2006, 4). The national convention of Turner Societies had articulated a clearly abolitionist platform by 1855 (Wittke, 1973, 195); Turners would frequently form bodyguards for anti-slavery activists during public speeches, and in 1860 they made up Lincoln's bodyguards at his inauguration (Zucker, 1950; Baron, 2012) During the war, Turner societies would often enlist en bloc into the Union Army, forming so-called 'Turner Regiments' (Hofmann 1995, 158; Levine 1980, p.256).

Public Speeches: The *Forty-Eighters* were convinced of their ideals and they advocated them in public lectures at political clubs and societies. In this pre-radio era, public speakers who combined oratorical skill and passion influenced the formation of beliefs and convictions like no other medium (Goodheart, 2011, 47, 120). 'Agitation' was viewed as a critical political tool; abolitionist congressman Joshua Giddings called it "the great and mighty instrument for carrying forward reforms" (Foner, 1970, 113).[17] As public speakers, the *Forty-Eighters* were at the forefront of the anti-slavery agitation, both in front of German-speaking and English-speaking audiences. One observer wrote in 1860 that "of the German speakers a man named Carl Schurz has acquired a great reputation. He even drew loud applause from the Americans for his speeches in English. The Democratic party though hates him all the more, especially the slaveholders." (Kamphoefner and Helbich, 2006, 38). Many other *Forty-Eighters* became known for their public lectures and speeches (Wittke, 1973, 130). We use instances of such public speeches (gleaned from newspapers) in the event-study in Section 5.2.

Enlistments: Around one-third of the *Forty-Eighters* had military backgrounds in Germany, and most of them enlisted themselves in the Civil War, often convincing those around them to do the same. We can directly measure this channel after record-linking the *Forty-Eighters* to the Union Army data for their enlistment location and date.[18] We identify 149 *Forty-Eighters* who enlisted in the Union Army. Of the roughly two-thirds without military backgrounds, only few enlisted. This is explained by their relatively advanced age by that time. Over 95 percent of soldiers were under the age of 40 when they enlisted, while the *Forty-Eighters* were in their mid-forties or older when the war broke out. In fact, the enlistment agencies discouraged men over 40 from enlisting unless

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[17]McPherson (1997, ch7–9) emphasizes the importance of this in his analysis of soldier letters and diaries; stating that "the genuineness of [Civil War soldiers' ideological] sentiments" can be hard for contemporary readers to understand, as "theirs was an age of romanticism" (p.100).

[18]We knew all *Forty-Eighters* who enlisted from their biographies, but need the Union Army data for the date.

they had military training (Costa and Kahn, 2010, ch.5). In short, *Forty-Eighters'* enlistment decisions were primarily driven by whether they had a military background or not, and almost all of those who had this background did enlist.[19]

Many of the *Forty-Eighters* appear to have exerted their influence through several or even all of the four channels laid out above: for example, Ernst Violand, who was "condemned to death during the Revolution, wrapped cigars in New York in 1850 and later combined his cigar business in Peoria, Illinois, with lecturing, writing for the newspapers, and making stump speeches for the Republican party" (Wittke, 1973, 65); or Bernard Domschke, who "made antislavery speeches in Milwaukee [...], published the Milwaukee Journal and [...] in 1861 resigned from the Milwaukee Herold to join the army" (Wittke, 1973, 128). For illustrative purposes, Appendix A.4 provides some selected biographical case studies of individual *Forty-Eighters*, omitting deliberately the most prominent individuals such as Schurz or Anneke.

2   Data

We construct a new town-level dataset for the U.S. that integrates information on the *Forty-Eighters'* location choices, the socio-economic composition of the town where they settled, and union army enlistment information at the town level. Our three main data sources are (*i*) individual biographies of 493 *Forty-Eighters*; (*ii*) Fishman's (2009) town-level extract from the 1850 and 1860 censuses, which we have geo-located, and (*iii*) the full Union Army rosters, which we have additionally record-linked to the *1860 Full-Count Census*. We summarize these data-sets below and discuss their construction in more detail in Appendix B. This Section describe the newly constructed data for our core analysis. Additional data (e.g. for the IV and event study results) are introduced later.

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[19]Wittke (1973, 22) notes that the *Forty-Eighters* had already divided into two 'types' with arguably different leadership styles in Germany, i.e. those "who belonged to local diets of the Frankfurt Parliament [or were] publicists and editors", and those who "commanded troops in the field". Wittke (1973, 61) further notes that an "extraordinarily large proportion" of the latter group enlisted in the Union Army 15 years later, while "the rest of them battled with pen and speech and all the weapons of the mind, and with deep conviction" While we have no systematic data on military background in Germany, we find a strong correlation between (possibly incomplete information on) having been involved in military altercations during the German revolutions and enlisting in the Civil War.

2.1 *Forty-Eighter* Biographies

We coded detailed U.S. biographies for almost 500 *Forty-Eighters* from Zucker (1950), Wittke (1970), Raab (1998) and Baron (2012), and supplemented them through individual searches in genealogical online sources. After their arrival in the U.S., most *Forty-Eighters* spent some time in their arrival port, mostly New York City—before moving westward. In our analysis, we focus on towns in which *Forty-Eighters* had settled by 1856. This leaves out the *Forty-Eighters*' early years when they established themselves personally and professionally, but were still politically inactive, while the broader conflict around slavery also lay dormant. Specifically, we consider those towns as *Forty-Eighter* towns where at least one *Forty-Eighter* had settled in the five years prior to the Civil war, i.e. between 1856-1861. This treatment definition leaves us with 73 *Forty-Eighter* towns in the North.[20] Figure 2 displays the spatial distribution of these towns.
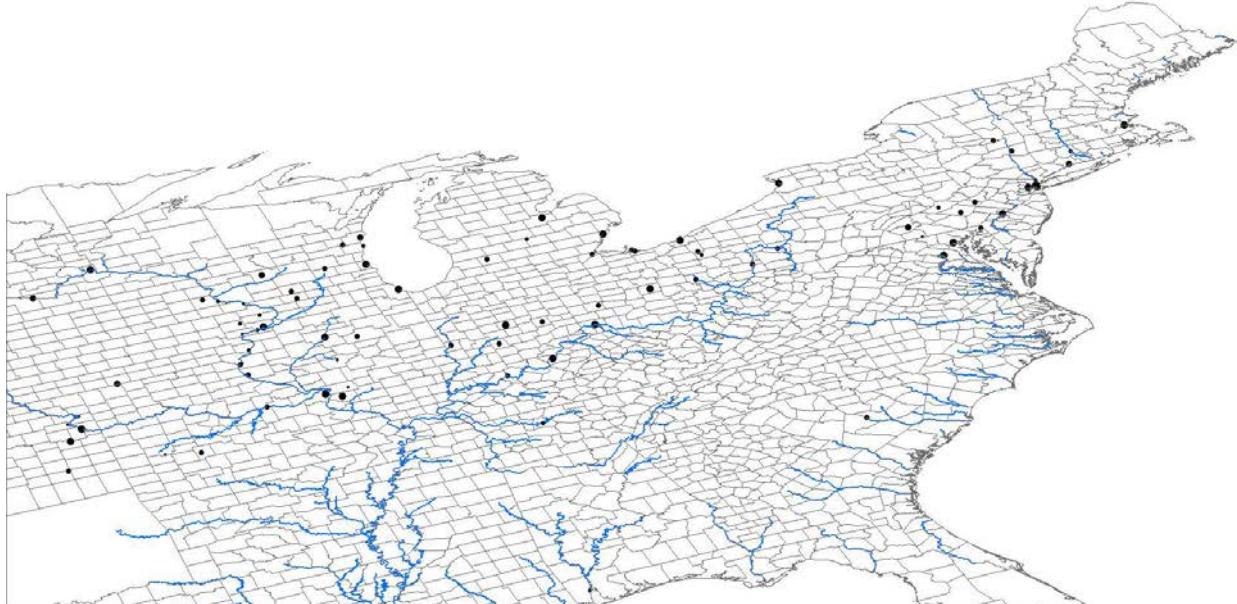
Figure 2: Spatial distribution of the *Forty-Eighters*

Notes: The map shows the spatial distribution of the *Forty-Eighter* towns. Larger bubbles indicate locations with more *Forty-Eighters*. In addition, the figure displays rivers (blue) and 1860 county boundaries (gray).

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[20]Nine towns were located in the Confederate States or the West, and play no role in our analysis and we also drop New York. Further note that we will also loose Washington D.C. in specifications with state fixed effects.

2.2 U.S. Towns in 1850–1860

We combine the *Forty-Eighters*' biographies with detailed town-level data that were published for the years 1850 and 1860. Since we are interested in the spread of liberal ideas though the local social network, it is vital to work with spatially disaggregated data at the town level. The ICPSR-dataset *Population of Counties, Towns, and Cities in the United States, 1850 and 1860* created by Fishman (2009) informs us which towns existed and provides information on their population size, race and gender. To augment this with geographical information on German immigrants' travel routes, the distance to railways and rivers, as well as controls that account for e.g. local agricultural conditions, we geolocated the Fishman (2009) towns in a two-stage procedure. first matching the universe of towns to the 2018 'U.S. Cities Database', and then using a combination of google's geolocation service and manual checks on historical county maps to locate unmatched towns. These two steps geolocate 94 percent of all Northern towns in Fishman (2009).[21] We construct spatial controls for these towns (e.g. proximity to rivers), and additionally supplement the town-level data with county-level controls from the *Historical, Demographic, Economic, and Social Data: The United States, 1790-2002* (Haines, 2010):

2.3 The Union Army Data

Our main empirical focus is the *Forty-Eighters*' influence on Union Army enlistments in a town. Enlistments are the ideal measure for us because they were the immediate object of the *Forty-Eighters*' actions once the war had broken out, and they offer a meaningful measure of the *Forty-Eighters*' impact on their neighbors' convictions, given that enlisting entailed great personal risk and over ninety percent of enlistees were volunteers.[22] The enlistment data stem from a newly digitized collection of the *Union Army Registers*, reports issued by each state's *Adjutant General's Office* at the end of the war. The reports provide information on all enlistments for the entire Union Army. Appendix Table A1 reports the total number of Union Army soldiers by state, the enlistment date of the tenth chronological percentile of enlisted men, the average enlistment date, as well as the population shares of enlisted men.

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[21]In all steps, we project the allocated coordinates into county polygons and only keep observations that are located in the correct county.

[22]Town-level voting would be another interesting measure, but it proved impossible to construct such measures (at least in the part of the country where the *Forty-Eighters* were), as we discuss in Appendix B.4.2.
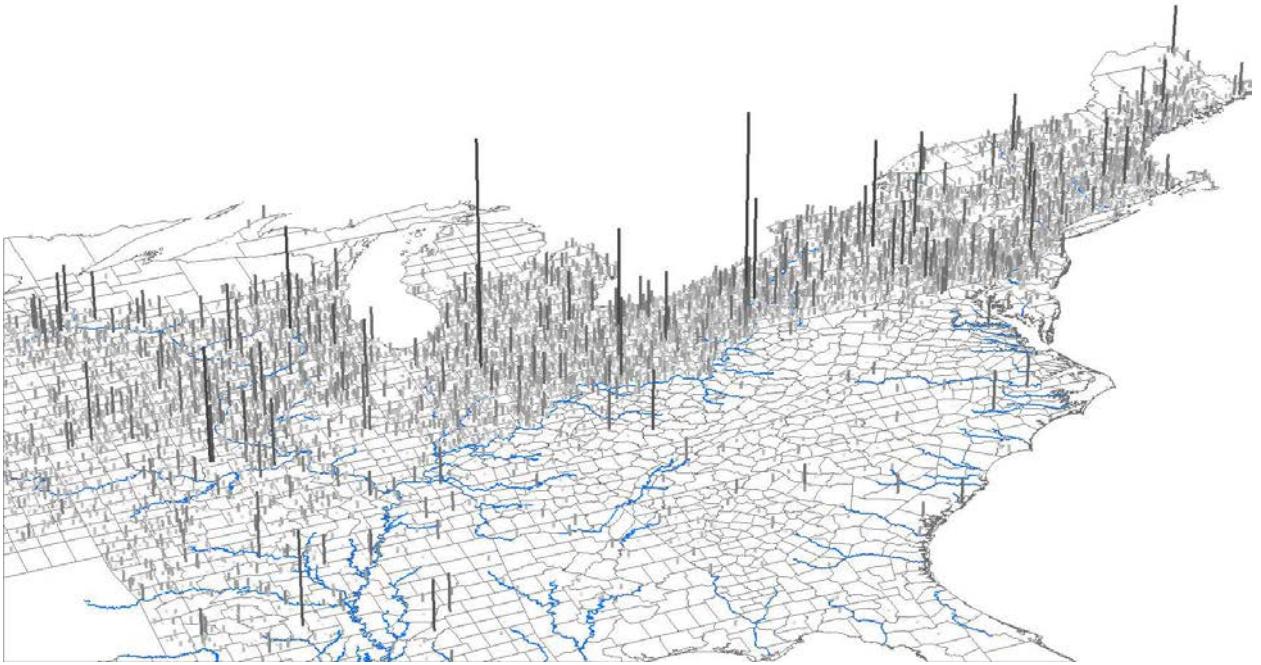
Figure 3: Mapping Enlistments

Notes: This figure displays the spatial distribution of enlistments per adult males. In addition, the figure displays rivers (blue) and 1860 county boundaries (gray).

Figure 3 illustrates the spatial distribution of enlistments across U.S. towns. To derive this distribution, we match the enlistment locations with our town dataset. For just under half the soldiers, the data report the county or state of residence but not the town. We fill in missing town-of-residence information by linking the *Registers* to the *1860 Full-Count Census*, 'blocking' soldiers by state and using their first name, last name, middle name, age, and (where available) location information for the record linkage. Matching is aided by the fact that the Census was recorded just one year before the war broke out and that the *Registers* include enlistees' age and middle name. Appendix B.2.1 explains the details of our record-linkage procedure, including how the match threshold is set. The matching procedure only accepts unique matches and the match threshold is set sufficiently high that after extensive spot-checking, we are confident in the accuracy of the matches. To illustrate the derivation of match scores to the reader, Appendix Table A2 reports on a random draw of three matches for each match score that occurs in our data above the threshold score where we keep matches. This procedure uniquely identifies 750,000 soldiers from the Registers inside the Full Count Census. For half of these men, the home-town information was previously

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missing, increasing the share of records with town-of-residence information to over two-thirds.

3   Empirical Setup

When the *Forty-Eighters* arrived in the U.S., most of them had no clear destination, no local social networks and no family ties to speak of. The *German Society of New York* 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, 31). Over time, however, the *Forty-Eighters* established themselves—personally and professionally—and settled in the locations displayed in Figure 2. Our main identification concern is the potentially selective nature of the *Forty-Eighters*' settlement choices. For example, if they deliberately chose destination locations that were opposed to slavery, we might over-estimate their effect on Union Army enlistments. To address this concern, Section 3.1 discusses the historical narrative of the *Forty-Eighters*' settlement choices in America. This narratives highlights the main location factors that attracted them. We then employ an agnostic variable selection model that identifies all important factors explaining *Forty-Eighters*' settlement from a large pool of socio-economic and geographic variables. (The factors that are prominent in the historical narrative are all prominently selected by the model, but they are not the only ones.) Section 3.2 uses the model's selected location factors in a propensity score matching (PSM) to determine a group of suitable control towns whose distribution of observable covariates resembles that of the treated *Forty-Eighter*-towns.

3.1   The *Forty-Eighters*' Location Choices

The following paragraphs provide a brief historical narrative of how the *Forty-Eighters* came to settle where they did. These narratives inform us about the most relevant location factors, our *Core Controls*. After that, we employ a variable selection model to determine *Additional Controls* from the wider pool of socio-economic and geographic controls at hand.

Core Controls: The *Forty-Eighters*' biographies suggest that their initial settlement choices in the U.S. were determined by the presence of pre-existing German-American communities and the attractiveness of a town for newly arrived German immigrants (Wittke, 1970, p.66). The following six *core controls* capture these circumstances. First, we measure each town's distance

to the closest destination location advertised in *Metzler's Map for Immigrants*, the most widely circulated cartographic guide for German immigrants to the U.S. in the early 1850s. See Figure A4 in Appendix B.5 for the geo-referenced map. Second, we measure the size of a town's German community as observed in the *1850 Full-Count U.S. Census*. Third, we measure the change in the size of German communities between the 1850 and 1860 *Full-Count U.S. Census*. Fourth, we measure each town's intake of German immigrants arriving during the narrow time-window 1848–1852 that coincided with the *Forty-Eighters'* arrival period. This control is created from the 'Germans to America' ship lists, which also form the basis of our instrument (Glazier and Filby 1999, Glazier 2005).[23] This fourth measure is important because it addresses the concern that the *Forty-Eighters* co-located with other German immigrants arriving at the same time who might have shared their ideals of liberty and equality. If we did not account for this correlation, we would potentially overstate the *Forty-Eighters'* true influence.

While the *Forty-Eighters'* short-term job opportunities were often limited to the same occupations where most German immigrants found work, i.e. on the railroad, on farms, and as office clerks, our biographical records suggests that many *Forty-Eighters* quickly put down their picks and shovels and started working in teaching, journalism, publishing, or the arts.[24] While *Forty-Eighters* changed occupation, they tended to stay close to where they had first found work, often moving only to a neighboring town or county. In the medium run, the *Forty-Eighters* may have been particularly attracted to towns that offered job opportunities for highly educated German immigrants. Therefore, we always include the log of a town's 1850 population. To control for the potentially different socio-political climate of such towns, we further coded the 1850 town-level circulation of German-speaking newspapers and journals from Arndt (1965).[25]

Additional Controls: We have a range of additional town- and county-level controls at hand.

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[23]To generate this control, we matched all immigrants on ship-lists from the period 1848–1852 with the 1860 Full Count U.S. Census using information on their name, age, gender and birthplace. We repeated this matching procedure for immigrants on the ship-lists from 1845–1847 and 1853–1855 to perform robustness checks. (See Appendix Table A8.) The Shipping Lists and the matching procedure are discussed in Appendix B.5.2.

[24]The example of Hermann Raster illustrates this argument. Raster was a true intellectual. He spoke seven languages, had studied in Leipzig and Berlin, and was part of a literature circle around Bettina von Arnim, a German writer and novelist who was known to support young talents. Raster was imprisoned because of his active role in the German Revolution, but he was released from prison in 1851 under the condition that he would leave Germany. He arrived in New York in July 1851. The only work he could find upon his arrival was as a wood-chopper on a farm near Tioga, Pennsylvania. However, by 1852 he had found employment as a newspaper editor.

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

Table 1: Balancing and Variable-Selection

	(1) Control	(2) Treated	(3) Test [Treated = Control]	(4)	(5) Variable Selection Model	(6)
fixed effects:	-	-	-	state	-	state
Share German-Born 1850	0.016	0.091	0.075	0.075	0.099	0.092
	(0.057)	(0.113)	[0.000]	[0.000]	[0.012]	[0.049]
Log Dist: Metzler-Map Destinations	3.846	2.793	-1.053	-1.194	-0.005	-0.006
	(0.841)	(1.863)	[0.000]	[0.000]	[0.069]	[0.045]
∆Share German-Born 1860-1850	0.008	0.011	0.003	-0.002	0.070	0.064
	(0.056)	(0.127)	[0.671]	[0.771]	[0.087]	[0.221]
Germans-To-America 1848-52	0.005	0.575	0.569	0.568	0.220	0.219
	(0.022)	(1.238)	[0.000]	[0.000]	[0.000]	[0.000]
Count German Newspapers 1850	0.011	2.236	2.225	2.238	0.015	0.016
	(0.226)	(5.705)	[0.000]	[0.000]	[0.077]	[0.067]
Log Pop 1850	6.521	8.165	1.644	1.855	0.008	0.009
	(1.104)	(1.860)	[0.000]	[0.000]	[0.000]	[0.000]
Log Dist Nearest Port	6.782	6.857	0.075	-0.036		
	(0.425)	(0.489)	[0.136]	[0.005]		
Log Dist Nearest Navigatable River	3.687	2.604	-1.084	-1.047	-0.002	-0.002
	(1.384)	(2.216)	[0.000]	[0.000]	[0.084]	[0.071]
Log Dist Nearest Railway	3.690	3.237	-0.452	-0.926		
	(1.792)	(2.411)	[0.033]	[0.000]		
Log Dist Nearest Coast	4.673	4.005	-0.669	-0.879	-0.002	-0.003
	(1.409)	(2.471)	[0.000]	[0.000]	[0.183]	[0.114]
Latitude	41.405	40.962	-0.443	-0.195		
	(1.860)	(1.685)	[0.044]	[0.048]		
Longitude	-83.058	-85.520	-2.462	0.341		
	(7.348)	(6.875)	[0.005]	[0.024]		
Log Elevation	5.403	5.088	-0.315	-0.348	0.003	0.004
	(0.679)	(0.806)	[0.000]	[0.000]	[0.064]	[0.024]
Mean Temperature	92.757	103.842	11.085	7.303		
	(19.674)	(17.956)	[0.000]	[0.000]		
Mean Precipitation	2.781	2.712	-0.069	0.013		
	(0.347)	(0.336)	[0.091]	[0.583]		
Slave Pop Share 1850	0.009	0.003	-0.006	-0.008		
	(0.056)	(0.017)	[0.348]	[0.099]		
Free Colored Pop Share 1850	0.008	0.020	0.011	0.010		0.061
	(0.026)	(0.032)	[0.000]	[0.000]		[0.106]
White Female Pop Share 1850	0.467	0.462	-0.005	0.001		0.034
	(0.052)	(0.058)	[0.410]	[0.811]		[0.081]
%-∆ Pop 1850-1840	1.171	1.513	0.342	0.082		
	(0.949)	(0.755)	[0.002]	[0.351]		
%-∆ Slave Pop 1850-1840	0.053	0.006	-0.047	-0.063	-0.005	-0.005
	(0.433)	(0.673)	[0.364]	[0.128]	[0.132]	[0.162]
%-∆ Free Colored Pop 1850-1840	0.306	0.951	0.645	0.603	0.001	
	(1.019)	(1.140)	[0.000]	[0.000]	[0.122]	
%-∆ Female White Pop 1850-1840	1.172	1.511	0.339	0.078	0.002	0.003
	(0.948)	(0.754)	[0.002]	[0.372]	[0.064]	[0.005]
County: Churches 1850	39.907	43.042	3.135	13.820		-0.000
	(42.670)	(52.591)	[0.535]	[0.000]		[0.001]
County: 1850-Share Pop in Places>25,000	0.010	0.111	0.102	0.103		-0.032
	(0.070)	(0.264)	[0.000]	[0.000]		[0.344]
County: 1850-Share Pop in Places>2,500	0.057	0.217	0.160	0.174		0.018
	(0.130)	(0.276)	[0.000]	[0.000]		[0.177]
County: Manufacturing Capital Share Foreign Born	9.761	10.777	1.016	2.951		
	(6.433)	(6.012)	[0.181]	[0.000]		
County: Colleges 1850	0.207	0.708	0.501	0.534		
	(0.548)	(1.326)	[0.000]	[0.000]		
County: 1852 Vote-Share Democratic Party	50.392	52.358	1.966	1.430		
	(10.582)	(8.260)	[0.135]	[0.209]		
County: 1852 Vote-Share Liberty & Free-Soil	6.574	4.209	-2.365	-1.663		-0.000
	(8.156)	(4.776)	[0.020]	[0.043]		[0.058]
Observations	11,023	72				

Notes: Columns 1–2 report on means and standard deviations of observable characteristics for control and treated towns. Columns 3–4 test for balance (with and without state fixed effects). Columns 5–6 report which variables are most predictive of treatment in a multivariate setting (with and without state fixed effects). Columns 1–2 report standard errors in round brackets. Columns 3–6 report p-values in square brackets.

Fishman (2009) provides a set of town-level population control variables, including the female, free colored and the slave population shares. In addition, we thank Michael Haines for sharing 1840 town-level demographic information from a thus-far unpublished part of the data collection in Haines (2010). Having geo-located all Fishman (2009) towns, we can also calculate a rich set of geographic location factors: longitude and latitude; elevation; mean temperature and precipitation; distances to the coast, to the nearest navigable river and to the railway network in 1850 (provided by Atack, 2015); and the shortest distance to one of the four relevant arrival ports (Baltimore, New Orleans, New York and Philadelphia). Finally, we peruse historical county-level voting data for presidential elections from the dataset *Electoral Data for Counties in the United States: Presidential and Congressional Races, 1840-1972* (Clubb, Flanigan and Zingale, 1987).[26] This latter control allows us to asses whether *Forty-Eighter* towns were initially different in their political environment.

Table 1 compares the averages of all control variables across the $N_T = 72$ *Forty-Eighter* towns and the pool of $N'_C = 11,023$ control towns. Note that the table omits variables in our data that never display any significant correlation with the treatment $\text{D}(\textit{Forty-Eighter}_i > 0)$ in any of the exercises discussed below. The table is vertically segmented into a block of core controls, followed by geographic and climatic town-level controls, county controls from Haines (2010), controls for 1850 town-level demographics from Fishman (2009), and town-level controls for changes in demographics between 1840 to 1850. Lastly, we report on 1852 party vote-shares from (Clubb, Flanigan and Zingale, 1987). (The Republican Party was formed in 1854, in large part out of the Liberty and Free Soil Parties.) Columns 1–2 report variable averages for control and treated towns, with standard deviations in brackets. To facilitate comparison, Columns 3–4 report Wald-tests of the equality of each variable across control and treated towns. In Column 3, we do not include state fixed effects and Column 4 repeats the exercise with state fixed effects, the default in our estimations. The comparison shows substantial differences (p-values in square brackets) between the treated towns and the set of potential control towns, both with and without state fixed effects.

To determine which variables are actually predictive of $\text{D}(\textit{Forty-Eighter}_i > 0)$ in a multivariate regression, columns 5–6 report the results of a variable selection model that employs *Akaike's information* criterion to select a set of control variables (Lindsey and Sheather, 2010) with and without state fixed effects. Column 6 shows that all six core controls which we viewed *a priori*

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[26]This dataset is discussed in Appendix B.4.2.

as strongly predictive for the *Forty-Eighters'* location choice are indeed selected by the variable selection algorithm. This adds credibility to our measures and reading of the historical record. The algorithm also chooses some additional geographic and demographic characteristics. One exercise we will perform in the following estimations is to control specifically for the variables selected by the algorithm.[27]

3.2 Matched Sample of *Forty-Eighter* and Control Towns

Table 1 compares a small number of *Forty-Eighter* towns to a large number of potential control towns and we have seen that the *Forty-Eighter* towns' covariate distribution differs from the rest. This can affect the precision of later estimates and the outcome might be sensitive to small changes in the model specification (Imbens and Rubin, 2015). To address this concern, we employ propensity score matching (PSM) to choose from the set of all possible control towns N_C' a subset $N_C \subseteq N_C'$ whose distribution of observable covariates is similar to the distribution of covariates among the *Forty-Eighter* towns. To select N_C, we run logistic regressions of the treatment $\mathrm{D}(\textit{Forty-Eighter}_i > 0)$ on the set of location factors from the variable selection model (Table 1, Column (6)) to estimate a propensity score. To reduce heterogeneity, we restrict the matching to towns within the same state and within the same town size bin.[28] With the propensity score at hand, N_C is determined by matching each *Forty-Eighter* town to its five nearest neighbors in propensity-score space. Note that the matching is with replacement, so for $N_T = 54$ *Forty-Eighter* towns, we expect $N_C \leq 270$ control towns.[29] Compared to previous results, we lose large towns because they are off the common support, i.e. have no suitable control in the same state.[30] Appendix Table A3 is the equivalent of Table 1, but instead of comparing 72 treated towns to 11,023 control towns, Appendix Table A3 compares the 54 treated towns on common support to 207 control towns. Relative to Table 1, the matched sample (labeled *PSM-1*) in Appendix Table A3 is far more balanced on observable

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[27]Interestingly, the county-level voting controls suggest that the pre-arrival party vote-share for the abolitionist Liberty Party was *lower* in *Forty-Eighter* towns. This is consistent with the historical records according to which the *Forty-Eighters'* "rational" abolitionism ran counter to the puritan abolitionism that would have determined the 1848 Liberty Party vote share (Foner, 1970, 107) .

[28]We create 3 bins: A cutoff at the fifth percentile captures very small places, and a cutoff at the ninety-fifth percentile captures urban centers.

[29]Alternative specifications where we alter the number of matching partners do not lead to different results.

[30]The *Forty-Eighter*-towns we lose are Baltimore MD, Brooklyn NY, Buffalo NY, Chicago IL, Cincinnati OH, Cleveland OH, Davenport IA, Detroit MI, Louisville KY, Milwaukee WI, Newark NY, Philadelphia PA, St Louis MO.

controls (columns 3–4). This partly reflects the fact that practically all of the largest U.S. towns are among the *Forty-Eighter* towns in the full sample but not in the matched sample because they do not have a 'statistical twin' in the same state. A second notable feature is that the variable selection model on which we report in columns 5–6 chooses far fewer variables as being predictive of the *Forty-Eighters'* location than it did before, and even those few variables are mostly not statistically significant.[31]

In Appendix C, we discuss three added variations on the propensity-score matched sample: *PSM-2* does not impose exact matching on state and population bins, which slightly increases the number of treated towns on common support because control towns can be drawn from a wider pool. *PSM-3* decrease the number of required nearest neighbors from 5 to 3, which again slightly increases the number of matched treated towns. Finally, *PSM-4* includes 1860 town controls as additional matching variables. These post-date the *Forty-Eighters'* settlement and are thus potentially endogenous, but the 1860 Census contains richer information on wealth, education and occupation. We report the main results for these additional sample definitions in Appendix C.

4 Results

Our core focus is the *Forty-Eighters'* effect on Union Army enlistments in town i, which we estimate in the following equation

$$\text{y}_i = \beta \cdot \text{D}(\textit{Forty-Eighter}_i > 0) + \boldsymbol{X}_i'\delta + \eta_s + \epsilon_i, \tag{1}$$

where y_i is the log of enlistments in town i. $\text{D}(\textit{Forty-Eighter}_i > 0)$ is an indicator function that takes the value 1 if at least one *Forty-Eighter* lived in this town between 1856–1861, $\boldsymbol{X}_i$ is a vector of town and county control variables, η_s are state fixed effects, and ϵ_i is an error term. In Section 4.1, we present OLS estimates of equation (1) along with a range of robustness checks, placebo estimations, and permutation tests. In Section 4.2, we develop an IV strategy for the estimation of equation (1).

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[31]Appendix Figure A5 shows that the matched sample also moves the distribution of the outcome variable for treated towns closer to controls towns.

4.1 Baseline Estimates in the Matched and Full Sample

Table 2 reports the OLS results of estimating equation (1). The first three columns show results where we use the full sample, i.e. compare 72 *Forty-Eighter* towns to 11,023 control towns. The next three columns report on the results in our baseline matched sample (*PSM-1*), comparing 54 *Forty-Eighter* towns to 207 matched control towns. Columns 1 and 4 report on specifications with only state fixed effects and the six core controls. Columns 2 and 5 add the controls selected by the variable selection model (Table 1, Column (6)). Columns 3 and 6 include all town and county controls that have no missing values in our data. The estimated effect is considerably larger in the full sample, where we estimate that *Forty-Eighter* towns had around ninety percent more enlistments. The contrast between columns 1–3 and 4–6 highlights the importance of restricting the sample to a more similar matched control group: the matched sample OLS estimates in columns 4–6 suggest that the *Forty-Eighters* increased enlistments by two thirds rather than ninety percent.[32] The results in columns 4–6 are our preferred ones. At a median enlistment rate of 12 enlistees per 100 adult males, this is equivalent to eight extra enlistees per 100 adult men. This number is confirmed in Appendix Table A5, which reports the results for per capita enlistments as the outcome.[33] For clarity of exposition, Table 2 reports only the *Forty-Eighters'* effect on enlistments. The estimated coefficients on the control variables are reported in Appendix Table A6.

To get a sense for potential selection on unobservables in the full and matched sample, we report Oster's δ in the bottom of Table 2. Oster's δ measures how large the bias from unobservables would have to be relative to bias from observable to imply a true value of $\beta = 0$ in equation (1). In the full sample, δ is consistently around 0.5. In the matched sample by contrast, δ ranges between 1.7 and 1.9. This implies a strong sense of robustness in the matched sample, where selection on unobservables would have to be almost twice as strong as selection on observables to make our core estimate go away. We now discuss a range of specification checks on these estimations.

Sample Choice: Appendix Table A4 shows that the results are robust to three variations in the matching procedure (*PSM-2* to *PSM-4*), as well as to running the full-sample results with

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[32]We are interpreting the coefficient on a dummy and the dependent variable is log-transformed, so the percentage effect of D(*Forty-Eighter$_i$* > 0) on log enlistments is calculated as $100 \times [e^{\beta} - 1]$. This is 66–67 percent.

[33]Figure A6 shows that per capita enlistments have a much more skewed distribution than the log of enlistments, with fat tails. We therefore report on per capita enlistments only as a reference point, and focus on the log of enlistments as our primary outcome.

Table 2: Effect of *Forty-Eighters* on Union Army Enlistments

	(1)	(2)	(3)	(4)	(5)	(6)
	Full Sample			*Prop. Score Matched (PSM-1)*		
D(Forty-Eighters)	0.915	0.912	0.894	0.583	0.605	0.597
	[0.000]	[0.000]	[0.000]	[0.001]	[0.000]	[0.000]
	{0.000}	{0.000}	{0.000}	{0.006}	{0.004}	{0.006}
Observations	11,095	11,095	11,095	261	261	261
R-squared	0.563	0.566	0.571	0.700	0.724	0.733
# Forty-Eighter Towns	72	72	72	54	54	54
Mean Outcome	3.898	3.898	3.898	4.810	4.810	4.810
Oster delta	0.517	0.518	0.516	1.707	1.962	1.955
Core Controls	✓	✓	✓	✓	✓	✓
+ Other Vselect		✓	✓		✓	✓
+ All Controls			✓			✓

Notes: The table reports results from estimating equation (1). The outcome variable is the log of Union Army enlistments in a town. Columns 1–3 report on the full sample, comparing 72 *Forty-Eighter* towns to 11,023 control towns. Columns 4–6 report on the matched sample, comparing 54 *Forty-Eighter* towns to over 207 matched control towns. Each column reports the number of treated towns (*# Forty-Eighter Towns*) providing identifying variation in each specification, as well as the mean of the dependent variable. *Oster delta* refers to the test of the relative importance of observed and unobserved variables in generating selection bias suggested in Oster (2019). If $\delta > 1$, results are considered robust. Standard errors are clustered at the state-level, *p-values* are reported in square brackets. In braces, we additionally report *p-values* for wild-bootstrap clustered standard errors.

county- instead of state fixed effects.[34] Reassuringly, the alternative matched samples generate very similar results to the baseline sample *PSM-1*, and the inclusion of county fixed effects brings the full-sample results closer to the matched-sample results.

Heterogeneity: Appendix Table A7 assesses sample heterogeneity. We would like to understand whether specific *Forty-Eighter* characteristics drive the estimated treatment effect in Table 2. From the individual biographies, we distinguish whether individual *Forty-Eighters* (i) fought in the Civil War; (ii) were politically active; (iii) worked as journalists; or (iv) were members of a Turner Society. For those who fought in the Civil War, we further distinguish whether they were in (v) leading positions (colonel or above) or lower ranks (vi).[35] The interaction between indicators for the presence of at least one *Forty-Eighter* and at least one of these characteristics gives us some indication whether the observed treatment effects are intensified (or reduced) by these personal characteristics. We do not find strong evidence for treatment heterogeneity. The main effect does

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[34] County fixed effects cannot be included in the matched sample because they would absorb most treated towns.

[35] Characteristics (i)–(iv) were coded separately by three research assistants based on the full bio data on each *Forty-Eighter*. We applied a positive coding for a characteristic if at least two of the three research assistants agreed on it. Characteristics (v)–(vi) are coded from the Union Army rosters.

not vary a lot and most interaction effects are imprecisely estimated. The only significant interaction suggests that 'politically active' *Forty-Eighters* were more successful in attracting enlistments. Turners and journalists have a quantitatively similar effect but the interactions are imprecisely estimated. For those who fought in the war, we see some indication that higher ranked observe that *Forty-Eighters* of higher military rank were a bit more influential. Section 5 will investigate these channels in more detail.

Placebo Estimations: Among the core controls, the 1848–1852 'Germans to America' co-arrival cohorts deserve a separate investigation. In particular, we are interested in whether the *Forty-Eighters* were merely the 'tip of the iceberg' of a broader wave of politically active German immigrants arriving at the same time. If that was the case, we would expect that this 1848–1852 arrival cohort had an independent effect on enlistments. Moreover, the inclusion of this cohort in the regressions should reduce the *Forty-Eighters'* estimated effect on enlistments, and we would expect this cohort to stand out from earlier and later arrival cohorts. It turns out that none of these three hypotheses is borne out in the data, as we show in Appendix Table A8. We view the lack of these patterns as evidence against the notion that the *Forty-Eighters* were just the prominent spearhead of a larger group of politically active and influential immigrants from that period.

Permutation Tests: Table 2 conveys a very robust association between *Forty-Eighters* and volunteering for the Union Army. As a further robustness check, we rule out spuriously correlated effects through a permutation test, replacing the actual *Forty-Eighter* locations with an equal number of randomly drawn location in the Union-Army states, and then re-estimating equation (1) with this placebo treatment. We repeat this experiment 1,000 times, comparing the distribution of the estimated placebo effects to the actual treatment effect. Appendix-Figure A7 shows that and even the 99-th percentile of the distribution is smaller than the estimate in Table 2.

Interpolated Data: In the baseline, we calculate town-level enlistments based on the two-thirds of soldiers where we observe residence information. In Appendix Table A9, we report results when we spatially interpolate missing residence information (see Appendix B.2.2). The interpolation reduces the spatial sharpness of enlistments because the procedure smoothly assigns unlocated soldiers across locations that are close to a regiment's centroid of reported residence information. As expected, the resulting estimated effect is smaller in the interpolated data. However, it remains equally statistically significant as the baseline estimate.

4.2 Instrumental Variable Strategy

So far, we assumed that we can gain identification by matching on observable town characteristics. However, while propensity score matching aids identification by generating a more balanced sample, this alone does not necessarily establish causality. To address this concern, we now introduce an instrumental variable (IV) strategy that rests on the fact that the *Forty-Eighters* did not plan their trip ahead in the same way that other immigrants did. Due to their haphazard departure, they rarely had a specific destination in mind when they departed. For most *Forty-Eighters*, the transatlantic voyage would have been the first opportunity to learn about different locations in the U.S. Lasting between six and ten weeks, the voyage provided ample opportunity to form social connections and strike up friendships with co-passengers whose idiosyncratic knowledge about specific destinations in the U.S. could be influential in shaping where the *Forty-Eighters* themselves would settle.[36] In fact, the cramped conditions and prolonged interactions on the long transatlantic voyage were more likely to affect individual' priors about possible destinations than encounters in the large anonymous metropolises of New York City, Baltimore or Philadelphia where the *Forty-Eighters* disembarked. As a point of reference, Battiston (2018) shows that even the much briefer social interactions on steam-ship transatlantic crossings in the 20th century had sizable impacts on immigrants' paths in America.

The following three arguments summarize how we exploit this historical narrative in our IV strategy: (i) across ships, there is dispersion in co-passengers' preferences for—and information about—destinations in the U.S. (for example due to migrant networks); (ii) the *Forty-Eighters'* destination choices were influenced by their co-passengers; (iii) the *Forty-Eighters* selected their ships quasi-randomly. Instrument relevance results from (i) and (ii) and exogeneity relies on (iii).

To operationalize this idea, we utilize the immigrant ship lists in the 'Germans to America' book collection for 1848–1852 which include information on the U.S. destinations passengers reported at their port of debarkation. Of a total of over 1,700 voyages in this period, we identify 136 individual voyages with 152 *Forty-Eighters* on them.[37] We use these records to recover a distribution of

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[36]While the 'era of mass migration' invokes images of large steam ships, the *Forty-Eighters* still came on sail-ships.

[37]To put this in perspective, the 'Germans to America' collection accounts for about half the estimated German immigrant arrivals in the time period covered. See Appendix B.5.2. We linked the *Forty-Eighters* to the ship lists by first defining a set of candidate matches based on bigram-indexation of names, and then allowing up to a three-year difference in age and two year differences in arrival year between our records and the ship-records, before manually checking the final matched sample.

reported destination towns in the U.S. for the 136 *Forty-Eighters* ships and the remaining 'non-*Forty-Eighter*' ships arriving between 1848 and 1852.[38] In line with our reading that the *Forty-Eighters* did not have time to plan their trip, there are only two instances of *Forty-Eighters* reporting stated destinations themselves. We drop these two.

Our identification strategy exploits differences in the distribution of stated destinations on *Forty-Eighter* ships and non-*Forty-Eighter* ships. One may be concerned that systematic differences in travel routes may confound our strategy. For example, most *Forty-Eighters* arrived in a narrow time window (see Figure 1) and, given a moving frontier, German immigrants who arrived earlier or later might have faced different travel routes and destinations in the U.S. However, within the narrow window between 1848 and 1852, the distribution of arrival years does not differ between *Forty-Eighter* ships and other 'non-*Forty-Eighter*' ships. A second concern is that selection on the port of embarkment might have affected travel routes. Consistent with the discussion in Section 1.1, we observe that a slightly larger share of *Forty-Eighter* ships started from Le Havre than from German or Dutch ports. However, this difference is not statistically significant.

We instrument the *Forty-Eighters*' potentially endogenous location choices with an indicator for whether a town was a reported destination on one of the *Forty-Eighters*' ships, conditioning on the overall attractiveness of a given destination according to the ship lists. This allows us to distinguish between the general distribution of German immigrant destinations and the one specific to *Forty-Eighter* ships. We start with a specification where we control for the overall distribution of stated destinations on non-*Forty-Eighter* ships, by splitting their frequency into four 'popularity-quartiles'. We can further refine this control up to septile bins.[39] In a second—more conservative—strategy, we control for the same binned counts of the number of times a town was a stated destination on *all* ships, i.e. including the *Forty-Eighter* ships.

The top-two panels of Table 3 report the IV results and the first stage for specifications where we control for the popularity of a destination town by separating the frequency distribution of stated destination on non-*Forty-Eighter* ships either into quartiles (columns 1–3) or septiles (columns 4–6). The bottom-two panels of Table 3 report the equivalent results for the more conservative

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[38]We limited ourselves to ships arriving in this time window because the 'haphazard arrival' is much less plausible for the few *Forty-Eighters* who arrived later, although the instrument's logic would be the same after 1852.

[39]Using five or six bins generates qualitatively identical results. Increasing the number of bins beyond seven renders the second stage too imprecisely estimated, which is unsurprising given the 54 treated observations in the matched sample.

Table 3: IV Results

	(1)	(2)	(3)	(4)	(5)	(6)
--			*Control Stated Destinations Other Ships*		--	
Panel A:			*Second Stage: Log Enlistments*			
D(Forty-Eighters)	0.692	0.714	0.772	0.698	0.732	0.786
	[0.002]	[0.003]	[0.006]	[0.003]	[0.007]	[0.014]
Hausman-p	0.699	0.674	0.449	0.716	0.678	0.463
Kleibergen-Paap Wald rk F statistic	16.30	14.37	15.56	13.64	12.14	12.77
Anderson-Rubin F-test	0.005	0.003	0.023	0.008	0.006	0.035
Panel B:			*First Stage: D(Forty-Eighters)*			
D(Forty-Eighter Ships' Destination)	0.612	0.607	0.629	0.585	0.578	0.601
	[0.001]	[0.002]	[0.001]	[0.002]	[0.004]	[0.003]
R-squared	0.287	0.298	0.332	0.289	0.302	0.338
--			*Control Stated Destinations All Ships*		--	
Panel C:			*Second Stage: Log Enlistments*			
D(Forty-Eighter Ships' Destination)	0.477	0.608	0.677	0.583	0.713	0.815
	[0.038]	[0.015]	[0.057]	[0.019]	[0.006]	[0.021]
Hausman-p	0.748	0.908	0.664	0.988	0.669	0.419
Kleibergen-Paap Wald rk F statistic	20.70	18.24	17.19	22.06	19.89	22.63
Anderson-Rubin F-test	0.069	0.024	0.117	0.037	0.010	0.050
Panel D:			*First Stage: D(Forty-Eighters)*			
D(Forty-Eighter Ships' Destination)	0.625	0.614	0.629	0.591	0.580	0.611
	[0.000]	[0.001]	[0.001]	[0.000]	[0.001]	[0.000]
R-squared	0.277	0.289	0.324	0.292	0.306	0.343
Control Bins	----	*quartile*	----	----	*septile*	----
Observations	261	261	261	261	261	261
#48ers	54	54	54	54	54	54
Core Controls	✓	✓	✓	✓	✓	✓
+ Other Vselect		✓	✓		✓	✓
+ All Controls			✓			✓

Notes: The table reports results of IV estimations on the same sample and controls as Columns 4–6 of Table 2. Columns 1–3 control for quartile bins of the distribution of destination towns and columns 4–6 control for septile bins. Panels A and B calculate the popularity measure of stated destinations for non-*Forty-Eighter* ships only and Panels C and D for all ships. Panels A and C report on the second-stage results. Panels B and D report on the first stage results. Standard errors are clustered at the state-level, *p-values* are reported in square brackets.

controls of stated destinations on *all* ships. Within each panel, the results are highly robust to variations in the control variables. Across panels, it is notable that the strategy pursued in Panels C–D is more conservative, as the estimated core-effect is consistently lower in Panel C than in Panel A. The p-values of the Hausman Test and F statistics on the instruments also both suggest the second, more conservative, strategy is the preferable one. The high p-value on the Wu-Hausman test indicates that we cannot statistically reject the equality of the OLS and IV estimates.

To assess the robustness of our IV estimates, we perform two placebo exercises. The first one is designed to rule out the possibility of a spurious relationship between the *Forty-Eighters'* locations of settlement and the destinations reported by their co-passengers: We randomly draw the same number of ships as we have *Forty-Eighter* ships from the total distribution of German immigrant ships arriving in the years between 1848–1852. We then construct a placebo instrument from the intended destinations reported on those falsely assigned ships, and a control variable from the intended destinations reported on all other ships. The left panel in Figure 4 plots the distribution of First-Stage F-statistics that results from 100 simulations. It is reassuring to see that the placebo instruments have no statistical power to explain the *Forty-Eighters'* locations of settlement.

The second placebo exercise is a validation of the logic underlying the instrument: Of the *Forty-Eighters* that we locate on ships, 46 percent end up settling in towns that are reported as an intended destination by their co-passengers. To verify that this relationship is not spurious, we randomly reshuffle individual *Forty-Eighters* across the 136 *Forty-Eighter* ships, and calculate the share of *Forty-Eighters* that end up settling in a town that was reported as an intended destination by their randomly assigned co-passengers. The right panel in Figure 4 shows the distribution resulting from 100 simulations. Again, we find that randomly assigned co-passengers' stated destinations have no predictive power for the *Forty-Eighters'* actual locations. These placebo tests strongly support our notion that idiosyncratic variation in co-passengers stated destination towns are driving the first-stage relationship.

Finally, in Appendix D.1, we explore an alternative IV strategy that hinges on the fact that *Forty-Eighters'* early years in the U.S. were dominated by economic necessities and that the political conflict around slavery was subdued during this time. To exploit this insight, we use the locations of *Forty-Eighters' first* jobs outside their port of debarkation as an instrument for the their eventual pre-Civil War locations. This alternative strategy generates very similar estimates.
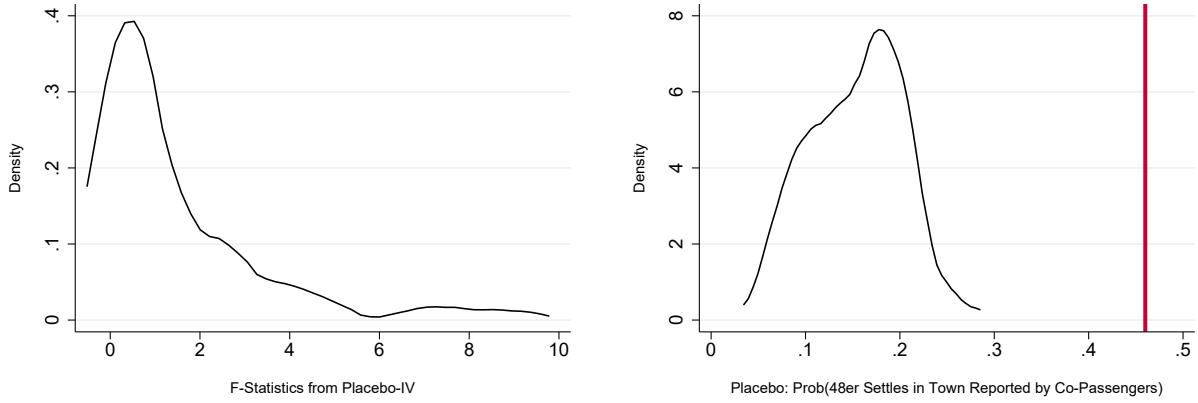
Figure 4: Placebo Tests on the IV Strategy

Notes: The left panel shows the distribution of 100 Kleibergen-Paap F-statistics from placebo estimations where we construct an instrument from 136 randomly drawn ships from the total set of German immigrant ships arriving over the period 1848–1852. The control for towns' popularity is based on the frequency of destinations reported by passengers on the remaining ships. The right panel shows the distribution resulting from 100 iterations of matching each *Forty-Eighter* to a random *Forty-Eighter* ship, and calculating the share of towns that are correctly predicted by their randomly assigned co-passengers. The vertical line shows the share of 46% in the actual data.

In summary, our IV estimations confirm the core findings and since they are not significantly different, we revert to OLS in the following assessment of mechanisms.

5   Mechanisms and Other Evidence

This section sheds light on the underlying mechanisms that explain the *Forty-Eighter* success in recruiting Union Army soldiers. (See discussion in Section 1.3.)

5.1   Mechanisms within the Core Estimation Framework

In this section, we focus on two mechanisms that we can consistently measure at the town-level: the circulation of German-speaking newspapers (coded from Arndt 1965), and the distribution of Turner Societies (coded from the *Turner Society Foundation*'s yearbooks published by Metzner 1890—1894). Figure 1 depicts these two data-sets as aggregate time-series. Columns 1 and 3 of Table 4 estimate equation (1) with these two new outcomes. As a point of reference, we also utilize the fact that we have *annual* data on these two mechanisms. This allows us to estimate the

Table 4: Effect of *Forty-Eighters* on Turner Society Foundations and Newspapers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	D(German Newsp.)		D(Turner Society)		*Log Enlistments*			
D(Forty-Eighters)	0.222	0.131	0.127	0.139	0.605	0.484	0.551	0.450
	[0.003]	[0.006]	[0.018]	[0.004]	[0.000]	[0.000]	[0.000]	[0.000]
D(German Newspapers)						0.544		0.491
						[0.003]		[0.007]
D(Turner Society)							0.428	0.362
							[0.009]	[0.017]
Fixed Effects	state	town + state*t	state	town + state*t	state	state	state	state
Observations	261	5,376	261	5,376	261	261	261	261
R-squared	0.576	0.739	0.333	0.477	0.724	0.730	0.728	0.733

Notes: This table replicates previous specifications for two likely mechanisms of the *Forty-Eighters'* influence: the presence of a German newspaper in a town, and the presence of a Turner Society. Standard errors are clustered at the state-level in all columns except columns 2 and 4 where they are clustered at the town level. Columns 2 and 4 report difference-in-differences results estimated using equation 2. *p-values* are reported in square brackets.

Forty-Eighters' effect in the following generalized difference-in-differences equation

$$y_{it} = \beta_{DD} \cdot D(\textit{Forty-Eighter} > 0)_{it} + \eta_{ts} + \eta_i + \epsilon_{it}, \qquad (2)$$

where $D(\textit{Forty-Eighter} > 0)_{it}$ denotes panel variation (from 1840–1861) in whether there was a *Forty-Eighter* in a town, η_i is a town fixed effect, and η_{ts} are state-specific year fixed effects. Columns 2 and 4 of Table 4 report on the resulting estimates of β_{DD}. Reassuringly, we also see a notable effect of the *Forty-Eighters* in the within-town variation over time. The effect is surprisingly comparable in magnitude to the cross-sectional results.

Column 5 repeats the baseline estimate from column 5 in Table 2. In columns 6–8, we perform a simple mediation analysis to investigate whether these two postulated mechanisms can plausibly explain the core effect of the *Forty-Eighters*. We recognize the strong identifying assumptions made in mediation analysis, and emphasize that these results should be interpreted as suggestive only.[40] That being said, columns 6 and 7 indicate that both mechanisms explain some of the *Forty-*

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[40] Mediation analysis labels the effect of a treatment T on an outcome Y that explicitly does *not* work through a mechanism M as the 'direct' effect, and the other part as the 'mediated' or 'indirect' effect. Traditional approaches

Eighters' total effect on enlistments, as the inclusion of either reduces the estimated 'direct' effect of *Forty-Eighters* on enlistments. Including both mechanisms in column 8 explains one-quarter of the baseline effect ($[0.605 - 0.450]/0.605$).

5.2 Event-Study Analysis of Enlistments

In this section, we discuss two other mechanisms that are emphasized in the historical narrative: *Forty-Eighters* influenced enlistment decisions as public speakers and by enlisting themselves in the war effort and encouraging others to follow their lead. To assess these 'acts of leadership', we screen newspapers for reports on public appearances and assess their effects on enlistments dynamics in event study estimations in a town-by-week panel. Similarly, we evaluate enlistment dynamics after a *Forty-Eighter* enlisted. We recognize that the timing of these 'acts of leadership' could be endogenous. For example, a public speech about the war effort may have occurred when a town's residents were already agitating for war enlistments. Consequently, we think of the event-study results in Appendix E as suggestive evidence and do not claim causality. They are nonetheless a valuable consistency check on the narrative and our data.

Civilian Acts of Leadership: To measure civilian acts of leadership, we manually searched `newspapers.com`, a historical newspaper database, for mention of individual *Forty-Eighter* names. A large number of articles allude to a *Forty-Eighter's* political leaning or past actions, but the majority either predates the war or does not refer to a specific action, time or place. Nonetheless, we were able to identify 27 articles on *Forty-Eighters'* acts of civic leadership other than their own enlistment. These primarily report on *Forty-Eighters* giving speeches, participating in or organizing events such as concerts or rallies with an anti-slavery pro-Union theme, or actively encouraging men to enlist. Appendix Figure A12 exhibits two articles as examples. Appendix Figure A10 and Appendix Table A12 report on the estimated effect of these events. The point estimates are strikingly similar to the enlistment effects in the baseline estimations: Civilian acts of leadership cause enlistments to go up by sixty percent in the event week and the week after, followed by a return to the baseline.

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to mediation analysis, assume that both T and M are exogenous, and apply OLS to estimate three equations,

$$Y = \delta_Y^T \cdot T + \eta_Y, \quad M = \beta_M^T \cdot T + \epsilon_M, \quad \text{and} \quad Y = \beta_Y^T \cdot T + \beta_Y^M \cdot M + \epsilon_Y,$$

and then compare the total effect δ_Y^T to the indirect effect $\beta_Y^M \cdot \beta_M^T$. See MacKinnon (2008) for an overview.

Enlistment Events: Given the *Forty-Eighters'* postulated attribute of being civic leaders, we expect that their enlistment decision to convince others to follow their lead. This should be reflected in a significantly larger enlistment effect in the following week. Appendix Figure A11 and Appendix Table A12 confirm this. There is a flat pre-trend followed by a sharp seventy-percent increase in the number of enlistments in the week a *Forty-Eighter* enlists followed by forty-percent increase in the following week. After that, the effect goes back to zero, suggesting no difference between the treated town and the control group of towns that were not treated in the same event window. In summary, these estimated dynamic effects corroborate our argument that the *Forty-Eighter* acted as civic leaders.

In interpreting the relatively short-run (two-week) effects of acts of leadership, it is important to bear in mind that enlistments were *coordinated* local events: typically, young men in a town would rally to collectively enlist around the same time as one military unit (a company or a regiment) so they would fight in the same military unit (McPherson, 1997; Costa and Kahn, 2010). An event that generated a critical amount of local enthusiasm for enlistment would have therefore tended to diffuse very fast.

5.3   In Battle

In this section, we study whether the *Forty-Eighters'* leadership extended beyond swaying people to enlist. Specifically, we track those *Forty-Eighters* who enlisted in the Union Army and estimate their effect on desertion rates inside their companies. In practice, we re-estimate the duration analysis in Costa and Kahn (2003), but add indicators for a *Forty-Eighter* commanding officer or private in a company. A second point of difference is that Costa and Kahn (2003) analyzed the desertion choices of 30,000 men whereas we have data on over 2 million.

We found 149 *Forty-Eighters* who enlisted in the Union Army. We believe this is the universe *Forty-Eighter* enlistments, and at first brush 149 struck us as low, given the *Forty-Eighters* commitment to the anti-slavery cause. However, as we discuss at the end of Section 1.3, this number is consistent with the *Forty-Eighters'* relatively advanced age at the time of the war, and the fact that they were always divided into military and non-military 'types' (Wittke, 1973, 22). We split the enlisted *Forty-Eighters* commissioned officers who commanded companies, i.e. had the rank of 'captain', and privates or lower-ranking non-commissioned officers, i.e. corporals or sergeants.

There are 22 commanding officers and 75 lower-ranking officers or privates in our data. The remaining *Forty-Eighters* belonged to military staff that could not be linked to companies. These 97 *Forty-Eighters* belonged to 94 different companies; only company F of the 3rd Missouri Infantry, and company K of the 7th New York Infantry counted two *Forty-Eighters*.

We treat the presence of either a *Forty-Eighter* commanding officer or private as a company-level characteristic, following the literature on combat motivation, which treats companies as the units of 'primary group cohesion' (McPherson 2003, 85, Costa and Kahn 2003). We also follow this literature in focusing on desertion as the outcome and interpreting it as an inverse measure of conviction.[41] We run the following Cox Proportional Hazard Model

$$\lambda(t) = exp(x_I' \beta_I + x_K' \beta_K)\lambda_0(t), \tag{3}$$

where $\lambda(t)$ is the time elapsed to a soldier's desertion ('time to failure'), $\lambda_0(t)$ is the baseline hazard, and a spell without desertion ends in a soldier either being killed, discharged due to wounds, taken prisoner of war, or being 'mustered out' after seeing out his enlistment term. The number of soldiers ('spells') for whom we know the exit date and reason is just over 2 million. We let I index individual variables, and K index company variables. The individual variables x_I are made up of a soldier's predicted ancestry, enlistment date, and enlistment rank. The latter consists of three categories, commanding officer, private and the omitted category of lower-ranking officers (sergeants and corporals). For company variables x_K, we approximate the core ethnic-fragmentation measure in Costa and Kahn (2003) by an ancestry-fragmentation measure of identical functional form: s_{Ka} is ancestry group a's share of men in company K, so that the fragmentation index $FI_K = 1 - \sum_a s_{Ka}^2$ is 0 if the company is completely homogeneous and it is bounded from above by 1. We add to this our company variables of interest, namely dummies for having a *Forty-Eighter* commanding officer in the company (*Forty-Eighter*$_K^o = 1$), and for having a *Forty-Eighter* in the company (*Forty-Eighter*$_K^p = 1$).

Table 5 presents the results of estimating equation (3). We report hazard rates, where a hazard rate of 1.5 means a fifty percent higher probability of desertion. As a baseline, we include only our treatment of interest in column 1. The estimate suggests that a *Forty-Eighter* commanding

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[41]In total, eight percent of all soldiers deserted according to our data, which is in line with historical estimates.

Table 5: Desertion of Individual Soldiers

	(1)	(2)	(3)	(4)	(5)
Outcome:			D(Desertion)		
Forty-Eighter Captain in Company	0.7	0.69	0.71	0.77	0.75
	[0.000]	[0.000]	[0.000]	[0.003]	[0.001]
Forty-Eighter Private in Company	0.83	0.84	0.87	0.92	0.89
	[0.000]	[0.000]	[0.002]	[0.064]	[0.015]
D(Officer)		0.05	0.05	0.05	0.05
		[0.000]	[0.000]	[0.000]	[0.000]
D(Private)		2.42	2.4	2.29	2.3
		[0.000]	[0.000]	[0.000]	[0.000]
Ommitted: American Soldier					
German Soldier			1.19	1.2	1.2
			[0.000]	[0.000]	[0.000]
Scandinavian Soldier			1.48	1.46	1.47
			[0.000]	[0.000]	[0.000]
Irish Soldier			1.66	1.67	1.68
			[0.000]	[0.000]	[0.000]
Other Immigrant Soldier			2	1.98	1.99
			[0.000]	[0.000]	[0.000]
Ommitted: year==1861					
year==1862				1.1	1.1
				[0.000]	[0.000]
year==1863				2	2.01
				[0.000]	[0.000]
year==1864				1.19	1.19
				[0.000]	[0.000]
year==1865				2.14	2.14
				[0.000]	[0.000]
Ancestry Fragmentation					1.28
					[0.000]
Observations	2,034,475	2,034,475	2,034,475	2,034,475	2,034,475

Notes: The table reports hazard rates from a Cox Proportional Hazard Model. A hazard rate of 1.5 denotes an approximately fifty percent higher probability of desertion, while a hazard of 0.9 denotes an approximately ten percent lower probability. The outcome of interest is the time elapsed to a soldier's desertion ('time to failure'). A spell can alternatively end in a soldier being killed, discharged due to wounds, taken prisoner of war, or being 'mustered out' after seeing out his enlistment term. The number of observations is the number of soldiers ('spells') for whom we know the exit date and reason. *p-values* for robust standard errors are reported in brackets.

officer reduced desertion rates by thirty percent in their company $(1 - 0.7)$, while a *Forty-Eighter* private or lower-ranking officer reduced them by seventeen percent $(1 - 0.83)$. In columns 2–5 we add the other controls. This serves to check the robustness of the *Forty-Eighter* effect, as well as to check that the data overall aligns with the existing evidence. Column 2 shows that officers had the lowest desertion rate and privates the highest. Commanding officers were only five percent as likely to desert as the omitted category of lower-ranking officers, and far less likely than privates. Column 3 shows that all immigrants had higher desertion rates relative to American men, but Germans had the lowest desertion rates among immigrants. They were 19 percent more likely to desert than American men, while Scandinavian, Irish and other immigrant men were respectively 48, 66, and 100 percent more likely to desert. This mirrors the results in Costa and Kahn (2003) who actually state as an explanation that "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 republican government." Column 4 shows that soldiers who enlisted in the first year of the war (the omitted category) were least likely to desert, consistent with historians' assessment that they had the highest level of enthusiasm for the war (McPherson, 2003, ch1). In 1863, desertion rates were highest, consistent with generally low morale in that year following the devastating battles of Antietam and Fredericksburg (Öfele, 2004, 83). Desertion in 1865 was higher primarily because soldiers who considered the war over did not wait to be mustered out before returning home for the harvest. Column 5 adds ancestry fragmentation, the core variable in Costa and Kahn (2003). The estimate implies that a completely homogeneous company $(FI_K = 0)$ had a 10 percent lower desertion rate than a counterfactual company made up of three equal-sized ancestry groups $(FI_K = 1 - 3 \times 0.33^2 = 0.67)$. Despite our treatment variable's thin support in the data (with only 94 out of thousands of companies having a *Forty-Eighter*), its estimated effect is surprisingly robust across these specifications. We view this as suggesting that the leadership qualities that allowed the *Forty-Eighter* to influence men to enlist also carried over into other, arguably more testing, settings.

5.4 Long-Lasting Effects

As a final exercise, we ask whether the *Forty-Eighters* left a *permanent* legacy in their towns of settlement. For this purpose, we use a dataset on the formation of local chapters of the *National*

Association for the Advancement of Colored People (NAACP) which we have linked to our town dataset.[42] Looking at the formation of local NAACP chapters has two attractive features. First, it is closely related to our main outcomes of interest. The NAACP was the earliest and for many decades the only national political organization aiming to advance political, educational, social, and economic equality for African Americans. Second, it post-dates any political activity by the *Forty-Eighters* themselves with the first chapter being formed on February 12th, 1909 (intentionally coinciding with Lincoln's 100th birthday).

Table 6: Town-Level NAACP Chapters as an Outcome

	(1)	(2)	(3)	(4)	(5)	(6)
	D(NAACP chapter in town)					
	Full Sample			*Prop. Score Matched (PSM-1)*		
D(Forty-Eighters)	0.398	0.388	0.388	0.217	0.225	0.225
	[0.000]	[0.000]	[0.000]	[0.014]	[0.014]	[0.014]
Observations	11,095	11,095	11,095	261	261	261
# Forty-Eighter Towns	72	72	72	54	54	54
R-squared	0.152	0.176	0.176	0.503	0.534	0.534
Core Controls	✓	✓	✓	✓	✓	✓
+ Other Vselect		✓	✓		✓	✓
+ All Controls			✓			✓

Notes: This table reports on the same specifications as Table 2 but with a long-run outcome. Standard errors are clustered at the state level. *p-values* are reported in square brackets.

Our outcome of interest is whether a town had a local chapter of the NAACP over the period 1909–1965.[43] We re-estimate equation (1) for this long-run outcome. One potential concern with this strategy is that it ignores the *Forty-Eighters*' location choices and activities *after* the Civil War. However, since these concerns would only attenuate our findings, we opt for consistency and run the exact same specifications as in Table 2. As with the main enlistment outcomes, the matched sample results are considerably smaller than the full sample results in the OLS, suggesting a *Forty-Eighter* town was 22-23 percent more likely to see the formation of a local chapter of the NAACP in the long run.

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[42]A research team at the University of Washington has digitized the time-line of NAACP branches from the NAACP's Annual Reports and branch directories, and made this collection available for download.

[43]By the early 1960s, the NAACP had lost much of its importance to newly found organizations that were more directly involved in the Civil Rights movement.

6 Discussion and Conclusion

In this paper, we use the expulsion of the *Forty-Eighters* to the U.S. to provide new evidence on individual leaders' role in the formation of social movements. The *Forty-Eighters* fought in the German revolutions of 1848–49 for their egalitarian and pro-republican convictions. Soon after their arrival in the U.S., the Kansas-Nebraska Act of 1854 re-started the political conflict around slavery. This revived the *Forty-Eighters'* liberal spirit and they became influential campaigners against slavery who helped mobilize Union Army volunteers. Our main outcome of interest is enlistments for the Union Army. This outcome measures an unusually high-stakes decision, and as such is a strong indication of the *Forty-Eighters'* influence on local beliefs and norms as they related to slavery and Souther institutions.

Across a wide range of specifications and identification strategies, we find that the *Forty-Eighters* increased Union Army volunteering in a town by two thirds, which corresponds to an average of about eight more enlistments per 100 adult men. Next, we investigate underlying mechanisms and show that social clubs and newspaper were important platforms that helps spread the liberal contagion. We further show that military trained *Forty-Eighters* in leading positions during the Civil War experienced lower desertion rates. Finally, we present some indicative evidence for a lasting legacy: *Forty-Eighter* towns were more likely to see the foundation of chapters of the *National Association for the Advancement of Colored People* (NAACP) over the period 1909–1965.

Taken together, our newly created data provide unique insights into the role that grassroots leadership can play in the spread of social movements, using as a focal point a critical juncture in 19th century history. Our results resonate with a theoretical literature on leadership in social networks, and add a new perspective to an emerging literature on the formation of collective action in social movements.

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Appendix A   Extended Historical Background

Appendix A.1   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 its 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 1849. In the following counter-revolution, the absolutist 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.[44]

When the Prussian-led troops eventually quelled the last uprisings in the southwest of Germany, several thousand 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* ('Sonderbund-krieg'),[45] 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 to 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

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

[45]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.

Figure A1: Cartoon by Ferdinand Schröder on the end of the revolution in Europe in 1849

Notes: The political cartoon by Ferdinand Schröder titled "Rundgemälde 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.

and as little as 883 refugees in August 1850 (Jung, 2015; Nagel, 2012; Reiter, 1992). This expulsion is nicely illustrated in a cartoon (Figure A1) where Prussian soldiers led by Friedrich Wilhelm IV of Prussia 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.

Appendix A.2   The Slavery Issue in U.S. Politics 1844–1860

After being relatively absent from public debate for the first half-century of the United States'
existence, slavery entered politics in a big way in 1844 when Martin van Buren lost his seemingly
secure Democratic nomination for the presidency on Southern Democratic agitation because he
had opposed the immediate annexation of Texas into the Union as a slave-state. 1844 also saw
the first time a national party—the Liberty Party— with an explicit abolitionist platform entering
the presidential race. During the 1844–1848 presidential term, both major parties–the Whigs and
the Democrats–started to strain over the slavery issue, and saw defections of so-called 'Conscience
Whigs' and 'Barnburner Democrats' to third-party coalitions. In the lead-up to the 1848 presiden-
tial election, the Free-Soil Party emerged as a major third party out of a coalition of the Liberty
party, 'Conscience Whigs' and 'Barnburner Democrats.' During the campaign of 1848, the term
"slave power" came into heavy use as a description of the out-sized influence that Southern planta-
tion owners appeared to have on the federal government. In the 1848 election, the Free-Soil Party
obtained 10 percent of the popular vote, and it was the last election where the Whig Party won.

The 1848–1852 presidential term marked a period of relative quiet on the slavery issue, with
many 'Conscience Whigs' and 'Barnburner Democrats' returning to their respective parties, largely
due to the two main parties' "compromise of 1850", which allowed California to join the Union as
a non-slave state while strengthening in return the enforcement of Fugitive Slave Acts in the North
(Srinivasan, 2017, 115-119). In the 1852 presidential election, the Free-Soil Party obtained less than
five percent of the popular vote and subsequently disappeared from the political landscape. The
Democratic Party won the popular vote.

The two ensuing years were extraordinarily politically complex, marking one of only two times
in U.S. history when Congressional politics could not be summarized by one or two dimensions
in the NOMINATE score method.[46] In fact, the 1853–54 Congress required four dimensions to
explain three-quarters of voting decisions (Poole and Rosenthal, 1991). The field of political issues
simplified as a result of the 1854 Kansas-Nebraska bill, which repealed the Missouri Compromise
that had prohibited slavery in the North since 1820, and gave people in the territories of Kansas
and Nebraska the choice of allowing slavery within their borders. This bill was seen as a major

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[46]The second such chaotic time was 1828, which marked the end of the 'first American party system,' when the
Federalist party dissolved and the Democratic-Republican Party split into the Democratic and the Whig Party.

success of Southern slave power in Congress and made slavery re-emerge as the defining issue of the time (Foner, 1970, 94). Throughout 1855, Eastern newspaper readers were captivated by events in "Bleeding Kansas," where pro- and anti-slavery settlers battled it out violently for the upper hand. 1855 also gave birth to the new Republican Party, which combined Free-Soilers with newly disaffected Whigs and Democrats (Srinivasan, 2017, 120-121).[47] This time, the corrosive force on the Whig Party was lethal, and the Whig Party completely disintegrated within a year. Conservative Whigs tended to join the newly formed nativist American (also called 'Know-Nothing') Party. Many did so less out of strong nativist sentiments but rather because they viewed nativism as a pressure valve that could circumvent the sectional conflict over slavery that they rightly viewed as a threat to the Union (Foner, 1970, 196). On the Eastern Seaboard, the Know Nothing Party had genuinely strong popular support, largely due to the rapid increase in Irish and German immigration (Alsan, Eriksson and Niemesh, 2018).

The 1856 election marked a sea change in American politics, as it saw in the Whig Party the complete disappearance of a party that eight years earlier had won the presidency, while two out of the three major parties—the American Party and the Republican Party—had not even existed in 1852. The Democratic Party carried the election with 45 percent of the popular vote, with James Buchanan as the new president. The Republican Party did "remarkably well for a new party," winning 33 percent of the popular vote (Foner, 1970, 130).[48]

In March 1857, the Supreme Court's Dredd Scott decision seemed to further strengthen slave-owners' property rights in Northern states, and many perceived it as stepping stone to re-establishing slavery in the North. Its result was that Northerners came to increasingly view slavery as a threat to the Union's republican institutions themselves.[49] Such fears grew because of a general view that the Buchanan administration was dominated by Southern slave power.[50] In 1858, Lincoln's future

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[47]1854 also gave a rise to a short-lived effort by *Forty-Eighters* to form their own party, called the Louisville Platform. This quickly dissolved, however, since the *Forty-Eighters* found a natural political home in the Republican Party (Wittke, 1973, 164).

[48]Two key factors worked against it in its challenge to the Democratic Party: first, the American Party which won 22 percent of the vote attracted large portions of the former Whig vote; second, internal strife in the Democratic Party over the slavery issue found its outlet in the Democratic primaries where the incumbent president was not re-elected, so that disaffected Democratic Party supporters mostly remained loyal to their party in 1856.

[49]This included concerns that the African slave trade was going to be re-opened and that there would be attempts to destabilize nascent Latin American republicans and replace them with slave-holding oligarchies in the Southern mold.

[50]Foner (1970, 100) notes that "two judicious observers of the politics of the 1850s, Roy Nichols and Allan Nevins, agree that during the Buchanan administration southern control of all branches of the federal government was virtually complete."

Secretary of State, William Seward, summarized these fears in a Congressional speech, foreseeing "an irrepressible conflict between opposing and enduring forces, [which] means the U.S. must and will, sooner or later, become either entirely a slave-holing nation or entirely a free-labor nation."

Americans, in the North especially, were keenly aware that their institutions were a "great experiment" that stood in stark contrast to the oligarchic and hereditary government that prevailed almost everywhere else (Doyle, 2014, 93-96). From 1857, the amalgamation of the issue of slave-emancipation with the defense of republican institutions dramatically increased popular opposition to Southern slavery.[51] Lincoln was a shrewd politician, but was also in many ways a surprise candidate for the Republican Party's presidential candidate in 1860, emerging only very late as a viable candidate. However, at a time when the Republican Party combined radical Abolitionists, conservative ex-Whigs, Nativists, and disenchanted ex-Democrats, with each group's favored candidate raising strong objections from one of the other factions, he was the ideal compromise candidate. As one observer put if, he was "the second choice of everybody" (Foner, 1970, 183, 213). Lincoln would repeatedly combine the issues of slavery and republicanism in his speeches, when he called the Union the "last best hope for the survival of republican government" (McPherson, 1997, 112),[52] and famously in his Gettysburg address, when he promised "a new birth of freedom," and reminded soldiers that they fought so "that government of the people, by the people, for the people shall not perish from the earth."

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[51]This explains why many soldiers in their letters home professed to be fighting for liberty while relatively few initially professed to fight for "emancipation per se" (McPherson, 1997, 116-119). McPherson agrees with the assessment in Wiley (1952) that only one in ten Union soldiers "had any real interest in emancipation per se" but notes that this ratio increased sharply during the war.

[52]These words are from Lincoln's December 1962 address to congress —one month before the Emancipation proclamation—where he wrote "we know how to save the Union [...] In giving freedom to the slave, we assure freedom to the free. [In doing so,] we shall nobly save, or meanly lose, the last best hope of earth."

Appendix A.3 Additional Historiography of the Role of the *Forty-Eighters* and the *Turner Societies* in the 1860 Election and in the Civil War

Given the large effect on enlistment that we attribute to the *Forty-Eighters*, a review of historiography on this topic is in order. The two foundational historical sources for our paper are Zucker (1950) and Wittke (1973).

Between these two, Zucker (1950) is less concerned with the effect of the *Forty-Eighters*, and more concerned with who they were and the ideas and ideals that characterized them as a group. Wittke (1973) also focused on these themes, but is less biographical in focus and more concerned with discussing the impact they had as a group. In relation to our topic, the related historiography has overall focused more on the *Forty-Eighters'* impact on the 1860 election. While there is some disagreement, overall the historiography agrees that German-Americans as a group supported Lincoln in 1860: Kamphoefner (1991, p.235), for example, states that "the heavily German counties just east of St. Louis were the only small islands of Republicanism in the vast Democratic delta in southern Illinois." Baron (2012) cites Henry Villard of the *New York Herald* as reporting (December 9th 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." The debate in this literature is the extent to which the *Forty-Eighters* were pivotal in winning the German vote election for Lincoln. This debate turns on two topics in particular: One, conflicts between older generations of German immigrants and the newer immigrants, among them the *Forty-Eighters*. Tóth (2014, 206) for example, cites from Heinrich Börnstein's memoirs, that "young German-Americans welcomed the project with joy and enthusiasm and advertised it, while the quieter and more mature members of the community, namely all the so-called "greys" decidedly disapproved it." Two, the *Forty-Eighters'* role in overcoming German voters prejudices against the Republican Party that arose from its association with Nativists and Know-Nothings. We discuss these in Section 1.2. The *Forty-Eighters'* role is emphasized not only by historians of German Americans, but also by Foner, perhaps the greatest modern-day historian of the antebellum politics (Foner, 1970). Our focus is not the 1860 election. Electoral data in this period is practically impossible to obtain at the sub-county level, and the county is too coarse a spatial unit to capture the local effects that

the *Forty-Eighters* had in their towns.

On the other hand, our focus on local enlistment rates is actually almost completely absent in the historical literature. Our view is that this is because no data (not even a good "guesstimate") existed up to now on local differences in the extent of Union Army enlistment. Without knowledge of where enlistment was greatest, there was no scope for a historical literature on the local determinants of enlistment. Even seminal treatments of the topic do not attempt any quantitative assessment of local enlistment, while mostly emphasizing aspects that are consistent with our story, such as the strong 'ideological' motivation of Civil War soldiers (McPherson 1997, ch7–9; Costa and Kahn 2010), as well as the fact that "the volunteers' values remained rooted in the homes and communities from which they sprang to arms" (McPherson, 1997, p.5). Related to the effect of individual leadership on enlistment, we came across a quote by Joshua Chamberlain, who would later become a war hero but was then a college professor trying to raise men, who wrote to the governor of Maine in 1861 that "nearly 100 of those who have been my pupils are now officers in our army but there are many more all over our state who, I believe, would respond with enthusiasm, if summoned by me" (Longacre, 2009, p.53).

The *Forty-Eighters'* role during the War is more often discussed than their effect on enlistment. This makes sense insofar as there is much more information available on what went on during the war, from both Union Army statistics as well as from the millions of soldier letters that historians have studied. For example, Costa and Kahn (2003) find that German immigrants were the least likely to desert and as "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 republican government." More qualitatively, Turner regiments (often *Forty-Eighter* led), were rated among the "fightingest" in the accounts in Fox (1889).

One episode that straddles the *Forty-Eighters'* role in enlistment and in the fighting itself is their involvement in defending the St Louis, Missouri, federal weapons Arsenal against the secessionist Missouri militia. Goodheart (2011, 256–264) contains a detailed account of how the local commanders of the federal Arsenal, Nathaniel Lyon and Frank Blair, formed a coalition with local *Forty-Eighters* who were leading a movement called the "Wide-Awakes". They Wide-Awakes enlisted en bloc and were effectively transformed into military units which came to be called the Home Guards. These defended the Arsenal against the secessionist state militia. Goodheart

concludes that "Lyon, Blair, and the Germans did save Missouri. [...] Grant himself would believe for the rest of his life that but for them the Arsenal and with it St. Louis would have been taken by the Confederacy. [...] In effect the small band of German revolutionaries accomplished in St. Louis what they had failed to do in Vienna and Heidelberg: overthrow a reactionary state government." (p264)

Appendix A.4   Selected Biographical Case Studies of *Forty-Eighters*

Appendix A.4.1   Example of a Journalist

Herman Raster was born in Zerbst.[53] His father, the duke of Anhalt's administrative officer and friend, put emphasis on his children's education and even brought a tutor from England to teach the language. It soon became obvious that Raster was particularly gifted and still in school, he earned his first money for the translation of a French play into German. Raster reportedly spoke seven languages when he finished school and went on to study philology, linguistic and history at the universities of Leipzig and Berlin. While his father hoped for him to become a philologist, Raster himself was more interested in politics and journalism. This interest was additionally stimulated by an encountered with the writer, novelist and social activist Bettina von Arnim as part of the liberal political scene in Berlin.

When the 1848 revolution broke out, Raster was a protagonist in Dessau's freedom party who penned masterly pamphlets. At the same time, his rare skills in stenography got him a position as Secretary of the State Assembly of Dessau. In the aftermath of the failed revolution, Raster was forced to leave Germany in 1851 and chose to move to the United States. Upon his arrival in New York, he was looking in vain for a job and after five weeks in New York and Philadelphia, he ran out of funds and had to take up a job as farm hand in rural Pennsylvania. The owner of the farm in Tioga, Mr Johnson, was well educated and soon after his arrival, Raster was teaching farmers' children and learned in long conversations with a solicitor named Garritson the specifics of American politics.

In spring 1852, Raster left his farm job to take up an editorial position at a newspaper, the Buffalo Democrat. He quickly gained journalistic reputation and only one year later, he became the editor of the *New York Abendzeitung*. During his time in New York, Raster became an active member of the Republican Party and an elector in the 1856 presidential, and his articles in support of the union and abolitionist movement in the *Abendzeitung* helped the Republican Party gain momentum among German immigrants. During the civil war, Raster was the main American correspondent for influential newspapers in German cities. In this position, he was very effectively complaining for the Union's cause and helping attract investors for Union bonds.

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[53]The biography is based on Raster's own memoirs published as Raster (1891).

After the Civil War, Raster accepted the position as editor of the *Illinois Staats-Zeitung* in Chicago in 1867 where he remained until his death.

Appendix A.4.2 Example of an Artist

Theodor Kaufman was born in Uelzen close to the city of Hanover.[54] He started a mercantile apprenticeship but then decided to study painting in D˘sseldorf and Munich and additionally studied philosophy for some years. Kaufmann became an influential pictorial artist whose approach to painting was to merge image and language in an attempt to go beyond mere aesthetics. Instead, he called for "a political-philosophical form of art [..] that instead functions as an emancipative instrument raising awareness by pushing through democratic processes" (Roob, 2012). Artistically, this attitude was expressed in a series of eight etchings named the "The Development of the Idea of God" published in 1850 that were inspired by Feuerbach's religion-critical writings. Practically, this attitude led him to join the revolutionary activities during the 1848 barricade fighting in Dresden and he had to fled from the Prussian army to Switzerland and eventually emigrated to the United States in 1850.

After his arrival in New York, he worked as a painter and started art training in his studio in New York. His one and only student was Thomas Nast, the son of Forty-Eighter Joseph Thomas Nast. In the 1850s, Kaufmann's art career slowed down and he temporarily earned his living as a portrait painter and assistant in photo studios.

Being an ardent abolitionist, Kaufmann felt the call to support the Union Army and enlisted as a private. He took part in the naval expedition against Forts Hatteras and Clark and served under General Fremont whose radical attitude toward slavery he admired. After his active career as a soldier, Kaufmann went on to support the Union Army as a speaker and writer. When he contributed one of his paintings to a fund-raising event for wounded soldiers, it attracted great interest and subsequently, his career as a painter caught a second wind and he could make a living off it. Subsequently, he created a number of important historical paintings like "On to Liberty" in 1867 that is today exhibited at the *New York Met*.

While not being a Forty-Eighter himself, Kaufmann's student Thomas Nast still deserves mention. At age fourteen, he received his basic artistic training in Kaufmann's studio in New York.

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[54]Biographical information is taken from Hoffmann (2001) and Zucker (1950).

Possibly influenced by his father's revolutionary attitude and his teacher Kaufmann, Nast became one of the most influential graphical artists whom the New York Times called in 1908 the "Father of the American Cartoon." His U.S. career started at the illustrated magazine Harper's Weekly which supported the Union during the Civil War with picture campaigns. Nast started as a graphic war correspondent, but soon switched to emblematic cartoons. The popularity of his patriotic graphics led Abraham Lincoln to say that "Thomas Nast has been our best recruiting sergeant. His emblematic cartoons have never failed to arose enthusiasm and patriotism, and have always seemed to come just when these articles were getting scarce" (Paine, 1904).

Appendix A.4.3   Example of a Turner

Joseph Gerhardt was born in Oberdallendorf close to Bonn.[55] He studied at the University of Bonn and subsequently worked as a merchant and innkeeper in Bonn. During the 1848 Revolution, Gerhardt commanded a battalion of volunteers in the Baden revolt in an attempt to defend the Rastatt Fortress, a bastion of the revolutionaries. When Prussian troops quelled the riots, Gerhardt was imprisoned in Rastatt fortress but then managed to escape to Switzerland. In 1850, he had to leave Switzerland without his family and came via New York to settle in Washington D.C.

Upon his arrival, Gerhardt played the violin in theater orchestras and took up other humble jobs to make a living before he returned to his former occupation as hotel and innkeeper. He opened the Germania Hotel with a beer garden and restaurant.

When his friend Adolf Cluss came to organize the Socialist Turner Association in Washington in 1852, Gerhardt served as speaker and president. According to the club's statutes, membership was open to anyone willing to support their revolutionary efforts. Gerhard also got involved in politics. He joined the Republican Party in 1856, became Republican marshal for his district, and in October 1860 he was a founding member of the German Republican Association. The association's main goal was to inform and educate Germans about the Republican Party's matters.

After Lincoln's election, Gerhardt entered organized a volunteer Turner Company which became known as "Turner Rifles." They were guarding Lincoln's inauguration, protected Washington's public buildings at the onset of the Civil War, and went to Great Falls, Virginia to protect the

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[55]Biographic information is extracted from the newspaper articles für Texas (1881) and Star (1881) published at Gerhardt's death and an essay on Turners in Washington by Dugan (2007).

city's water supply. Subsequently, Gerhardt went on to New York where he was made colonel of the 46th New York Volunteers. In 1863, he had to resign from the Union Army for health reasons and returned to Washington. He continued to be a well-known hotel and innkeeper until his death.

Appendix A.4.4   Example of a Military Man

August von Willich was born in Braunsberg with his father being a captain in the Prussian army.[56] Willich himself received his military education in the cadet schools of Potsdam and Berlin and joined the Prussian field artillery as an officer. When he got exposed to Karl Marx' political ideas, he chose to resign from the army in 1847 because his communist and republican beliefs were incommensurate with the military obligations. Around the same time, he decided to give up his noble title and went by "Willich" instead of "von Willich." Subsequently, we played an active part in the 1848 revolution; he participated in the attack on the Cologne City Hall, and led a corps of volunteers during the Baden Revolution with Friedrich Engels being his aide-de-camp. When the revolution failed, Willich escaped to Switzerland and eventually joined an exile group of German revolutionaries and communists around Marx and Engels in London. After a fallout with Marx and Engels, Karl Schapper and Willich split off the League of Communists and in 1853, he eventually emigrated to the United States.

Willich learned to be a carpenter in England and initially worked in this occupation at the Brooklyn Navy Yard. However, his talent in maths and science soon got him a better position in the coastal survey at Washington D.C. Over the years, Willich became politically more active and when he was offered to edit the ""Deutscher Republikaner", a Cincinnati-based German newspaper, he took the position in 1858. In the 1860 election, he supported Lincoln and at the outbreak of the Civil War, Willich helped organize the first German voluntary regiment of Cincinnati. In line with his communist ideals, he initially signed up as an ordinary soldier but his military training soon got him the rank of colonel. In the course of the war, Willich participated in numerous battles and got promoted to Brigadier General for his braveness in the battles of Shiloh. When sustained injuries forced him to end his active military career, he turned to administrative roles before he resigned form the army in fall 1865.

After the war, Willich held different government positions in Cincinnati before he returned to

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[56]Biographic information is taken from Dlubek (2003), Nagel (2012) and Rattermann (1878).

Germany for some years obtain a philosophy degree from the University of Berlin at the age of 60. After that, he returned to the United Stated and died in Ohio.

Appendix B   Data Appendix

Appendix B.1   The *Forty-Eighters*

To code up the *Forty-Eighters*' biographies, we started with 318 accounts listed in the explicitly biographical book by Zucker (1950). We complement this source with names from Wittke's (1970) 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 also presents a list of revolutionaries who went to the U.S. Finally, Baron's (2012) book includes a name index, although this is fully subsumed in the other sources. In total, we end up with a list of just over 500 individual *Forty-Eighters*, and we completed their biographies in Germany and the United States through individual searches in genealogical online sources like `Ancestry.com`. In this way, we are able to locate 493 *Forty-Eighters* in the towns they settled in.

Closer inspection of the number of *Forty-Eighters* across towns reveals a heavily right-skewed distribution. While we observe 73 towns with at least one *Forty-Eighter*, almost three-quarters of the *Forty-Eighters* went to (or stayed in) only six large urban centers: New York, Cincinnati, St. Louis, Philadelphia, Baltimore, and Milwaukee. This skew is evident in the left panel of Figure A2.[57]

This skew raises the question which functional form to use. One concern is that towns with many *Forty-Eighters* would depress the estimated treatment effect if the treatment effect was erroneously assumed to be linear. A first inspection of the relationship between town size in 1850 and exposure to *Forty-Eighters* reveals an interesting pattern: for towns where at least one *Forty-Eighter* settled, the intensive margin of treatment (i.e. the number of *Forty-Eighters*) can be explained by a simple quadratic in their 1850 population size. This is evident in the right panel of Figure A2, which shows the fitted line from a regression of the number of *Forty-Eighters* on state fixed effects and a town's

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[57]New York City was the most important arrival port. In the *Germans to America* shipping-lists—discussed in Appendix B.5.2—New York City alone accounts for 85 percent of the 4.1 million German arrivals between 1850 and 1894. Therefore, it is not surprising that roughly one-quarter of the *Forty-Eighters* did not leave New York city. In our analysis, we disregard New York city for two reasons. First, there is no plausible control town for the largest city. Second, New York was the biggest entry port and a large portion of soldiers enlisted straight after debarkation, i.e. did not represent the resident population. (We thank Dora Costa for pointing this out.)
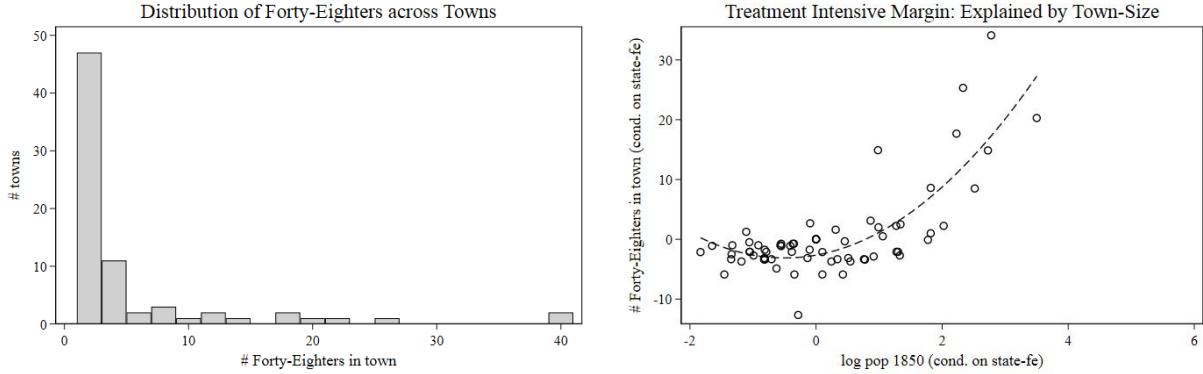
Figure A2: Distribution of No. of *Forty-Eighters*

Notes: The left panel of this figure displays the distribution of the number of *Forty-Eighters* across treated towns. There are over 60 towns where one or two *Forty-Eighters* settled, as well as a number of towns where several settled. More than thirty *Forty-Eighters* settled in Cincinnati, and St Louis, Missouri; twenty settled in Philadelphia, and Baltimore; and 15 or more in Milwaukee and Davenport. Among treated towns, the distribution of the number of *Forty-Eighters* was thus clearly skewed towards larger cities. (The left panel omits NYC where over 100 *Forty-Eighters* settled.) The right panel of the figure shows that a quadratic function of a town's 1850 population size fits the distribution of the number of *Forty-Eighters* very well.

1850 population. Therefore, our approach to dealing with the skewed distribution is to focus on a simple binary *Forty-Eighter* indicator, conditional on the log of a town's 1850 population size in all regressions.[58]

Appendix B.2   The Union Army Data

Table A1 shows that Pro-Lincoln states where the Republican party had the biggest vote share also have the highest enlistment numbers relative to the population and individual's enlisted earlier. Outside the Confederacy, border states were the most divided on the slavery issue and tended to have lower enlistment numbers relative to their population. Every Confederate state had some Union Army enlistments, but these occurred later. The majority of Southern enlistments to the Union Army occurred after the Union Army had defeated the bulk of Confederate forces in a state.

Appendix B.2.1   Record-Linking Union Army Data to the Full-Count Census

To reord-link the enlistment *registers* to the 1860 Full Count Census, we bloc on state-of-residence, and on first and last name initial. Similarity-scores are derived from a serious of exact matches on

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[58]This captures the quadratic relation with town size since the log of population and the log of squared population are collinear.

Table A1: Enlistment by State

State	Enlistment total	10th Perc. Enl-Date	Median Enl-Date	Enlistm./ 1860 Pop		Enlistment total	10th Perc. Enl-Date	Median Enl-Date	Enlistm./ 1860 Pop
Core States					**Confederate States**				
CONNECTICUT	39,202	25jun1861	28oct1862	4.3	ALABAMA	3,442	01oct1862	10mar1864	0.2
D.C.	11,433	16apr1861	07apr1862	7.6	ARKANSAS	12,889	16aug1862	13nov1863	1.5
ILLINOIS	226,922	25jul1861	04dec1862	6.6	FLORIDA	1,274	04jan1864	13may1864	0.5
INDIANA	185,774	17aug1861	02feb1863	6.9	GEORGIA	376	23mar1864	03sep1864	0.0
IOWA	70,982	16jul1861	06oct1862	5.3	LOUISIANA	35,128	01aug1862	25may1863	2.5
MAINE	55,859	15jul1861	16dec1862	4.4	MISSISSIPPI	15,668	27jul1863	14dec1863	1.0
MASSACHUSETTS	94,498	13jun1861	29sep1862	3.8	NORTH CAROLINA	2,968	27jun1862	05nov1863	0.1
MICHIGAN	82,121	12aug1861	06feb1863	5.5	SOUTH CAROLINA	3,552	31jan1863	20may1864	0.3
MINNESOTA	24,478	28sep1861	17feb1863	7.1	TENNESSEE	59,286	29may1862	13sep1863	2.7
NEW HAMPSHIRE	28,101	09aug1861	30dec1862	4.3	TEXAS	1,426	01nov1862	20may1863	0.1
NEW JERSEY	62,045	30may1861	06mar1863	4.6	VIRGINIA	3,683	20jun1862	06oct1863	0.1
NEW YORK	396,339	25may1861	29nov1862	5.1					
OHIO	299,457	13jun1861	10dec1862	6.4	**Western States**				
PENNSYLVANIA	354,625	01jul1861	13jan1863	6.1	CALIFORNIA	14,785	09sep1861	22mar1863	1.9
RHODE ISLAND	21,700	06jun1861	19oct1862	6.2	COLORADO	4,913	01dec1861	29jan1863	7.2
VERMONT	27,783	14aug1861	23oct1862	4.4	NEBRASKA	19,226	24jul1861	20oct1862	9.0
WISCONSIN	79,219	26aug1861	15mar1863	5.1	KANSAS	3,284	13jun1861	08nov1862	5.7
					NEVADA	8,073	01jul1861	04mar1862	4.3
Border States					NEW MEXICO	1,285	01jul1863	03sep1863	9.4
DELAWARE	11,800	22may1861	26jun1862	5.3	OREGON	2,121	21nov1861	21may1863	2.0
KENTUCKY	93,764	19sep1861	08mar1863	4.1	SOUTH DAKOTA	123	05dec1861	01may1862	2.5
MARYLAND	33,693	03sep1861	11feb1863	2.5	UTAH	126	13aug1864	29aug1864	0.2
MISSOURI	150,647	08may1861	17jun1862	6.4	WASHINGTON	1,064	27nov1861	18mar1864	4.6
WEST VIRGINIA	31,906	01jul1861	31aug1862						

Notes: This table reports the total number of Union Army soldiers for each state's enlistment *registers*, the enlistment date of the tenth chronological percentile of enlisted men, the average enlistment date, as well as the enlisted men's population shares. Data stem from the *Adjutant General's Reports*. The table divides states into core/Northern states, border states (who had slaves but did not secede from the Union), Confederate states, and Western states (who did not yet have statehood). A notable feature of the data is that there were Union Army enlistments from every Confederate state.

the following variables:

- last name (11 -6)

- last name initials (5 -1)

- firstname (5 0)

- firstname-initials (5 -2)

- firstname first three letters (5 -1)

- middlename-initials (2 -2)

- town-name (5 -3)

- county string-code (5 -3)

In brackets are the positive weights for an exact match, and the negative weights for a non-match. Negative weights for mismatches are appropriate when the fact of a not-exactly matching variable is a strong indication of a non-match. For example, initials should be expected to match between records for the same person. Positive weights for matches are appropriate when the fact of an exactly matching variable is a strong indication of a match, but the absence of a match is not a strong indication of a mismatch. For example, a non-matching first name should not receive a negative weight because first names are prone to being abbreviated, i.e. 'Bartholomew' can become 'Bart', or 'Charles' can become 'Chad'. To account for this, one can create a extra variable consisting of the first, say, three letters of a first name, so that 'Bartholomew' matches 'Bart', and 'Charles' matches 'Chad'. The only commonly abbreviated name we found that is not captured by this rule is 'William' so that we changed 'William' (and 'Will') to 'Wm' in all data-sets. Given the values in the algorithm above, two exemplary records with completely identical names receive a match-score of $11 + 5 + 5 + 5 + 5 + 2 = 33$, and two exemplary records with identical names except 'Charles' in one record becomes 'Chad' in the other receive a match-score of $11 + 5 + 0 + 5 + 5 + 2 = 28$.

The only numeric variable in the linkage algorithm is

- year-of-birth (5 -1 1) and (0 -4 3)

where the third number in brackets is the allowed deviation ('caliper') from an exact match. For example, in the Full-Count census, birth year is given, but in the Army register birth year is constructed as enlistment age minus the year of enlistment. This latter variable can easily be off by one year in either direction so that it is important to allow for a caliper of 1 in the matching, i.e. 1840 and 1841 as well as 1840 and 1839 are considered exact matches, but 1839 and 1841 are not. By defining two such ranges, one can trace out a gradient. In our algorithm, a birth-year deviation of 1 adds $5 + 0$ to the match score, a birth-year deviation of 2 or 3 years adds -1 to the match score, and a birth-year deviation of more than 3 years adds $-1 - 4 = -5$ to the match score.

We use STATA's command dtalink to perform the matching. One upside of dtalink is that it offers complete transparency on how the match-score is generated. Since the match-score is simply an additive score of exact matches on a record's characteristics, one can manually calculate each match-score by simple arithmetic. Stated differently, one can look at the characteristics of a record in Table A2 (one row), and manually calculate the match-score reported in the table. Other currently available methods do not offer this transparency.

The cutoff we chose is 30. Given the weights listed above, 30 is a high match-score for soldiers who have no location information in the army registers. We are therefore very confident that matches of 30 or above are correct. It is important that we prevent matching location information from dominating poorly matched name-matching: this is achieved by the negative weights on non-matching last names and non-matching middle-name initials.

Linkages are unique, i.e. after finding the set of all linkages with a mach score above 30, dtalink performs a grid-search so that each Census-record is linked to only one soldier record.

One downside of dtalink is that it does not allow string-similarity indexation (e.g. Jaro-Winkler or similar indices); instead one has to "fan out" sub-strings manually as outlined above. In our data, this is easily compensated by dtalink's most critical upside, which is the ability to deal with *missing data*. If a linkage-variable is missing in a record, that variable's contribution to the total match-score is zero, but if other variables compensate by providing high overlap, two linked records can still have a high match-score. This is important for us because we miss town-of-residence in the majority of military records, we miss county-of-residence in about half the military records, and we miss age in about one-third of the military records. Lastly, the military records frequently miss middle names (unlike the other three variables, one can only know after linking to the census if a

middle name is missing or if a soldier did not have one). Standard packages typically do not allow missing variables, and records with missing variables are consequently dropped. This is likely not a big deal when a research question is concerned with an individual-level analysis and one is confident that the missings are random. In our application, however, we would like to maximie the number of good links because we aggregate our individual links into spatial units (towns). To illustrate this, consider the three links in Table A2 with match-scores of 33 (listed in the middle-column). All three look like very good matches (exact and unique matches on state, first name, and last name, as well as middle name initial; in addition, the census-birth-years are plausible for a Union Army soldier). However, all three have missing ages in the soldier-records, and would by default be discarded in most linkage algorithms, whereas `dtalink` is not sensitive to this missing. In fact, all three records even have fairly high match-scores despite missing age information because they include middle name information (which is often missing).

For a more detailed discussion of record linkage approaches, we refer the reader the excellent review in Bailey et al. (2019).

Appendix B.2.2   Spatial Interpolation Based on Local Enlistment

Figure A3: Spatial Interpolation of Soldiers' Residences
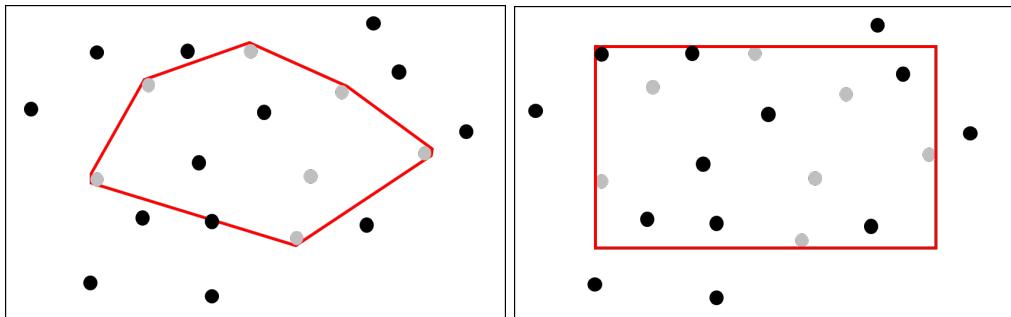
Notes: The left panel of this figure visualizes our favored spatial interpolation approach where we calculate the convex hull around all observed enlistment locations in a given regiment r. This determines our enlistment area and we randomly allocate soldiers without location information to towns inside the enlistment area using the 1860 town population as weight. The right panel of this figure visualizes a simpler version of this polygon procedure where we delineate a regiment's enlistment area by a rectangle that spans the minimum and maximum coordinates of all observed enlistment towns for a given regiment r. Soldiers without location information are allocated as before.

As mentioned above, we miss town-of-residence in the majority of military records. Linking the records to the census recovers this information for many observations. To assign the remaining

Table A2: Sample of linked Individuals

	Army Rosters Data						dtalink score	Census Data					
first name	last name	enlistm. date	enlistm. age	county of residence	state of residence			first name	last name	birthyear	town of residence	county of residence	state of residence
Lewis	Wentworth	04feb1864	18		OH		30	Lewis	Wentworth	1848	Carryall	Paulding	OH
Daniel	Williams	30aug1863	19		MA		30	Daniel	Williams	1847	Concord	Middlesex	MA
Milo	Kemp	14aug1864	21		OH		30	Milo	Kemp	1845	Dayton	Montgomery	OH
James P	Henry	06dec1864	22		NY		31	James	Henry	1843	North Salem	Westchester	NY
Thomas	Johnson	27mar1865	.		PA		31	Thomas	Johnson	1834	Tyrone	Blair	PA
Thomas	Brennan	01aug1862	.		LA		31	Thomas	Brennan	1851	New Orleans	Orleans	LA
Peter H	Williams	06sep1861	19		OH		32	Peter H	Williams	1844	Uniopolis	Auglaize	OH
James H	Danner	15aug1864	28		OH		32	James H	Danner	1839	Racoon	Gallia	OH
Joseph C	Smith	20aug1861	25		NY		32	Joseph C	Smith	1833	Hector	Schuyler	NY
Charles W	Scott	27oct1864	.		NY		33	Charles W	Scott	1848	Warwarsing	Ulster	NY
Charles D	Zane	19aug1861	.		NJ		33	Charles D	Zane	1844	Upper Penn's Neck	Salem	NJ
Jose M	Garcia	31may1862	.		NM		33	Jose M	Garcia	1817	Hamlet Of La Bolsa	Valencia	NM
William	Hinton	21jun1861	34	Centre	PA		35	Wm	Hinton	1830	Snowshoe	Centre	PA
Francis	Bates	09aug1861	37	Houghton	MI		35	Francis	Bates	1827	Portage	Houghton	MI
Elias	Beidleman	22feb1864	34	Dauphin	PA		35	Elias	Beidleman	1832	Middletown	Dauphin	PA
William	Morgan	02sep1864	23		NY		36	Wm	Morgan	1841	Chesterfield	Essex	NY
Ralph	Norton	20jan1864	37		NY		36	Ralph	Norton	1828	Manlius	Onondaga	NY
Hiram	Coolidge	21mar1864	19		OH		36	Hiram	Coolidge	1845	Paris	Union	OH
John L	Miller	12jan1862	18	Monroe	MI		37	John L	Miller	1847	La Salle	Monroe	MI
Levi T	Greenlee	28oct1861	20	Wayne	IA		37	Levi T	Greenlee	1843	Benton	Wayne	IA
Wesley A	Harbeson	02oct1863	18	Lee	IA		37	Wesley A	Harbeson	1847	Harrison	Lee	IA
Thomas C	Cory	07sep1861	23		OH		38	Thomas C	Cory	1838	Cranberry	Crawford	OH
Napoleon B	Carpenter	26aug1861	24		NY		38	Napoleon B	Carpenter	1838	New York	New York	NY
Luther B	Phelps	23aug1862	22		NY		38	Luther B	Phelps	1841	Gouverneur	St Lawrence	NY
John	Brunner	17jun1863	22	Lebanon	PA		41	John	Brunner	1841	Swatara	Lebanon	PA
John	Phillips	21jul1862	21	Mahaska	IA		41	John	Phillips	1842	Oskaloosa	Mahaska	IA
Edward	Larkins	21may1861	28	Wayne	MI		41	Edward	Larkins	1832	Plymouth	Wayne	MI
Edward P	Clark	19jun1861	28	Washtenaw	MI		43	Edward P	Clark	1833	Ann Arbor	Washtenaw	MI
Nathan W	Brock	23may1864	39	Dallas	IA		43	Nathan W	Brock	1824	Dallas	Dallas	IA
George W	Webb	18oct1863	18	Pope	AR		43	George W	Webb	1845	Illinois	Pope	AR

Notes: To illustrate how match scores vary in the linkage procedure outlined in Appendix B.2.1, this table reports on three randomly drawn matches for each match-score above the cutoff of 30.

soldiers to a town of residence, we take advantage of the fact that regiments in the Union Army were raised locally, most often from a small area encompassing no more than a few counties, and frequently no more than a few towns within a county (Costa and Kahn, 2003, 524). 'Local enlistment' means that the observed distribution of located soldiers' home-towns in a regiment is highly predictive of the unobserved distribution of unlocated soldiers' home-towns.[59] We consider two approaches which exploit the spatial clustering of enlistments to determine regiment r's relevant 'enlistment area.' Both approaches are visually represented in Figure A3. The light-gray dots represent the set of towns where we observe enlistments for regiment r (within a state s), and the black dots represent the remaining towns in the enlistment area where we do not observe enlistments.[60] Our preferred procedure to delineate an enlistment area is to calculate the convex hull of all (gray) locations with enlistment information. The resulting polygon is shown in the left panel of Figure A3. A simpler method to delineate the enlistment area is to calculate the rectangle that spans the minimum and maximum coordinates of all observed enlistment towns per regiment and state. The right panel of Figure A3 illustrates this. Once we have defined an enlistment area, we randomly assign unlocated cases to the enclosed enlistment-area towns using their 1860 population as weights. The latter accounts for the fact that larger towns enlisted more soldiers.

Appendix B.3 Inferring Soldiers' Ancestry Using Machine Learning

This section describes how we trained a Machine Learning Algorithm on the 1860 Full Count U.S. Census where we observe place of birth information and then applied the trained algorithm to the Union Army Enlistment Data to infer missing place of birth information. 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 end with "berg" or "mann", while Mexican names often end with "guez" or "arro". Naming conventions become less stable and 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

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[59]The U.S. Army abandoned local enlistments only after D-day in World War II.

[60]Regiments were recruited within states. If we observe home towns in more than one state in a regiment, we determine the most frequent home state and drop all enlistments from different home states.

individual nationality or ethnicity. Using decision trees, Ambekar et al. (2009) and Treeratpituk and Giles (2012) classify ethnic groups on a corpus of news data. Chang et al. (2010) develop a Bayesian classifier with name data from the 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 based on 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 includes two-steps. In a 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. In the next step, a statistical model (e.g., logistic regression, ridge-regression, random forest, etc) is applied to the processed data to calculate predictions. This approach, however, requires significant computational capacity and often fails, even on industrial supercomputers.

Mikolov et al. (2010) and Bahdanau, Cho and Bengio (2014) show that recurrent neural networks are cost-effective alternatives to other approaches to language modeling. Recurrent neural networks iteratively introduce additional n-grams as covariates, update the prediction and keep them only if the quality of the prediction increased by more than a certain threshold. Thus, they effectively keep and operate over important patterns only. Bahdanau, Cho and Bengio (2014) show that recurrent neural networks outperform most of the standard models of statistical learning on large-size data-sets for tasks such as machine translation while not suffering from over-fitting (see also, Hochreiter and Schmidhuber (1997)). Kim et al. (2016) , Chiu and Nichols (2015), and Lee et al. (2017) who 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. (2017) to develop a recurrent neural-network-based model which predicts nationality using an individual's first and last name. Using character embedding, our model automatically extracts character-level features for the fist and last name 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).

We employ the algorithm to the *Union Army Registers* which contain military information like the units men belonged to, their rank, when they enlisted, their enlistment terms and whether they

died, deserted, were wounded or mustered out at the end of their service. Aside from this, we only know the enlistees' name, age at enlistment, and town-of-residence. To infer soldiers' ancestry, the 1860 Full Count Census where we observe names and birth places, provides us with a natural training data set to train a machine-learning algorithm. We group birthplaces into German, Irish, Italian, Scandinavian, American and 'Other Immigrants' in the Full-Count 1860 U.S. Census, and then train the algorithm described in the previous subsection to predict the relative probabilities of an individual belonging to each group. In the training data, we accurately predict birthplace in more than ninety percent of the cases. We then apply the trained algorithm to our soldier data, and associated each soldier with a probability distribution of ancestries. Note that the number of Italians in the U.S. turned out to be so small in 1860 that we grouped them with the 'Other' category. This is in line with historical records suggesting that the majority of Italian immigrants arrived after 1870.

Appendix B.4   Historical Town and County Controls

At the city level, we observe only population counts by race and gender, from Fishman (2009). We thank Michael Haines for sharing his cleaned version of the 1850 and 1860 town-level data. In addition, we geo-coded the location of all towns, which allows us to calculate a rich set of geographic location factors. These include longitude and latitude, log elevation, the mean temperature and precipitation, and the following set of (log) distance variables: distance to the coast, to the next navigable river, and the railway network in 1850 (provided by Atack, 2015).

Appendix B.4.1   Historical County-Level Controls

We supplement our town-level data with the following 1850 county-level controls from the *Historical, Demographic, Economic, and Social Data: The United States, 1790-2002* (Haines, 2010):

- Economic: urbanization, manufacturing employment and output, farmland's share of area, farm equipment value

- Demographic: population size, foreign born, German-born, churches

Appendix B.4.2   Historical Voting Data

We have historical voting data from ICPSR's *Electoral Data for Counties in the United States: Presidential and Congressional Races, 1840-1972* (Clubb, Flanigan and Zingale, 2006). Unfortunately, in addition to only covering about two-thirds of areas included in our study, the historical voting data exist only at the county level. This is disappointing because many historians' have argued that the *Forty-Eighters* had an effect on the rise of the Republican Party. (See Section 1.2.) We attempted to obtain sub-county historical voting data, and we owe a debt of gratitude to John Wallis and Jeremy Darrington for helpful advice in this regard. Unfortunately, such data does not exist. The only promising path is data on state legislatures, for which Dubin (2015) is the starting point. Unfortunately, voting data on electoral districts is only available in states such as Iowa that are so large that a state electoral district is actually coarser than a county, so that nothing is gained in terms of obtaining voting information at a more fine-grained level than what can be gleaned from Clubb, Flanigan and Zingale (2006).

Appendix B.5   Factors Attracting the *Forty-Eighters* into Specific Towns

Appendix B.5.1   *Metzler's Map for Immigrants*

A novel control variable that we are introducing for this paper is *Metzler's Map for Immigrants*; see Figure A4. This map was published in Germany in 1853 to show emigrants the main travel routes across the ocean to the U.S. and within the U.S. along with some information about fares. Based on this map, we calculate all cities' (log) distance to the nearest city on Metzler's map.

Appendix B.5.2   Mapping the *Germans to America* Shipping Lists into U.S. Towns

The 'Germans to America' Shipping Lists bring together ship lists from various ports of entry in the U.S. in the mid-19th century. We digitized the corresponding books for the years 1845–1855.

We use these data as control variable in our regressions, for the placebo exercises in Table A8, and as basis of our instrument in Section 4.2. To construct the instrument, we first record-link the *Forty-Eighters* to the ship lists using bigram indexation on name similarity, and restrict differences in reported age to be at most three years. We limit our search to ships arriving between 1848 and 1852 because the "haphazard arrival" logic is much less plausible for the few *Forty-Eighters*

Figure A4: Metzler's Map for Immigrants
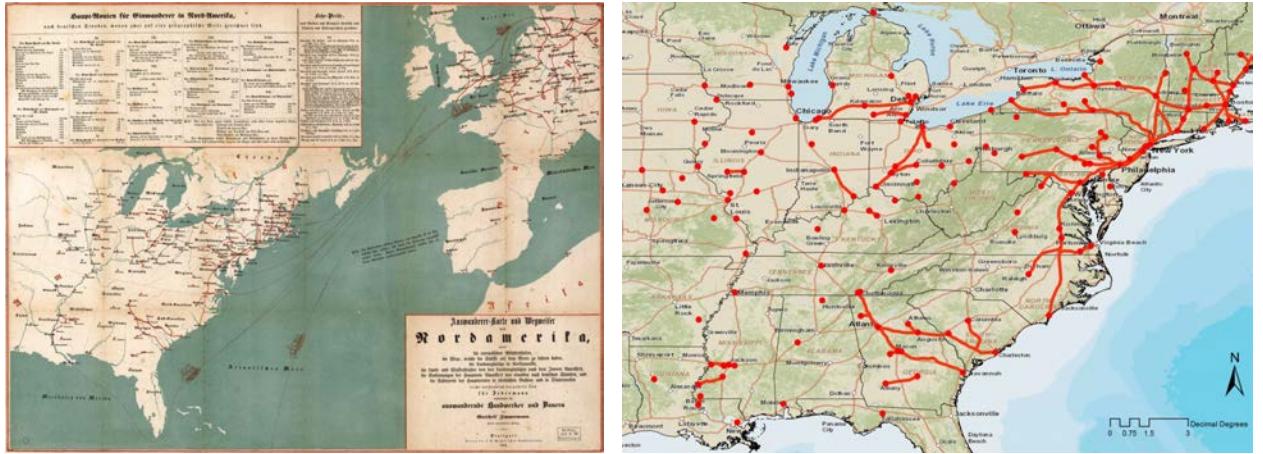
Notes: The left panel shows the second edition of *Metzler's Auswanderer Karte*, published in 1853. The table in the top-left provides information on the distance and fare, red lines indicate the main travel routes, and red dots mark common destinations. The right panel shows our digitized version of Metzler's map along with the main routes and locations.

who arrived later (and had more time to think about their trip). With this, we identify the set of *Forty-Eighter* ships, i.e. the immigrant ships with *Forty-Eighters* on them. For these ships, we compute a distribution of reported intended destinations in the U.S. As a control variable, we compute the distribution of reported intended destinations for passengers on all other ships in the collection that arrived in the U.S. in the same time window.

Appendix B.6   *Turner Societies*

German immigrants had a strong sense for 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, and certainly the most political ones. Many *Forty-Eighters* were members if not their founders. One of the first Turner Societies 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.

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 focused on athletics was in reality a highly political movement. Jahn was a patriot who believed that physical education would raise young gymnasts' physical and moral powers and their sense for national identity. In this way, he was hoping to prepare them for military service and ultimately the liberation of the German lands from Napoleon and France. But Jahn was also a liberal thinker who dreamed 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 centers of political discussions and activities and it is not surprising that they were the breeding ground for the revolution. Many *Forty-Eighters* were members of the Turner Societies in Germany.

Upon their arrival, the *Forty-Eighters* established the Turner movement in the United States, and the nationwide Turner network helped them spread their liberal ideals. Among their main goals 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). Wittke 1970 estimates that 60 percent to 80 percent of the Turners enlisted for the Civil War.

Appendix C   Matched Sample Details

Table A5 shows that the matched sample moves the distribution of the outcome variable for treated towns closer to controls towns. Table A6 shows the same distributions for per capita enlistments instead of the log of enlistments.

As a robustness check on the sample selection, we constructed two additional matched samples, *PSM-2* and *PSM-3*. In *PSM-2*, we do not impose exact matching on state and population bin, so that state fixed effects just enter the logistic regression as dummy variables. This is expected to

increase the number of matched treated towns because control towns can be drawn from a wider set. At the same time, the number of control towns may decrease because an untreated town can be a nearest neighbor for additional treated towns in other states. In *PSM-3*, we decrease the number of required nearest neighbors from five to three. This should again increases the number of matched treated towns because the required number of 'statistical twins' is decreased. At the same time, the number of control towns decreases because of the lower number of neighbors. Both *PSM-2* and *PSM-3* therefore have a higher ratio of treated to control towns.

Unfortunately, the 1850 Full Count Census does not provide a large sample of control variables.[61] The 1860 Full Count Census, however, has additional wealth, education and occupation information. On the one hand, the sparsity of town level controls means that the 1860 controls may help absorb time-invariant confounding characteristics that could have potentially attracted *Forty-Eighters* and had an impact on enlistment. On the other hand, 1860 controls may be viewed as 'bad controls' in the sense that they post-date the *Forty-Eighters'* settlement and could be potentially endogenous. To get an idea how sensitive the matched sample is to the inclusion of 1860 county controls, we construct another matched sample (labeled *PSM-4*) where we include 1860 town controls as additional matching variables but keep the concerns about these control variables in mind.
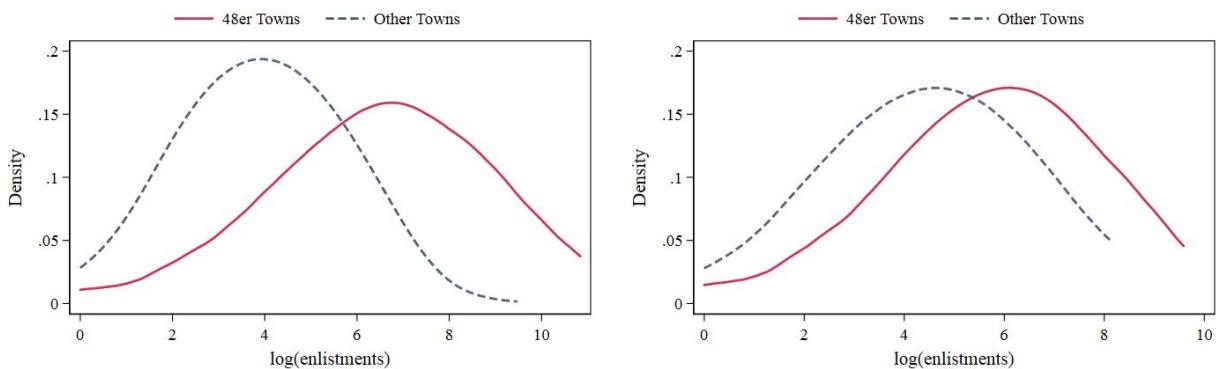
Figure A5: Kernel Density Plots for Enlistments

Notes: The figure shows Kernel density plots for treated and control towns. The left figure reports on the log of enlistments in the full sample, the right figure on the matched sample. The mean (standard deviation) for treated and control towns are 6.44 (2.1) and 3.88 (1.25) in the full sample, compared to 5.73 (1.87) and 4.44 (1.68) in the matched sample.

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[61]Variables are being added to historical Full Count Censuses, by the Integrated Public Use Microdata Series (IPUMS) but the process is slow because the addition of any variable for the entire U.S. population is time-consuming and costly.

Table A3: Balance & Variable-Selection in the Matched Sample

	(1) Control	(2) Treated	(3)	(4)	(5)	(6)
			Test [Treated = Control]		Variable Selection Model	
fixed effects:	-	-	-	state	-	state
Share German-Born 1850	0.059	0.076	0.017	0.015		
	(0.114)	(0.115)	[0.344]	[0.353]		
Log Dist: Metzler-Map Destinations	3.554	3.147	-0.406	-0.341		
	(1.281)	(1.902)	[0.064]	[0.041]		
ΔShare German-Born 1860-1850	0.030	0.020	-0.010	-0.007		
	(0.115)	(0.142)	[0.588]	[0.700]		
Germans-To-America 1848-52	0.033	0.087	0.054	0.051	1.671	1.825
	(0.051)	(0.123)	[0.000]	[0.000]	[0.000]	[0.000]
Count German Newspapers 1850	0.208	0.704	0.496	0.396	0.038	0.041
	(1.292)	(1.829)	[0.023]	[0.033]	[0.015]	[0.017]
Log Pop 1850	6.983	7.485	0.502	0.478		
	(1.191)	(1.474)	[0.009]	[0.000]		
Log Dist Nearest Port	6.897	6.891	-0.007	0.005		
	(0.472)	(0.479)	[0.928]	[0.762]		
Log Dist Nearest Navigatable River	2.766	2.753	-0.013	-0.077		
	(2.088)	(2.245)	[0.968]	[0.789]		
Log Dist Nearest Railway	3.884	3.620	-0.265	-0.271		
	(2.109)	(2.395)	[0.425]	[0.159]		
Log Dist Nearest Coast	4.505	4.352	-0.154	-0.201		
	(1.825)	(2.219)	[0.600]	[0.322]		
Latitude	41.255	41.118	-0.137	-0.094		
	(1.818)	(1.756)	[0.620]	[0.447]		
Longitude	-85.918	-85.891	0.027	-0.050		
	(6.895)	(7.014)	[0.980]	[0.766]		
Log Elevation	5.242	5.200	-0.041	-0.095		
	(0.685)	(0.718)	[0.695]	[0.114]		
Mean Temperature	98.884	101.120	2.237	2.342		
	(18.858)	(18.054)	[0.434]	[0.116]		
Mean Precipitation	2.706	2.696	-0.011	-0.001		
	(0.352)	(0.349)	[0.844]	[0.971]		
Slave Pop Share 1850	0.004	0.001	-0.003	-0.003		
	(0.023)	(0.008)	[0.400]	[0.227]		
Free Colored Pop Share 1850	0.013	0.016	0.003	0.003		
	(0.034)	(0.031)	[0.592]	[0.442]		
White Female Pop Share 1850	0.464	0.469	0.006	0.003		
	(0.050)	(0.047)	[0.469]	[0.627]		
%-Δ Pop 1850-1840	1.630	1.479	-0.151	-0.131		
	(0.719)	(0.812)	[0.181]	[0.184]		
%-Δ Slave Pop 1850-1840	0.044	-0.037	-0.081	-0.082	-0.163	-0.160
	(0.435)	(0.474)	[0.232]	[0.075]	[0.037]	[0.047]
%-Δ Free Colored Pop 1850-1840	0.699	0.783	0.084	0.106		
	(0.961)	(1.198)	[0.587]	[0.482]		
%-Δ Female White Pop 1850-1840	1.633	1.490	-0.143	-0.123		
	(0.711)	(0.797)	[0.201]	[0.206]		
County: Churches 1850	33.242	33.333	0.092	-2.012		
	(42.917)	(45.245)	[0.989]	[0.641]		
County: 1850-Share Pop in Places>25,000	0.034	0.030	-0.004	-0.004		
	(0.155)	(0.142)	[0.872]	[0.854]		
County: 1850-Share Pop in Places>2,500	0.104	0.114	0.010	0.008		-0.208
	(0.202)	(0.194)	[0.745]	[0.760]		[0.136]
County: Manufacturing Capital Share Foreign Born	8.813	9.958	1.146	0.924		
	(7.230)	(6.205)	[0.287]	[0.174]		
County: Colleges 1850	0.246	0.370	0.124	0.099		
	(0.712)	(0.592)	[0.240]	[0.318]		
County: 1848 Vote-Share Democratic Party	52.202	52.460	0.258	0.584		
	(9.009)	(9.052)	[0.861]	[0.678]		
County: 1848 Vote-Share Liberty Party	5.724	4.196	-1.528	-1.666		
	(7.590)	(4.303)	[0.183]	[0.083]		
Observations	207	54				

Notes: This table resembles Table 1, but it investigates the balance between treatment and control locations in the matched sample (*PSM1*). Columns 1–2 report on means and standard deviations of observable characteristics for control and treated towns. Columns 3–4 test for balance (with and without state fixed effects). Columns 5–6 report which variables are most predictive of treatment in a multivariate setting (with and without state fixed effects). Columns 1–2 report standard errors in round brackets. Columns 3–6 report p-values in square brackets. This sample is considerably more balanced. This is obvious from both the higher p-values in columns 3–4, and the lower number of variables selected in columns 5–6.

Table A4: Estimated Coefficients in Alternative Samples

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A:	*PSM-2 (no exact matching)*			*PSM-3 (3 neighbors)*		
D(Forty-Eighters)	0.662	0.697	0.681	0.528	0.563	0.548
	[0.001]	[0.000]	[0.000]	[0.003]	[0.001]	[0.004]
Observations	283	283	283	191	191	191
# Forty-Eighter Towns	0.791	0.805	0.813	0.726	0.742	0.753
R-squared	59	59	59	57	57	57
Panel B:	*Prop. Score Matched (1860 ctrls)*			*Full Sample (w county f.e.)*		
D(Forty-Eighters)	0.617	0.583	0.532	0.881	0.838	0.843
	[0.000]	[0.000]	[0.001]	[0.000]	[0.000]	[0.000]
Observations	268	268	268	10,971	10,971	10,971
# Forty-Eighter Towns	54	54	54	68	68	68
R-squared	0.724	0.775	0.794	0.677	0.684	0.686
Core Controls	✓	✓	✓	✓	✓	✓
+ Other Vselect		✓	✓		✓	✓
+ All Controls			✓			✓

Notes: The table reports results from estimations on alternative samples. *PSM-2* does impose exact matching on state and population bins but only controls for state fixed effects. This is expected to increase the number of matched treated towns because control towns can be drawn *PSM-3* considers three instead of five nearest neighbors. In *PSM-4*, we include 1860 town controls as additional matching variables. Full sample w county fixed effects reports results for regressions in the full sample where we replace stare fixed effects with county fixed effects.
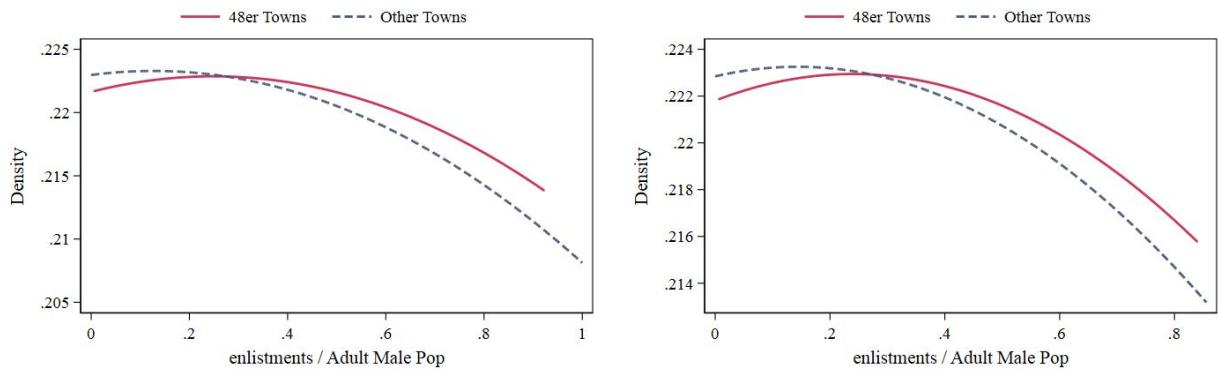
Figure A6: Kernel Density Plots for Per Capita Enlistment

Notes: The figure shows Kernel density plots for treated and control towns. The left figure reports on the log of enlistments in the full sample, the right figure on the matched sample. The mean (standard deviation) for treated and control towns are 0.25 (0.2) and 0.13 (0.13) in the full sample, compared to 0.24 (0.18) and 0.15 (0.16) in the matched sample.

Appendix D   Robustness Checks and Additional Results

This section presents robustness checks for the results reported in section 4 of the paper.

Table A5: Effect of *Forty-Eighters* on Per Capita Enlistments

	(1)	(2)	(3)	(4)	(5)	(6)
	Full Sample			*Prop. Score Matched (PSM-1)*		
D(Forty-Eighters)	0.117	0.115	0.113	0.074	0.075	0.078
	[0.002]	[0.001]	[0.002]	[0.008]	[0.001]	[0.001]
	{0.002}	{0.000}	{0.012}	{0.004}	{0.004}	{0.002}
Observations	11,095	11,095	11,095	261	261	261
R-squared	0.110	0.121	0.132	0.183	0.236	0.266
# Forty-Eighter Towns	72	72	72	54	54	54
Core Controls	✓	✓	✓	✓	✓	✓
+ Other Vselect		✓	✓		✓	✓
+ All Controls			✓			✓

Notes: The table reports on the equivalent of Table 2 with the outcome replaced by per capita enlistments. Columns 1–3 report on the full sample, comparing 72 *Forty-Eighter* towns to 11,023 control towns. Columns 4–6 report on the matched sample, comparing 54 *Forty-Eighter* towns to over 207 matched control towns. Each column reports the number of treated towns (# *Forty-Eighter Towns*) providing identifying variation in each specification. In braces, we additionally report *p-values* for wild-bootstrap clustered standard errors.

Table A6: Estimated coefficients on control variables in Table 2

	(1)	(2)	(3)	(4)	(5)	(6)
	Full Sample			*Prop. Score Matched (PSM-1)*		
Share German-Born 1850	-0.330	-0.201	-0.274	-1.831	-1.306	-1.350
	[0.199]	[0.428]	[0.301]	[0.024]	[0.119]	[0.055]
Log Metzler-Map Destinations	-0.028	-0.028	-0.025	0.027	-0.012	-0.027
	[0.392]	[0.346]	[0.320]	[0.710]	[0.816]	[0.469]
ΔShare German-Born 1860-1850	0.010	0.095	0.066	-0.813	-0.342	-0.238
	[0.982]	[0.834]	[0.877]	[0.349]	[0.657]	[0.721]
Germans-To-America 1848-52	0.075	0.103	0.088	1.711	1.820	1.614
	[0.595]	[0.470]	[0.562]	[0.063]	[0.096]	[0.190]
Count German Newspapers 1850	0.032	0.028	0.028	0.010	0.044	0.030
	[0.322]	[0.407]	[0.442]	[0.680]	[0.206]	[0.328]
Log Pop 1850	0.911	0.894	0.890	1.111	1.005	0.999
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Log Dist Nearest Port			0.453			0.616
			[0.022]			[0.491]
Log Dist Nearest Navigab. River		-0.006	-0.007		-0.020	-0.022
		[0.745]	[0.598]		[0.488]	[0.492]
Log Dist Nearest Railway			-0.029			-0.038
			[0.034]			[0.304]
Log Dist Nearest Coast		0.051	0.045		0.063	0.060
		[0.005]	[0.017]		[0.142]	[0.236]
Latitude			0.042			0.183
			[0.332]			[0.541]
Longitude			-0.010			0.067
			[0.692]			[0.467]
Log Elevation		-0.067	-0.026		0.300	0.522
		[0.174]	[0.671]		[0.254]	[0.144]
Mean Temperature			0.005			0.021
			[0.123]			[0.504]
Mean Precipitation			-0.112			0.769
			[0.262]			[0.149]
% Slave Pop 1850			-0.818			-4.124
			[0.003]			[0.002]
Free Colored Pop Share 1850			1.568			-2.305
			[0.067]			[0.582]
%-Δ Female White Pop 1850-1840			0.929			0.436
			[0.043]			[0.644]
%-Δ Pop 1850-1840		-0.031	0.233		-0.199	0.581
		[0.235]	[0.386]		[0.014]	[0.645]
%-Δ Slave Pop 1850-1840		-0.031	-0.007		0.252	0.251
		[0.379]	[0.812]		[0.172]	[0.193]
%-Δ Free Colored Pop 1850-1840		0.052	0.044		0.248	0.265
		[0.001]	[0.006]		[0.004]	[0.003]
%-Δ Female White Pop 1850-1840			-0.274			-0.804
			[0.310]			[0.536]
Observations	11,095	11,095	11,095	261	261	261
# Forty-Eighter Towns	0.563	0.566	0.571	0.700	0.724	0.733
R-squared	72	72	72	54	54	54
Core Controls	✓	✓	✓	✓	✓	✓
+ Other Vselect		✓	✓		✓	✓
+ All Controls			✓			✓

Notes: The table reports on the control variables included in the baseline Table 2. Standard errors are clustered at the state-level, *p-values* are reported in square brackets.

Table A7: Effects by *Forty-Eighter* Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
Char.:	Fought in Civil Civil War	Politically Active	Works as Journalist	Member of Turner Society	High Military Rank	Low Military Rank
D(Forty-Eighters)	0.642	0.455	0.487	0.524	0.597	0.665
	[0.013]	[0.013]	[0.009]	[0.000]	[0.001]	[0.005]
D(Forty-Eighters) x Char.	-0.126	0.474	0.393	0.402	-0.000	-0.204
	[0.745]	[0.068]	[0.155]	[0.282]	[0.999]	[0.579]
Share with Interaction = 1	33.33	33.33	31.48	20.37	9.26	33.33
Observations	261	261	261	261	261	261
R-squared	0.733	0.736	0.735	0.734	0.733	0.733

Notes: The table reports the results from interactions between the main treatment $D(Forty-Eighters)$ and an indicator that takes the value one if at least one of the individual *Forty-Eighter* characteristics displays in the column heads was prevalent in this town ($D(Forty-Eighters) \times Char.$). At the bottom of the table, we report the share of treated towns for which the interaction takes a value of one. All regressions resemble the sample and controls of the specification in column 6 of Table 2. Standard errors are clustered at the state-level and *p-values* are reported in square brackets.

Table A7 assesses sample heterogeneity. From the individual biographies, we distinguish whether individual *Forty-Eighters* (i) fought in the Civil War; (ii) were politically active; (iii) worked as journalists; or (iv) were members of a Turner Society. For those who fought in the Civil War, we further distinguish whether they were in (v) leading positions (colonel or above) or lower ranks (vi). The interaction between indicators for the presence of at least one *Forty-Eighter* and at least one of these characteristics (indicated in the column head) gives us some indication whether the observed treatment effects are intensified (or reduced) by these personal characteristics. We do not find strong evidence for treatment heterogeneity. The main effect does not vary a lot and most interaction effects are imprecisely estimated. The only significant interaction suggests that broadly 'politically active' *Forty-Eighters* were more successful in attracting enlistments. Turners and journalists have a quantitatively similar effect but the interactions are imprecisely estimated. For those who fought in the war, we see some indication that higher ranked observe that *Forty-Eighters* of higher military rank were a bit more influential.

Table A8 investigates the possibility that the *Forty-Eighters* were the 'tip of the iceberg' of a broader wave of politically active German immigrants arriving at the same time. If this was true, we would expect the broad 1848–1852 arrival cohort to have an independent effect on enlistments. We would further expect the inclusion of this cohort in the regressions to reduce the *Forty-Eighters'* effect, given their co-location, and we would expect the 1848–1852 arrival cohort to stand out from earlier and later arrival cohorts in the regressions. To test this we separately consider the 1848–1852, the 1845–1847, and the 1853–1855 arrival cohorts' locations. Specifically, we assign a dummy to each town that received any German immigrants from the ship lists in a given arrival cohort.

The summary-finding is that German immigrants *other than* the *Forty-Eighters* do not appear to have been politically influential.

Table A8: Placebo On Other Co-Arriving German Immigrants

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
D(Forty-Eighters)				0.621	0.597	0.593	0.597
				[0.000]	[0.000]	[0.000]	[0.000]
Germans-To-America 1845-47	0.032			0.026			0.005
	[0.084]			[0.131]			[0.811]
Germans-To-America 1848-52		2.459			1.614		-0.395
		[0.067]			[0.190]		[0.759]
Germans-To-America 1853-55			0.040			0.029	0.030
			[0.033]			[0.101]	[0.192]
Observations	261	261	261	261	261	261	261
R-squared	0.714	0.716	0.717	0.733	0.733	0.734	0.734
# Forty-Eighter Towns	54	54	54	54	54	54	54

Notes: The table reports results from variations of column 6 in Table 2 where we include all columns and state fixed effects. Columns 1–3 estimate the effect of each of the broad waves with the *Forty-Eighters* not being included in the regressions. Columns 4–6 'horse-race' the *Forty-Eighters* with each wave. Column 7 includes the *Forty-Eighters* and all three waves of other German immigrants. Standard errors are clustered at the state-level, *p-values* are reported in square brackets.

Figure A7 shows the result of the permutation exercise described in Section 4.1. The permuted distribution is centered around a mean -0.19, and even the 99-th percentile of the distribution is far to the left of the true estimate in columns 4 of Table 2 (displayed as vertical lines).
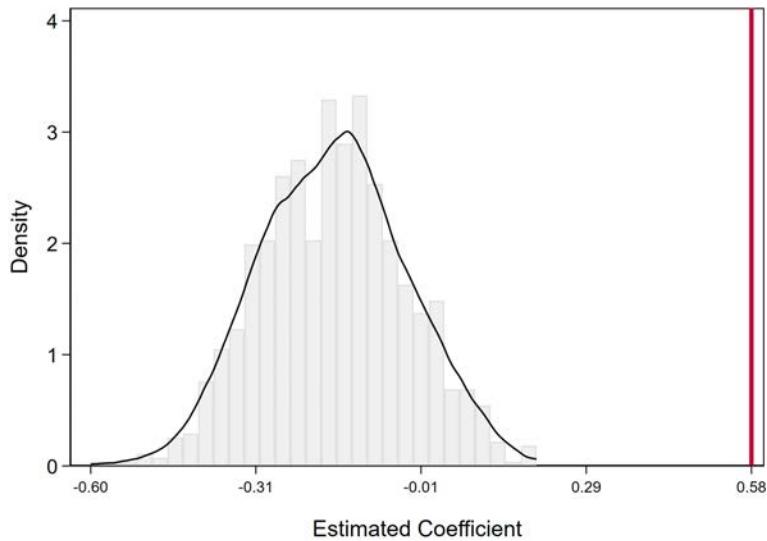

Figure A7: Permutation Tests

Notes: The figure shows the distribution of 1,000 coefficients from placebo estimations where we replace the actual *Forty-Eighter* locations with an equal number of randomly drawn locations in Union-Army states. The vertical line contrasts this distribution with the magnitude of the actual estimated coefficient estimated in the baseline sample (*PSM-1*) in Table 2, column 4.

Table A9: Robustness Checks for Table 2

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A:	*Interpolate Data w Convex Hull (Figure 3)*					
D(Forty-Eighters)	0.655	0.658	0.653	0.420	0.434	0.427
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Sample	*Full Sample*			*Prop. Score Matched (PSM-1)*		
Observations	11,095	11,095	11,095	261	261	261
# Forty-Eighter Towns	72	72	72	54	54	54
R-squared	0.717	0.722	0.726	0.812	0.825	0.832
Panel B:	*Interpolate Data w Rectangle (Figure 3)*					
D(Forty-Eighters)	0.661	0.654	0.651	0.440	0.451	0.452
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	11,095	11,095	11,095	261	261	261
# Forty-Eighter Towns	72	72	72	54	54	54
R-squared	0.733	0.740	0.743	0.828	0.842	0.848
Core Controls	✓	✓	✓	✓	✓	✓
+ Other Vselect		✓	✓		✓	✓
+ All Controls			✓			✓

Notes: The table re-runs the core estimations in Table 2, but adding the interpolated enlistments data described in Figure A3 to the outcome. Standard errors are clustered at the county-level, *p-values* are reported in square brackets.

Table A10 shows the variation of stated destinations across treated and control towns: Three quarters of towns in treatment and control sets $((27 + 169)/271)$ were never a stated destination on any ship, reflecting the fact that most passengers did not state a destination, and most who did stated a major city like Milwaukee or Cincinnati. Overall, a higher share of treated towns was mentioned as destinations in the treated than in the control set.

Table A10: Stated Destinations Description

		54 Treated Towns			207 Control Towns		
		Listed Destination on Other Ships			Listed Destination on Other Ships		
		No	Yes	Total	No	Yes	Total
Listed Destination on Forty-Eighter Ships	No	27	5	32	169	31	200
	Yes	14	8	22	1	6	7
	Total	41	13	54	170	37	207

Notes: The table cross-tabulates the listed destinations on *Forty-Eighter* ships and non-*Forty-Eighter* ships across treated towns and control towns.

Figure A8: Distribution of binned Count of Being Stated as a Destination
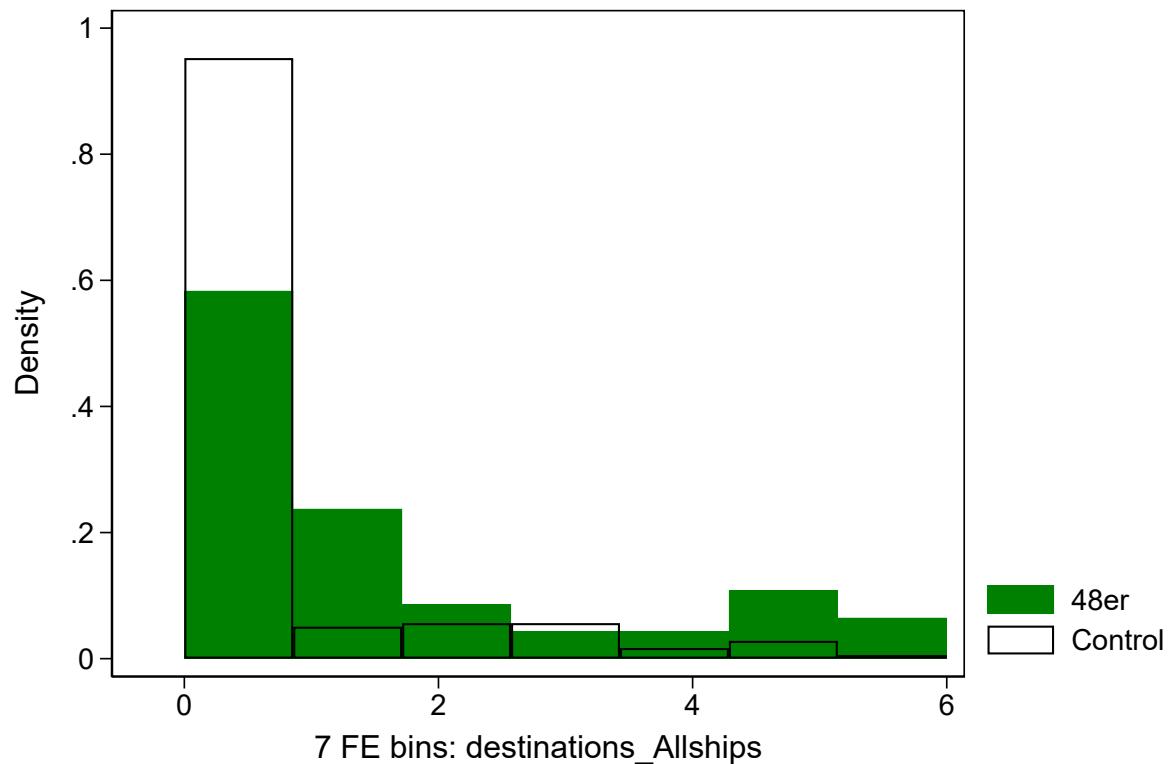
Notes: This figure plots the distribution of 7 bins of counts of being stated as a destination in the ship-lists, comparing 54 treated towns to 217 control towns. Town is the unit of observation.

Appendix D.1   Alternative IV Strategy

In this section, we explore an IV strategy that hinges on the fact that *Forty-Eighters*' early years in the U.S. were dominated by economic necessities and that the political conflict around slavery was relatively subdued during this time period. Unlike most immigrants at the time, the *Forty-Eighter* arrived in U.S. penniless and with no existing family ties (Wittke 1970, ch.6, Wust 1984, p.31). As a result, the first place they went to after leaving their port of debarkation was wherever they could find work, and this suggests that the location of the *Forty-Eighters*' first jobs outside their port of debarkation was plausibly econometrically exogenous, and can therefore serve as an instrument for the *Forty-Eighters*' eventual pre-Civil War location from 1856 on. This often meant moving somewhere to the Mid-West around German-American communities that were actively seeking German-speaking workers from port-cities. Labor bureaus operated by *German Societies* in port cities advertised these jobs and helped immigrants organize their trip inland.[62] According to Wust (1984, p.32), this "employment service provided 2,200 jobs in 1846, 4,950 jobs in 1849 and 9,435 in 1853."[63]

To determine the locations of first jobs, we screen the *Forty-Eighters*' biographies and select all locations of 'first settlement', which we define as locations that were at least one *Forty-Eighter*'s first place of work outside of their debarkation port. Overall, we find 66 locations that match this criterion. For clarity, we let these 66 locations be indexed by $j \in \mathbb{J} = \{1, .., J\}$, and let the 73 treatment towns be indexed by $i \in \mathbb{I} = \{1, .., I\}$. We find that 20 percent (13/66) of the first locations in $\mathbb{J}$ had no *Forty-Eighters* live in them during the period 1856-61. And among the treated locations, 28 percent (20/73) were not a first settlement.[64] A9 visualizes the location of instrument towns relative to treatment towns Let the instrument town that is nearest to i be labeled $j(i)$. We define our instrument Z_i for each town i as its proximity to $j(i)$, where proximity is defined as inverted distance so that $Z_i = \frac{1}{d_{i,j(i)}}$ is distributed on $(0, 1]$.[65] To the extent that any *Forty-*

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[62]The German Societies themselves had a vital interest to move new immigrants inland because of two scandals, in 1847 and 1848, when groups of paupers from Grosszimmern and Griesheim in Hesse had arrived in New York City and refused to leave the city's Poor House. The German Society was fiercely attacked by New York officials and newspapers, who accused the 'Dutchmen' of loading this group of paupers onto New York (Wust, 1984, p.30).

[63]Wust (1984) mentions that the archives of the *German Society of New York City* held every annual report since 1845 at the time of his writing. Unfortunately, the society today has a staff of one, no archives and no library.

[64]More formally, there are 13 towns in $\mathbb{J} \setminus \mathbb{I}$, 20 in $\mathbb{I} \setminus \mathbb{J}$, and 53 in $\mathbb{I} \cap \mathbb{J}$.

[65]We set a town's distance to itself to one mile so that the instrument is $= 1$ if $j(i) = i$, i.e. for towns that are treatment and instrument towns. We also constructed an alternative instrument that is the sum of inverted distances to all towns in $\mathbb{J}$, i.e. $Z_i' = \sum_{j \in \mathbb{J}} \frac{1}{d_{i,j}}$. This instrument delivered very comparable results.

Table A11: IV Results Based on the Location of First Jobs

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A:			Second Stage (Z=Proximity to Closest Initial)			
D(Forty-Eighters)	0.637	0.667	0.632	0.622	0.623	0.615
	[0.002]	[0.000]	[0.001]	[0.002]	[0.001]	[0.001]
Hausman-p	0.649	0.559	0.572	0.743	0.872	0.678
Kleibergen-Paap Wald rk F statistic	403.2	359.6	395.8	575.9	429.0	376.0
Anderson-Rubin F-test	0.002	0.000	0.001	0.002	0.001	0.001
Panel B:			First Stage			
Instrument	0.890	0.900	0.910	0.881	0.884	0.900
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
R-squared	0.561	0.576	0.605	0.576	0.587	0.619
Panel C:			Reduced Form			
Instrument	0.566	0.600	0.576	0.548	0.551	0.553
	[0.002]	[0.000]	[0.001]	[0.002]	[0.001]	[0.001]
R-squared	0.693	0.717	0.731	0.693	0.716	0.731
Instrument	Proximity to clostest initial			D(Initial Forty-Eighter Towns)		
Observations	261	261	261	261	261	261
#48ers	54	54	54	54	54	54
Core Controls	✓	✓	✓	✓	✓	✓
+ Other Vselect		✓	✓		✓	✓
+ All Controls			✓			✓

Notes: This table reports on the alternative IV strategy described in Appendix D.1. Panel A reports on the second stage, where treatment is instrumented with $Z_i = \frac{1}{d_{i,j(i)}}$ (columns 1–3) or the 66 indicators of *being* an town of initial settlement instead of proximity to one (columns 4-6). Panel B reports the corresponding first-stage coefficient, and Panel C reports the reduced form. The controls resemble the ones reported in Table 3, columns 4–6. Standard errors are clustered at the state-level. *p-values* are reported in square brackets.

Eighters did move later in the 1850s because of socio-political considerations, our IV strategy gives us identification under the assumption that such unobserved socio-political characteristics were orthogonal to proximity to towns that were a *Forty-Eighter*'s first place of employment, conditional on fixed effects and controls.

We recognize that 53 of the 66 towns of initial settlement are also treated towns, and that for these towns, the IV strategy assumes that any unobserved socio-political characteristics that influenced enlistments were orthogonal to the characteristics that led to the town becoming a *Forty-Eighter*'s first place of employment, conditional on fixed effects and controls. Under this identifying assumption, instead of basing identification on proximity to these towns, we can also define an alternative treatment variable to be the indicators for towns of initial settlement.

Table A11 reports on the results of the IV estimation, The column structure is the same as

Table 3. Panels A–C report on the IV when $Z_i = \frac{1}{d_{i,j(i)}}$ is the instrument. Panels D–F report on the IV using instead the indicators for towns of initial settlement.

Overall, the IV results in Panels A and D are very similar to those in Table 3. As in Table 3, the p-values reported at the bottoms of Panels A and D in Table A11 indicate that the Wu-Hausman test for the equality of the OLS and IV estimates is never rejected. This suggests that, conditional on observed controls and region fixed effects, the *Forty-Eighters* did not select their towns of settlement based on un-observables that also drove enlistments.
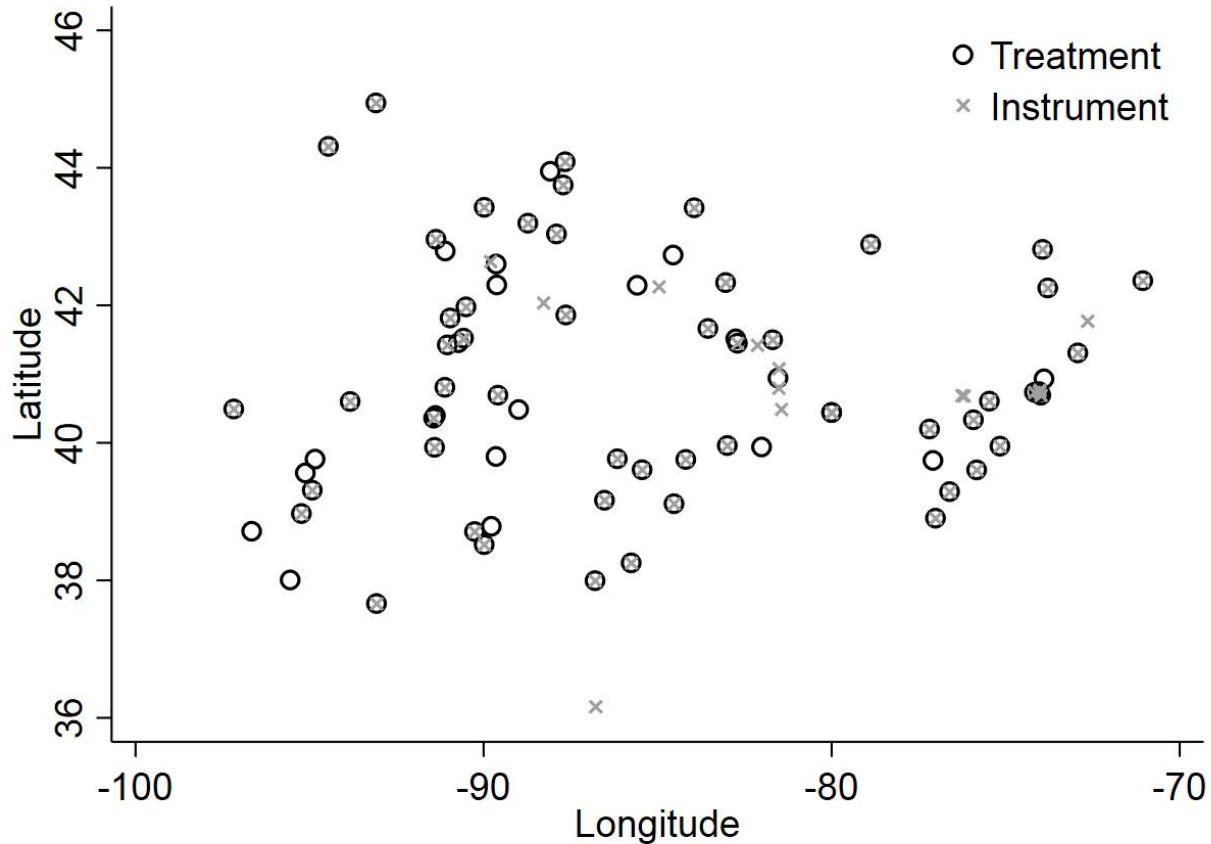
Figure A9: Treatment and Instrument Towns

Notes: This Figure visualizes the relation between treated towns and instrument towns in the alternative IV strategy: 73 towns had *Forty-Eighters* live in them during the period 1856-61. These are indexed by $i \in \mathbb{I} = \{1, .., I\}$. 66 towns were first locations of *Forty-Eighters* after leaving their ports of debarkation. These are indexed by $j \in \mathbb{J} = \{1, .., J\}$. We find 13 towns in $\mathbb{J} \setminus \mathbb{I}$, i.e. they were first locations (in $\mathbb{J}$) but had no *Forty-Eighters* lived in them by 1856-61. 20 towns are in $\mathbb{I} \setminus \mathbb{J}$, and 53 in $\mathbb{I} \cap \mathbb{J}$.

Appendix E   Event Study

This section provides details on the event study specifications where assess whether (i) public speeches or (ii) individual *Forty-Eighters'* enlistment decisions had a positive effect on town-level enlistments in the subsequent weeks.

Our two-way fixed effects regressions to evaluate the events E_i^k with $k \in [newspaper, enlistment]$ take the following form:

$$y_{it} = \mu_i + \theta_t + \underbrace{\sum_{l=\underline{l}}^{-1} \gamma_l \cdot \mathrm{D}(t - E_i^k = l)_{it}}_{\text{pre-enlistment period}} + \underbrace{\sum_{l=1}^{\bar{l}} \gamma_l \cdot \mathrm{D}(t - E_i^k = l)_{it}}_{\text{post-enlistment period}} + \varepsilon_{it}, \tag{4}$$

where y_i is the log of enlistments (excluding the *Forty-Eighters'* own enlistment),[66] μ_i are town fixed effects and θ_t are week-of-year fixed effects. Treatment effects are expressed over an *effect window* $l \in [\underline{l}, \bar{l}]$ that we set to be $[-4, +3]$, and are estimated relative to the omitted week before the observed *Forty-Eighter* enlistment (i.e., $l = 0$). For $l < 0$, γ_l estimates pre-trends and for $l \geq 1$, γ_l estimates the dynamic treatment effects of the event. Following Schmidheiny and Siegloch (2019), we bin treatment indicators D_{it} at the start point ($t \leq E_i^k + \underline{l}$) and end point ($t \geq E_i^k + \bar{l}$).[67]

A11 plots the event time indicators for an event window of four weeks before and three weeks after the *Forty-Eighter* enlistment events. There is a flat pre-trend followed by a sharp increase in the number of enlistments in the week where a *Forty-Eighter* enlists, as well as in the following week. After that, the effect goes back to zero, suggesting no difference between the treated town and the control group of towns that were not treated in the same event window.

A10 and A12 report on the estimated effect of these events. The lower number of observations means that estimates are less precise than in Figure A11, but the point estimates are strikingly similar. Civilian acts of leadership cause enlistments to go up by sixty percent in the event week and the week after, followed by a return to the baseline. As discussed in Section 5.2, the short duration of the treatment effects is not surprising since enlistments were *coordinated* local events

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[66]Because there are many weeks of zero enlistments in any given town, we use the inverse hyperbolic sin ($\log(y_i + (y_i^2 + 1)^{1/2})$), which can be interpreted in the same way as the log but without needing to change zero values (Card and DellaVigna, 2020).

[67]These bins overcome the identification problem raised in Borusyak and Jaravel (2016). We chose an *observation-window* that is two time periods wider than the estimated *effect window*, so that bins at the end-points contain 3 weeks each. This structure implies the usual assumption that γ_l is constant within the end-points $\bar{l}, \underline{l}$.

where young men in a town would rallied to collectively enlist as one military unit (a company or a regiment) so they would go to war together (McPherson, 1997; Costa and Kahn, 2010).

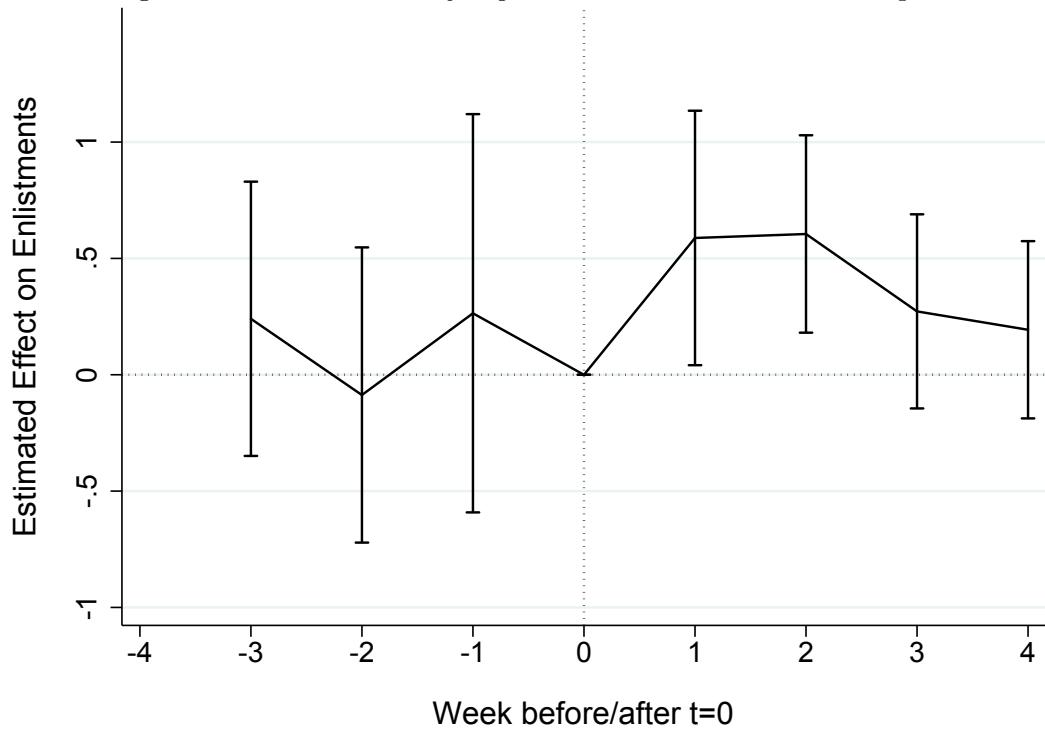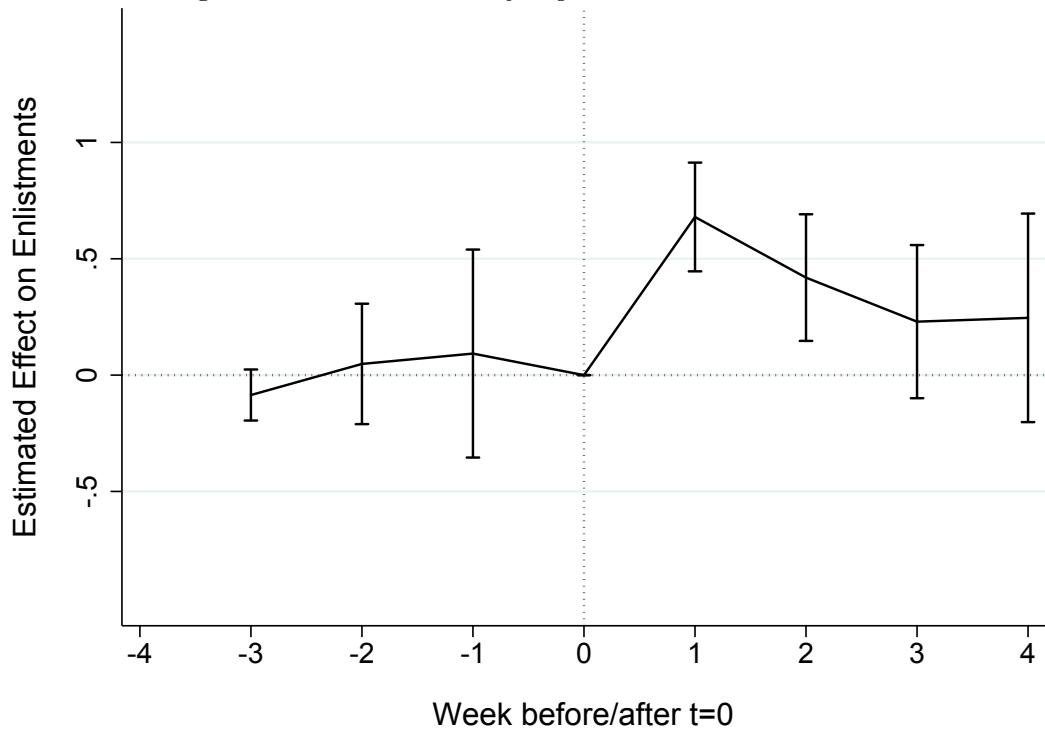Figure A10: Effect of *Forty-Eighters'* civilian acts of leadership

Figure A11: Effect of *Forty-Eighters'* own enlistments

Notes: This figures plot event-time indicators (γ) from estimating equation (4). The upper figure considers speeches as civilian acts of leadership as outcome and the bottom figure looks at *Forty-Eighter* enlistments as outcome. The omitted week (co-linear with the constant term) is the week before the event. Standard errors are clustered by state-week, and 95-percent confidence intervals are shown as bars.

Table A12: Regression-Results of the Event-Study Depicted in Figures

Event-type	(1)	(2)	(3)	(4)
	Forty-Eighter's Enlistment		*Civilian Act of Leadership*	
γ_{-4}	-0.086	-0.086*	0.240	0.240
	[0.116]	[0.054]	[0.374]	[0.272]
γ_{-3}	0.048	0.048	-0.087	-0.087
	[0.696]	[0.771]	[0.760]	[0.804]
γ_{-2}	0.093	0.093	0.264	0.264
	[0.664]	[0.596]	[0.497]	[0.383]
γ_0	0.680***	0.680***	0.588**	0.588**
	[0.000]	[0.000]	[0.038]	[0.017]
γ_1	0.419***	0.419**	0.605**	0.605***
	[0.005]	[0.024]	[0.011]	[0.010]
γ_2	0.230	0.230	0.272	0.272
	[0.156]	[0.166]	[0.171]	[0.388]
γ_3	0.246	0.246	0.193	0.193
	[0.259]	[0.121]	[0.275]	[0.409]
γ_4	-0.032	-0.032	0.158	0.158
	[0.528]	[0.216]	[0.403]	[0.430]
cluster	state	state*week	state	state*week
Observations	865	865	203	203
#Events	96	96	33	33
town f.e.	✓	✓	✓	✓
week f.e.	✓	✓	✓	✓
R-squared	0.810	0.810	0.947	0.947

Notes: This table reports regression results of the event-study in Section 5.2. Reported coefficients are those depicted in Figures A11 and A10. The omitted week (co-linear with the constant term) is the week before the event. Standard errors are clustered by state in columns 1 and 3 and by state-week in columns 2 and 4. *p-values* are reported in square brackets.

Figure A12: Examples of newspaper articles that mention acts of leadership

SPEECH OF HON. E. B. WASHBURNE IN NEW YORK CITY.

His Reception by the Germans there —Eloquent Vindication of the 37th Congress—His Views on the Conduct of the War.

[From the New York Abend Zeitung.]

On Wednesday evening, the 30th of July, several of our most influential German citizens congregated at the Fifth Avenue hotel, to welcome the Hon. E. B. Washburne, M. C. of Illinois. On account of the friendship of Mr. W. for the Germans and his untiring activity for their welfare, he enjoys their esteem and confidence throughout the country.

The call was signed by Sigismund Kaufmann, Frederick Kapp, Dr. Vressman, Herman Raster, Andrew Willman and others; while the committee was attended by Col. Naumann, Dr. Schwarzenberg, A. Goetze, P. Wagner, F. Ranchfauss and others.

Mr. Washburne received the gentlemen with that heartfelt frankness which characterizes his personal intercourse, and especially greeted his former acquaintances with great warmth. Sigismund Kaufmann, Esq., late presidential elector, then addressed Mr. W. as follows:

MR. WASHBURNE: In behalf of your German friends I greet your arrival in this city. Accept our thanks for the sympathy you have always shown to our countrymen. We have watched your course in Congress, and permit me to say you have shown yourself to be a true representative of the people. We are proud of you. In times when indolence, indifference and corruption seemed to reign supreme, you stood up against them all, and no matter how elevated the positions of those might be against whom you had to act, you did not flinch in doing your duty. You belong to those who are for a vigorous prosecution of the war, you want every one to take part in suppressing this infamous rebellion, no matter of what color he may be. May you long be preserved to this country and may you not cease in your efforts to sustain that freedom to this nation, which a band of rebels threatens to wrest from her. We will long remember this pleasant interview, and may you always consider it as an evidence of sincere attachment to your person, as a true representative of the people.

Mr. Washburne replied substantially as follows:

MR. KAUFMANN AND MY GERMAN FRIENDS: I can hardly find language to express to you my deep sense of the honor you have done me in the friendly call you have made upon me this evening. The expression of your kind feelings in the but too flattering remarks of Mr. Kaufmann is gratefully accepted as an indication that my action as a public man has secured the approbation of my German fellow citizens. My acquaintance with the Germans has been long and somewhat intimate, and I

with a band playing, and the remains of the old flag flying. Col. Dengler, in an appropriate speech, presented the flag, and Gov. Yates made a very happy response, in which he complimented the remains as among our best citizens, and foremost in the war in defense of the Union and its flag. He alluded touchingly to the fact that the 43d did noble service at the battle of Shiloh where it lost seven officers; also fifty men of the rank and file were killed, and 190 wounded. He also spoke of the services of the regiment at Vicksburg, and also under Gen. Steele in the Red River expedition.

After the ceremony the regiment returned to its quarters.

There is nothing new from the Montgomery county troubles.

Notes: The left panel shows a report on Sigismund Kaufmann from June 26, 1863 and the right panel a report on Adolf Dengler from August 3, 1864.

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