Loose Cannons – War Veterans and the Erosion of Democracy in Weimar Germany

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The University of Warwick[†]

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Abstract

I study the effect of war participation on the rise of right-wing parties in Inter-war Germany. After the democratisation and surrender of Germany in 1918, 8m German soldiers of WWI were demobilised. I argue that defeat made veterans particularly sceptical about the new democratic state. Their return undermined support for democratic parties from the very beginning and facilitated the reversion to autocratic rule 15 years later. In order to quantify this effect, I construct the first disaggregated estimates of German WWI veterans since official army records were destroyed. I combine this data with a new panel of voting results from 1881 to 1933. Diff-in-Diff estimates show that war participation had a strong positive effect on support for the right-wing at the expense of socialist parties. A one standard deviation increase in veteran inflow shifted vote shares to the right by more than 2 percentage points. An IV strategy based on draft exemption rules substantiates my findings. The effect of veterans on voting is highly persistent and strongest in working class areas. Gains for the right-wing, however, are only observed after a period of Communist insurgencies. I provide suggestive evidence that veterans must have picked up especially anti-Communist sentiments after defeat, injected these into the working class and in this way eroded the future of the young democracy.

[†]Department of Economics. Email: C.Koenig@warwick.ac.uk

1 Introduction

The economic analysis of war's detrimental effects dates back at least a century. Early works include Smith (1776) and Pigou (1919) who both study the long-run monetary costs of war for a country's society. Nowadays, the large inter-state wars analysed by Smith and Pigou have become rare and most wars take place *within* countries. However, the main questions asked by economists still center around war's impact on physical and human capital. The effect of war on institutions and their well-established role for economic growth has so far received only little attention (see the survey by Blattman and Miguel, 2010). One specific mechanism behind such a relationship could be the interaction of soldiers from different social backgrounds during army service.

This paper studies the effect of war participation on political attitudes and spillovers to non-combatants. I investigate the case of Germany after its military defeat and democratisation in 1918 and the role of WWI veterans in the spread of right-wing attitudes prior to the collapse of democracy in 1933.[1] This association is supported by historians who have pointed out that many veterans blamed democracy for losing the war and actively supported the parties of the political right (Diehl, 1975; Bessel, 1995). The Nazis' take of power in 1933 was only made possible by a coalition with the most successful of these right-wing parties, the conservative DNVP. Post-WWI Germany is an interesting historical setting for studying the effect of war participation on democratic institutions. Importantly, war was never fought on German soil and thus permits one to exclude other effects of war (e.g. on physical capital). The second notable feature is that national elections were taking place before and after the war. As a result, one can easily measure changes in party support between both periods.

I find that WWI participation persistently shifted electoral support from socialist parties towards those of the right-wing. This is particularly striking given that most socialist voters belonged to the working class while the right-wing parties represented the upper-class and aristocracy. On the other hand, socialist parties were one of the main drivers of democratisation while the right-wing represented the ancien regime and objected the passage of the democratic constitution after WWI. The effect of veterans' return thus resembles a general reduction in the popular support for democracy, conceptualised as *democratic capital* by Persson and Tabellini (2009). The scope of my findings goes therefore beyond the impacts of war and provides valuable insights into the evolution of democratic capital and the success of nascent

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[1] This implicitly addresses also war's impact on recovery since the Nazi party soon started a new war with devastating consequences for Germany's economy.

democracies. I show that the most likely mechanism is that working class soldiers picked up anti-communist sentiments from their fellow comrades. This contrasts with work by Costa and Kahn (2006) who highlight the beneficial peer effects of war participation such as learning and the exchange of information.

I use two identification strategies to estimate the effect of veterans on voting behaviour: the first is a Differences-in-Differences approach which links changes in election results after WWI across areas to the population share of veterans. For this study, I construct the first disaggregated estimates of German WWI veterans since official army records were destroyed in WWII. I combine this data with a new panel of voting results from 1881 to 1933. The panel data allows me to track voting in 266 homogeneous geographic units (*precincts*) covering 2/3 of Weimar Germany over more than 50 years and 17 parliamentary elections before and after the war. My baseline estimates show that after WWI, precincts with 1% more veterans increase support for right-wing parties by slightly more than 1%. These effects are significant in magnitude: a one standard deviation increase in veterans per capita lifts right-wing votes by 2%, about 5% of the post-WWI average. The main losing party are the socialists from the very left of the political spectrum. My results are robust to the inclusion of many determinants of war participation as well as precinct-linear time trends and other specifications.

The second identification strategy exploits exemptions for employees of war-related industries as an instrument for war participation. This addresses in particular remaining worries about endogeneity but also potential measurement error in the veteran estimate. Threats to the exclusion restriction may arise from natural support among industrial workers for democratic parties. I shut this channel down by controlling for the overall share of workers in manufacturing. The IV therefore relies on variation in the war-related employment share in areas with a *given* size of the working class. Another concern is that workers in war-related industries may have a natural tendency to vote for right-wing parties because of their pro-military policy. I was not able to find evidence on such a mechanism during the Weimar Republic. Yet, if this actually was the case, my IV results should be biased towards zero. This is because I hypothesise a *negative* reduced-form relationship between war-related employment and right-wing votes. The IV results suggest that the actual effect of veteran inflow on right-wing votes might exceed the OLS results. The weak first-stage relationship of 7.72 is supported by LIML estimates which deliver the same results.

To put these results in context, it is important to know that prior to WWI, Germany was a fast-growing federal monarchy with a large support for democracy.

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Even though national elections were not significant, votes for democratic parties reached about 77% in 1912. Upon facing defeat in 1918, army mutinies ended the war by turning Germany into a democracy. After the transition, coup attempts and economic crises quickly led to a dramatic fall in support for democratic parties. This trend continued when the Great Depression hit Germany in 1930. Three years later, the anti-semitic Nazi party formed a coalition government with the conservative, anti-democratic German National People's Party (DNVP) which ended democracy and the Weimar Republic. In fact, the positive impact of veterans on right-wing parties is mainly favouring the DNVP rather than the Nazi party. There is, however, an important difference in the timing of this effect. Losses of the socialists due to war participation can already be observed in 1920. The beneficiaries at this point, however, are scattered over the whole party spectrum. In May 1924 – more than 5 years after WWI – these effects disappear and war participation starts to exclusively benefit the right-wing. Once materialised, both effects are highly persistent and last until the final Weimar election in 1933. Without any prior assumption, this timing suggests that the effect on socialists was related to war participation while the second one originated from the post-war period.

The paper investigates several channels through which war participation may affect political attitudes. Using data on veteran benefit recipients, I can rule out that impoverishment or exposure to violence are driving the results. Rather, my findings are in line with the spread of an anti-communist conspiracy theory, the *stab-in-the-back* myth, which soldiers from the working class could have picked up during their army service. This conspiracy theory was spread by reactionary, right-wing circles and conveyed the message that democratic parties had betrayed the German population and were planning to surrender Germany to Bolshevism. I find that the effect was highest in precincts with a large share of the working class which narrows down the attention to this part of the society. Pre-WWI militarism, religion, and age composition of WWI eligible cohorts do not have any explanatory power.

Two events between 1920 and 1924 could explain the observed timing of the swing to the right: politicisation of veteran associations and the radicalisation of the German Communists. In order to assess the first channel, I hand-collected, digitised, and geo-coded archival data on members of the three main political veteran associations in the Weimar Republic. Using this data, I can show that organised veterans do not explain my findings. Anti-communism, on the other hand, is supported by two different results. First, I demonstrate that veterans' effect on voting is mainly originating from areas with a comparatively high share of Communist votes. The second test uses the establishment of anti-communist paramilitary volunteer units

(*Freikorps*) between 1918 and 1923. I digitised and geo-coded a comprehensive list of Freikorps paramilitaries which allows calculating each precinct's proximity to the nearest unit. My findings suggest that areas located closer to anti-communist volunteer units show a significant effect of veterans on voting.

Having narrowed down the attention to anti-communism among the working class, I continue by exploring the transmission *to* veterans and *from* them to others. In my analysis, I provide evidence that the effect was not only larger in working class areas but also restricted to those where exposure to ideologies different from socialism was particularly low. This is compatible with the idea that interaction of soldiers from different social backgrounds during wartime were particularly helpful at injecting new political ideas into a formerly secluded part of society – anti-communist in this case. In order to restrict the focus further to interaction among soldiers rather than soldiers and their superiors, I digitised a military census from 1906 which gives me data on the recruiting patterns of the German officers corps. Using this data, I do not find any proof for a specific role of sergeants and other high-rank militaries. Finally, I explore settings under which veterans could have passed their thoughts on to others. I provide evidence which makes a transmission through the family network and to spouses appear unlikely. Rather, transmission seems to be conditional on high political competition in May 1924.

This paper contributes to the economic literature on the effects of war participation. Seminal research in this area is Angrist (1990) who estimates the negative impact of military service on earnings of U.S. veterans. Angrist's study has been followed by numerous related work on the effects of war participation in the field of labour economics.[2] Evidence on the social or political effects of war participation has attracted less attention. One of these are Costa and Kahn (2006) who demonstrate how ex-slaves serving in the Union Army systematically benefited from a diverse unit by learning from their peers. In general, war experience seems to help overcoming collective action problems (see the studies by Jha and Wilkinson, 2012; Campante and Yanagizawa-Drott, 2015). Regarding the political outcomes, Blattman (2009) finds higher political activity among child combatants in Uganda while Grossman, Manekin, and Miodownik (2015) shows that Israeli recruits' exposure to violence lowered combatants' willingness to seek reconciliation and increased support for

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[2] Recent work on Vietnam veterans includes Angrist, Chen, and Song (2011) and Angrist and Chen (2011). There is also a literature on the consequences of participation in civil war (see for example Humphreys and Weinstein, 2007; Annan and Blattman, 2010; Gilligan, Mvukiyehe, and Samii, 2013).

parties of the political right.[3] Similar to Grossman, Manekin, and Miodownik, I argue for a negative impact of war participation. The main mechanism, however, is not exposure to violence but rather interaction with peers in the spirit of Costa and Kahn.

My findings also speak to the study of war's long-run impacts. Researchers until now have mostly looked at physical and human capital destruction. Regarding political outcomes, Bellows and Miguel (2009) show that war violence led to higher political activity in affected households. Institutional aspects are only addressed by Acemoglu, Hassan, and Robinson (2011) who find that the systematic murder of middle-class Jews during the Holocaust in WWII had persistent negative effects on economic and political progress in Russian cities. I add to this literature in two ways. On the one hand, this is one of few investigations into the still open question of war's effects on institutions (Blattman and Miguel, 2010). Secondly, my results suggest that, even if fought abroad, war can have negative consequences in the belligerent country through the transmission of detrimental political ideas. The persistent shift of votes from democratic to anti-democratic parties relates my work to the study of *democratic capital*, people's intrinsic valuation of democracy. Pioneered by Persson and Tabellini (2009), the determinants of democratic capital have also been evaluated empirically in a number of recent studies (Giuliano and Nunn, 2013; Grosfeld and Zhuravskaya, 2015). While most of these are looking at long-run institutional determinants, my study documents short-run changes in democratic capital due to human interactions. I also find evidence for the transmission of democratic values to others which has recently been conceptualised theoretically by Ticchi, Verdier, and Vindigni (2013).

Finally, this paper also contributes to the growing quantitative literature on the rise of the Nazi party in economic history and political economy. King et al. (2008) and Bromhead, Eichengreen, and O'Rourke (2013) relate the Great Depression to the rise of authoritarianism during the 1920s and 1930s in Germany and other countries. My paper focusses on the role of the post-war period and societal factors behind this development. Voigtländer and Voth (2012) demonstrate how anti-semitic attitudes from past centuries sparked up again after WWI and supported the rise of the Nazi party. Satyanath, Voigtländer, and Voth (forthcoming), on the other hand, investigate the role of civic associations as tool for the Nazi party to infiltrate society. Crucially for my study, the authors also compare the effects of military and non-military associations but do not find evidence for a particular role of veterans'

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[3] Erikson and Stoker (2011) use the Vietnam draft lottery status to estimate the effect of becoming draft-eligible – as opposed to being drafted – on political attitudes. They show that draft vulnerability persistently increased anti-war and liberal attitudes among young men.

associations in recruiting members for the Nazi party. I second these findings using data on membership strengths of military associations. To the best of my knowledge, my paper is the first to empirically investigate the role of WWI veterans as well as the general success of anti-democratic, right-wing parties during the Weimar Republic. Rather than the Nazi party itself, I find that veterans were benefiting the like-minded but less prominent DNVP which played a crucial role in making Adolf Hitler Germany's Chancellor in 1933. I am also the first to empirically link the activity of German Communists in the 1920s to the rise of right-wing support.

The rest of the paper proceeds as follows: Section 2 provides the reader with important historical background on Weimar democracy, the role of the former WWI soldiers therein, and the *stab-in-the-back* myth. In section 3 I give a detailed description of how the veteran estimate as well as the election panel dataset are constructed. Section 4 outlines the empirical strategies applied in this paper. Next, section 5 presents the main empirical results and and a number of robustness checks. Section 6 investigates the mechanisms underlying the baseline effect. Finally, section 7 concludes.

2 Historical background

2.1 World War I, the *stab-in-the-back* myth and the democratisation of Germany

Germany's path towards democracy reaches back as far as 1848 when a provisional national assembly was gathered in order to design a constitution for a still to be unified Germany. This democratic experiment was crushed soon afterwards leading to a period of restoration until Prussia's victory over France in 1871 resulted in the proclamation of the German Empire. It was a constitutional monarchy under Prussia's leadership that for the first time introduced a publicly elected parliament on German territory. Even though its competencies were limited at first, the *Reichstag*'s role increased as it had to approve the Empire's budget which became particularly important during WWI and the preceding arms build-up. Under Emperor Wilhelm II, the German Empire had started a period of unpredictable and provocative foreign policy which isolated it from most of its former European allies, most notably Russia and the United Kingdom. As a result, it took only a spark in form of the assassination of Archduke Franz Ferdinand of Austria to start the First World War on 28th of July 1914.

Even though the German Empire was quite successful at the beginning of the campaign, the progress at the western front came to a halt at the end of 1914 and was followed by four-year war of attrition with the highest death toll experienced until that point. By the end of September 1918, the situation of the German Army had deteriorated to such an extent that the Supreme Army Command (*Oberste Heeresleitung*) admitted defeat to the Emperor. A new grand government including members of the social democratic party was formed subsequently and few days later, US President Woodrow Wilson was officially asked for an armistice. When the Supreme Army Command rejected the conditions set by the Allied Forces in late October 1918, Chancellor von Baden sacked the leadership of the Supreme Army Command and issued political reforms which turned Germany into a parliamentary monarchy. The war, however, continued until the end of October when a mutiny by the German Navy in Kiel sparked a rebellion and the formation of socialist workers' and soldiers' councils. This rebellion quickly spread across the whole German Empire and eventually led to the proclamation of the German Republic and the abdication of Emperor Wilhelm II on the 9th of November (Büttner, 2008). World War I officially ended two days later with the signing of an armistice.[4]

One of the key reasons for Weimar democracy's failure 15 years later was that the German Army was still fighting when the armistice was signed. This soon gave rise to the *stab-in-the-back myth*, a conspiracy theory according to which Germany had not lost World War I but was *stabbed in the back* by socialist and Jewish politicians and their supporters. The fact that social-democrats inherited power as the strongest parliamentary group and its ally, the left-liberal DDP, was traditionally popular among the Jewish population provided the material to fabricate a lie which many – especially militarists, monarchists as well as followers of the anti-semitic *Völkisch* movement – "*wanted to believe*" (Bessel, 1988). The new state was therefore discredited from its very beginning as a project of unpatriotic cowards which made it very hard for large parts of the society to identify with the new democratic republic. This was further facilitated by a number of socialist rebellions which spread fear among the population of a violent *October Revolution*-style coup – allegedly tolerated or encouraged by the parties of the centre and left (Merz, 1995).

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[4] One may question whether this transition can in fact be regarded as a democratisation. While Imperial Germany was not a full-blown autocracy, its constitution did not put any constraints on the executive and is therefore placed in the *grey zone* between democracy and dictatorship in 1914 on the *POLITY* scale (-10 to +10) with a value of 2 (Jaggers and Marshall, 2014). This ambivalence also been noted by other scholars (Jesse, 2013). After 1918, the power of the executive is bounded and the *POLITY* indicator jumps to a value of 6 where it remains until 1933. One can thus safely say that the revolution of 1918 resulted in a higher degree of democracy despite the unclear point of departure. Further arguments why 1918 can be regarded as a democratisation are reflected in the opinions voiced by its opponents in sectionA.1

The stab-in-the-back myth can be regarded as *the* key mechanism for transmitting anti-democratic thought and eroding democratic capital during the Weimar Republic (Barth, 2003). While being spread through various social groups such as paramilitaries or universities, there were only two main parties of the Weimar Republic who were more or less openly propagating its content and spreading right-wing anti-democratic sentiments. These were the extremely anti-semitic Nazi party NSDAP, including its predecessors, and the national-conservative *German National People's Party* DNVP (Mommsen, 1996).

2.2 WWI veterans' role during Weimar democracy

As highlighted by several authors, not all veterans were anti-democratic or right-wing. Those who became politically active and claimed to represent the *front generation*, however, were in great majority on the extreme right of the political spectrum (Diehl, 1975; Bessel, 1995). Paramilitary units founded in the war's aftermath were officially disbanded in 1923, but continued to exist in non-military cover organisations or within right-wing veteran associations like the *Stahlhelm* (Büttner, 2008). Membership in organisations could thus be an important mode of veterans interacting with the society and through which voting behaviour could be influenced. As highlighted by Anheier (2003) for the Munich chapter of the Nazi party, anti-democratic activists tended to hold co-memberships in several paramilitary units, racist clubs, and political parties. While it is not possible to investigate each of them, my analysis of the channel focusses on ex-servicemen clubs since they had a clear political distinction and are one the few types of such organisations for which membership data has survived in archives.[5]

Joining one of many veteran associations was not only popular among anti-democratic veterans as membership numbers of the rightist *Stahlhelm* (500,000), the (social) democratic *Reichsbanner* (1,000,000) and the Communist *Rotfront* (150,000) show (Ziemann, 1998). Officially, those associations were not very political but rather meeting places for former soldiers of a specific social background to relive and commemorate their front experiences. Some members of these associations were also running as candidates in elections and veteran associations were very active in supporting the campaign of their favourite parties (Ziemann, 2013). The *Stahlhelm* was initially loosely aligned with the conservative liberal, yet democratic, DVP and the authoritarian DNVP. However, the strong aversion against liberalism and socialism made it embrace soon also members of the anti-democratic paramilitary as

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[5] Anheier (2003), for instance, provides an informative quick overview of the main types of organisations joined by radicalised veterans.

well as anti-semitic extremists. In December 1924, the Stahlhelm started to openly support the nationalist parties in helping to organise rallies and organise marches (Klotzbücher, 1965). Shortly afterwards, the *Stahlhelm* had turned into a political combat league and strongly involved in the increasing political violence between left and right (Berghahn, 1966). The increasing political role of the veteran associations, was also recognized by politicians:

> "*Since 1924 a change has been noticeable. (...) The organizations no longer – or no longer exclusively – limit themselves to the field of soldierly activity, but increasingly are becoming engaged in the political struggle and are seeking to obtain political influence and political power (...).*"
> Albert Grzezinski (Prussian Minister of the Interior), quoted in Diehl (1975, p.173)

As the preceding sections have shown, veterans started to get politicised during the transition period especially where the new state was weak, threatened by uprisings and the need to rely on right-wing paramilitary was high. Anecdotal evidence has also highlighted the elevated role of soldiers within German society and the increasing political power of ex-servicemen clubs as potential mechanisms through which soldiers could have influenced right-wing attitudes. The following section describes the construction and collection of the data used to analyse veterans' effect on political attitudes.

3 Data

3.1 Estimating Germany's World War I veterans

The data section starts by describing how I estimated the amount of German WWI veterans. Collecting data on German WWI soldiers is a challenging task since almost all primary material from the German Army Archive has been destroyed in an air raid during Second World War. This makes statistical data the only source to recover reliable information on WWI participation in the German Empire. The starting point is the exact number of soldiers having served in the German Imperial Army during 1914 and 1918 and not dying, *Veterans*. This number is transformed into a treatment intensity *Veterans per cap.*. The base population is taken from the

1910 census which gives the last reliable counts unaffected by WWI.[6] In order to save on notation, the term *per cap.* is omitted in the remainder of this section:

$$Veterans = Soldiers_{1913} + \sum_{t=1914}^{1918} SoldiersJoin_t - \sum_{t=1914}^{1918} SoldiersDead_t \qquad (1)$$

Unfortunately, the components of this ideal measure are not readily available at a disaggregated level and veterans as such were also never subject of any statistical publication.[7] However, I will show that they can be estimated quite accurately with census data and are congruent with aggregate numbers from official sources.[8] The main data used in this study are two mid-war censuses conducted by the Office of War Nourishment's Economic Department (*Volkswirtschaftliche Abteilung des Kriegsernährungsamtes*) in December 1916 and 1917 as well as the first post-war census in October 1919.[9] The December 1917 census contains county level numbers on the amount of military persons present at the time of the census, $SoldiersHome_{1917}$. The main problem is that soldiers serving in December 1917 were omitted from the census.[10] The way I resolve this issue is exploiting the fact that only men served in the army. This shows up as a notable gender gap in the mid-war censuses but crucially also in a considerably different population growth between women and men from 1917 to 1919.[11] Taking the gender-difference in population growth gives an estimate of men absent between 1917 and 1919, henceforth $MissingMen_{1917-1919}$.[12] This measure is, however, also driven by gender-specific differences in births, civilian deaths and migration. The first two can be estimated and are discussed in section D.1 in the appendix. Differences in migration

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[6] An alternative way of doing this, would be using the population from the first post-war census carried out in October 1919, about a year after the armistice of 11th November 1918. However, since the latter may be endogenous due to post-WWI migration, pre-war population seems a somewhat safer choice.

[7] An exception is the statistic of recipients of war-related benefits on 1929 which however covers less than 60,000 of the 11 million surviving German WWI participants and to which also widows and orphans were entitled. A per capita measure of benefit recipients is weakly negatively correlated with my measure of veterans at −0.08.

[8] See section D.3 for details.

[9] According to Bessel (1993), a large amount of the 800,000 German prisoners of war had returned by late 1919.

[10] The equivalent census at the front did not collect data on soldiers' residence and could thus not be matched with the county level data. This practice was severely criticised among Germany's statisticians (Bayerisches Statistisches Landesamt, 1919).

[11] Prisoners of war were also counted as local population in mid-war censuses and have been removed from $Male_{1917}$.

[12] Further details on this calculation are provided in the appendix.

cannot be estimated and deducted and have to be accounted for by controlling for gender-specific migration 1910–1919.

Apart from gender-differences the sum of $SoldiersHome_{1917}$ and $MissingMen_{1917-1919}$ does also not account for fluctuations in and out of the army before and after December 1917. Dead soldiers are not problematic since neither those who die before or after 1917 are counted. However, a considerable number of soldiers had left the army before December 1917 for other reasons than death while others were still to join until the end of the war. Since age and desertion can be deemed negligible, those leaving the army alive should be roughly equivalent to the amount of severely wounded soldiers.[13] I thus also make use of a preliminary, unofficial version of the December 1916 census. This provides me with county-level data on war-disabled members of the German army. Disaggregated numbers on the 700,000 men who had left the army due to injury between 1916 and 1917 or were still to join the army in 1918 could not be retrieved (Statistisches Reichsamt, 1926). These will be part of the composite measurement error discussed in section 4.1. Adding $WarDisabled_{1916}$ to the sum of $SoldiersHome_{1917}$ and a gender-corrected version of $MissingMen_{1917-1919}$ completes the veteran estimate used in this study:

$$
\begin{aligned}
\widetilde{Veterans} =& SoldiersHome_{1917} + MissingMen_{1917-1919} \\
& - (Male\ Births_{1917-1919} - Female\ Births_{1917-1919}) \\
& + (Male\ CivilDeaths_{1917-1919} - Female\ Deaths_{1917-1919}) \\
& + WarDisabled_{1916}
\end{aligned}
\tag{2}
$$

The density of the normalised estimate $\widetilde{Veterans}$ is depicted in figure 1. One can see that it is almost bell-shaped and ranging between 4 and 19% with a mean and median of 14% and 13.7%, respectively. Remaining issues about the veteran estimate such as measurement error and endogeneity will be discussed in further detail in section 4.1.

3.2 Panel data of Reichstag elections 1881−1933

In order to track changes in precincts' voting behaviour over time, I compiled a panel dataset covering 17 parliamentary elections held between 1881 and Hitler coming to power in 1933. The panel is based on two existing datasets on elections in

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[13] The study by Jahr (1998) estimates that no more than 50,000 out of almost 13 million German soldiers deserted. The rule of dropping out for leaving the conscripted age group between 17 and 45 was suspended in the German army during the First World War (Nash, 1977).
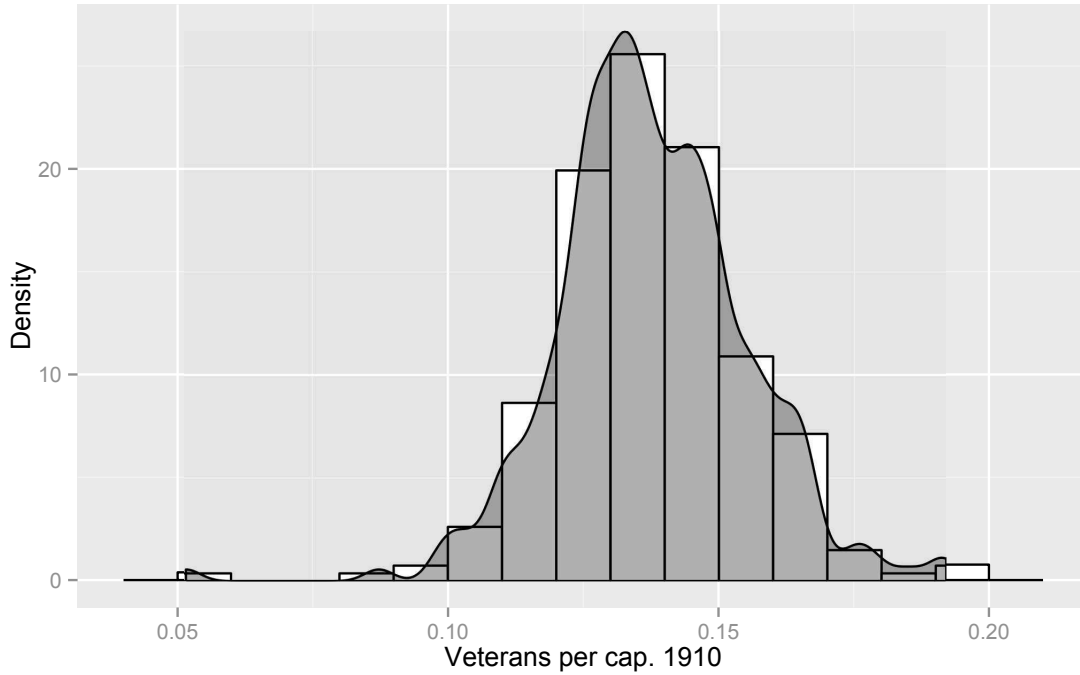
Imperial and Weimar Germany from ICPSR (1991) and Falter and Hänisch (1990), respectively. All voting data were initially taken from original publications by the German (Imperial) Statistical Office. A dataset comparing election results over almost 60 years, however, raises important issues regarding the units of analysis as well as the changes in Germany's party system.

While the issue of area redistricting is discussed in section 3.3, the second major concern is the comparability of parties across time. A brief look into the history of the NSDAP illustrates this very well: during the German Empire there was no anti-semitic party of mass support but only various like-minded splinter parties such as the *Deutsch Reformpartei* (German Reform Party) or the *Wirtschaftliche Vereinigung* (Economic Union). The Nazi party was eventually founded under the name of the *Deutsche Arbeiterpartei* (DAP, German Workers' Party) in 1918 and changed its name into NSDAP (National-Socialist German Workers' Party) in 1920. After Hitler's first coup attempt in 1923 the party was banned and leading members of the NSDAP joined forces with the *Deutsch-Völkische Freiheitspartei* (German Völkisch Freedom Party, DVFP). From 1924 onwards, when it became re-allowed, the NSDAP became quickly the largest anti-semitic party.

This development is exemplary for almost any part of Germany's political spectrum and highlights the need for a more stable categorisation which accounts for

FIGURE 2: LONG-TERM EVOLUTION OF ELECTION RESULTS 1881-1933 (WWI START/END, SOLID LINES; PRE/POST-WWI ELECTIONS, DASHED LINES)

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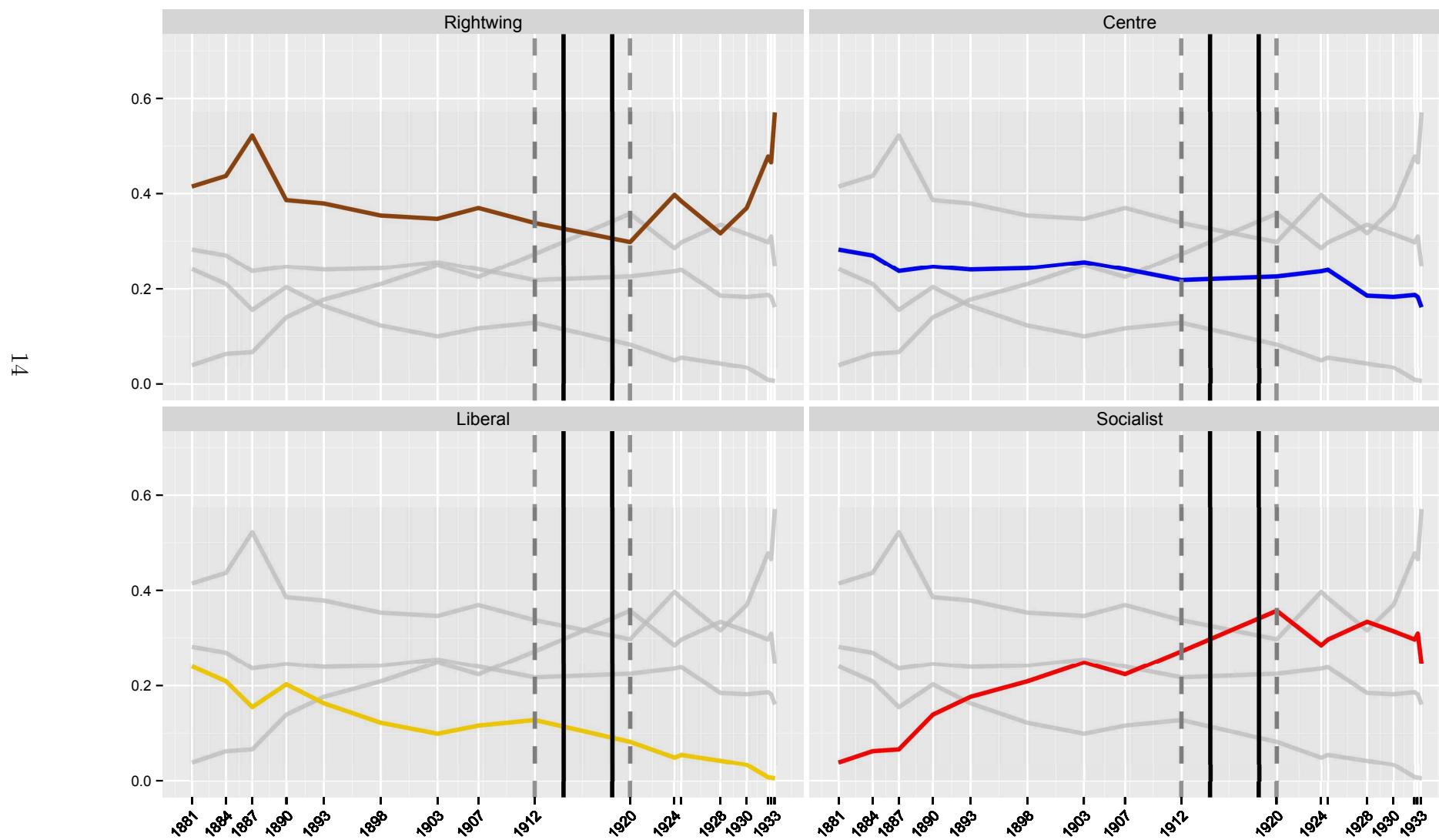
the various name changes, mergers and splits in order to analyse long-term trends. I am relying on an established classification used in the study of historical German parties augmented by a separate category for anti-semitic groupings (Jesse, 2013): 1) Anti-semitic; 2) (Protestant) Conservative; 3) Right-Liberals; 4) (Catholic) Centre; 5) Left-Liberals; 6) Socialist; 7) Agrarian/Particularist (Others).[14] The individual parties' votes are aggregated to their closest fit in the political spectrum and treated as *quasi parties* existing over the whole period of interest. The aggregates are then divided by the amount of total ballots cast in order to obtain vote shares. In the Weimar Republic, the main protagonists actively opposing democracy were *Antisemitic*, *Conservative*, and *Right-Liberals*.[15] My main outcome is the combined vote share of these three parties which I call *Right-wing*. The socialist party split during WWI into social democrats and Communists. I continue to use their sum as socialist votes after WWI to ensure comparability. In one specification I also add Communist votes to the *Right-wing* which gives *Non-democratic* votes.

Figure 2 shows the aggregate voting data by political party over the used sample. What is remarkable is the stability of right-wing votes until the end of WWI and the sudden steep rise shortly after. While the centre parties remained very stable throughout this sixty years period, the results of liberals and social democrats show where the right-wing shares were coming from. Liberal votes had stabilised at about 20% until the war and then started to fall gradually to significantly below 10% in 1933. Socialist votes did not experience such a downturn but saw their clear upward trend during the German Empire come to a sudden halt during the 1920s and 1930s.

3.3 Construction of panel and control variables

This section describes the construction of the dataset and remaining control variables. The core of my dataset is a unique panel covering 17 parliamentary elections held between 1881 and Hitler coming to power in 1933. A panel over more than 60 years, however, requires stable units of analysis not only for the electoral results but also all other data to be merged to it. While most current work on Weimar

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[14] An alternative classification is the one by Sperber (1997) who treats Anti-semitic and Conservative as a single conservative bloc and assigns the Centre party to the Agrarians/Particularists.

[15] Counting the right-liberals as right-wing is not straightforward. The main reasons are twofold: first, they were involved in many pre-election agreements with the conservatives during the German Empire which makes their vote shares difficult to separate. Second, despite participating in many governments the DVP opposed the draft of the post-war constitution and had many links to right-wing organisations such as the *Stahlhelm*. The DNVP also joined government during 1925 and 1927/1928, but research shows that this did not alter the party's general anti-democratic position. In fact, the party chairman Count Westarp was removed from office in 1928 because he refused to exclude a member urging for the acceptance of the Republic (Büttner, 2008; Gasteiger, 2014).

Germany uses data at the city or county level, voting results during the German Empire were only published for each precinct. This unit was solely used for electoral purposes and only few exceptions followed political boundaries, e.g. for very small states and administrative districts. Each precinct typically consisted of a cluster of 2-4 counties with occasional but usually negligible overlaps. An attractive feature of those precincts is also that for political reasons they were never adjusted for the considerable population changes and remained stable from 1871 to 1912 (Jesse, 2013). After World War I, Germany was divided into 35 new electoral precincts of larger but roughly equal size, but at the same time election data became published at much finer levels of aggregation such as counties and sometimes even larger municipalities. The smallest units of analysis with data available for pre- and post-WWI are thus the 397 former Imperial precincts. [16]

The counties they consisted of, however, were subject to frequent changes such as mergers, partial incorporations and splits. Hence, in a first step I coded all county reforms during the respective time period and constructed a set of *stable counties*. These are counties that existed at one point in time but where district reforms happened in such a way that numbers for the *stable county* can be reconstructed from adding up data of past or future sets of counties. If I was also able to re-construct the area of a whole precinct by adding up stable counties or if they coincided, this precinct was included in my dataset. In doing so, I was able to recover 266 out of the 397 Imperial precincts. About a quarter of the missing areas were from Alsace-Lorraine and Posen/West Prussia ceded to France and Poland after World War I. Another third is from densely populated – and often re-districted – agglomerations such as the *Ruhrgebiet* and very large cities with several precincts such as Berlin or Munich.

For this study I collected and digitised a number of additional data. One exception is the digitised Prussian version of the 1910 census which was taken from Galloway (2007). To start with I digitised the German census of 1910 which provides me with data on religion and population size. I include population share of catholics and protestants and log(population) as controls variables. The 1910 census also provides me with the last pre-WWI data on cohort size by gender. Unfortunately, the latter are only reported in very large groups and does not allow to infer male cohorts born between 1869 to 1901 and thus eligible for WWI. I therefore use the far more detailed publication of the census results for Prussian population provided in (Galloway, 2007). Together with data from the 1916 census this gives me the size of the male cohorts born 1869–1901 for about half my sample. In a two-step procedure

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[16] For the remainder of this paper, *precincts* is referring to those of Imperial Germany.

I use this data to predict the cohort size 1869–1901 for the whole sample.[17] I also collected vital statistics for the German Empire for the time period 1910 to 1919 at the level of counties and administrative districts. I use this data to correct for gender-differences in $MissingMen_{1917-1919}$ and to calculate gender-specific migration between 1910–1919 and infant mortality in 1912.[18]

I also digitised the occupational census of 1882 which provides me with detailed county information on peoples' profession. From this I can calculate the share of the population working in manufacturing and in war-related industries. The latter forms my instrumental variable for war participation and is described in more detail in section 4.3. Finally, I control for turnout by dividing the amount of total votes by the size of the electorate. All control variables are at the cross-sectional level and included in the regression by interacting them with election fixed-effects. For the sake of brevity, I do not introduce them at this point but in the respective subsections of 6. I use a number of other variables in my mechanism analysis in section 6. Summary statistics for all variables relevant to the baseline specifications are reported in table 1.

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[17] First, I run a simple regression of the actual cohort size 1869/1901 on the limited set of variables available from the all-German results. I then use these estimated coefficients to predict cohort size 1869/1901 for the rest of the sample

[18] I add perinatal births in 1912 to deaths within first-year of 1913 and divide by births in 1912.

TABLE 1: DESCRIPTIVE STATISTICS

	Obs	Mean	Std.Dev.	Min	Max
Veteran-related					
Veterans per cap.	266	0.14	0.02	0.05	0.19
Population 1910 in 1,000	266	152.50	106.90	24.16	937.38
Socio-economic					
% Protestants 1910	266	0.64	0.36	0.00	1.00
% Catholics 1910	266	0.34	0.36	0.00	1.00
% Infant mortality 1912	266	0.17	0.04	0.09	0.31
% Working in manufacturing 1882	266	0.13	0.05	0.04	0.31
% Working in war industries 1882	266	0.02	0.02	0.01	0.17
% WWI eligible men (born 1969-1901)	266	0.29	0.01	0.24	0.35
% ΔMale migration 1910-1919	266	−0.03	0.01	−0.09	0.02
Voting					
% Turnout	4,522	0.75	0.12	0.20	0.95
% Vote Anti-semitic	4,522	0.10	0.17	0.00	0.79
% Vote Conservative	4,522	0.19	0.21	0.00	0.99
% Vote Right-Liberal	4,522	0.11	0.16	0.00	0.97
% Vote Centre	4,522	0.23	0.29	0.00	1.00
% Vote Left-Liberal	4,522	0.10	0.15	0.00	0.91
% Vote Socialist	4,522	0.23	0.17	0.00	0.71
% Vote Communist (post-WWI)	2,128	0.08	0.06	0.00	0.33
% Vote Others	4,522	0.04	0.09	0.00	0.75

Notes: The unit of observation is one of the 266 precincts in the sample at election t. Variables provided at the cross-sectional level only are reported accordingly and used in the analysis by interacting them with either a post-WWI dummy or election fixed effects.

4   Identification strategy

4.1   Determinants of veteran inflow

In this subsection, I investigate the main drivers of war participation in Germany and I ensure that the treatment assignment is plausibly random conditional on observables. The main drivers of war participation across the German Empire were originating from the WWI conscription system. According to the law, all men aged 17 to 45 were liable to serve in the army and the share of male cohorts 1869 to 1901 is thus expected to be one of the main factors (Nash, 1977). I include an estimate of this cohort relative to the 1910 population interacted with a post-WWI dummy into my set of control variables. Not all men in the relevant age groups, however, actually had to serve and a considerable amount was exempted. Being judged permanently unfit to fight was one main reason for exemption and at least at the beginning of the 20th century this decision was not entirely impartial but

TABLE 2: DETERMINANTS OF VETERAN INFLOW

	Veterans p.c.				
	(1)	(2)	(3)	(4)	(5)
ΔMale migration$_{1910-1919}$	−0.035		0.080	0.091	0.144*
	(0.073)		(0.084)	(0.077)	(0.074)
1910 share of male cohorts 1869-1901		0.283**	0.318**	0.192	0.358***
		(0.113)	(0.134)	(0.135)	(0.120)
1882 share manufacturing		−0.034	−0.032	−0.085***	−0.001
		(0.023)	(0.023)	(0.024)	(0.028)
1882 share war-industries					−0.332***
					(0.117)
Infant mortality rate 1912				−0.002	−0.001
				(0.032)	(0.029)
Controls	N	N	N	Y	Y
Observations	266	266	266	266	266
R^2	0.001	0.046	0.050	0.185	0.271

Notes: Robust <u>standard errors</u> in parantheses, *$p<0.1$; **$p<0.05$; ***$p<0.01$; <u>Controls</u>: Log(population) 1910; % Protestants 1910; % Catholics 1910; % New male voters post-WWI

allegedly also by factors such as parents' occupation and living location.[19] Data on conscription in the German Empire is only available before the war but does not corroborate such claims. The percentage of permanently unfit within the 1913 class, for example, ranged only between 4.3 and 5.9% across Germany's 25 military districts. During the war, these numbers were presumably even lower and more equal since a law from September 1915 allowed re-examining everyone judged unfit before. The intense *battle for manpower* (Feldman, 1966) during WWI in Germany makes it unlikely that political concerns of the commissions could have been a systematic driver of war participation.

The second part of exemptions was related to workers needed in war or war-related production. By the year 1918, about 1.3 million men – a sixth of the actual army size – was absorbed in such a way from the front to work in the factories and mines. War participation is thus expected to be significantly lower in areas employing a large share of men in the following industries: mining; iron and metal processing; production of iron, metal, and steel; construction of machines, tools, and vehicles; electrical, precision, and optical engineering.[20] This share is a confounder since it is highly correlated with the size of the working class which was at the

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[19] The reason behind this was the army's general suspicion against the working class of supporting social democracy and being politically illoyal. See Brentano and Kuczynski (1900) and May (1917) for further discussions of this topic.

[20] This classification is taken from Kocka (1978).

same time also the main stronghold of the social democrats. Male employment in war industries is therefore expected to negatively affect both war participation and right-wing votes. The IV strategy presented in section 4.3 exploits the fact that war industries should have a direct effect on political attitudes *only* through the size of the working class. My main specifications rules this channel out by including interactions of time dummies with the employment share in manufacturing 1882. The final determinant of the veteran estimate is mismeasurement as discussed in section 3.1. I control for parts of this by controlling for $\Delta Male\ migration_{1910-1919}$.

Table 2 shows how the main drivers of war participation are related with my veteran estimate. In order to casually investigate what the remaining variation may be driven by, I construct the residuals from the specification in column (4) and plot their spatial distribution by quartile in figure 3. Unexplained variation seems to be slightly higher in north and south-west Germany. Reassuringly, figure 4 shows that the correlation of the residual with pre-WWI right-wing vote shares as of 1912 is only very weak and negative.

4.2   Differences-in-Differences

The panel structure of the data allows using unit and time fixed effects which identifies off the within-precinct variation after accounting for time-specific trends. In doing so, I can account for election-specific voting patterns due to candidates' abilities, for instance, and any time-constant omitted variable. Also confounders related to historical heritage are taken care of, given that their effect is constant over time. My first identification strategy exploits these features and uses a difference-in-differences methodology to investigate the level effect of veteran inflow across German precincts on right-wing voting. The estimated equation reads as follows:

$$y_{it} = \alpha + \gamma_i + \lambda_t + \beta_t(veterans_i \times postWWI_t) + \boldsymbol{\mu}\, \boldsymbol{X}_{it} + \epsilon_{it} \tag{3}$$

In the baseline model, I regress vote shares y_{it} one the election and precinct fixed effects γ_i and λ_t as well as a set of control variables $\boldsymbol{X}_{it}$ which is identical to the full set of variables in column 4 of table 2. The main variable of interest is the interaction of the one-time treatment intensity $veterans_i$ with a dummy variable taking on value 1 for each election after WWI (starting with the one in June 1920) and 0 otherwise. The estimated effect should thus be interpreted as an average shift in voting patterns across all elections after the end of the war proportionate to the estimated population share of veterans. Whether this effect is causal depends on

FIGURE 3: RESIDUALS FROM TABLE 2, COLUMN 4 ACROSS IMPERIAL GERMANY'S PRECINCTS, POST-WWI BORDERS IN GREEN
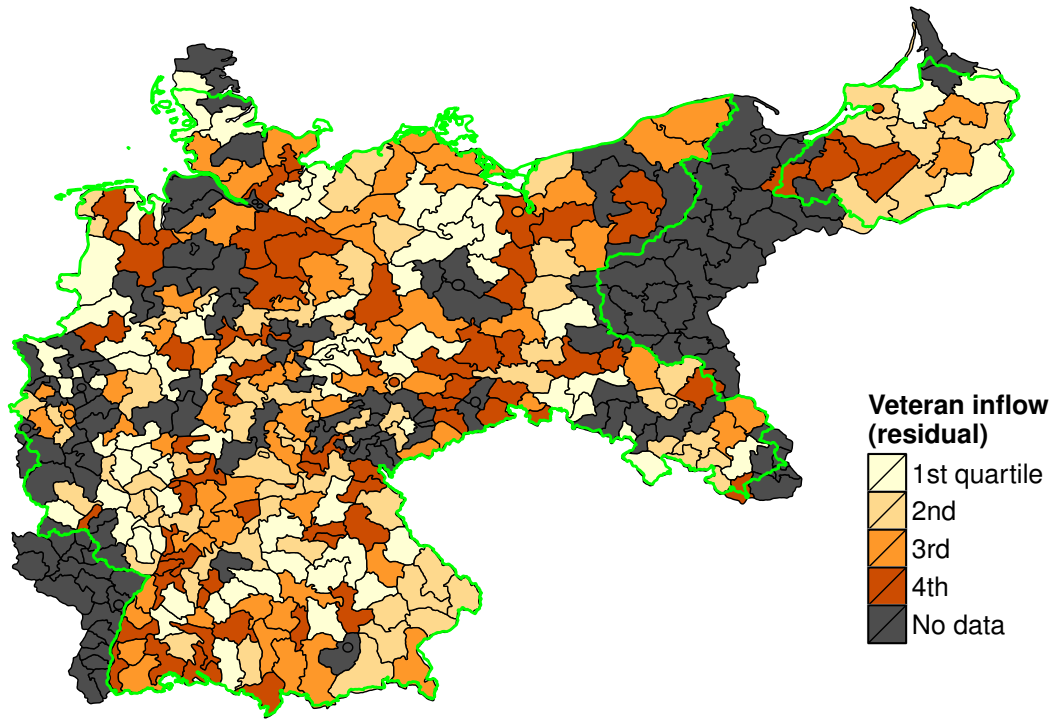
FIGURE 4: CORRELATION OF UNEXPLAINED VETERAN VARIATION AND RIGHT-WING VOTES IN 1912
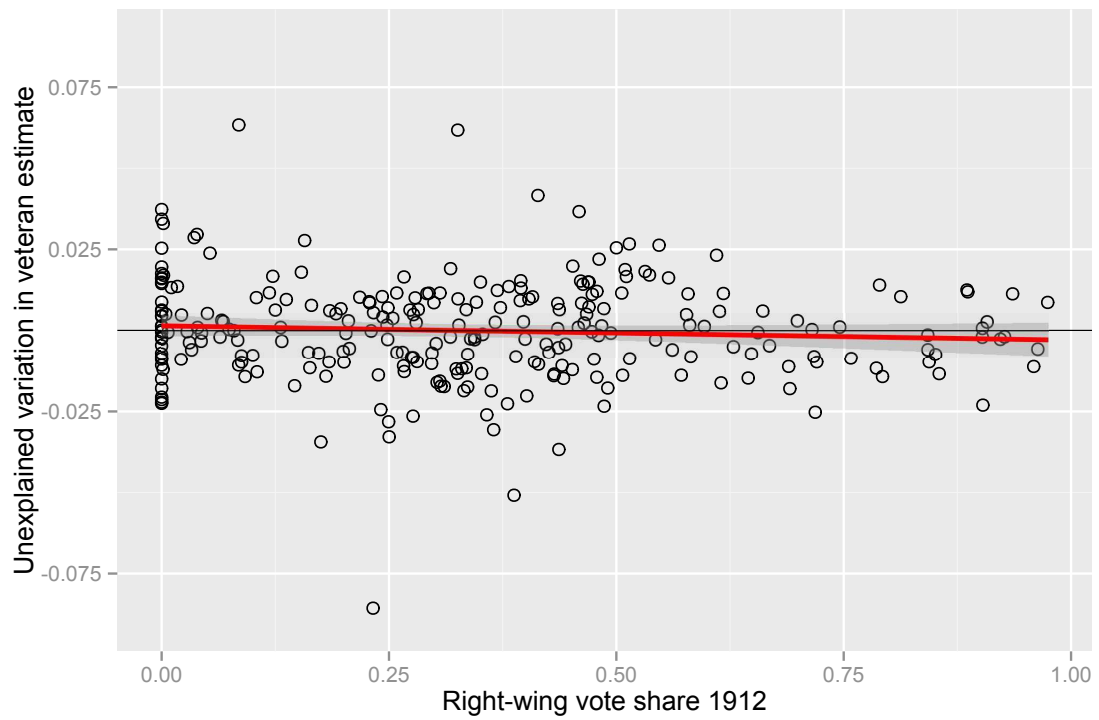
FIGURE 5: AVERAGE RIGHTWING VOTE SHARE BEFORE/AFTER WWI DEPENDING ON VETERAN INFLOW RESIDUAL (MEDIAN)
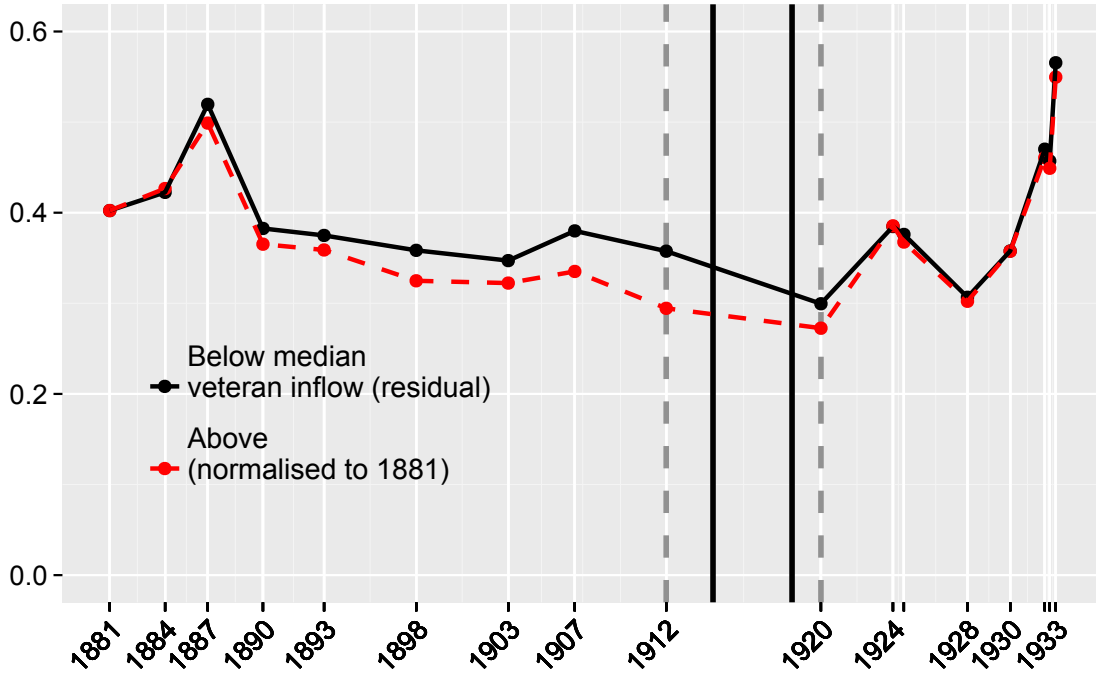
two assumptions: the first is that areas of high and low treatment intensity follow similar voting patterns before WWI and that the observed change is not part of a trend starting before WWI.

I tackle this concern in several ways: the most simple one is presented in figure 5 which plots the average right-wing vote share over time for precincts with above and below median values of the residual plotted in figure 3. As can be seen, the two lines are diverging before the war with less-treated districts exceeding the other ones by about 4%. After WWI, this trend reverses and by May 1924 the average votes in both groups are almost equal. The second test uses a non-linear version of the effect by interacting the treatment $veterans_i$ with 20 election fixed effects leaving out 1912 as the reference election. While being more demanding on the data, this allows exploring anticipating behaviour and explicitly test the common trends assumption. This would not be satisfied if precincts with higher treatment intensity started to show increasingly higher voting results for anti-democratic parties already *before* the war. A third alternative is the inclusion of area-specific election fixed effects and precinct-specific time trends. Both tests are presented as a robustness check in section 5.2.

The second necessary assumption is the absence of confounding events correlated with both the arrival of veterans and support for the extreme right. The vector of

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control variables X_{it} features several factors deemed to fulfil these criteria. Apart from the determinants of (estimated) veteran inflow, I also include further data. The first of these is the natural log of the population and serves as a proxy for the precinct's size. Unlike the percentage of new female voters, the amount of new *male* voters is correlated with the treatment and thus included in the regression. New male voters are those born between 1896 and 1900 who would have not been allowed to vote in 1920 under the old law. I proxy this with the cohorts from 1895 to 1900 taken from the censuses 1910 and 1916 and create a new variable $NewMaleVoters_{it}$ which is zero before WWI and afterwards equal to the size of the newly enfranchised cohorts divided by the 1910 total population.

Furthermore, I include socio-economic characteristics of each precinct. In addition to the size of the working class and infant mortality, I also control for the religious composition of precincts using the shares of Protestants and Catholics in 1910. Including religion into the specification is necessary since Protestants were more supportive of the German Empire especially after the extremely polarising *Kulturkampf* secularisation period and it is possible that war volunteering was also higher among them. If the (predominantly Protestant) conservative parties had started to actively fight democratisation only after the war, this would be a source of bias. In order to include the time-invariant control variables into the fixed effect regression, each of them is interacted with a set of election dummies. Finally, the standard errors of the regression are clustered at the precinct level to account for correlation of unobservable characteristics over time.

4.3   Instrumenting veteran inflow

Even though the diff-in-diff specification already controls for a range of unobserveables, one should refrain from interpreting these estimates in a causal way. Many important factors are likely to have been omitted from the specification which could bias the estimated effect of veteran inflow. For example, economic activity and the treatment may be mis-measured in a systematic way and historical treats may change their effect over time and thus would not be captured by the precinct fixed effects. In order to tackle these concerns, I use a driver of war participation which is uncorrelated with unobserved determinants of right-wing voting: draft exemptions for male workers in war industries *conditional* on the size of the working class.[21] The

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[21] Similarly, Acemoglu, Autor, and Lyle (2004) are using discrimination in the conscription process as an instrument for war participation to estimate the effect of female labour supply during WWII on wages in the United States.

first and second stage regressions of the corresponding 2SLS estimation are stated below:

$$veterans_i \times postWWI_t = \kappa + \theta_i + \psi_t + \delta_t(\,WarIndustry_i \times postWWI_t) + \boldsymbol{\eta}\,\boldsymbol{X}_{it} + \upsilon_{it} \quad (4)$$

$$y_{it} = \alpha + \gamma_i + \lambda_t + \beta_t(\widehat{veterans_i \times postWWI_t}) + \boldsymbol{\mu}\,\boldsymbol{X}_{it} + \epsilon_{it} \qquad (5)$$

The identification strategy rests on the *conditional* exogeneity assumption that employment in war-industries 1882 affects right-wing votes in a precinct with a *given* size of working class only through its (negative) effect on veteran inflow. Another way of stating the exclusion restriction is that there is nothing else that makes areas with a high share of workers in war industries, given those of total manufacturing, more pro-democratic than its effect on war participation. One concern with the instrumental variable may be that workers producing goods needed by the army have an economic interest in continuing warfare which then translates into support for specific parties. In this case, however, areas producing weapons would be especially inclined *towards* belligerent parties which is the opposite of the reduced form relationship hypothesised above. Throughout Germany's history from 1881 to 1933 right-wing parties were – at least comparatively – the more fervent supporters of military action. While the self-interest of weapon-producers in military action cannot be entirely ruled out, it would make it only harder to find a significant effect of war-related employment on votes for the extreme right. The next section discusses the empirical results of these two identification strategies.

5 The effect of veterans on right-wing voting

5.1 Difference-in-Differences results

The results from the differences-in-differences in equation 3 for right-wing votes and its components are reported in table 3. The plain linear regression in column 1 yields already a strongly significant coefficient indicating that a one percentage higher veteran inflow after WWI is associated with an increase in right-wing votes of 0.17 percent. While the inclusion of precinct effects does not alter the results, specification (3) and (4) show that the effect was strongly distorted by the exclusion of election fixed effects and the control variables. According to the baseline spec-

ification in column (4), a unit percent increase of veteran inflow yields an almost double increase in votes for the extreme right of about 1.1%. Two out of the three constituting *quasi parties* are gaining from veteran inflow after WWI but estimates are clearly driven by the conservatives rather than the anti-semitic parties. The veteran effect is thus independent of the success of the Nazi party and rather directed towards general authoritarianism and conservatism than anti-semitism. Taking into account the treatment variable's distribution, a 2% increase in veterans per capita – the equivalent a one standard deviation increase – translates into an increase of 2%. This is about 5% of the mean vote share of right-wing parties after WWI.

The positive link between the share of veterans and success of right-wing parties raises the question where those votes came from and which part of the politcal spectrum lost due to veteran inflow. Another crucial question is whether the effect of veteran inflow is benefiting anti-democratic parties of *any* political direction or whether it is restricted to the right-wing only. Table 4 sheds light on these questions and reports the estimates of the baseline specification for the combined votes of right-wing and Communists (*Anti-democratic*) and all other *quasi parties*. Column (2) shows that adding Communist to right-wing votes leaves the coefficient significant but decreases its size by about a quarter. The effect of veterans must therefore be negative on Communist votes and benefits only the anti-democratic parties of the political right. Specifications (3) to (7) show that the right-wing was gaining from war participation at the expense of the socialists and other parties. The only exceptions were the Catholic Centre party is gaining insignificantly and the progressive left liberals have an effect near zero.[22] Reasons for this could be that there was far higher cohesion within those parties since they were particularly popular among adherents of particular faiths (Catholics for the Centre, Jews for the left-liberal DDP). The socialists experienced the most severe losses but also particularistic parties saw their votes decrease depending on the amount of veterans per capita. Even though table 3 showed that only one quasi-party gained, the fact that the losing counterparts are only two parties points in the direction that the turn towards the right as a response to war participation was restricted to specific parts of Weimar Germany's society.

5.2 Robustness of the baseline estimates

In the following section I investigate the reliability of the baseline results. Even though figure 5 does not show any divergence in voting patterns which would benefit

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[22] It may seem at first that veterans are even significantly benefiting the Centre party. In table 8 I show that this effect originates from the 1907 election and does not seem to be related to WWI.

TABLE 3: DIFFERENCES-IN-DIFFERENCES ESTIMATES (BASELINE RESULTS)

	Rightwing				Anti-semitic	Conser-vative	Right-Liberal
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Veterans p.c.	0.174***	0.117*	0.256	1.080**	0.109	1.685***	−0.714
	(0.065)	(0.065)	(0.511)	(0.467)	(0.212)	(0.483)	(0.500)
Precinct FE	N	Y	Y	Y	Y	Y	Y
Election FE	N	N	Y	Y	Y	Y	Y
Controls	N	N	N	Y	Y	Y	Y
Precincts	266	266	266	266	266	266	266
Observations	4,522	4,522	4,522	4,522	4,522	4,522	4,522
R^2	0.003	0.640	0.740	0.784	0.872	0.735	0.524

Notes: Standard errors clustered at the precinct level in parantheses, *p<0.1; **p<0.05; ***p<0.01; Controls: % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE); ΔMale Migration$_{1910-1919}$; % Male cohort 1869/1901 (1910); % New male voters post-WWI (all interacted with post-WWI dummy)

my findings, it does not provide a rigorous check for the validity of the common trends assumption. I use two ways of testing the robustness of the results: inclusion of region-specific time effects as well as precinct-specific linear-trends and allowing for a non-linear treatment effect. Table 5 reports the results of column (4) in table 3 for different combinations of province and district-specific election fixed effects as well as precinct-specific linear time trends. The first two absorb the effect of any unobservable varying at the province or district level independent of its functional form. Precinct-specific trends, on the other hand, prevent the treatment variable from picking up any linear change in voting behaviour over time in a given precinct. Reassuringly, the coefficient on the treatment variable does not change strongly and remains significant many specifications. Allowing for flexible area fixed-effects in column (2) and (3) slightly increases the treatment effect. The inclusion of precinct-linear trends in column (4) saturates the model and inflates the standard error but has not impact on the point estimate. Adding area-specific election fixed-effects only slightly decrease the treatment effect in the final specification (6). The fact that the inclusion of various linear- and non-linear trends does not wipe out the veteran effect lends further support to the common trends assumption.

The weakness of the precinct-specific trends is that they can only account for a *linear* pre-treatment patterns in each precinct. Testing for non-linear trends can be done by interacting veteran inflow with time FE instead of a post-WWI dummy and allowing for a time-varying treatment effect. The reference category in this case is

TABLE 4: THE EFFECT OF VETERAN INFLOW ON OTHER PARTIES

	Rightwing	RW+Com-munist	Centre	Left-Lib.	Socialist	Others
	(1)	(2)	(3)	(4)	(5)	(6)
Veterans p.c.	1.080**	0.752	0.433	0.065	−0.962***	−0.604*
	(0.467)	(0.487)	(0.265)	(0.421)	(0.275)	(0.326)
Precinct FE	Y	Y	Y	Y	Y	Y
Election FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
Precincts	266	266	266	266	266	266
Observations	4,522	4,522	4,522	4,522	4,522	4,522
R^2	0.784	0.798	0.947	0.658	0.910	0.468

Notes: Standard errors clustered at the precinct level in parantheses, *$p<0.1$; **$p<0.05$; ***$p<0.01$; Controls: % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE); ΔMale Migration$_{1910-1919}$; % Male cohort 1869/1901 (1910); % New male voters post-WWI (all interacted with post-WWI dummy)

the last pre-WWI election in 1912 and is therefore not interacted with the treatment. Figure 6 plots the 20 coefficients and the respective 10% confidence intervals over time. The observed coefficients are reassuring and confirm that veteran inflow only had a positive effect on right-wing voting after WWI. This graph also highlights the persistence of the treatment effect until the end of the sample period in 1933. Crucially, the effect only really strikes in May 1924 rather than immediately after WWI.

Disaggregating the treatment effect on right-wing voting additionally also by parties, reveals an interesting pattern. A comparison between the coefficients in columns (3) and (4) before the war shows negative pre-trends of the conservative party mirrored by *positive* estimates of the right-liberals. At this point, it is important to know that pre-election agreements among Conservatives and Right-Liberals as their closest political ally were very frequent during the German Empire (Kühne, 2005). In those agreements, parties would agree in advance that only one of their candidates would run in a specific districts, while the other party's candidate in a different precinct would face no competition from the second party. Such arrangements were common but also rational given the coexistence of majoritarian voting in a multi-party system. While official cooperation between Conservatives and Right-Liberals only occurred in the so-called *Kartellparteien* (cartel parties) in 1887 and 1890 and the *Bülow-Block* in 1907, the coefficients in specification (3) and (4) insinuate that pre-election agreements were probably starting from about 1878

TABLE 5: BASELINE RESULTS AND DIFFERENT FE SPECIFICATIONS

	Rightwing vote share					
	(1)	(2)	(3)	(4)	(5)	(6)
Veterans p.c.	1.080**	1.180***	1.526***	1.021	1.077	0.746
	(0.467)	(0.430)	(0.419)	(0.747)	(0.784)	(0.821)
Precinct FE	Y	Y	Y	Y	Y	Y
Election FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
Election×Province FE	N	Y	N	N	Y	N
Election×District FE	N	N	Y	N	N	Y
Precinct FE×t	N	N	N	Y	Y	Y
Precincts	266	266	266	266	266	266
Observations	4,522	4,522	4,522	4,522	4,522	4,522
R^2	0.784	0.855	0.877	0.852	0.896	0.911

Notes: <u>Standard errors</u> clustered at the precinct level in parantheses, *p<0.1; **p<0.05; ***p<0.01; <u>Controls</u>: % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE); ΔMale Migration$_{1910-1919}$; % Male cohort 1869/1901 (1910); % New male voters post-WWI (all interacted with post-WWI dummy)

onwards. The conclusion to be drawn from this is that conservative abstentions were far more frequent in areas of high veteran inflow than others.

5.3   Instrumental variable results

As the previous section has shown, there is strong support for the validity of the common trends assumption. The premise that could not be tested formally in the preceding section, however, is the absence of confounding events related to veteran inflow in magnitude and timing. Even though many potential confounders have already been included into the set on control variables, one cannot rule out all factors that might have driven the process of conscription or survival at the front. I tackle this problem by instrumenting veteran inflow with the employment share of war-related industries as of 1882 as described in section 4.3. A fundamental worry already arises the first-stage relationship between the potentially endogenous $veterans_i \times postWWI_t$ and the instrument $WarIndustry_i \times postWWI_t$ in column (1) of table 7. While the relation is significant and goes in the hypothesised direction, the rather low F statistic of 7.72 is not strong enough to rule out concerns about a weak instrument. This is also reflected in the insignificant reduced form and IV estimates. However, even though the instrumented effect on conservative vote share is insignificant as a result of the high standard errors, its magnitude remains similar

TABLE 6: DIFFERENCES-IN-DIFFERENCES ESTIMATES WITH TIME-VARYING TREATMENT EFFECT

	Rightwing	Antisemitic	Conservative	Right-Liberal
	(1)	(2)	(3)	(4)
Veterans p.c.×1881	−0.316	0.255	−1.462***	0.891
	(0.716)	(0.256)	(0.563)	(0.768)
1884	0.304	0.255	−1.361**	1.411**
	(0.652)	(0.256)	(0.647)	(0.689)
1887	0.079	0.255	−1.932**	1.757**
	(0.603)	(0.256)	(0.950)	(0.893)
1890	0.669	0.298	−0.502	0.873
	(0.709)	(0.242)	(0.616)	(0.682)
1893	0.430	0.582**	−0.918	0.767
	(0.597)	(0.254)	(0.685)	(0.639)
1898	−0.209	0.313	−1.480**	0.958
	(0.503)	(0.355)	(0.617)	(0.583)
1903	0.475	0.126	−1.021**	1.370***
	(0.446)	(0.261)	(0.488)	(0.501)
1907	0.168	0.047	−0.745	0.866*
	(0.499)	(0.317)	(0.507)	(0.465)
1920	0.667	0.138	0.173	0.356
	(0.636)	(0.267)	(0.524)	(0.572)
May 1924	1.564**	0.899**	0.476	0.189
	(0.645)	(0.387)	(0.514)	(0.568)
Dec 1924	1.134*	0.367	0.661	0.107
	(0.652)	(0.312)	(0.544)	(0.557)
1928	1.341**	0.467	0.523	0.351
	(0.673)	(0.331)	(0.496)	(0.569)
1930	1.442**	0.420	0.745	0.277
	(0.650)	(0.343)	(0.465)	(0.556)
July 1932	1.313**	0.244	0.775	0.294
	(0.594)	(0.347)	(0.490)	(0.532)
Nov 1932	1.303**	0.096	0.879*	0.328
	(0.593)	(0.344)	(0.484)	(0.537)
1933	1.297**	0.133	0.870*	0.293
	(0.596)	(0.323)	(0.495)	(0.535)
Precinct FE	Y	Y	Y	Y
Election FE	Y	Y	Y	Y
Controls	Y	Y	Y	Y
Precincts	266	266	266	266
Observations	4,522	4,522	4,522	4,522
R^2	0.785	0.872	0.736	0.525

Notes: <u>Standard errors</u> clustered at the precinct level in parantheses, $^*p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$; <u>Controls</u>: % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE); ΔMale Migration$_{1910-1919}$; % Male cohort 1869/1901 (1910); % New male voters post-WWI (all interacted with post-WWI dummy)
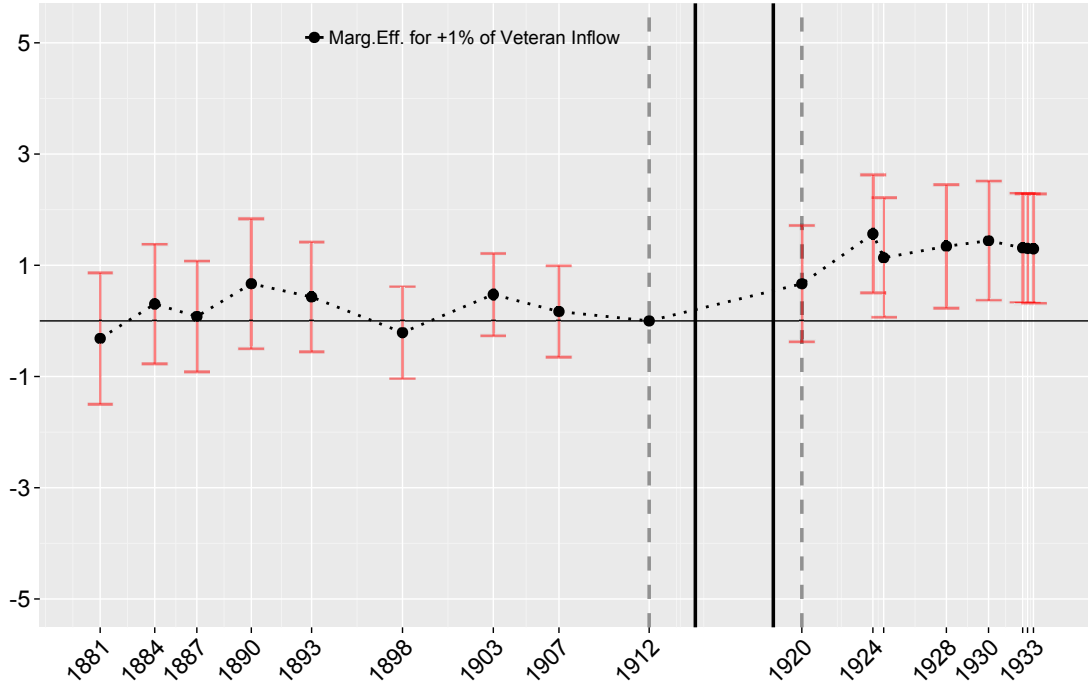
to that of the Diff-in-Diff estimate. In order to back this up, I also re-estimated the model using a LIML which yielded near-identical point estimates for columns (4), (7), (10) and (13).[23]

The IV results are confirming the Diff-in-Diff estimates by returning treatment effects of similar or higher size. The effect on right-wing votes in specification (4) increases to 1.96 but loses statistical significance. Column (10) shows that most of this increase is due to a notably higher treatment effect of 2.80 on the conservative party which is also significant at the 10% level. The IV estimate for anti-semitic parties is still insignificant but now negative at -0.18. The effect on right-liberal parties remains negative and insignificant. Overall, the IV estimates underline the findings in table 3 that veteran inflow is exclusively benefiting the conservative DNVP. This should be born in mind when moving on to analysing the mechanisms behind the baseline findings. Given the weak first-stage, I will proceed with the differences-in-differences results as my preferred specification.

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[23] Results are reported in table 22.

TABLE 7: INSTRUMENTAL VARIABLE ESTIMATES

Dep. var.	Vet. p.c.	Rightwing			Antisemitic			Conservative			Right-Liberal		
	OLS (1)	Red.Form (2)	OLS (3)	IV (4)	Red.Form (5)	OLS (6)	IV (7)	Red.Form (8)	OLS (9)	IV (10)	Red.Form (11)	OLS (12)	IV (13)
1882 % war-ind.	-0.332^{***} (0.120)	-0.652 (0.461)			0.059 (0.238)			-0.932 (0.642)			0.221 (0.588)		
Veterans p.c.			1.080^{**} (0.467)	1.963 (1.458)		0.109 (0.212)	-0.178 (0.723)		1.685^{***} (0.483)	2.805^{*} (1.615)		-0.714 (0.500)	-0.665 (1.659)
Precinct FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Election FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Precincts	266	266	266	266	266	266	266	266	266	266	266	266	266
Observations	4,522	4,522	4,522	4,522	4,522	4,522	4,522	4,522	4,522	4,522	4,522	4,522	4,522
R^2	0.989	0.783	0.784	0.783	0.872	0.872	0.872	0.732	0.735	0.733	0.522	0.524	0.524
IV F-stat.	7.72												

Notes: <u>Standard errors</u> clustered at the precinct level in parantheses, $^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$; <u>Controls</u>: % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE); ΔMale Migration$_{1910-1919}$; % Male cohort 1869/1901 (1910); % New male voters post-WWI (all interacted with post-WWI dummy)

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6 Mechanisms

6.1 A two-stage mechanism: Evidence from timing and parties

As figure 6 showed, veterans' effect on right-wing votes did not fully materialise right after the war but only in 1924. This raises doubts about whether it was actually WWI that turned veterans towards the right. In order to provide a better understanding about the timing of the effect, I investigate the yearly effects of veteran inflow also for the losing parties. The results in table 8 also revise some of the findings about other parties' reaction to veteran inflow in table 4. To start with, the perceived gain of the centre party in areas with higher war participation after WWI actually took place between 1903 and 1907. Virtually all post-WWI coefficients are identical to that of 1907. This insinuates that 1912 and 1920 may be regarded as outliers for the relation between veterans per capita and vote share of the centre party. A similar scenario can also explain the losses of *Other* parties. Again, the 1907 coefficient is very similar to all post-WWI coefficients. The identified drop of particularists' votes is therefore higher in areas with high war participation in the future but unrelated to war itself.

The most important result of table 8, however, is that losses of the socialist parties from veteran inflow already took place already in the first post-WWI Reichstag election 1920. A one unit increase in the population share of veterans leads to a drop of 0.8 in the socialist vote share in 1920 compared to 1912. The winners of this drop, however, were not only the rightwing parties but also the left-liberals and the centre. The main effect on right-wing votes observed in the baseline results, in fact, does not take place before May 1924. In this election the veteran effect drops or turns negative for all parties apart from the far-right. The negative effect on socialist votes, however, remains unchanged. The main findings in tables 3 and 4 therefore seem to be part of a two-stage mechanism: 1) a drop of socialist votes immediately after WWI in 1920 and 2) an increase in right-wing votes in May 1924 – both depending on war participation.

The timing of these mechanisms suggests that 1) is actually related to the war while 2) is a result of the post-war period. This also guides the remainder of this section. I start by extrapolating the war-related and social factors which determined veterans' negative effect on socialist votes. Then I explore the impact of political socialisation between 1920 and 1924 on the distinct swing to the right in areas

TABLE 8: DID ESTIMATES WITH TIME-VARYING TREATMENT EFFECT FOR OTHER PARTIES

Vote share	Rightwing	Centre	Left-Liberal	Socialist	Others
	(1)	(2)	(3)	(4)	(5)
Veterans p.c.×1881	−0.316	−1.161***	1.260*	−0.277	0.510
	(0.716)	(0.338)	(0.724)	(0.370)	(0.409)
1884	0.304	−0.825*	0.006	0.039	0.486
	(0.652)	(0.453)	(0.554)	(0.365)	(0.388)
1887	0.079	−0.674*	0.022	0.202	0.414
	(0.603)	(0.365)	(0.571)	(0.334)	(0.343)
1890	0.669	−0.810**	−0.597	0.532	0.216
	(0.709)	(0.386)	(0.576)	(0.332)	(0.488)
1893	0.430	−1.023**	−0.302	0.690**	0.221
	(0.597)	(0.417)	(0.456)	(0.274)	(0.361)
1898	−0.209	−1.079***	−0.143	0.732**	0.805*
	(0.503)	(0.351)	(0.442)	(0.345)	(0.469)
1903	0.475	−0.727**	−0.280	0.023	0.522
	(0.446)	(0.339)	(0.379)	(0.166)	(0.333)
1907	0.168	−0.298	0.427	0.040	−0.328
	(0.499)	(0.254)	(0.320)	(0.113)	(0.290)
1920	0.667	0.019	0.411	−0.829***	−0.226
	(0.636)	(0.342)	(0.480)	(0.271)	(0.329)
May 1924	1.564**	−0.351	0.088	−0.886***	−0.316
	(0.645)	(0.385)	(0.473)	(0.254)	(0.339)
Dec 1924	1.134*	−0.212	0.119	−0.729***	−0.268
	(0.652)	(0.378)	(0.473)	(0.249)	(0.330)
1928	1.341**	−0.351	0.130	−0.715***	−0.357
	(0.673)	(0.343)	(0.480)	(0.264)	(0.433)
1930	1.442**	−0.340	0.168	−0.663***	−0.594
	(0.650)	(0.326)	(0.488)	(0.255)	(0.409)
July 1932	1.313**	−0.358	−0.014	−0.754***	−0.182
	(0.594)	(0.315)	(0.484)	(0.271)	(0.360)
Nov 1932	1.303**	−0.371	−0.010	−0.766***	−0.152
	(0.593)	(0.314)	(0.483)	(0.270)	(0.365)
1933	1.297**	−0.437	−0.023	−0.598**	−0.211
	(0.596)	(0.337)	(0.484)	(0.250)	(0.368)
Precinct FE	Y	Y	Y	Y	Y
Election FE	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y
Precincts	266	266	266	266	266
Observations	4,522	4,522	4,522	4,522	4,522
R^2	0.785	0.947	0.660	0.911	0.470

Notes: Standard errors clustered at the precinct level in parantheses, *p<0.1; **p<0.05; ***p<0.01; Controls: % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE); ∆Male Migration$_{1910-1919}$; % Male cohort 1869/1901 (1910); % New male voters post-WWI (all interacted with post-WWI dummy)

with high war participation. Finally, I look at the channels through which political attitudes were transmitted to veterans and from them to others.

6.2   Direct effects of war participation

According to official statistics, the Imperial Army recorded about 4.2 million cases of non-fatal injuries Statistisches Reichsamt (1926).[24] However, due to the successful re-integration of veterans into the labour market only a small fraction became dependent on state benefits. Bessel (1988), for instance, notes that many companies were trying very hard to find employment for their former workers even if they were actually not in need of additional labour. The amount of soldiers whose injury entitled them to state benefits was about 660,000 according to a survey of veteran benefit recipients in 1924. More than 25% of these had an earnings reduction above 50% (Statistisches Reichsamt, 1925). Even though the German veteran benefit law was generous compared to other countries, the state did not manage to win veterans' support. Especially the bureaucratic pension system and the lack of special recognition of war-injuries bred discontent among former soldiers (Diehl, 1993). As a consequence, ex-soldiers depending on state benefits may have developed a particular hatred against the state which would give an explanation for my findings above. I expect this effect to be even higher for those with substantial disabilities and little chances on the labour market. An alternative link between combat experience and extremist voting is provided in Grossman, Manekin, and Miodownik (2015) who show that war exposure increases prejudices and support for military conflict among Israeli recruits.

As a result, benefit receiving veterans and particularly those with more severe injuries could be driving the baseline effect. I exploit two sources of data to investigate the effect of war's direct consequences for veterans on right-wing support. The first one are numbers on recipients of veteran benefits in 1929 provided in Statistisches Reichsamt (1933). This data is provided at the county level and has already been used by Adena et al. (2015) and Satyanath, Voigtländer, and Voth (forthcoming) as a measure of war participation. Two downsides of this source of information are that it does not differentiate between veterans and their dependants and was collected 10 years after the end of the war when many veterans might have already passed away. In my heterogeneity analysis I investigate whether the veteran effect was significantly different in precincts above the median of veteran benefit recipients per capita. The second source comes from the aforementioned survey by the Statistisches Reichsamt

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[24] Unfortunately, this statistic did not differentiate between *cases* of injuries and *ever injured* soldiers in WWI.

(1925) of all benefit receiving individuals in 1924. Crucially, this publication lists the average reductions in earnings potential of benefit recipients for given larger areas (provinces). This data furthermore allows to explicitly focus on 1) former soldiers rather than dependants and 2) those who fought in WWI as opposed to other wars. From this I calculate the average earnings reduction among all benefit-receiving WWI veterans as a proxy for combat exposure. I interact veterans per capita with a linear measure of combat exposure rather than a median split dummy since the high level of aggregation may result in picking up other differences across provinces.

Table 9 presents results of the baseline specification after adding the proxies discussed above (interacted with a post-WWI dummy) as well as their interaction with veteran inflow. The median split by recipients of veteran benefits in column 2 does not lead to a significant change in the baseline coefficient for the conservatives. The right-liberals seem to be losing more from veteran inflow in precincts with many benefit recipients but this difference is not significant. Also the effect of veterans on socialists is not affected. Combat exposure, on the other hand, seems play an important role in determining veterans' effect on socialist votes. However, since this effect is linear, one can only draw conclusions about veterans' actual impact by looking at the marginal effects which I have plotted in figure 7. The figures show the marginal effect of veteran inflow in dependence of the interacted variable, combat exposure in this case. The background shows a histogram of the interacted variable and thus gives information at which points the marginal effect actually matters. This analysis reveals that the marginal effect on socialist votes increases with combat exposure but does not depend on it. Only at the far left of the distribution, the treatment effect becomes insignificant.

Taken together, I find only mixed support for the widespread image of the war-disabled, impoverished veteran who becomes embittered by the Weimar society and radicalises. Using the precise numbers on veteran benefit recipients in 1929, the main results are left virtually unchanged. A channel working through impoverishment from war participation can therefore be ruled out. Combat exposure, on the other hand, seems to have some power in explaining the size of the effect on socialist but not its existence. These results are in line with those of Grossman, Manekin, and Miodownik (2015) cited above but should be interpreted with caution given the high level of aggregation and the presumably non-random selection into combat exposure in this empirical setup.

TABLE 9: VETERAN INFLOW AND THE SOCIAL CONSEQUENCES OF WWI

	Rightwing			Socialist		
	(1)	(2)	(3)	(4)	(5)	(6)
Veterans p.c.	1.080**	1.406*	21.937	−0.962***	−1.065**	37.469**
	(0.467)	(0.718)	(37.136)	(0.275)	(0.435)	(18.735)
Poor veterans>Median		0.035			−0.020	
		(0.134)			(0.078)	
Vet.×Poor vet.		−0.460			0.162	
		(0.975)			(0.555)	
Combat exposure (linear)			0.010			0.120**
			(0.109)			(0.057)
Vet.×Combat expos. (lin.)			−0.451			−0.827**
			(0.801)			(0.403)
Precinct FE	Y	Y	Y	Y	Y	Y
Election FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
Precincts	266	266	266	266	266	266
Observations	4,522	4,522	4,522	4,522	4,522	4,522
R^2	0.784	0.785	0.788	0.910	0.910	0.911

Notes: <u>Standard errors</u> clustered at the precinct level in parantheses, $*p<0.1$; $**p<0.05$; $***p<0.01$; <u>Controls</u>: % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE); ΔMale Migration$_{1910-1919}$; % Male cohort 1869/1901 (1910); % New male voters post-WWI (all interacted with post-WWI dummy)
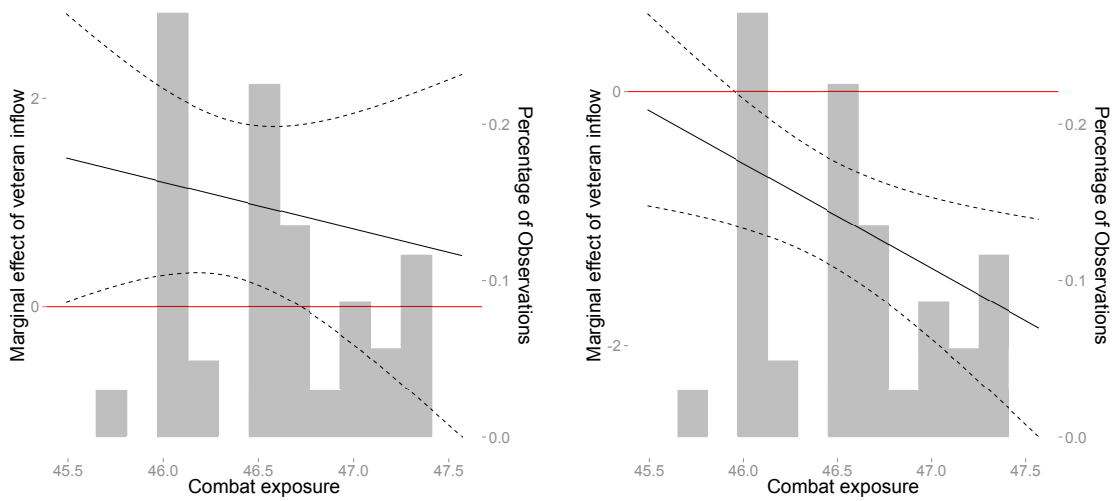

FIGURE 7: MARGINAL EFFECT OF VETERANS DEPENDING ON SHARE OF HIGHLY DISABLED WWI SOLDIERS

6.3 Effect heterogeneity across social groups

During a war, men from very different parts of the social strata are often serving in the same unit. The German army during WWI was no different in that respect. Even though Ziemann's analysis (2007) of German war letters suggests that soldiers tended to bond with others from nearby places and similar social background, one cannot entirely rule out such a mechanism. I continue by exploring in which parts of the society a transition of socialist to right-wing support in relation to war participation was most likely. In order to do this, I look at the religion and social class as the two most important lines of social division in modern Germany.

For my analysis, I investigate treatment effects in precincts with above median share of protestants in 1910 or share of population in manufacturing in 1882. Results for the corresponding regressions are displayed in table 10. The findings in columns (2) and (5) are important because they rule out that socialists were losing votes in non-working class areas. In precincts with a low share of the working class, the coefficients are close to zero. The veteran effect is therefore a distinct working-class phenomenon. Concerning the role of religion, columns (3) and (6) show that the gains of the right-wing from veteran inflow are only significant in precincts with an above median share of protestants. However, these appear to have been mostly at the expense of parties *other* than socialist ones. The interaction with *Protestants 1910 > Median* is negative for socialists but not significant. The plain treatment effect, on the other hand, remains highly significant and only marginally changes magnitude.

One explanation for the large effects in working class areas is that veterans could have picked up political attitudes during their service. If this was the case, the effect should also be higher in areas where socialists had an ideological monopoly before the war and new political ideas were presumably most efficient. In order to measure left ideological monopoly, I use a Herfindahl index for the elections immediately preceding WWI in 1912. Since high values could capture lack of diversity of the left and the right, I weight the index by the socialist vote share. The new variable is therefore highest in areas with low competition and high support for socialist parties and lowest in those with elevated competition and support for non-socialist parties. In order to make the analysis robust, table 11 uses median splits and reports also corresponding estimates using the 1907 elections for constructing the index. The estimates in column (2) show that the positive effect of veterans on right-wing votes is entirely driven by areas with a left monopoly before WWI. The same is also true for the loss in socialist votes in column (5). Specification (3) and (6) rule out that

TABLE 10: VETERAN INFLOW AND SOCIAL COMPOSITION

	Rightwing			Socialist		
	(1)	(2)	(3)	(4)	(5)	(6)
Veterans per cap.	1.080**	−0.123	0.439	−0.962***	−0.008	−0.826***
	(0.467)	(0.820)	(0.521)	(0.275)	(0.357)	(0.316)
Working class 1882>Median		−0.245*			0.226***	
		(0.134)			(0.069)	
Vet.×% Working class 1882		1.799*			−1.452***	
		(0.972)			(0.497)	
Protestants 1910>Median			−0.178			0.054
			(0.146)			(0.089)
Vet.×% Protestants 1910			1.692			−0.376
			(1.044)			(0.610)
Precinct FE	Y	Y	Y	Y	Y	Y
Election FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
Precincts	266	266	266	266	266	266
Observations	4,522	4,522	4,522	4,522	4,522	4,522
R^2	0.784	0.785	0.786	0.910	0.912	0.910

Notes: <u>Standard errors</u> clustered at the precinct level in parantheses, $^*p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$; <u>Controls</u>: % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE); ∆Male Migration$_{1910-1919}$; % Male cohort 1869/1901 (1910); % New male voters post-WWI (all interacted with post-WWI dummy)

this finding might be driven by the peculiarly strong results of the socialist parties in the 1912 election.

Putting the above findings together, I find that social class is a powerful socio-economic predictor of the veteran effect. The treatment effect on right-wing votes is restricted to precincts with an above median share of protestants and men between 25 and 49 years. This factor, however, cannot explain the losses of the socialists and is therefore mainly informative about where the right gained but not where those votes were coming from. The share of the working class, on the other hand, highlights a direct link between war participation and the diversion of socialist votes to the right-wing in areas with a higher population share of veterans. This is particularly striking given the low treatment effect on the anti-semitic parties and the fact the predecessors of the DNVP and the DVP were representing the upper middle class and aristocracy. War participation was therefore crucial for the right to overcome class divisions and attract votes from the left during the Weimar Republic. Religious division, on the other hand, could not be overcome and treatment effects were highest in protestant areas which were already supporting the conservatives before the war.

TABLE 11: VETERAN INFLOW AND POLITICAL DIVERSITY

|	Rightwing			Socialist		
	(1)	(2)	(3)	(4)	(5)	(6)
Veterans per cap.	1.080**	−0.309	−0.296	−0.962***	−0.211	−0.208
	(0.467)	(0.753)	(0.731)	(0.275)	(0.345)	(0.361)
Socialist monopoly 1912>Median		−0.260**			0.154**	
		(0.128)			(0.067)	
Vet.×Soc. monopoly 1912>Median		2.296**			−1.252***	
		(0.942)			(0.475)	
Socialist monopoly 1907>Median			−0.241*			0.150**
			(0.128)			(0.072)
Vet.×Soc. monopoly 1907>Median			2.179**			−1.206**
			(0.924)			(0.504)
Precinct FE	Y	Y	Y	Y	Y	Y
Election FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
Precincts	266	266	266	266	266	266
Observations	4,522	4,522	4,522	4,522	4,522	4,522
R^2	0.784	0.788	0.788	0.910	0.911	0.911

Notes: Standard errors clustered at the precinct level in parantheses, $^*p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$; Controls: % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE); ΔMale Migration$_{1910-1919}$; % Male cohort 1869/1901 (1910); % New male voters post-WWI (all interacted with post-WWI dummy)

The results are consistent with a transmission of political thoughts and ideas. The strength of the effect in areas where the socialist party had a political monopoly suggests that veterans are associated with the inflow of new political ideas into an environment where such thoughts could not take place before. Section B.2 in the appendix shows that informal social ties with former officers cannot explain this pattern. Rather, transmission seems to have taken place during the war among lower-ranked soldiers. One possible channel of spreading anti-communist thoughts in the working class milieu could be the conspiracy theory of the *stab-in-the-back* mentioned in section 2.

6.4 Socialisation: Veteran associations

One way in which the rightwing could have gained support from war participation between 1920 and 1924 is through socialisation in the ex-servicemen's clubs and combat leagues mentioned in section 2. Diehl (1975) highlights that the conservative *Stahlhelm* association started to get politically active around 1921/1922 which would coincide with the timing in table 8. Its two main competitors, the social-democratic

FIGURE 8: STAHLHELM DOMINANCE BASED ON VETERAN ASSOCIATIONS' MEMBERSHIP DATA
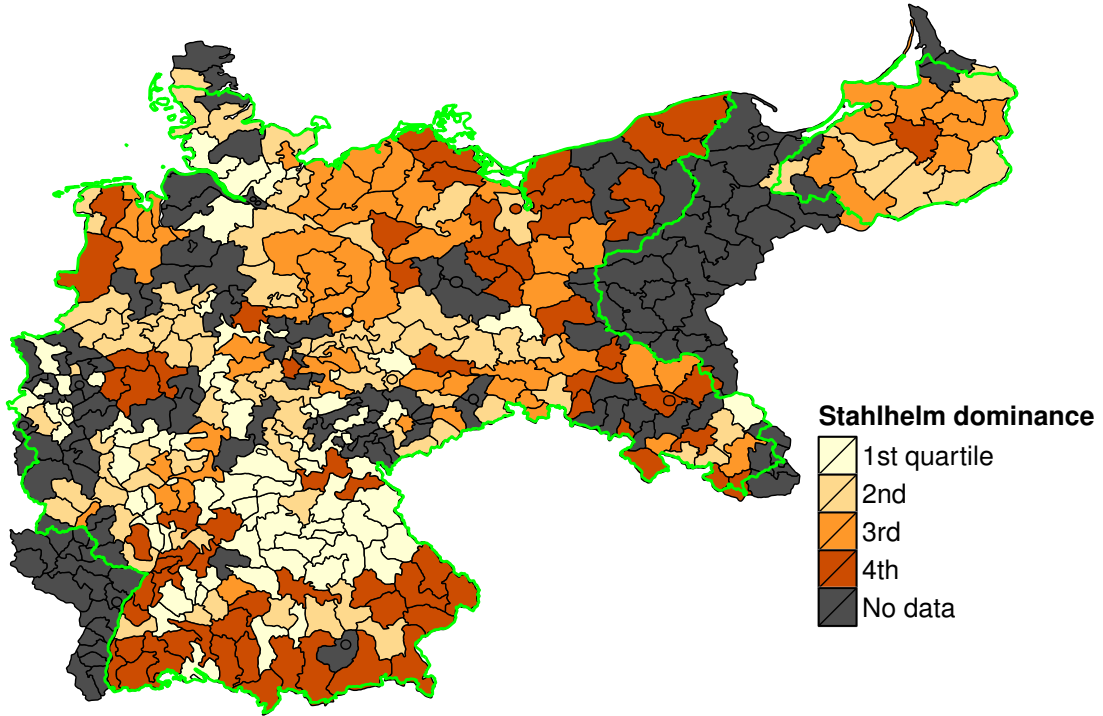
Reichsbanner and the Communist *Rotfront*, were each founded in the first half of 1924. In the following analysis I investigate whether higher popularity of the *Stahlhelm* can explain the veteran effect. A straightforward way to quantify the strength of associations is membership numbers relative to the local population. Apart from the NSDAP, where an impressive research project on party members has been carried out by Brustein and Falter (see Schneider-Haase, 1991, for details), obtaining data on followers of political organisations during the Weimar Republic is usually very difficult. Many organisations were too small to systematically collect information or their records were destroyed due to political or war-related reasons. Luckily, the *Stahlhelm* was not only a rather big association but also heavily influenced by the proverbial Prussian passion for data collection. It therefore regularly demanded from its regional chapters not only reports on membership numbers but also on competing organisations such as the social-democratic Reichsbanner (RB) and the Communist Rotfront (RF). Not all of these found their way into archives but I managed to collect and digitise almost completely the original sheets of the 6th Stahlhelm census (*6. Stärkemeldung*) in late 1929/early 1930 and reports on enemy organisation of early 1928.[25]

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[25] I collected this data entirely from the stocks of the German Federal Archive (see appendix for further details).

While being unique and extremely valuable for the study of veteran life, this data also has important drawbacks. Many areas only provided aggregates at a higher level and some areas are not covered at all. More generally, misreporting in any direction could be the case even though it does not appear too likely given the strong belief of the Stahlhelm in obedience. If no data was available for a given area, zero was assigned. Since this is particularly problematic for larger areas, time-varying district fixed effects are introduced into each regression. A more fundamental issue is that this information only provides a one-time snapshot of organisations' strengths and may not completely reflect its that of the past and near future. Both points are not negligible and should be born in mind when analysing the results. From the membership data, I calculated two different measures: *Stahlhelm/RB/RF per cap.* divides an area's members by the corresponding population from the 1919 census.[26] *StahlhelmDominance$_i$* is the share of Stahlhelm members over the sum of RB, RF and Stahlhelm members.[27] Finally, the distribution of veteran associations is not predetermined and potentially endogenous.

The spatial distribution of Stahlhelm dominance is shown in figure 8 and suggests that veterans were far more right-wing in the south and north-east of Germany. As mentioned above, in order to account for this strong spatial clustering, all regressions using the combat league membership data are using election-specific district fixed effects. The far bigger issue when including veteran membership data is its endogeneity. In order to alleviate this problem, I first regress each *bad control* on my baseline set of predetermined control variables. My analysis then uses the predicted value from these regressions as an *exogenised* version of the original variable. The analysis proceeds as follows. Regression (2) and (5) interact veteran inflow with dummies for having an above median members of Stahlhelm, Reichsbanner, and Rotfront. I use the median splits for of all three associations since competition among them might induce correlation in membership strengths. Second, specification (3) and (6) interact with a linear measure of *StahlhelmRule*. I use a linear term since the assignment of the value of 0.5 to any side is crucial and because the map in figure 8 revealed strong spatial clustering which might be picked up by a median dummy. The corresponding results are shown in table 12.

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[26] Since Stahlhelm area borders do not precisely follow 1910 district or precinct borders, the matching is initially carried out at the district level with reported areas being treated as aggregates of several *political* districts. Precinct data is then formed as a population weighted average of each district's Stahlhelm/RB/RF per cap. measure. The 1919 census is used instead of 1910 because it allows a more accurate match with the Stahlhelm data of the late 1920s.

[27] In the base of zero membership numbers, the following procedure was applied: if only Stahlhelm or summed RB and RF members had value zero, *StahlhelmDominance$_i$* was replaced with the highest/lowest value possible, i.e. 0 or 1. If both values were zero, a tie was imputed and value 0.5 assigned.

	Rightwing			Socialist		
	(1)	(2)	(3)	(4)	(5)	(6)
Veterans per cap.	1.526***	0.761	2.455	−0.735**	−0.542	−2.215
	(0.419)	(0.599)	(1.923)	(0.353)	(0.449)	(1.396)
Stahlhelm p.c.>Median		−0.083			−0.192*	
		(0.163)			(0.105)	
Vet.×Stahlhelm >Med.		0.121			0.068	
		(0.162)			(0.110)	
Reichsbanner p.c.>Median		−0.221*			0.116	
		(0.130)			(0.098)	
Vet.×Reichsbanner >Med.		0.566			1.252*	
		(1.087)			(0.716)	
Rotfront p.c.>Median		−0.260			−0.530	
		(1.164)			(0.819)	
Vet.×Rotfront >Med.		1.393			−0.745	
		(0.916)			(0.713)	
Stahlhelm rule			−0.750			−0.341
			(0.688)			(0.384)
Vet.×Stahlhelm rule			−1.776			2.829
			(3.379)			(2.505)
Precinct FE	Y	Y	Y	Y	Y	Y
Election FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
Precincts	266	266	266	266	266	266
Observations	4,522	4,522	4,522	4,522	4,522	4,522
R^2	0.877	0.880	0.877	0.943	0.944	0.943

Notes: Standard errors clustered at the precinct level in parantheses, $^*p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$; Controls: Migration$_{1910-1919}$; % Men aged 9-41 1910; % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE)

Looking at the coefficient of *Veterans×(Stahlhelm>Median)* in columns (2) and (5) shows that Stahlhelm strength does not explain the baseline effect. In fact, the coefficient is negative and for right-wing votes even significant at the 10% level. For socialist votes, the coefficient is also negative but tiny compared to the interactions with memberships of the left-wing combat leagues. The significant positive effect of *Veterans×(Reichsbanner>Median)* could be reflecting the findings in section 6.3 that the right-wing was particularly gaining from veteran inflow in working class areas. This is corroborated by the negative coefficient of the same variable in specification (5). The inclusion and interaction of *StahlhelmDominance* does not have strong explanatory power either. The plain treatment effect in regression (3) is almost unchanged compared to (1) which is also reflected in the marginal effect plot in figure 12. The marginal effect plot, however, also shows that the Stahlhelm had

a significant negative effect on socialist votes only in areas where the Stahlhelm outnumbered its counterparts on the left. Keeping all caveats of the data in mind, this seems to suggest that combat leagues might have played a role in spreading anti-socialist propaganda to veterans. However, my results show no evidence to believe that the Stahlhelm turned veterans towards the political right.

6.5 Socialisation: Anti-communism

In this section I investigate the role of anti-communism in explaining the veteran effect on right-wing and socialist votes. Probably the most severe experience for many veterans was the return to a country ruled by soldiers' and workers' councils. The Communist coup attempts in 1919 spread fears of a violent *Bolshevik* revolution and led to a radicalisation among the middle class (Fritzsche, 1990). The uprisings also corroborated beliefs in the stab-in-the back myth, namely that the state was secretly working against the middle and upper class in order to establish a Communist dictatorship. These fears were unjustified given that in the elections for the National Assembly 1919, only 7.6% went to Communist parties. This changed dramatically in 1920 after a failed coup attempt by the far-right. Even though the vote share for socialist parties remained almost the same, Communists now received 17.9% which was mainly at the cost of the more moderate social democrats. Over the following years, the German Communists started to get heavily influenced by the Communist International and engaged in coup attempts in Central Germany (1921) and Hamburg (1923). This coincides with the strong increase of veterans' effect for right-wing votes who were also the most fervent and credible anti-communist parties.

I investigate the importance of anti-communism in two ways: my first test looks at whether the treatment effect is stronger in areas where a fear of communism was justified and Communist parties received a vote share above the median. To avoid endogeneity issues, I use again predicted values from a regression on predetermined covariates rather than the actual values. Since the radical phase of the Communist party started after 1920, I interact veterans with a median dummy of Communist votes in 1920 and 1924 as a cross-check. Table 13 reveals that this distinction does not make any difference. Specifications (2) and (3) show that the veteran effect on right-wing votes was higher in areas with above median Communist support in both the 1920 and May 1924 elections. The effect on socialist parties in columns (5) and (6) mirrors this effect. The support for Communists in May 1924, however, has a slightly more negative effect. This could be because many moderate Communists
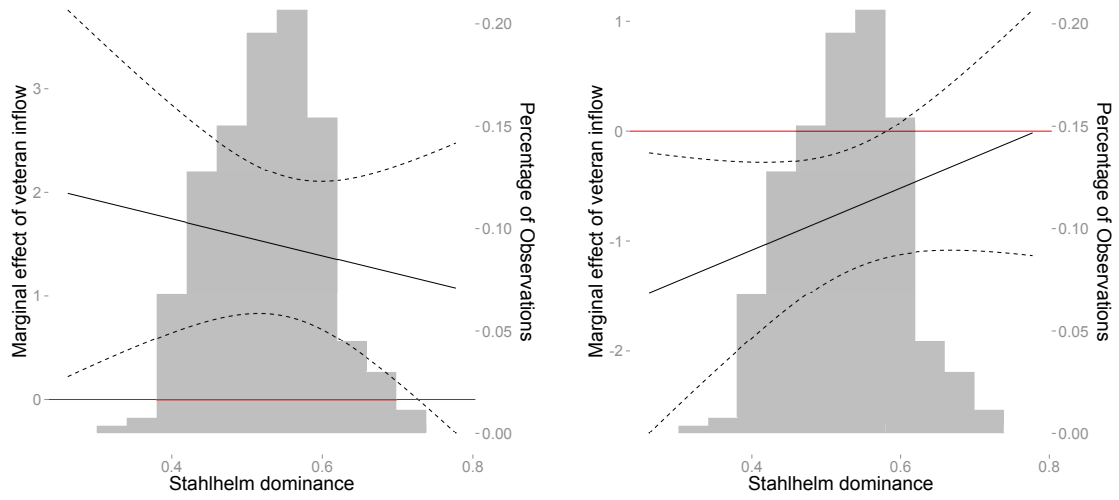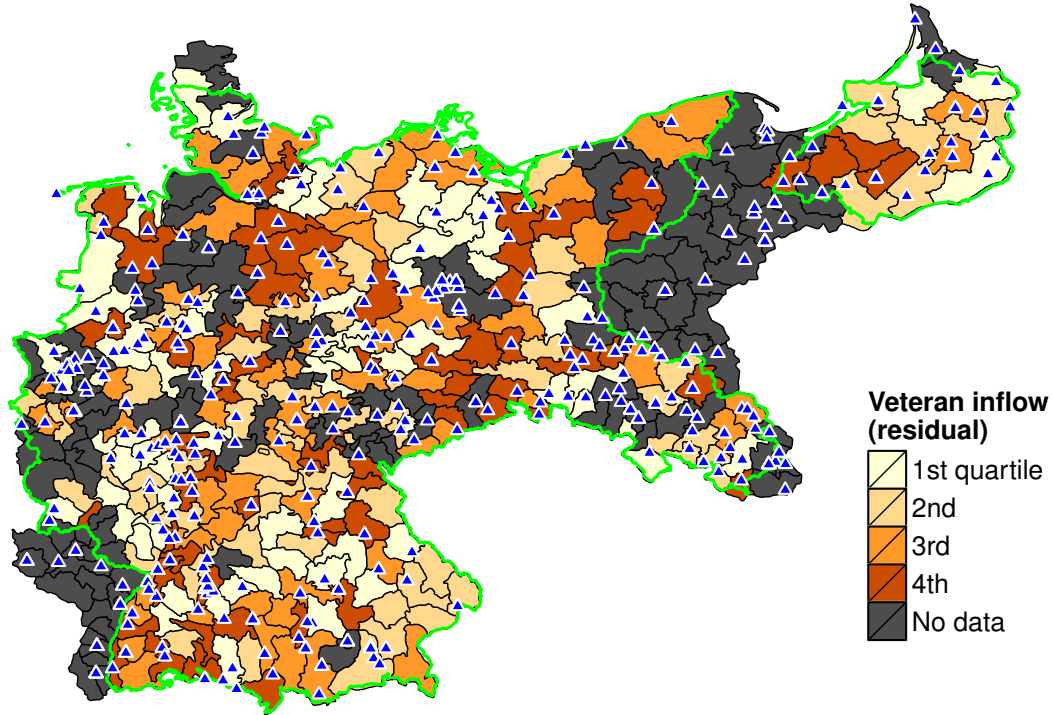
FIGURE 9: MARGINAL EFFECT OF VETERANS DEPENDING ON STAHLHELM DOMINANCE

TABLE 13: VETERAN INFLOW AND SUPPORT FOR COMMUNISTS 1920/1924

	Rightwing			Socialist		
	(1)	(2)	(3)	(4)	(5)	(6)
Veterans per cap.	1.080**	0.134	−0.222	−0.962***	−0.443	−0.224
	(0.467)	(0.711)	(0.947)	(0.275)	(0.296)	(0.360)
Communist vote 1920>Median		−0.230*			0.130*	
		(0.129)			(0.069)	
Vet.×Comm. 1920>Med.		1.963**			−1.054**	
		(0.948)			(0.486)	
Communist vote May 1924>Median			−0.257*			0.198***
			(0.149)			(0.074)
Vet.×Comm. May 1924>Med.			1.977*			−1.293**
			(1.073)			(0.512)
Precinct FE	Y	Y	Y	Y	Y	Y
Election FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
Precincts	266	266	266	266	266	266
Observations	4,522	4,522	4,522	4,522	4,522	4,522
R^2	0.784	0.786	0.786	0.910	0.911	0.911

Notes: <u>Standard errors</u> clustered at the precinct level in parantheses, $^*p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$; <u>Controls</u>: Migration$_{1910-1919}$; % Men aged 9-41 1910; % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE)

had returned to the social democrats by that time, so that the vote in May 1924 is a more accurate measure of *radical* Communist support.

My second test is related to paramilitary *Freikorps* units set up after 1919 in order to fight Communist insurgencies in Germany and the Baltic states (Büttner, 2008). Led by former officers, they consisted to a large part of former soldiers but also included many volunteers who were too young to fight in WWI. The peak membership of the Freikorps was between 100,000 and 400,000 and therefore represented at most 4% of all former WWI soldiers. Nevertheless, the existence of such volunteer units can be linked to deep anti-communism in a specific area. In order to construct a measure of Freikorps exposure, I digitised a comprehensive lists of Freikorps units by Tessin (1974) and geocoded these according to their origin town. I proxy precincts' exposure to anti-communism by calculating the inverse distance to the nearest Freikorps unit. Figure 10 depicts the spatial distribution of Freikorps over areas with different extents of unexplained variation in veteran inflow. Units' locations are scattered over the whole country which but show also slight concentrations. Some of these concentrations are around large cities which experienced Communist uprisings such as Berlin, Magdeburg and the Ruhr area. Silesia in the South-East has more Freikorps units since they were also used to fight Polish separatist movements. The rural areas of Bavarian in the South and

	Rightwing			Socialist		
	(1)	(2)	(3)	(4)	(5)	(6)
Veterans per cap.	1.080**	0.349	2.533	−0.962***	−0.175	−3.137***
	(0.467)	(0.759)	(1.777)	(0.275)	(0.326)	(0.888)
Prox. Freikorps>Median		−0.224*			0.206***	
		(0.131)			(0.071)	
Vet.×Prox. Freikorps>Med.		1.306			−1.344***	
		(0.938)			(0.499)	
Prox. Freikorps (linear)			3.003			1.568
			(4.821)			(2.046)
Vet.×Prox. Freikorps (lin.)			8.795			−13.160***
			(10.542)			(4.915)
Precinct FE	Y	Y	Y	Y	Y	Y
Election FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
Precincts	266	266	266	266	266	266
Observations	4,522	4,522	4,522	4,522	4,522	4,522
R^2	0.784	0.786	0.784	0.910	0.911	0.911

Notes: <u>Standard errors</u> clustered at the precinct level in parantheses, *p<0.1; **p<0.05; ***p<0.01; <u>Controls</u>: % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE); ΔMale Migration$_{1910-1919}$; % Male cohort 1869/1901 (1910); % New male voters post-WWI (all interacted with post-WWI dummy)
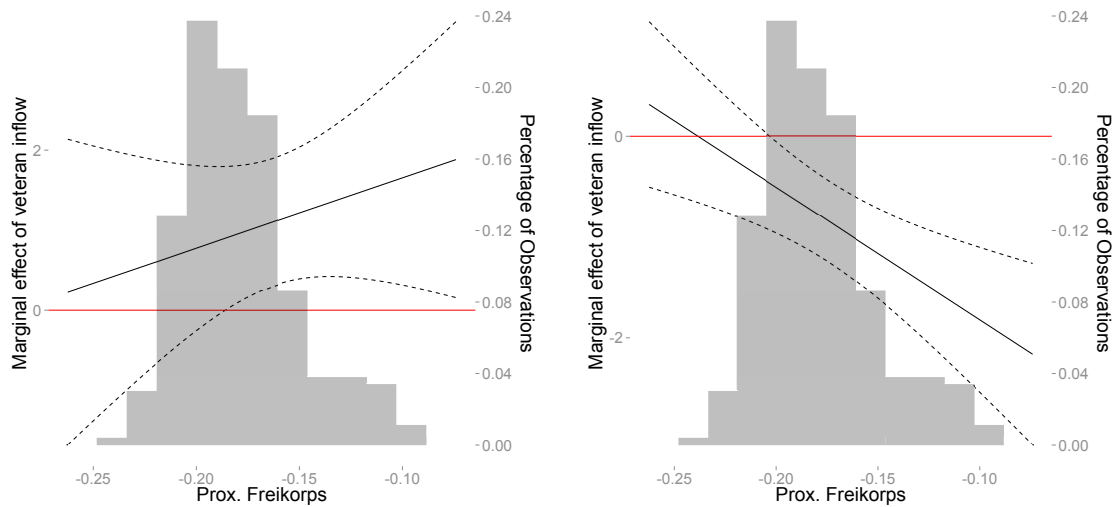

FIGURE 11: MARGINAL EFFECT OF VETERANS ON ON RIGHT-WING VOTE SHARE

Pomerania in Central North have also a lower concentration. The correlation with veteran inflow, however, is only 0.15 (0.11 for the median split dummy). This is also reflected in figure which shows Freikorps units in areas of high and low unexplainable variation in veterans. In order to entirely rule out endogeneity issues, I use again an exogenised version as was done for the Communist votes above.

The regressions in table 14 interact the treatment veteran inflow with a linear measure of $ProxFreikorps_i$ and a dummy closer to the nearest unit than the median. I report both measures because of the moderate spatial concentration which could result in picking up other factors. The results for the median split in columns (2) show that areas close to the nearest Freikorps are also those who are driving the veteran effect on right-wing votes. Yet, the difference between both groups is not statistically significant. For Communist votes, being this effect is highly significant. Precincts above the median of $ProxFreikorps_i$ are also those who are driving the negative veteran effect on socialist votes. The results in columns (3) and (6), on the other hand, show that the treatment effect is strong and significant only in precincts who are very close to the nearest Freikorps. Figure 11 illustrates that the veteran effect on each party is not significantly different from zero in areas in the lower half of the proximity distribution. Taken together, there is considerable support for a role of anti-communism in explaining veterans' effect on voting in the Weimar Republic.

6.6 Transmission mechanisms

The preceding sections have shown that the effect seems to be driven by anti-communist sentiments within the working class. One of the main questions which is still open concerns the mechanism how veterans spread anti-communist thoughts to others. The treatment effect of 1.08 cannot be solely attributed to former soldiers even if all of them had turned towards the right-wing. The higher membership numbers of Reichsbanner and Rotfront compared to the Stahlhelm point in the direction even such an extreme scenario was very unlikely. The following section looks at two transmission channels: first, I look at personal contacts within the family network through parents and spouses and second, I investigate impersonal contacts through election campaigning.

The first transmission channel explores the role of family networks and spouses. Galloway's data on Prussia provides me with the percentage of families among all households and the population share of women above the age of 20 in 1910. The first variable proxies how important families were with respect to single-person households while the second one measures the amount of new female voters, i.e. women above the age of 20 in 1920. Both variables proxy for different opportu-

TABLE 15: VETERAN INFLOW AND TRANSMISSION (PRUSSIA ONLY)

	Rightwing			Socialist		
	(1)	(2)	(3)	(4)	(5)	(6)
Veterans per cap.	1.985***	2.219***	2.089***	−1.842***	−1.901***	−1.641***
	(0.542)	(0.509)	(0.645)	(0.352)	(0.344)	(0.373)
% Family HHs>Median		0.488***			0.015	
		(0.040)			(0.019)	
Vet.×% Family HHs>Med.		−0.418**			0.106	
		(0.199)			(0.103)	
% New female voters>Median			−0.449***			−0.017
			(0.043)			(0.020)
Vet.×% New fem. voters>Med.			−0.066			−0.128
			(0.186)			(0.096)
Precinct FE	Y	Y	Y	Y	Y	Y
Election FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
Precincts	144	144	144	144	144	144
Observations	2,448	2,448	2,448	2,448	2,448	2,448
R^2	0.833	0.835	0.833	0.922	0.922	0.922

Notes: Standard errors clustered at the precinct level in parantheses, *$p<0.1$; **$p<0.05$; ***$p<0.01$; Controls: % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE); ΔMale Migration$_{1910-1919}$; % Male cohort 1869/1901 (1910); % New male voters post-WWI (all interacted with post-WWI dummy)

nities for veterans to influence the political thoughts of those in their immediate surroundings. Table 15 allows the treatment effect to vary in areas with an above median value of the above mentioned interaction terms. I do not find support that transmission within the family or couple is responsible for the baseline effect. Apart from specification (2), all interaction terms are insignificant and small in magnitude. Rather than being a stepping stone, column (2) suggests that areas with a higher share of family households had a significantly lower effect of veterans on right-wing votes. If anything, families therefore seem to have dampened political radicalisation among veterans. The amount of new female voters, on the other hand, does not change veterans' impact on voting behaviour.

The second set of tests looks at the specific role of campaigning. This factor is important because it measures how much parties were interacting with potential voters and how strong the need was to polarise and stand out among the competitors. In order to infer campaigning effort, I use the victory margin in a specific election.[28] This variable is constructed as the difference between the strongest party bloc and

[28] See Ziblatt (2009) for a similar application to election in Imperial Germany.

Table 16: Veteran inflow and victory margin 1920/1924

	Rightwing			Socialist		
	(1)	(2)	(3)	(4)	(5)	(6)
Veterans per cap.	1.080**	0.500	0.204	−0.962***	−0.904***	−0.324
	(0.467)	(0.526)	(0.677)	(0.275)	(0.351)	(0.317)
Victory margin 1920>Median		−0.229			0.030	
		(0.150)			(0.078)	
Vet.×Vic. margin 1920>Med.		1.563			−0.164	
		(1.052)			(0.541)	
Victory margin 1924>Median			−0.091			0.139**
			(0.125)			(0.069)
Vet.×Vic. margin 1924>Med.			1.595*			−1.162**
			(0.917)			(0.476)
Precinct FE	Y	Y	Y	Y	Y	Y
Election FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
Precincts	266	266	266	266	266	266
Observations	4,522	4,522	4,522	4,522	4,522	4,522
R^2	0.784	0.785	0.791	0.910	0.910	0.911

Notes: <u>Standard errors</u> clustered at the precinct level in parantheses, $^*p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$; <u>Controls</u>: % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE); ΔMale Migration$_{1910-1919}$; % Male cohort 1869/1901 (1910); % New male voters post-WWI (all interacted with post-WWI dummy)

the runner-up and multiplied by -1. *VictoryMargin* therefore increases with the extent of (inferred) political contest and campaigning. I use again a median split of this new variable during the 1920 and May 1924 elections to investigate if and when campaigning mattered for the veteran effect. Concerns about the exogeneity of political contest with respect to veteran inflow are addressed by the use of two different election for the median split and by using predicted values rather than the original numbers. For both right-wing and socialist, the veteran effect is statistically different from zero only in areas with above median competition in May 1924 as shown in columns (3) and (6). Specification (2) and (5) highlight that the victory margin of 1920 did not have a similar predictive power for the socialist party votes.

Overall, my results point in the direction that political attitudes were passed on through campaigning rather than the family network. The timing of the effects suggests that characteristics of the May 1924 election were more important than those of 1920. This is in line with the hypothesis that anti-communism became particularly salient in May 1924 after the Communist party had radicalised. My results are congruent with such a mechanism but cannot provide a complete proof

of the *stab-in-the-back* myth and its transfer to and from veterans. Knowing that the effect on socialists materialised already in 1920, the result could also be interpreted such that areas where socialists lost from veteran inflow were also those which would more fierce electoral competition in May 1924.

7 Conclusion

How does war participation affect political attitudes? In this paper I provide empirical evidence on the role WWI veterans in shifting voting patterns in Weimar Germany from socialist parties to those of the right-wing after 1918. I show that the effect initially only harms socialists and only benefits the far-right few years later. This coincides with a radicalisation within the Communist part of the socialist parties. I provide evidence that the effect primarily hits working class areas. The main beneficiary was the conservative DNVP, a party deeply rooted in the aristocracy and the wealthy upper class and thus ex-ante unlikely to receive votes from this part of society. This evidence points in the direction that veterans picked up a popular conspiracy theory – the *stab-in-the-back* myth. According to this theory, Germany had not lost the war but was betrayed by socialists and democrats who were trying to turn Germany into a Bolshevik country. The myth was especially used by the right-wing parties such as the Nazis and the DNVP. A possible channel is that the myth compromised socialist parties immediately but only benefited the right once the Bolshevik threat described in it turned real.

In line with this hypothesis is that the effect is strongest where support for radical Communists was comparatively high. In other words, areas with a larger inflow of veterans reacted stronger to Communist threat but did so in turning towards the extreme right of the political spectrum. I also find that areas with low exposure to alternative ideologies prior to WWI are reacting much stronger which corresponds to the relative power of this new political idea. Additional evidence suggests that high levels of political mobilisation in 1920 and political competition in May 1924 were also conducive for shifting votes to the right in areas with higher war participation.

The main lessons to be drawn from my results is that war can have substantial long-run effects through factors unrelated to physical damage. The fate of Weimar Germany who had not even fought WWI on its own soil is an illustrative example of war's indirect effect through political institutions. My case study focusses on the interaction between soldiers from various backgrounds as one potential mechanism through which such an indirect effect of war could materialise. I find persistent spill-over effects from war participation on political attitudes and democratic capital

in veterans' environment. From a policy perspective, my findings suggest that not only exposure to violence but also war participation itself can have important effects on soldiers' attitudes. A diligent policy-maker should thus be very alert about the spread of extremist thoughts within the army since this might easily spread to wider parts of the population and perpetuate the damaging effects of war.

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A Background information

A.1 The German National People's Party (DNVP) and Weimar democracy

In light of my main results, this historical description will only focus on the DNVP. A more detailed description of the NSDAP's political views can be found in Voigtländer and Voth (2012). The DNVP represented the monarchist, strongly nationalist spirit common in late Imperial Germany's middle and upper class. It was formed as a merger of the conservative parties of Imperial Germany as well as of liberal and anti-semitic elements. Unlike its predecessors who represented mainly the large agrarian estate holders and the urban upper class, the DNVP had a much wider audience and received support across all social strata and parts of the Weimar Republic. Also labelled as the "*reservoir of the discontent*", the unifying element of its heterogenous following was the rejection of democracy and extreme nationalism (Ohnezeit, 2011).[29] The party manifesto of 1920, which was never changed throughout, expresses little sympathy for the democratisation and parliamentary government:

> "*[R]evolution became the big criminal who shattered morality, state system and economy (...). [T]he monarchic form of government conforms to Germany's character and historical development*"
> Deutschnationale Volkspartei (1920, p.2-5)

Also the use of the stab-in-the-back myth was a prominent tool in the DNVP's propaganda. A campaign poster for the December 1924 election, for instance, displays the murder of a fighting soldier by a masked thug and exploits this *image* to prevent people from voting for any democratic parties:

> "*Who supported social democracy in this [the stab-in-the-back]? Democrats and Erzberger's people [the centre party]. Now on the 7th of December, Germany is supposed to receive the second stab-in-the-back. Social democrats together with the democrats want to turn us into slaves of the Entente [the Allied Forces] and ruin us forever.*"
> Deutschnationale Volkspartei, reprinted in Barth (2003, p.299)

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[29] Anti-semitism was also an important element of the DNVP. It was, however, not as defining as for the NSDAP. This is also exemplified by the secession of the racist Völkisch wing of the DNVP in 1922 to form its own party (DVFP) which was later absorbed by the Nazi party.

Even though the DNVP joined the first Hitler government and therefore played a crucial role in the Nazi party's rise to power, its stance on democracy appears somewhat ambivalent given its participation in five other Weimar governments.[30] While this insinuates an acceptance of democratic governance, historians regard this as a result of the more pragmatic and moderate forces within the party arguing for a legal ascend to power (Liebe, 1956; Ohnezeit, 2011). When the party entered government for the first time, in January 1925, party leader von Westarp commented this as follows:

> "[The DNVP's] opposition was above all of a fundamental character since it was directed (...) against the republican-parliamentary system as such (...)."
> Kuno von Westarp, quoted in (Mahlke, 1972, p.219)

This period of superficial cooperation only lasted until Oktober 1928 when Alfred Hugenberg of the party's radical wing took the leadership from von Westarp. While the DNVP was initially trying to cooperate and change the system from within, it now followed an entirely destructive and aggressively anti-democratic course (Mergel, 2003). This is also exemplified in a comment by the member of parliament Reinhold Quaatz on the government crisis of 1930:

> "General feeling: a thrust into the heart of parliamentarianism"
> Reinhold Quaatz quoted in Lau (2008, p.394)

In sum, there is strong evidence for the anti-democratic character of the DNVP and the rejection of the Weimar constitution. Together with the NSDAP, it was the only right-wing party which consistently opposed parliamentary rule after democratisation. While it was very clear what the DNVP did *not* want, it remained vague about what system it wanted instead. Even a restoration of the monarchy was not undisputed within the party and later on abandoned in favour of *leader cult* around the new party leader Hugenberg (Lau, 2008; Ohnezeit, 2011).

A.2 WWI veterans' role during democratisation

Historic research has shown that by the end of WWI, the majority of German combatants had lost its morale and that the army was experiencing voluntary surrender and desertion and was in the process of disintegrating (Ulrich and Ziemann, 1997).

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[30] These were taking place in 1925 (Chancellor Luther), 1927/1928 (Chancellor Marx), 1930 (Chancellor Brüning), 1932 (Chancellor Papen) and 1932/1933 (Chancellor Schleicher).

Being already regarded as an important pressure group, both social democratic and conservative veteran associations started to court soldiers and veterans in order to increase their own post-WWI base of support. After democratisation and the introduction of generous pension laws for war-disabled, veterans stopped being at the focus of pro-democratic parties. At this time, the attitude towards the revolution was not clear at all as shown by excerpts from field post around the end of the war:

> "*We have lost the war so badly, since we will have to relinquish so much, that it is a shame. Hopefully those responsible for luring the poor population into destruction will not evade their deserved punishment.*"

> "*How are we going to do under this mob of bandits and criminals? Now people are expecting salvation from Erzberger [signer of the armistice] and Scheidemann [leader of the provisional government]. It was them who were undermining the inner resistance of the fatherland for years (...)*."
> German army field post, quoted in Ulrich and Ziemann (1997, p.31-32)

Upon their return, most soldiers were heartily welcomed at home. Towns were decorated and cleaned before their arrival, banners with welcoming messages were prepared and sometimes even small gifts for all combatants were handed out. Yet, many soldiers did not come to appreciate this gratitude – either because they did not return home with their army or because they had become estranged from society (Bessel, 1988, 1993). In addition, a return to civilian life also seemed unappealing because of its lower prestige:

> "*The man in uniform was a representative of the great national cause on which his self-esteem and recognition within society was based. As soon as he has to put back on civilian clothes, he becomes an unknown soldier of the industrial army*"
> Ernst Simmel, quoted in Ulrich and Ziemann (1997, p.13)

For a number of veterans, the alienation from post-war society resulted in a desire to somehow continue the war. At the very beginning of the Republic, this desire could be accommodated since separatist movements in Germany's eastern provinces and especially the Communist uprisings led to the foundation of numerous home-guards and *Freikorps* paramilitary. These were a popular opportunity for nationalist soldiers and militarist youths to organise themselves (Diehl, 1993). The excitement about continuing the war among volunteers is exemplified by the quote below:

> *"[I] never want to return home. For my whole life, I would like to walk*
> *these country roads, search the sky, measure the world in grid squares*
> *and divisional sections and guess the time of the day from the strength*
> *of the artillery fire."*
> Friedrich Sieburg, quoted in Ulrich and Ziemann (1997, p.54)

The founding of these volunteer units and their fight against Communists and separatists marked the beginning of veterans' politicisation. Despite being strongly reactionary and anti-democratic, they were useful for the democratic state in order to maintain its power and territorial integrity. For instance, in January 1919, when radical left Spartacists tried to stage a coup, the government had to call for paramilitary *Freikorps* units in order to ward off the rebellion. This *unholy alliance*, however, came to an abrupt end with the signing of the Versailles Treaty in June 1919. Not only was the extreme right infuriated by the reparations and territorial losses, but the reduction of the German army to 100,000 men and the forced dissolution of all paramilitary units also ended the military career of numerous young officers and dreams of volunteers for continuing life as a soldier after WWI. The resulting economic shock was particularly hard for those of the middle-class without alternative career options (Diehl, 1993). A former Free Corps member depicts the disappointment within the units very well:

> *"Everything was thus ready to take up the Great War anew. The morale*
> *of the troops was glowing. (...) Then one day from Königsberg came the*
> *report that the [politicians] considered the entire undertaking unfeasible.*
> *(...) Cold fury mixed with despair gripped officers and men of all the*
> *Free Corps. Once again, as at the end of the previous year [the signing*
> *of the armistice], they had been confronted with betrayal."*
> Friedrich Wilhelm von Oertzen, quoted in Waite (1952, p.143)

The Versailles Treaty thus led to a further radicalisation and some volunteer units now openly turned against the state. It was therefore no surprise that in 1920 Freikorps units tried to stage an – unsuccessful – coup themselves and were involved in the murder of several democratic politicians.

B Further results

B.1 Further heterogeneity across social groups

High esteem for the military could not greatly affect veteran inflow because of universal conscription but might have a played a crucial role after WWI. Accepting the severe cuts in army size demanded in the Versailles Treaty could have, however, turned the social democrats into an enemy especially in the pro-military parts of society. I proxy pre-WWI militarism using two variables provided in the Prussian version of the 1910 census digitised by Galloway (2007): *members of the military per cap.* and *members of the military below 17 per cap.*. While the first one measures general participation in the military, the second one focusses particularly on militarism among the young. In the regressions displayed in table 17 I investigate whether the treatment effect was different in areas with an above median value of the interaction term. Given the data source, this analysis can only be carried out for the state of Prussia which accounts for more than 50% of my sample. The results do not lend support to an important role of pre-WWI militarism. None of the interaction terms are significant and the coefficients in (1) and (4) do not strongly change in the other specifications. The interaction terms in (2) and (5) have the opposite predicted signs, those of (3) and (6) both have a positive coefficient.

Another dimension I can explore is the age structure of the WWI eligible population. This analysis addresses the fact that the major share of men exposed to WWI were in the *impressionable years* of 18 and 25. Psychological research has shown that experiences during these years are crucial for a human's development of beliefs and attitudes (Krosnick and Alwin, 1989; Giuliano and Spilimbergo, 2014). This could be a possible explanation for the persistent change in voting behaviour after WWI. I therefore interact veteran inflow with the population share of WWI eligible men in their formative years and those older than 25. As mentioned in section 4.1, data on precise cohort sizes is only available for the state of Prussia. Given this drawback, the findings are very informative and reveal that the share of eligible men during their impressionable years played no role in the veteran effect. Following specification (3), precincts below the median share of men between 25 and 49 show virtually no treatment effect on rightwing votes. If anything, having an above median share of draftable youths decreases the treatment effect marginally and not significantly by 0.242. The veteran effect on socialist votes is left completely unaffected by the age structure of the war eligible population.

Table 17: Veteran inflow and pre-WWI militarism (Prussia only)

	Rightwing			Socialist		
	(1)	(2)	(3)	(4)	(5)	(6)
Veterans per cap.	1.985***	1.691**	1.528**	−1.842***	−2.155***	−2.055***
	(0.542)	(0.831)	(0.771)	(0.352)	(0.498)	(0.436)
% in military 1910>Median		0.037			−0.078	
		(0.153)			(0.093)	
Vet.×% in mil. 1910>Med.		0.012			0.564	
		(1.107)			(0.686)	
% under 17 in mil. 1910>Median			−0.094			−0.045
			(0.136)			(0.085)
Vet.×% u.17 mil. 1910>Med.			0.767			0.365
			(0.982)			(0.620)
Precinct FE	Y	Y	Y	Y	Y	Y
Election FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
Precincts	144	144	144	144	144	144
Observations	2,448	2,448	2,448	2,448	2,448	2,448
R^2	0.833	0.834	0.833	0.922	0.922	0.922

Notes: <u>Standard errors</u> clustered at the precinct level in parantheses, $^*p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$; <u>Controls</u>: % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE); ΔMale Migration$_{1910-1919}$; % Male cohort 1869/1901 (1910); % New male voters post-WWI (all interacted with post-WWI dummy)

Table 18: Veteran inflow and age of WWI-eligible (Prussia only)

	Rightwing			Socialist		
	(1)	(2)	(3)	(4)	(5)	(6)
Veterans per cap.	1.985***	2.152***	0.397	−1.842***	−1.722***	−1.707*
	(0.542)	(0.718)	(1.322)	(0.352)	(0.514)	(0.882)
% eligible (young) 1910>Median		0.138	0.086		−0.003	−0.006
		(0.119)	(0.107)		(0.086)	(0.084)
Vet.×% eligible (young)>Med.		−1.547*	−0.188		0.276	−0.011
		(0.862)	(0.156)		(0.614)	(0.106)
% eligible (old) 1910>Median			−1.192			0.293
			(0.767)			(0.603)
Vet.×% eligible (old)>Med.			1.662			0.033
			(1.167)			(0.769)
Precinct FE	Y	Y	Y	Y	Y	Y
Election FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
Precincts	144	144	144	144	144	144
Observations	2,448	2,448	2,448	2,448	2,448	2,448
R^2	0.833	0.836	0.837	0.922	0.923	0.923

Notes: identical to table 17

B.2 Transmission *to* veterans through military authority

Apart from comrades, also single individuals in elevated positions such as officers could play an important role in socialisation and the spread of political attitudes. The German officer corps was predominantly recruited from the upper middle-class and aristocracy and therefore naturally hostile towards communism. Social ties developed during wartime are important because they might last much longer than the actual army service and would not be captured by the analysis of veteran associations in section 6.4. My investigation of the transmission mechanism continues by looking at heterogeneous effects in areas with a comparatively larger share of high-rank military people and where it was more likely to remain under the influence of former superiors.

For testing the influence of high-rank military, I digitized data from the German military census of 1906. This gives me province-level information on the amount of sergeants (*Unteroffiziere*) and one-year volunteers (*Einjährig-Freiwillige*). While the elevated rank of the first group is straightforward, the second group is important because the German army used them as a backup-group during WWI to replace killed sergeants and officers (Diehl, 1975; Nash, 1977).[31] To obtain my interaction variables I divide each of the two groups by the amount of total military people in the respective provinces. This gives me a probability that veterans were still exposed to their former superiors. The reliability of this proxy is corroborated by the closeness of the military census to the outbreak of WWI and the high persistence in Germany's recruitment patterns for the higher ranks (Brentano and Kuczynski, 1900; Demeter, 1965). A major drawback is that the data is at the province level and both variables have only 32 different values each. I therefore evaluate their impact on the baseline effects through a linear measure rather than a median split.

The results in table 19 highlight that the presence of former officers and sergeants only increase veterans' effect on the right. Looking at the marginal effect plot for specifications (2) and (3), for instance, shows that the treatment effect on socialist votes was significantly negative over almost the entire support of sergeants per soldiers in 1906. The same pattern also holds for one-year volunteers per soldiers in 1906. For the right-wing, however, the veteran effect is only significant in the upper half of the distribution. The amount of higher rank military people therefore cannot explain the transition of votes from left to right depending on the share of

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[31] One-year volunteers were only doing two years of service rather than the usual minimum requirement of two but had to provide their own equipment and was thus a popular choice among young men of the wealthy middle class. In peacetime, one-year volunteers often became reserve sergeants and officers associated with a slightly lower social status than their professional military counterparts.

	Rightwing			Socialist		
	(1)	(2)	(3)	(4)	(5)	(6)
Veterans per cap.	1.080**	−2.115*	−2.237	−0.962***	−0.482	−1.578**
	(0.467)	(1.201)	(1.657)	(0.275)	(0.721)	(0.702)
% Sergeants 1906		−0.023**			0.006	
		(0.010)			(0.006)	
Vet.×% Sergeants 1906		0.215***			−0.033	
		(0.074)			(0.045)	
% 1-year volunteers 1906			−0.265**			−0.067
			(0.113)			(0.050)
Vet.×% 1-year vol. 1906			1.643**			0.318
			(0.767)			(0.313)
Precinct FE	Y	Y	Y	Y	Y	Y
Election FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
Precincts	266	266	266	266	266	266
Observations	4,522	4,522	4,522	4,522	4,522	4,522
R^2	0.784	0.790	0.786	0.910	0.911	0.911

Notes: <u>Standard errors</u> clustered at the precinct level in parantheses, *p<0.1; **p<0.05; ***p<0.01; <u>Controls</u>: % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE); ΔMale Migration$_{1910-1919}$; % Male cohort 1869/1901 (1910); % New male voters post-WWI (all interacted with post-WWI dummy)
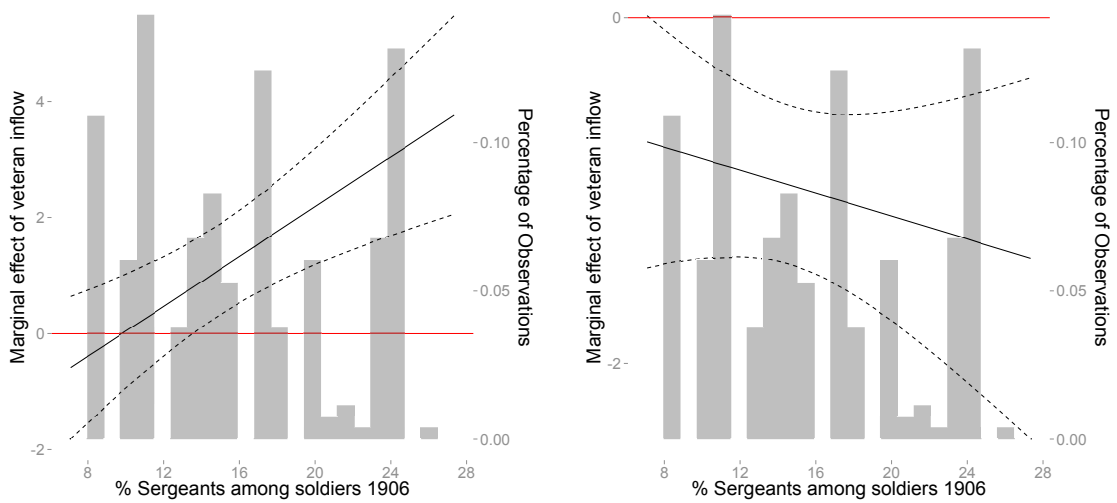
Figure 12: Marginal effect of veterans depending on main recruiting areas of sergeants

	Rightwing			Socialist		
	(1)	(2)	(3)	(4)	(5)	(6)
Veterans per cap.	1.086**	0.057	−0.452	−0.967***	−0.503	−0.571
	(0.467)	(0.803)	(0.796)	(0.277)	(0.371)	(0.369)
Turnout 1920>Median		−0.165			0.126*	
		(0.142)			(0.072)	
Vet.×Turnout 1920>Med.		1.673			−0.765	
		(1.023)			(0.511)	
Turnout 1924>Median			−0.345**			0.103
			(0.140)			(0.074)
Vet.×Turnout 1924>Med.			2.675***			−0.663
			(0.994)			(0.526)
Precinct FE	Y	Y	Y	Y	Y	Y
Election FE	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
Precincts	266	266	266	266	266	266
Observations	4,522	4,522	4,522	4,522	4,522	4,522
R^2	0.785	0.788	0.787	0.910	0.911	0.911

Notes: <u>Standard errors</u> clustered at the precinct level in parantheses, *p<0.1; **p<0.05; ***p<0.01; <u>Controls</u>: % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE); ΔMale Migration$_{1910-1919}$; % Male cohort 1869/1901 (1910); % New male voters post-WWI (all interacted with post-WWI dummy)

veterans. One way to rationalise the findings for the right-wing would be that the conservative DNVP was hiring predominantly former officers as leaders of their local party chapters (Liebe, 1956).

B.3 Transmission in high-turnout elections

This section investigates whether a specific electoral setup was most helpful for veterans to shift votes from the socialists to the extreme right. In order to do this, I look at turnout in the 1920 and May 1924 elections during which the switch of votes seems to have occurred. High turnout proxies for politicisation of a specific election and in particular the activation of the a-political part of the population. If information was passed on during elections, one would expect the treatment effect to be strongest in areas which had a higher-than-usual turnout. A transmission to uninformed voters would yield the same results. To explore the role of turnout and political mobilisation, I look at areas with an above median turnout in the 1920 and May 1924 elections. To avoid picking up other variables associated with high turnout such as civic capital, I also control for above median turnout in the

last pre-WWI in 1912 interacted with election fixed effects. The effect is therefore identified off precincts who became comparatively more or less politically active after the war. In addition, I also use values predicted from predetermined covariates rather than the actual one. The results in table 20 columns (2) and (5) show that the veteran effect was stronger in precincts with high turnout in 1920. These effects are, however, not statistically significant at the 10% level are larger in magnitude for the right-wing than for the socialist party. Turnout in May 1924, on the other hand, has strong predictive power for the positive effect on right-wing parties but not socialist ones. Taken together, there is weak evidence that mobilisation or the share of uninformed voters plays a role in shifting votes from left to right in areas with higher war participation.

C Tables

TABLE 21: DIFFERENCES-IN-DIFFERENCES ESTIMATES WITH DUMMY TREATMENT

	Rightwing				Anti-semitic	Conser-vative	Right-Liberal
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Veterans p.c.>Median	0.021	0.023*	0.015	0.022	−0.002	0.030*	−0.005
	(0.013)	(0.013)	(0.018)	(0.016)	(0.008)	(0.016)	(0.016)
Precinct FE	N	Y	Y	Y	Y	Y	Y
Election FE	N	N	Y	Y	Y	Y	Y
Controls	N	N	N	Y	Y	Y	Y
Precincts	266	266	266	266	266	266	266
Observations	4,522	4,522	4,522	4,522	4,522	4,522	4,522
R^2	0.002	0.640	0.740	0.783	0.872	0.732	0.522

Notes: <u>Standard errors</u> clustered at the precinct level in parantheses, *p<0.1; **p<0.05; ***p<0.01; <u>Controls</u>: % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE); ΔMale Migration$_{1910-1919}$; % Male cohort 1869/1901 (1910); % New male voters post-WWI (all interacted with post-WWI dummy)

TABLE 22: LIML ESTIMATES

	Rightwing	Antisemitic	Conservative	Right-Liberal
	(1)	(2)	(3)	(4)
Veterans p.c.	1.963***	−0.178	2.805***	−0.665
	(0.589)	(0.35)	(0.721)	(0.691)
Precinct FE	Y	Y	Y	Y
Election FE	Y	Y	Y	Y
Controls	Y	Y	Y	Y
Precincts	266	266	266	266
Observations	4522	4522	4522	4522

Notes: Heteroscedastic-robust <u>standard errors</u> in parantheses, *p<0.1; **p<0.05; ***p<0.01; <u>Controls</u>: % Working in manufacturing 1882; Log(population) 1910; % Protestants 1910; % Catholics 1910; Infant mortality 1912 (all interacted with Election FE); ΔMale Migration$_{1910-1919}$; % Male cohort 1869/1901 (1910); % New male voters post-WWI (all interacted with post-WWI dummy)

D Data

D.1 Further details on the estimation of German WWI veterans

Additional formulae used for calculating the estimate of German WWI veterans:

$$SoldiersHome_{1917} = Soldiers_{1913} + \sum_{t=1914}^{1917} SoldiersJoin_t - \sum_{t=1914}^{1917} SoldiersDead_t$$
$$- \sum_{t=1914}^{1917} SoldiersQuit_t - SoldiersFront_{1917} \tag{6}$$

$$
\begin{aligned}
Male\ PopGrowth_{1917-1919} =& Male\ Pop_{1919} - Male\ Pop_{1917} \\
=& Male\ Births_{1917-1919} - Male\ CivilDeaths_{1917-1919} \\
& + Male\ Migration_{1917-1919} + SoldiersFront_{1917} \\
& - SoldiersDead_{1917-1919}
\end{aligned}
\tag{7}
$$

$$
\begin{aligned}
Female\ PopGrowth_{1917-1919} =& Female\ Pop_{1919} - Female\ Pop_{1917} \\
=& Female\ Births_{1917-1919} - Female\ Deaths_{1917-1919} \\
& + Female\ Migration_{1917-1919}
\end{aligned}
$$

$$
\begin{aligned}
MissingMen_{1917-1919} =& Male\ PopGrowth_{1917-1919} - Female\ PopGrowth_{1917-1919} \\
=& SoldiersFront_{1917} - SoldiersDead_{1917-1919} \\
& + (Male\ Births_{1917-1919} - Female\ Births_{1917-1919}) \\
& - (Male\ CivilDeaths_{1917-1919} - Female\ Deaths_{1917-1919}) \\
& + \left(Male\ Migration_{1917-1919} - Female\ Migration_{1917-1919}\right)
\end{aligned}
\tag{8}
$$

In the style of equation 9, one can then construct gender-specific numbers for births and deaths. For the latter, however, one needs to recall that one needs to account for the difference in deaths between women and male non-combatants and split the district aggregates on male deaths into soldiers and non-soldiers. I infer dead soldiers

by comparing the sudden increase in the ratio of dead men to women from 1913 to each of the war years:

$$Female\ Births_i \approx Births_i * \frac{Female\ Births_d}{Births_d} \tag{9}$$

$$DeadSoldiers_{dt} \approx \left(\frac{Male\ Deaths_{dt}}{Deaths_{dt}} - \frac{Male\ Deaths_{d1913}}{Deaths_{d1913}} \right) * Male\ Deaths_{dt}$$

$$DeadSoldiers_{it} \approx Deaths_{it} * \frac{DeadSoldiers_{dt}}{Deaths_{dt}} \tag{10}$$

$$Male\ CivilDeaths_{it} \approx Male\ Deaths_{it} - DeadSoldiers_{it}$$

Even though each of the components is not readily available from the statistical publications, it can also be approximated. Data on births and deaths can be constructed for each precinct but not differentiated by gender. This information can, however, be retrieved for Germany's districts, which are the next higher administrative level. Numbers of female births, for instance, can therefore be constructed as follows: The approximation's validity rests on the assumption that absent deaths from battle, men and women would have experienced the same changes in mortality between 1914 and 1918.

$$SoldiersHome_{1917} + Missing\ men_{1917-1919}$$
$$= Soldiers_{1913} + \sum_{t=1914}^{1917} SoldiersJoin_t - \sum_{t=1914}^{1918} SoldiersDead_t - \sum_{t=1914}^{1917} SoldiersQuit_t + u \tag{11}$$

D.2   Measurement error in the veteran estimate

The veteran estimate is not perfectly measured. While this could result in simple attenuation bias, it could also systematically distort the estimates if it is also correlated with the outcome, political attitudes in this case. For our veteran estimate,

the remaining measurement error can be obtained by taking the difference between $\widetilde{Veterans}$ and equation 1:

$$
\begin{aligned}
&\widetilde{Veterans} - Veterans \\
={}& -\left(SoldiersJoin_{1918} + SoldiersQuit_{1917}\right) \\
&+ \left(Male\ Migration_{1917-1919} - Female\ Migration_{1917-1919}\right)
\end{aligned}
\tag{12}
$$

While $SoldiersJoin_{1918}$ and $SoldiersQuit_{1917}$ cannot be estimated, they must be *dis*proportional to $\widetilde{Veterans\ and}$ correlated with an omitted variable in order to pose a threat to the estimates' validity. Gender-specific migration between 1917 and 1919 can also not be estimated since the 1917 male totals are incomplete as highlighted above. However, I can construct a measure of gender-specific migration between *1910* and 1919 which should be a reasonable proxy for that between 1917 and 1919. Even though this does not allow directly subtracting gender-specific migration from the treatment variable, it can still be included as a control in order to purge the respective endogenous part from $\widetilde{Veterans}$ and reduce the chances of biased estimates.

D.3   Robustness and distribution of veteran measure

In order to give at least a rough idea how far the proposed variable is away from what it is supposed to measure, I compare my measure to potential alternatives and official aggregate figures on war participants (see table 23). von Altrock (1922) provides aggregates of war participants for the four German armies as well as the corresponding estimates of dead soldiers. As can be seen from the first panel in table 23, the difference between von Altrock's numbers (vA) gives an estimate of almost 11 million war participants. As panel two shows, using official numbers of dead soldiers published by the Imperial Department of Health (*Reichsgesundheitsamt*, RGA) does not change these totals as well as their distribution across armies considerably.

Panel three reports figures on recipients of veteran benefits in 1929 published by the German Statistical Office in 1933 which have been used in few recent studies as a measure of *WWI participation* or *war veteran density* (see e.g. Adena et al., 2015; Voigtländer and Voth, 2014, respectively). This measure of veterans appears already somewhat problematic since it explicitly includes surviving dependants which did not have any war experience. A comparison of the aggregates with the official figures from panel one and two additionally calls into question the numerical accuracy of

TABLE 23: COMPARISON OF VETERAN ESTIMATES WITH OFFICIAL AGGREGATES

		Prussia	Bavaria	Saxony	Wurtemb.	Total
(1)	Participating soldiers (vA)	9,957,000	1,360,000	913,400	479,000	12,709,400
(2)	Dead soldiers (vA)	1,417,449	190,015	126,180	74,911	1,808,555
(1)-(2)	Veterans (vA)	8,539,551	1,169,985	787,220	404,089	10,900,845
	as % of total	78.34%	10.73%	7.22%	3.71%	100.00%
(1)	Participating soldiers (vA)	9,957,000	1,360,000	913,400	479,000	12,709,400
(3)	Dead soldiers (RGA)	1,306,484	167,840	121,524	73,339	1,669,187
(1)-(3)	Veterans (vA/RGA)	8,650,516	1,192,160	791,876	405,661	11,040,213
	as % of total	78.35%	10.80%	7.17%	3.67%	100.00%
(4)	Recipients of veteran benefits 1929	42,726	4,287	5,545	5,211	57,769
	as % of total	73.96%	7.42%	9.60%	9.02%	100.00%
(5)	Soldiers 1917	2,156,282	365,423	219,574	129,239	2,870,518
(6)	*Missing men* 1917	4,307,110	546,482	446,300	191,882	5,491,774
(7)	War disabled 1916	1,216,894	87,498	34,517	35,765	1,374,674
(5)+(6)+(7)	Veterans (this study)	7,680,286	999,403	700,391	356,886	9,736,966
	as % of total	78.88%	10.26%	7.19%	3.67%	100.00%

this proxy for veterans: not only are the aggregates about 0.5% of the official figures in panel one and two but also the distribution across armies differs strongly from that of all other estimates. The veteran estimate presented here could thus provide a good alternative to existing measures of WWI participation.[32]

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[31] Numbers on Prussia include all remaining German states.

[32] In fact, the correlation between recipients of veterans benefits in 1929 and the veteran estimates – normalised by the 1910 population and aggregated to the precinct level – is −0.08.