Austerity and the rise of the Nazi party

Gregori Galofré-Vilà[1], Christopher M. Meissner[2], Martin McKee[3], David Stuckler[1]

1- Dondena Centre for Research on Social Dynamics and Public Policy and Department of Policy Analysis and Public Management, University of Bocconi, galofrevila@unibocconi.it, david.stuckler@unibocconi.it

2- Department of Economics, University of California, Davis & NBER, cmm@ucdavis.edu

3- Department of Health Services Research and Policy, London School of Hygiene & Tropical Medicine, martin.mckee@lshtm.ac.uk

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Abstract: The current historical consensus is that Hitler's rise to power in 1933 was largely a result of the Treaty of Versailles and the Great Depression (high unemployment and financial instability). However, these factors cannot fully account for the Nazi's electoral success. Alternatively it has been speculated that radical austerity measures, including spending cuts and tax rises, contributed to votes for the Nazi party especially among middle- and upper-classes who had more to lose from them. We use voting data from 1,024 districts in Germany on votes cast for the Nazi and rival Communist and Center parties between 1928 and 1933, evaluating whether radical austerity measures, measured as the combination of tax increases and spending cuts, contributed to the rise of the Nazis. Our analysis shows that chancellor Brüning's austerity measures were positively associated with increasing vote shares for the Nazi party. Consistent with existing evidence, we find that unemployment rates were linked with greater votes for the Communist party. Our findings are robust to a range of specifications including an instrumental variable approach a border-pair policy discontinuity design and alternative measures of radicalization such as Nazi party membership.

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Introduction

The radicalisation of the electorate during the final years of the Weimar Republic contributed to the breakdown of democracy, ultimately triggering one of the greatest catastrophes of the twentieth century, the Second World War, with over 60 million casualties (about 3% of the 1940 world population). In the elections of May 1928, the National Socialist German Workers' Party attracted about 2.6% of votes.[1] However, as Figure 1 shows, by the elections of September 1930, support for the Nazi party rose to 18.5% of the share of votes and by July 1932 it became the largest party in the Reichstag, with 37.7% of the votes. Although slightly losing ground in the elections of November 1932, support continued to rise to 44.4% of the share of votes in March 1933. 18 days later, the Reichstag passed the infamous Enabling Act, giving the cabinet full powers to pass legislation without approval of either the Reichstag or the President.[2]

[Figure 1 about here]

How did this shift to the extreme far-right happen so quickly? Although economic factors (from the Great Depression to high unemployment rates) and socio-cultural conditions (the offences of the Treaty of Versailles) are well studied and played an indisputably important role in the rise of the Nazis, the rapidity of the growth of Nazi party supporters remains the subject of considerable economic and historical debate (Temin 1990).

In this paper we test an explanation that, although highly relevant nowadays, has received scant empirical attention and which is at the intersection of economic, social and political forces. How much did the severe austerity measures implemented by the German government between 1930 and 1932 compel voters to cast their allegiance to the Nazi party? During this period, Heinrich Brüning, Germany's chancellor between 1930 and 1932, implemented a set of harsh austerity measures in order to balance the country's finances. These measures involved drastic cuts to government expenditure, increased rates of taxation, new taxes, and cuts to unemployment benefits, payments to pensioners, and welfare recipients. According to Brüning, the suffering they would cause would help elicit international sympathy for the Germans and help put an end to the unpopular reparations imposed at Versailles (Patch 1998).

We argue that it was not just the absence of a coherent response to social suffering from government, but also the austerity policies that worsened it leading the electorate to radicalise. With dashed hopes and a loss of faith in the Weimar Republic, fury and despair were channelled into the ranks of populists and demagogues, with the Nazi party campaigning against austerity and offering promises for a new era of prosperity. The lowest status groups and the unemployed

[1] Otherwise stated the different elections refer to the general federal elections instead of presidential elections or referendums.

[2] The Nazi party still needed support from the German National People's Party, supported by 7% of the electorate.

turned to the Communists, but those just above in the economic hierarchy, who had more to lose from the tax hikes intended to enhance central government finances, favoured the Nazis. As Keynes cautioned after meeting with the Chancellor in 1932, "Germany today is in the grips of the most powerful deflation that any nation has experienced … many people in Germany have nothing to look forward to – nothing except a 'change', something wholly vague and wholly undefined, but a *change*" (italics in original, Moggridge 1992, 540).

To test this hypothesis, we use the district (*Kreis*) election returns in the Weimar Republic for the federal elections of 1928, 1930, 1932 (July and November) and 1933 transcribed by Falter (Falter and Gruner 1981), originally from the official Statistics of the German Reich (*Statistik des Deutschen Reichs*), and link them to different measures of state-level austerity implemented by Brüning.[3] These measures of austerity are newly collected from Reich official statistics. We also test several other potential explanations for the rise of the Nazis, such as unemployment rates, changes in wages and economic output, also collected from the Reich official statistics. We employ both first differences and fixed effects models, along with an instrumental variable strategy (based on contestation of elections, social clubs and pogroms during the Black Death) and a border-pair matching strategy like that in Dube et al. (2010), finding a significant and robust positive association between the depth of austerity and rising support for the Nazi party (either by voting for the Nazis or by becoming a member of the Nazi party). The rest of the paper is as follows: in the next section we provide a detailed account of the main existing explanations for the rise of the Nazis. Section 3 reviews the development of the different elections in Germany between 1928 and 1933. In Section 4 we explain the sources and methodology we use to calculate the impact of austerity on the rise of the Nazi party (Section 5). Finally, we discuss some of the parallels between what happened during the interwar period and the growth of radical voters in today's Europe (Section 6).

Main explanations for the Rise of the Nazis

The Great Depression and Economic Collapse

There are many competing explanations for the stark rise of the Nazi party in Weimar Germany. The conventional explanation is the impact of the Great Depression (Temin 1990). Those hit hardest by the economic downturn held the incumbent parties responsible for their situation, punishing them by voting for the Nazi party. The Great Depression began in 1928 in Germany (Ritschl 2002) with a sharp downturn in investment (Ritschl 1999; Temin 1971). Later, the cessation of capital inflows and the supply of loans to German banks culminated in a slowdown in the growth rate of credit, while other international shocks prolonged the downturn. The Depression-era was associated as much with a major decline in world trade as financial and

[3] We used Falter's data as organized by Adena et al. (2015).

monetary disturbances; it was a time of tariff increases, quotas, competitive devaluations, exchange controls, and the promotion of bilateral at the expense of multilateral trade (Crafts and Fearon 2013). As a result, Germany's GDP fell by one third and exports declined by 50% (Crafts and Fearon 2010; Grossman and Meissner 2010).

While economic hardship may seem to be an intuitive explanation, it is inadequate to account for the rise of the Nazi party (Ferguson 2001). As Table 1 shows, during the 1920s, there was no substantial difference in the economic performance of nations that, in the mid-1930s, were democratic regimes or dictatorships; the depth of the depression was only slightly greater in Germany than in France or the Netherlands, and was even worse in Austria (and other eastern European nations) and the USA.

[Table 1 about here]

Unemployment as an Explanation

A related leading explanation points to increasing numbers of unemployed workers, soaring from 1.4 million in 1928 to 5.6 million in 1932 (rising from 4.3% of the labour force to 17.4%).[4] However, there are two important caveats. One is that, as Table 2 shows, although by 1932 industrial unemployment in Germany was higher than in any other western country, it also reached very high levels in other countries such as Norway and the USA around that time, without being accompanied by electoral radicalisation.[5] The other caveat is that recent research on individual voting patterns has challenged the idea that the unemployed voted massively for the Nazi party. Those who were unemployed were actually more likely to vote for the Communist Party of Germany or the Social Democrats (in Protestant precincts) rather than the Nazi party (Bromhead et al. 2013; Crafts and Fearon 2013; Eichengreen and Hatton 1988; Falter 1986; Ferguson and Voth 2008; King et al. 2008; Patch 1998; Stögbauer 2000).

Paradoxically, it seems that the unemployed were disproportionately likely to reject the Nazis (King et al. 2008). According to Ferguson (1997, 267), "it is a popular misconception that because high unemployment coincided with rising Nazi support, the unemployed must have voted for Hitler. Although some did, unemployed workers were more likely to turn to Communism than to Nazism, whereas middle-class voters were relatively more important to National Socialist electoral success."

In fact, much of the growth in support for the Nazi party came from the middle classes, who were fearful of the Communists. The Kommunistische Partei Deutschlands (KPD) had achieved 16.86% of the vote by November 1932 (about 100 seats out of 584 in the Reichstag).

[4] Unemployment figures are from Rahlf (2015). Unemployment is defined as someone who is in the labour force but is not working.

[5] Our comparison in Table 2 is between industrial unemployment. General unemployment was probably lower but we lack homogenous data for an international comparison.

The Nazis also received support from elites. During the 1920s, those with the highest incomes lost income more quickly than the those at the bottom (Adena et al. 2015; Piketty 2014; Satyanath et al. 2017). It was not that Hitler did not try to appeal the unemployed masses, but rather that the Communist Party was perceived as the party that traditionally represented workers' interests. Ultimately, Hitler's attempts to attract the unemployed were ineffective (King et al. 2008).[6]

[Table 2 about here]

The Legacy of War Reparations

A third major explanation invokes resentment about high debt repayments imposed on Germany in the Treaty of Versailles (Feinstein et al. 2008). These debts initially totalled 132 billion gold marks or 260% of 1913 GDP (for details of the calculations see Ferguson 1997 or Ritschl 2013, p. 113 Table 4.1). Although France and Britain had similar post-war total debt burdens as Germany (Ferguson 1997, 266), the Versailles agreements treated Germany as a conquered enemy, forcing it to pay the costs of the war. This placed financial demands on Germany that were very difficult to meet and which were dubbed as 'cruel' by some (Crafts and Fearon 2010; Crafts and O'Rourke 2014; Eichengreen 1992; Keynes 1920; Krugman 2015; Sala-i-Martín 2015).

Keynes, as advisor to the British delegation in Paris, famously denounced these repayment terms in 1919, arguing that the reparations were economically irrational and politically unwise (Temin and Vines 2014). These overly punitive reparations, he argued, had the potential to cause economic collapse, famine, social instability and, as Keynes gloomily foreshadowed in the *Economics consequences of the peace*, ultimately, the rise of dictatorship (Keynes 1920). In Keynes's words: "The policy of reducing Germany to servitude for a generation, of degrading the lives of millions of human beings, and of depriving a whole national of happiness should be abhorrent and detestable –abhorrent and detestable, even if it were possible, even if it enriched ourselves, even if [it] did not sow the decay of the whole civilised life of Europe" (Keynes 1920, 209). However, the amounts dictated at Versailles were never fulfilled completely and most German war debts were postponed in the Hoover moratorium of December 1931 or temporally suspended in the Lausanne Conference a year later. The burden of debt had ostensibly already been relieved by 1932.

[6] In the various elections the Nazis promoted policies to support private property, entrepreneurship, 'autonomy' and improvement of the general economic situation – ideas that did not connect with the unemployed masses. Even some proposals for obligatory work were not viewed as measures for the unemployed, but as a means to stimulate the general economic situation.

Gold standard and the Twin banking crisis of July 1931

While the three aforementioned explanations are the most prominent, several others are worth noting.[7] One is the problems that Germany faced in securing steady international lending, especially during the 'twin' banking and currency crisis of July 1931 (Bernanke and James 1991; Bordo and Meissner 2016; Eichengreen and Temin 2000; Grossman and Meissner 2010; James 2001; Schnabel 2004; Temin 2008).[8] In 1930 through mid-1931, the financial tensions in the global economy arising from an incipient banking crisis in Eastern Europe and Austria were exacerbated by the misguided foreign policy pursued by the Chancellor Brüning to confront debt repayment. In June 1931, Brüning denounced the reparations regimes, arguing that Germany had paid all that it could. This news stunned not only Germany but also the world, and was followed rapidly by official denials that Germany would soon suspend payments on both reparations and private debts (Crafts and Fearon 2010).[9] Since Brüning's rhetoric created doubts about Germany's willingness to pay reparations, Germany struggled even harder to raise capital in the midst of the international financial crisis. On May 28 1931 capital inflows including those from the Young Plan loans fell sharply. Thereafter, attempts to attract new international loans failed (Accominotti and Eichengreen 2016; Crafts and Fearon 2010; Feinstein et al. 2008; Ritschl 2013; Temin 2008). When the crisis spread to Berlin and Brüning solicited aid abroad, Moret (at that time governor of the Bank of France) demanded first a withdrawal of Germany's request to reopen reparations negotiations; this request was never considered by Brüning's cabinet. Here James (2001, 17-18) explains that "whoever was responsible for the banking crisis had significantly worsened the German depression. Without that worsening, it is quite conceivable that Brüning might have survived longer and that Hitler and his movement might have 'faded into oblivion'." Ferguson and Temin (2003, 8) further discuss that after the twin banking crisis "the government responded by redoubling its resolve to continue down the path of austerity so resoundingly repudiated by the electorate."

Fiscal Austerity and the Nazis

Finally, there is the hypothesis that Brüning's domestic austerity measures led to a critical domestic loss of faith in the government. As Figure 2 shows, Germany's expenditure was cut

[7] Other explanations for the emergence of totalitarian rule in Germany invoke the Weimar Republic's electoral system, which potentially cleared the pathway for small and radical parties to enter the Reichstag (Jepsen 1953).
[8] It is known as the 'twin crisis' because there was the simultaneous occurrence of disturbances in the banking sector and currency turmoil (Schnabel 2004).
[9] To avoid a formal recession and restore confidence by the international markets, in June 1931, US President Hoover, by means of the Hoover Moratorium, allowed Germany's war debts to be suspended for one year, giving temporary relief to German debtors. One year later, in July 1932 at the Lausanne Conference, reparations were formally stopped (Clement 2004; Schnabel 2004; Temin 1990). However, by then Brüning had already been forced to resign and Hitler was within reach of power. The Hoover Moratorium also arrived too late, since by early summer of 1931 German banks began to fail. Nevertheless, the Lausanne Conference maintained and protected the service of the Dawes and Young loans (Clement 2004).

by 25% between 1930 and 1932, while over the same period, the income tax increased by 10%. This combined to yield an overall fiscal consolidation (e.g., the combined rise in tax revenue and the decline in spending) of about 42%.[10] Austerity also had a distributional dimension involving cutbacks in unemployment benefits and payments to pensioners and welfare recipients (e.g., the disabled and war veterans) (Bernanke and James 1991; Ritschl 2013; Temin 1990).

Although Germany was not the only country hit by the Depression, it was the only major country to implement prolonged and deep austerity measures. For instance, on 21 September 1931 Britain and several other advanced nations in Europe left the gold standard. At this time, Britain also devalued sterling, which fell 25% against the dollar. Initially, after devaluation, the UK also implemented some budget-cuts but soon thereafter, "Government expenditures in Britain rose in 1930, as did the component of public spending directed toward goods and services" (Temin 1990, 63).[11] Hence economic historians have argued that, similar to Britain, "Germany should have been able to pursue expansionary policies after it had been forced to abandon the gold standard" (Wolf 2014, 20).

[Figure 2 about here]

It is plausible that austerity could have influenced political views since it was implemented on a massive scale. Austerity ostensibly had a major impact on people's welfare. Brüning was commonly known as the 'Hunger Chancellor'. It also hurt the middle classes and elites, by massively increasing taxes on profits and earnings. Austerity deepened the Great Depression, exacerbating an already tense political and economic situation. There is in fact some consensus about these damaging economic effects although it is not founded on systematic empirical evidence so far as we are aware. In this vein, Eichengreen (2015, 139) argues that "radical cuts in public spending in a period when private spending was collapsing had the predictable effect of worsening the slump." Feinstein et al. (2008, 90) describe how "from the end of 1930 and through 1931, Brüning introduced a succession of austerity decrees imposing progressively harsher increases in direct and indirect taxation accompanied by reductions in civil-service pay and in state welfare benefits. The descent was cumulative and catastrophic." Ferguson (1997, 273) also argues that "There is little doubt that fiscal and monetary policy made the slump worse between 1930 and 1932."

Several authors have suggested that austerity could have contributed to the rise of the right-wing political extremism and the Nazi Party. Crafts and Fearon (2010) argue that "German economic policy during and after the crisis of July 1931 apparently contributed to the rise of the NSDAP." O'Rourke (2010) contends that "to someone who had lived through the 1930s,

[10] Fiscal consolidation refers to the policy actions including tax hikes and spending cuts with the intent of reducing the budget deficit.

[11] Other countries such as Sweden and Norway also abandoned the Gold Standard in 1931, with similar unemployment rates, and implemented stimulus packages rather than deflation.

this would not have seemed at all strange … the Great Depression hit and everything fell apart. Thanks in part to Brüning's deflationary policies, Germany's national income fell by more than a quarter, and official unemployment rose to almost a third of the labour force. Optimism was replaced by a profound sense of insecurity. Inevitably, the extremist parties benefitted."

In considering the rise of the Nazis, Krugman (2015) also asserts that "we hear endlessly about the hyperinflation of 1923, when people carted around wheelbarrows full of cash, but we never hear about the much more relevant deflation of the early 1930s, as the government of Chancellor Brüning – having learned the wrong lessons – tried to defend Germany's peg to gold with tight money and harsh austerity." He further argues, "No, the 1923 hyperinflation didn't bring Hitler to power; it was the Brüning deflation and depression" (Krugman 2013).

Perhaps even more important than the readings of history is how Hitler himself viewed the impact of austerity in the winter of 1931 as a springboard to power. Twelve days after Brüning implemented his fourth and last emergency decree introducing more sweeping austerity packages, Hitler issued a mass pamphlet titled '*Open letter from Adolf Hitler to the Reich Chancellor – The Great Illusion of the Last Emergency Decree*' as a response to the decree and the corresponding speech made by Brüning. While Hitler used populist rhetoric to channel Brüning's attacks on attacks his party to the Communists, it is decisive how Hitler ended his letter and the extent to which he viewed austerity packages as crucial to channelling mass frustration and reaching power: "Although that was not the intention, this emergency decree will help my party to victory, and therefore put an end to the illusions of the present System" (Hitler 1931).

Indeed, although "when Adolf Hitler became Reich Chancellor in 1933 there was still a large question mark over future Nazi policy, and especially over economic policy" (James 1986, 345), between 1930 and 1932 the Nazis campaigned on an anti-austerity platform. For instance, in a mass pamphlet titled *Emergency Economic Program of the NSDAP* (*Wirtschaftliches Sofortprogramm der NSDAP*) issued on May 1932 (just before the federal elections of July 1932) they offered "fundamental improvements in agriculture in general, multiple years of taxation exemption for the settlers, cheap loans and the creation of markets by improving transportation routes, and making them less expensive." Regarding the welfare system, they held that "National Socialism will do all it can to maintain the social insurance system, which has been driven to collapse by the present System" and that for the care of the elderly, "we will make immediate preparations to carry out point 15 of the party platform: 'We demand a generous expansion of support for the aged.'"

Indeed, direct attacks from Hitler to austerity can also be seen in his *Open letter* of December 1931: "Mr. Reich Chancellor, that major plan has proven to be an illusion, since the crisis was not overcome. At the same session, you also said: 'With this emergency decree (of 26.7.30) the Reich President and the Reich government, based on Article 48 of the Weimar Constitution,

have taken the first steps to ameliorate the financial, economic, and social crisis.' Mr. Reich Chancellor, neither the financial, nor the economic, nor the social crisis has been ameliorated. Such a view rests on an illusion. You further said: 'Important parts of the welfare system have been revised to make it possible to rescue the welfare system.' Mr. Reich Chancellor, the welfare system seems to me to be less rescued that it was before. Instead, it is seriously threatened. I have the feeling here, too, that this statement will prove to be an illusion". Later on Hitler further remarked that "In that same speech, Mr. Reich Chancellor, you assured us that a basic principle of the reforms back then was the 'simplification of the administrative system, in particular a taxation policy that does not unacceptably burden the productive process, but instead encourages savings by small savers, and finally sound financial accords between the Reich, the provinces, and the municipalities'. Since all of these hopes went unfulfilled, we can relegate to the area of illusions as well."

Even though there has been speculation that austerity played a role in the rise of the Nazi party, to our knowledge no previous research has tested empirically whether austerity measures can explain the rise of the Nazis in interwar Germany.[12] One study evaluated the impact of the Great Depression and austerity on voting patterns on 171 elections in 28 countries (Bromhead et al. 2013) and another looked at the European level (Ponticelli and Voth 2011). Yet these have not taken into account the unique post-war context in Germany. There have also been cross-sectional studies with aggregated data for Germany but not at the district or regional level (Ritschl 2013; Stögbauer and Komlos 2004).

The last Chancellor of the Weimar Republic and his Austerity Measures

By 1930 the economic situation was so disturbing that President Hindenburg dismissed the government headed by Chancellor Müller and offered the Chancellorship to a group of unelected technocrats headed by Heinrich Brüning. Brüning ruled the country by emergency decrees (*Notverordnungen*) under Article 48 of the Weimar Constitution. As highlighted in Brüning's memoirs written by Patch (1998, 77) "Brüning did not take office with any plan for specific diplomatic initiatives, but a passionate determination to regain for Germany the autonomy of a Great Power inspired all his efforts to balance the budget."

The central focus of Brüning's domestic economic programme was to lower reparations payments as he was convinced that there was no alternative (Crafts and Fearon 2010;

[12] Stögbauer and Komlos's paper (2004) looks at how far unemployment should have declined to prevent the Nazi party's participation in the government. The paper considers the theoretical potential impacts of budget expenditure. However, as already seen, the paper is conceptually misleading, as the unemployed did not generally vote for the Nazi party. Hence there is little interest in how much unemployment could have declined in order to avoid the rise of the Nazi party, as Hitler would have won the elections without a single vote from the unemployed (King et al. 2008). Moreover, the paper did not use any data on budget expenditure. Instead, it conceptually links the amount by which unemployment in each electoral district would need to decline to a hypothetical positive tax, and might not be considered more than a hypothetical counterfactual exercise.

Eichengreen and Temin 2000; Mommsen 1989; Temin 1990). Brüning's tactic was, in part, to impose austerity in hopes the suffering of the German population under austerity would create international sympathy and end the difficult debt reparations under the Treaty of Versailles (Eichengreen 2015). When Patch (1998) reviews the meeting between Keynes and Brüning in 1931, he recalls that the British economist was shocked by the determination of Brüning to stop reparations and to implement a programme of austerity, and that Keynes commented that Brüning had a "unanimous and overwhelming determination to pay no reparations whatever… any German minister who was to make any statement inconsistent with this could not survive a week."

Brüning's austerity measures began in spring 1930 with a policy of tight credit and a rollback of civil service salary increases, cuts in unemployment insurance and government expenditure, and tax increases (Mommsen 1989). This plan was highly unpopular among the majority of the Reichstag members, leading President Hindenburg to dissolve the Reichstag and call new elections. In the following elections of September 1930, Brüning garnered sufficient support to be elected Chancellor, despite the Nazis emerging as the second largest political party.[13] Yet, according to Ferguson and Temin (2003, 8), "the spectacle of the government bowing to foreign creditors (whose connection to the austerity package was too obvious to escape acrid public comment at home) reduced the government's popularity still more."

The September 1930 election was a key turning point in German history, not only because the Nazi party increased its vote share by 15.8 percentage points, but also because it was seen as a withering verdict against austerity –a message that went unheeded. As discussed by Temin (1990, 82-83) "the tremendous gains of the Nazis in the 1930 election carried a frightening message if Brüning had wanted to see it. Historians have debated whether the German people wanted the Nazis only because of economic distress or because of other, darker factors as well. But it is clear that the vote of 1930 was a resounding rejection of Brüning's policies at an early stage."

Article 48 of the Weimar constitution gave Brüning full constitutional powers to initiate his proposed austerity measures by emergency decree (and hence avoid Parliamentary negotiation). While austerity had been seemingly rejected by the electorate and other parties, many were willing to accept such policies due to fears that financial calamity would unleash an even worse extreme right-wing alternative. In the creditors' eyes, this commitment to austerity provided insurance against a formal default and economic chaos (van Riel and Schram 1993).

[13] Although the voting power of the opposition controlled 280 seats, which was larger than the 132 seats from Brüning, the opposition parties could not form a coalition because the ideological differences between the parties were too deep.

Austerity and fiscal system in the Weimar Republic

Brüning's austerity measures were likely to be extremely economically painful.[14] Between 1930 and 1932 government expenditure was cut by roughly 25%. Using nominal data from the Prussian states, the largest cuts were to housing (95.8%), healthcare (71.8%), transfers to localities (46.2%), infrastructure (43.2%), economy and trade (38.9%), economic development (31.8%), general administration (30.4%), education (28.2%) and law and state security (24.2%).[15] Box 1 describes the four main emergency decrees and their corresponding austerity packages.

[Box 1 about here]

Although austerity was implemented by governmental decree, the extent to which it was implemented varied by state. The source of this variation mainly depended on regional governments: around 40% of the cuts were implemented by local authorities and 22% by the different states and only around one third by the Reich (Newcomer 1936).[16] The extent to which they were applied in each state and district varied according to a number of factors (see Newcomer 1936, 206 Tab. 207), including population and land area, the level of unemployment, number of schools, highway mileage, distribution of income and affinity to Brüning's policies by the minister-president in each state. Regarding the level of fiscal autonomy, James (1986, 74) notes that "for the South Germans, almost all political issues of importance were resolved not in Berlin, but in Karlsruhe, Stuttgart, and Munich." Table A1 shows Germany's decentralised budget, comparing the shares of central and regional expenditure in Germany with other Western economies. Relative to other Western nations, roughly half of all government expenditure was decided by states and districts, with regional units having significant capacity to shape their expenditure. Still, it would be a mistake to think that central government fiscal decisions had no impact locally.

Centralisation of taxation and revenue began to occur progressively after 1928. In 1928 the Reich directly received 24.5% of total income and corporate tax revenue, whereas 36.8% went to the states and 34.4% to local governments (the reminder 4.3% was due to the Hanseatic cities). By 1932 the Reich share of the income and corporate tax revenue rose to 32.3%, but the states still accounted for a significant level of autonomy with 35.5% and the local governments 28.4% of total revenue. As James (1986, 76) observes "the Reich Government indeed deliberately pushed responsibility for unpopular measures onto Länder governments

[14] Austerity moved beyond the economy and negatively affected health. Tanner (1978, 130) shows that the heights of successive cohorts of schoolboys aged between 9 and 11 in Stuttgart declined by nearly half centimetre between 1930 and 1932. Infant mortality as measured by the number of infant deaths before their first birthday (per 1,000 live births) also increased from 85 to 99 between 1930 and 1935 (Mitchell 2007). Some communicable infections such as diphtheria (reported per 100,000 inhabitants) also increased rapidly from 79.0 to 179.4 cases (Statistisches Bundesamt Wiesbaden 1972, 119).

[15] These calculations are using data from the *Statistisches Jahrbuch für das Deutsche Reich*, various issues.

[16] For comparison, Feinstein (1964, 31-36, 86) calculated that in 1931 the UK central government controlled 62% of the total expenditure.

struggling to maintain parliamentary majorities" where regional governments were "left with odious taxes and falling revenues."[17]

Brüning's fall and the rise of dictatorship

On 30 May 1932, Brüning was removed from the Chancellorship and Hindenburg appointed a minority cabinet headed by von Papen. As the new chancellor, von Papen began introducing some stimulus packages, involving employment programmes, tax credits and subsidies for new employment, public works projects, and agricultural improvement (Feinstein et al. 2008; Schneider 1986). Germany's economic situation began to improve; between 1932 and 1933, GDP grew by 5.77% (in the previous years, GDP fell by 7.93% between 1931 and 1932, and 8.10% between 1930 and 1931); the unemployment rate declined by 7.6 percentage points (it increased by 9.5 percentage points between 1931 and 1932 and, by 11.6 percentage points between 1930 and 1931).[18]

These changes appeared to have led to modest gains in political support and temporarily delayed the Nazi's rise. Between the elections of July 1932 and November 1932 the Nazi party dropped from 608 seats in the Reichstag to 584. As O'Rourke (2010) explains, "by this stage Brüning was gone, his successor adopted some modestly stimulative policies, and there were signs of a partial recovery. Not coincidentally, in November 1932 the Nazi share dipped to 33.1%; but by then it was too late, and the Weimar Republic was doomed." However, von Papen had virtually no support in the Reichstag and in attempt to increase his support call for new elections in July and November of 1932. Yet, given the upswing by the Nazi party by December 1932, Hindenburg appointed Schleicher as Chancellor for the decisive elections of 1933. In March 1933, the Nazi party became the largest elected party in the German Reichstag (with 44.4% of votes). Hitler was appointed Chancellor, albeit in a government where all but two members were conservatives, with von Papen as Deputy Chancellor. Shortly thereafter, on 23 March, in coalition with the German National People's Party, Hitler introduced the Enabling Act, changing the constitution to allow the cabinet to pass laws without reference to either the Reichstag or the President.

By the summer of 1933, all parties except the Nazi party had been dissolved and trade unions were abolished. The Nazi party programme of 1933 included a clear departure from austerity, including massive state-funded public works such as housing, land conservation, and even the

[17] James also noted that "the Reich did nothing to lessen the discomfiture of the Länder in the depression: on the contrary. Attempts to impose savings in the crisis bore the marks of the Reich's hostility to Land governments … In consequence the Länder and the communes actually had to take steps to increase their own tax revenue in order to make their budgets balance … Bavaria, Saxony, and Baden introduced the slaughter taxes … [and] between July 1932 and January 1933 the slaughter tax was extended to all German Länder" (James 1986, 76).
[18] GDP data form the Maddison project (Bolt and van Zanden 2014) and unemployment from Eichengreen and Hatton (1988, 6-7).

construction of a highway across Germany (Voigtländer and Voth 2014). Next we turn to assessing the association of austerity measures with rising vote shares for the Nazi party, across Germany's district levels.

Data and methodology

We collected data on the Nazi party vote share for the five Reichstag elections between 1928 and 1933 at the district level (n = 1,024) from the official publication *Statistik des Deutschen Reiches* (ICPSR 1999) (Figure 3). These data have been previously used by other authors (Adena et al. 2015; Voigtländer and Voth 2014) and were initially collected and used by Falter (Falter and Gruner 1981). As individual-level data are unavailable, we use aggregate data from small geographic units, recognising the limitations of all ecological studies. We use Reich level data on government spending (in 1,000 RM) taken from the *Statistisches Jahrbuch für das Deutsche Reich*, which includes state and district spending on the main budget areas (see Table 8 for the budgetary classification). Data are for the fiscal years, which run from the first day of April in a year to the last day of March in the following year. From the same source, we also collected the data on state-level unemployment (people in the labour force not working),[19] a proxy for state-level economic output (generation of electricity, in 1,000 kWh), and city-level hourly wages. We created a state-level index of nominal wages averaging the monthly data from the hourly wages paid in four occupations (construction, wood and skilled and unskilled workers in metallurgy) in 38 big cities which have been located within each of the states.

From *Die Einkommen- und Körperschaftsteuerveranlagungen* (which are reported under the official *Statistik des Deutschen Reichs*) we collected district level data on the number of taxpayers, total taxable income, and total revenue for each state (in 1,000 RM) on three taxes: wage, income and corporate taxes. We collected the data on the *Lohnsteuer* (*steuerabzug vom arbeitslohn*), a tax on wages, an ex-post declaration-based income tax (*Einkommensteuer*), which is the sum of direct taxes on incomes and contributions to social security and unemployment insurance and a corporate tax assessment (the *Körperschaftsteuer-veranlagung*), which taxes all kinds of corporate profits (Dell 2007). Data were available for the *Lohnsteue* in 1928, 1932, and 1933 and for the *Einkommensteuer* and *Körperschaftsteuerveranlagung* for the years 1928, 1929, 1932, and 1933 (see Dell 2007, 384, Tab. 9A1). Despite data being unrecorded for some years, the available years allow us to capture the main changes in taxation in the period of interest (1928-1933). According to Newcomer (1936, 195): "the most productive of the shared taxes were the income and corporation and the turnover taxes. Of these, three fourths of the income and corporation taxes,

[19] This is measured as those receiving ongoing support from or enrolled in the employment offices. For details see for example the *Statistisches Jahrbuch für das Deutsche Reich* of 1932 page 418. Yet, as this source recognises, it is possible that this measure undervalues unemployment levels as some people may have not registered in the employment offices or due to special situations (e.g., sick problems, etc.).

which were by far the most variable, went to state and local governments, while the largest part of the steadier turnover tax was retained by the Reich. The income and corporation taxes alone supplied four fifths of the state and local share in national taxes in 1928-29."[20] Finally, for the years 1928, 1930 and 1932 and from the Prussian States (roughly half of our sample), we collected state-level data from civil servants' earnings (grouping wages plus other remuneration both in 1,000 RM) using data from the *Statistisches Jahrbuch für das Deutsche Reich*.

[Figure 3 about here]

We measure austerity in seven ways, with all the measures expressed in percentage points. First following the methodology of the IMF, we define 'austerity' as the size of the fiscal consolidation: the combined rise in total tax revenue and spending cuts (defined as -1 times the change in spending).[21] Local and state spending cuts reflect mainly cuts in the salaries of public servants, pensioners, welfare and social services such as health coverage, housing, education and infrastructure. Changes in taxes refer to the combined change in wage taxes (*Lohnsteuer*, a pay-as-you-earn, deducted-from-the-source tax system on wages and salaries), changes in income taxes (*Einkommensteuer*, an ex-post declaration-based tax on other types of incomes besides wages and salaries) and corporate income taxes (*Körperschaftsteuerveranlagung*, a direct tax on the income or capital of corporations). Average tax rates are calculated as the tax revenue divided by total taxable incomes of various sorts. According to our three taxes (wage, income and corporate tax) we first measure austerity as the sum of Reich spending cuts and changes in the *wage tax rate*, then as the sum of Reich spending cuts and changes in the *income tax rate* and finally as the sum of Reich spending cuts and changes in the *corporate tax rate*.[22] The fourth measure uses only the cuts in Reich spending (state plus municipal spending) and the next three measures employ the wage tax rate, the income tax rate and the corporate tax rate respectively. Finally, we also measure austerity as cuts in civil servants' earnings. For the description of the data see Table 3.

To test competing explanations, we also operationalised changes in economic output. Here we use a proxy of electricity utilisation, as these two correlate closely, since the vast majority of goods and services are produced using electricity. We further include a measure of unemployment and also wage deflation though an index of nominal wages.

[Table 3 about here]

[20] Although Newcomer did not clarify it, it seems that he groups 'income and corporate taxes' and 'turnover taxes'.
[21] The IMF defines fiscal consolidation as a policy result of increases in taxes and/or cutting expenditures to adjust the fiscal balance (see IMF 2010).
[22] By tax rate we mean the average tax rate or total revenue divided by the total taxable income in each category.

Austerity and the rise of radical voters in interwar Germany

Figure 4 shows the unadjusted and positive association between the degree of fiscal consolidation and state level changes in the vote shares for the Nazi party between elections in September 1930 and July 1932 (r=0.42, p-value=0.026). Between September 1930 and July 1932 the number of votes for the Nazi party increased from 6.4 million to 13.7 million (or by 115%) with an average increase in the fiscal consolidation of 24.5 percentage points (see Table 3).

[Figure 4 about here]

Next we test this association after conditioning on several variables. We report the results of statistical models where the dependent variable is either the change in the share of votes for the Nazi party between elections or the levels of the Nazi vote share (when using district fixed effects) across districts. Thus our initial model was based on changes in key variables between elections:

$$\Delta \text{ NAZI}_{it} = \alpha + \beta_1 \text{ Austerity } (a)_{st} + \beta_2 \Delta \text{ Wages}_{st} + \beta_3 \Delta \text{ Unemployment}_{st} + \beta_4 \Delta \text{ Economic}_{st} + \varepsilon_{it} \quad (1)$$

Where i is a district (i=1,…, 1,024), s is a state (s=1,…,31), t is an election period (1928, 1930, July 1932, November 1932 and 1933) and Δ denotes the difference across election years; NAZI denotes the percentage point vote share of the Nazi party. The dependent variable is thus the change in the ratio of the number of votes to the Nazi party over the total number of (valid) votes cast between two elections (measured in percentage points). We study four different changes: first, a difference in Nazi vote shares between September 1930 and July 1932, a period witnessing a massive electoral bump for the Nazis; second, the change in Nazi vote shares between September 1930 and November 1932; third, the change between September 1930 and March 1933 and fourth, the elections of May 1928 and September 1930.

In equation 1, (a) denotes the seven alternative measures of austerity (a =1,…,7). Additionally, Δ Wages$_{st}$ is the percentage change in nominal wages in a state from the indexed basket of wages, Δ Unemployment$_{st}$ is the change in the level of the unemployment rate in a state, Δ Economic$_{st}$ is the percentage change in our proxy for economic output in a state and ε_{it} is an error term. Since we use differences of all variables, time-invariant unobservable heterogeneity explaining the level of Nazi vote share at the district level is eliminated as if we had included district fixed effects in a regression of levels of variables, differencing out any regional or district-level differences in propensity to vote for certain parties. Robust standard errors are clustered at the district level.

For the elections of May 1928 and September 1930, we use the value of our controls in 1928 and 1930. For the elections of 1930 and 1932 we use values of the controls in 1930 and 1931. For the elections of 1930 and 1933 we use the values of controls in 1930 and 1932. Hence in the elections of July of 1932 we look at the austerity measures implemented between April

1931 and March 1932 (according to the fiscal year) and for the elections of March 1933 the austerity measures are implemented between April 1932 and March 1933. Since the wage taxes were only available for 1928, 1932 and 1933 and the income taxes only available for 1928, 1929, 1932 and 1933, we have used data from the year prior to the nearest election.

Table 4 presents the cross-district differences models in association with our seven measures of austerity. As shown in the table, regardless how we measure austerity, the estimated association of austerity with the Nazi vote share is positive and statistically significant in most of the models considering the different elections between 1930 and 1933. From the 4 different changes, our preferred specification is the change between 1930 and July 1932 (columns 1 and 2). The elections of 1933 were not completely free and by the elections of November 1932 Brüning was discharged from the Chancellorship, with von Papen implementing some fiscal expansion. Using the variable fiscal consolidation 1 (panel 1), the rise in vote share for the Nazi party associated with a one percentage point change of the fiscal consolidation, based on wage tax rates, is 0.98 in column 2 (95% CI: 0.73 to 1.23) and 0.60 in column 6 (95% CI: 0.39 to 0.81). A change equal to a one standard deviation rise in fiscal consolidation 1 corresponds to a 2.17 percentage points rise in the support to the Nazi party between the elections of September 1930 and July 1932 or one quarter of one standard deviation of the dependent variable. For spending cuts the effect is also similar (1.82; 95% CI: 1.33 to 2.31) where a change equal to a one standard deviation in spending cuts, corresponds to a 2.36 percentage points rise in the support to the Nazi party between the elections of September 1930 and July 1932 or one quarter of one standard deviation of the dependent variable. This yields a sizable effect. Adena et al. (2015) find that exposure to the Nazis' propaganda was associated with 1.8 percentage points rise in vote share for the Nazi party and Satyanath et al. (2017) find that social capital was associated with 0.9 percentage points in the elections of September 1928, and 1.4 in the elections of September 1930 and March 1933. Earlier, in years 1928-1930 (columns 7-8), the association is negative as this was still a period of fiscal expansion (see Figure 2).

The effects of austerity are more clearly revealed by the fiscal consolidation 1 variable due to greater avoidance of income tax. Hentschel (1989, 779) argues that "opportunities for legal tax avoidance by those declaring their incomes were immeasurably increased," while the "tax withheld at source from wages and salaries … provided little opportunity for manipulation." Ferguson and Granville (2000, 1,068) also claim that "income taxpayers outside the withholding tax system applied to wages had a strong incentive to delay payments" and Dell observes (2007, 408) that "most of the avoidance/evasion does not take place at the bottom of the distribution, which is very unlikely because this bottom is mostly made of wages and salaries which cannot avoid taxation easily."

Next, we tested potential competing explanations. Consistent with prior studies, we find that unemployment rates are either unimportant or negatively and significantly associated with the share of votes for Nazis across models. The impact of unemployment on the rise of Nazism has

been studied during the past 30 years and several scholars using district data have also found no relationship or a negative one (Falter 1986; Satyanath et al. 2017; Stögbauer 2000; Voigtländer and Voth 2014). In fact, those suffering from unemployment in Weimar Germany gravitated towards left-wing and communist parties, whereas a populist option that clearly excoriated the political establishment was more attractive for those for whom austerity was the most salient effect of government policy. Changes in wages, capturing deflationary policies, were also positive and statistically significant in most of the models of Table 4.

[Table 4 about here]

We also tested a series of alternative austerity measures. As shown in Table 5, using cuts in civil servants' earnings, we found a positive and statistically significant relationship using state spending in column 4 (1.88; 95% CI: 0.33 to 3.42). Here the impact of austerity is much higher and a change equal to a one standard deviation rise in the cuts in civil servants' earnings, corresponds to a 4.87 percentage point rise in support for the Nazi party. Unfortunately, data are only available for Prussian states.

[Table 5 about here]

We also use a modification of equation 1, where instead of using vote share for the Nazi party as the dependent variable, we use data on Nazi party membership (Table 6). Data on party entry are originally from Brustein and Falter (1995), although we use the data organized by Adena et al. (2015), which computes spatially the number of people who joined the Nazi party in 1932 and between February and May 1933.[23] We find that, due to austerity, people not only voted for the Nazis but also became Nazi party members. In 1932, the rise in the vote share for the Nazi party associated with a one percentage point change of the fiscal consolidation 1 variable is 0.55 in column 4 (95% CI: 0.71 to 1.04). Consistent with our estimates in Table 4, a change equal to a one standard deviation rise in fiscal consolidation 1, corresponds to a 2.50 percentage points rise in Nazi membership in 1932. Indeed, Satyanath et al. (2017, 496) also find that "measures of income and wealth (based on tax assessments) show positive correlations with Nazi Party entry."

[Table 6 about here]

We also look at the presidential elections (*Reichspräsident*) of 1932 (we use the data for the second round run-off of April) comparing Hitler and Hindenburg's electoral results (Table 7). Data were also collected from Falter (Falter and Gruner 1981). Despite being re-elected head of state, Hindenburg missed the absolute majority in the first round required for election and was only able to achieve re-election because, in the second round, Duesterberg withdrew his candidacy in his favour. In that election, Hitler achieved the Nazi's best result thus far with

[23] It ends in May 1933 because, due to the massive increase in the number of applicants, the Nazis stopped accepting new members in that month (the ban was lifted in 1937)

36.8% of the popular vote (with Hindenburg achieving no more than 53% of the total votes). It is interesting how the impact of austerity is statistically associated with both candidates, but positively for Hitler and negatively for Hindenburg. A change equal to a one standard deviation rise in fiscal consolidation 1, corresponds to a 2.31 percentage points rise for Hitler. This finding provides statistical support for Hitler's premonition in the winter of 1931 that Brüning's emergency decrees would help the Nazis to power.

[Table 7 about here]

Next we disaggregated the impact of cuts by different spending categories (Table 8). Using Reich spending, the strongest links to rising votes for the Nazi party was observed for cuts in the welfare system, and specifically cuts in pensions, unemployment relief and healthcare (0.05; 95% CI: 0.01 to 0.09). Indeed, cuts in healthcare were among the most well associated with austerity (0.06; 95% CI: 0.02 to 0.11). This is followed by other social spending such as cuts in education (0.07; 95% CI: 0.01 to 0.13) and housing. Interestingly cuts in law, policy and security were also important (0.09; 95% 0.02 to 0.16). This might not be surprising given the perception that Nazi forces instigated terror and violence, first among particular groups and then, against those who did not advocate publicly for Nazism (Satyanath et al. 2017; Winkler 1987).[24]

[Table 8 about here]

We also continue testing the robustness of our analysis and explore whether austerity impacted the Communist party vote share as a falsification test (Table A2 of the Appendix). While austerity is insignificant or statistically and negatively associated with the communists, unemployment is consistently positively and significantly associated with the communist vote share for the different measures of austerity. Improvements in the economy also brought new votes to the KPD. Based on these results it appears that austerity focused attention on the Nazis' platform while the Communists benefited from high unemployment rates and improvements in the economy. As seen in the introduction, relevant literature also stresses that "the Communist Party was the main party of protest (rather than the Nazi Party) for those workers disenchanted by the Weimar regime" (Satyanath et al. 2017, 486).

In Table A3 of the Appendix we also replicated the same exercise but instead of projecting the KPD vote share on our explanatory variables we use data on the vote share of the Center Party (Brüning's party). Interestingly, under the years of austerity, the results show that policies associated with budget cuts and increases in taxation reduced support for the Center Party. But this effect decreases when austerity ended. We can also compare the coefficients in Table A3 and those in Table 4. In most cases the coefficients for Center party vote share are smaller than those in Table 4. The Nazi party garnered more votes than the Center Party lost, implying that

[24] According to Satyanath et al. (2017, 480), "By 1932, [the Nazi party] had grown so strong that … the SA had a good chance of defeating the regular armed forces in the case of civil war."

a maximum of 1/3 to 1/5 of Hitler's were due to a crumbling of the incumbent middle if we restrict attention to columns (1) and (2) in Table A3 and (2) and (4) in Table 4.

Yet, for further evidence we also need to look at the votes for the Social Democratic Party, which in 1930 formed a coalition with the Centre Party and two liberal parties, appointing Brüning as chancellor (Table A4). [25] The results from the Social Democratic Party are very consistent with those from the Center party and show the extent to which "voters repudiated his [Brüning's] policies" (Eichengreen 2015, 139). Hence, as argued by Ferguson and Temin (2003), had Germany not been forced to endure such severe austerity, the political centre could have 'survived'. This has also been stressed by Eichengreen (2015, 140), who wrote that potentially "the government would have been able to regain market access and finance its deficit." Results also show a positive and statistically significant association between unemployment and vote share to the Central and Social Democratic parties. Yet, this is not surprising, as can be explained Brüning's premise to 'instrumentalize' the Great Depression to pursue austerity.[26] Further tests related to political polarization are presented in Table 12.

Baseline Robustness Tests

We next performed a series of further robustness and specification checks. First, we replicated the results of Table 4 after applying the logit transformation to the dependent variable (unreported here). Second, when we use the difference between the elections of September 1930 and November 1932 instead of those between September 1930 and July 1932, when Brüning was removed from the Chancellorship and stimulus programmes were implemented by von Papen and Schleicher (mainly employment programmes and tax credits), the effects of austerity are somewhat weaker in Table 4, showing that people were less willing to vote for the Nazis as a result of austerity. Temin argues that expectations were important and that the most important contribution to starting the recovery, after the change in policy, was for the government to do something to fundamentally change expectations. If he is right, the end of austerity might have marked the turning point for recovery; though clear signs of recovery are not seen until 1933 "the shift from deflationary to expansionary policies… in 1933 had immediate effects on expectations … the change in expectations was the key to the start of recovery" (Temin 1990, 150-151). The elections of November 1932 might also show that expectations were important. The Nazi vote share decreased during the elections of November 1932 when Brüning's successor made the first tentative step towards the implementation of

[25] In September 1930 the Social Democratic Party achieved 24.53% of the votes and 21.58% in July 1932.
[26] For instance, on May 7 1931 Brüning explained the meaning and intent of austerity to his cabinet: "Two things are necessary: Domestically, it is necessary that with the issuance of the emergency decree the impression is created among the people that the revision is already on its way; abroad, however, one must create the impression that we are striving to fulfil the plan. The entire complex must be kept in motion until the beginning of 1932. Until then Germany must not allow there to be decisive negotiations" (seen in Feldman 2005, 492).

fiscal stimulus packages (Eichengreen and Temin 2006). We also explore cross sectional variation in the levels of Nazi support by modifying the dependent variable in equation (1) to be the level of the vote share for the Nazi party in a given election (Table 9). We include state fixed effects and the fiscal consolidation variable. We continue to observe a strong relationship between cumulative changes in the fiscal consolidation and the level of radicalization of the electorate.

[Table 9 about here]

Instrumental variables

As a further robustness check, we re-estimated equation (1) using two-stage least squares (2SLS). We use three excluded instruments. First, for the competitiveness of the federal elections, we use a modification of the instrument used by Fishback et al. (2006) and calculate the swing voting in the federal elections of May 1928 as the cross-district variance of party vote shares within a state. According to Fishback et al. (2006, 194-195) "nearly every study of New Deal spending has found this swing-voting measure to be an important determinant of the distribution of spending both at the state and the county level and it has an important positive effect on public works and relief spending in the first-stage analysis." In our case we would expect that a larger variance in vote shares (that is the greater the level of political competition) the less severe would be the fiscal consolidation. Second, as in Satyanath (2017) we use historical variation in association activity in the 1860s to predict Nazi votes. Finally, we instrumented Voigtländer and Voth (2012) data on pogroms against the Jewish community during the Black Death.

Our models using these excluded instruments replicate our main findings (Table 10). The second stage coefficients are strongly significant and the *F*-test for excluded instrument are clearly above the rule-of-thumb threshold of 10. The p-values for the Durbin and Wu-Hausman test of endogeneity are equal to zero, rejecting the null hypothesis that the variables are exogenous. Additionally, given that the *F*-statistics of the instruments are larger than the standard critical values and the p-values are zero in the Kleibergen-Paap first-stage statistic, we also reject the null hypothesis of weak instruments. Yet, the IV coefficients are three to four times larger than the OLS. However, as argued by Satyanath et al. (2017, 516), it might be that "measurement error is a likely explanation for the difference."

[Table 10 about here]

Austerity and spillovers

We provide some further robustness checks to the preceding specifications. We model the Nazi party vote share in district *i* in year *t* in levels. When we include district and time fixed effects,

the model yields a difference-in-differences with an intensity of treatment interpretation based on:

$$NAZI_{it} = \beta_1 \ln Surplus_{it} + \beta_2 \ln Wages_{it} + \beta_3 \ln Unemployment_{it} + \beta_4 \ln Output_{it} + \mu_i + \delta_t + \varepsilon_{it} \quad (2)$$

Consistent with the previous section, we consider only the elections of September 1930 and July 1932 using the variable Surplus as our measure of austerity, measured as the logarithm of the taxes paid minus the logarithm of expenditure within a state. We use wage taxes for Surplus 1, income taxes for Surplus 2 and corporate taxes for Surplus 3. Note that surplus is constant across all districts within a given state. We use a year fixed effect for 1932 (δ_t) and district fixed effect (μ_i).

Since a large literature on fiscal multipliers recognizes that 'open-economy' spillovers can diminish the local income multiplier of fiscal policy (Chodorow-Reich 2017) we split our sample into two (Table 11): state border districts (columns 5-8) and state interior districts (columns 9-12). State interior districts are defined as the subset of all districts in a state that do not share a border with another state. In columns 1-4 we provide the results of the full sample. Results using levels clearly match the findings of Table 4 and as expected OLS estimates are somewhat larger than those with fixed effects. Keeping in mind that spillovers may attenuate the impact of fiscal austerity, we tested whether the relationship between austerity and Nazi party vote share was different in the subsample of districts along the state borders to those in the interior. When we restrict our model to border districts using fixed effects, the coefficient of the variable fiscal surplus is not statistically significant. Yet, coefficients for interior districts are statistically significant with a larger coefficient than the baseline model. As in the previous tables results with a stronger statistical association are observed using wage taxes.

We take this as evidence that spillovers across states mattered such that the impact of austerity was smaller near the state border. This in turn suggests that our findings are greatly explained by interior districts rather than near border districts. Since unemployment is highly statistically significant in state border districts (and not in interior districts) it seems that labour conditions mattered in border-districts where people might cross the border and work in the contiguous state. It is also likely that variation in the state taxes through border differentials in the fiscal system generated high tax evasion in near border districts weakening the effects of austerity (Dell 2008; Ferguson and Granville 2000).

[Table 11 about here]

Border-pair policy discontinuity models

Next we use a policy discontinuity design at state borders following Dube et al. (2010) and Holmes (1998). By looking at district-pairs which lie along state borders, Dube et al. (2010) exploit variation in state-level policy (in their case, minimum wage laws in the United States)

induced by differential state legislation. This approach, which considers only states that share a border, helps provide suitable control groups given the extreme similarity of other local economic and social conditions besides austerity imposed by state level governments. Figure 5 shows a map of districts that share a border. For each election at date *t* (*t* defined by the elections of September 1930 and July 1932), our border district pairs data are organised to have at least two observations in each pair *p* (one for each state in the pair). A given district appears in the data *k* times (for each election *t*) if it borders *k* districts. The district-pair match on opposite sides of a state border is a good control group since there are substantial differences in treatment intensity of austerity within cross-state district-pairs and these pairs, as shown in Table A5 of the Appendix, are very similar culturally, socially and economically. Indeed, this border matching estimate is clearly not reflecting religious differences or industrial versus agricultural variations, as there is only very small differences in religion, economic activity and employment between near borders pair-districts.

[Figure 5 about here]

Following equation 2, we model the Nazi party vote share in district *i* in year *t* in levels in a difference-in-differences intensity in the treatment (Table 12). Since along with district and time fixed effects we also cluster the standard errors at the state level and for the district border segment, we account for potential mechanical correlation given the presence of districts in multiple pairs (Dube et al. 2010; Jacks et al. 2017). We provide seven types of specifications (according to whether we use district-pair fixed effects and district-pair fixed effects by year interactions) and compare them with the full sample (column 1), which is the same as model 4 of Table 11. Surplus 1 for the border pair sample is also positive and statistically significant using the two-way clustering (columns 2-6) with coefficients smaller than the full sample (column 1). For instance, using the results of column 6 with time varying district-pair fixed effects and with district fixed effects gives a coefficient of 9.16 (95% CI: 1.51 to 16.81), compared to a coefficient in the full sample of 13.86 (95% CI: 7.18 to 20.54). Importantly, the results using the full sample with simple district fixed effects (column 1) are nearly two times larger than those in the matched pair sample. This final robustness check shows that a well-identified piece of variation by comparing neighbouring districts that straddle state borders produces consistent results with the full sample, with strong evidence of a positive and statistically significant relationship between austerity and the Nazi vote share.

[Table 12 about here]

Discussion

In this article we explored the impact of harsh austerity on the political polarization of the German electorate. We used data from up to 1,024 districts in Germany on votes cast for the Nazi party and measure austerity as the combination of tax increases and spending cuts. We

find that austerity measures are correlated with the rise of the Nazi party in interwar Germany, offering econometric support for the argument that austerity created polarization and radicalisation of the German electorate. Each 1 standard deviation increase in fiscal consolidation was associated with a 2.17 percentage point increase in votes to the Nazis. In line with the literature we also confirm that unemployment rates were linked with greater votes for the Communist party and that austerity was associated with a shift of votes from the Center party to Nazi party. Our findings are robust to a range of specifications including an instrumental variable approach and a border-pair policy discontinuity design.

However, our analysis is conservative, in the sense that we are already controlling for the potential negative effects of austerity on output and employment. For instance, Eichengreen (2015, 139) argues that "Brüning's unrelenting austerity, by plunging the economy deeper into recession, increased political polarization" (Eichengreen 2015, 139). Yet, what seems clear is that radical austerity measures contributed to votes for the Nazi party among middle- and upper-classes who, despite the depth of the Depression (i.e., after controlling for the level of output and employment) still had something to lose. This highlights the idea that distributional economic issues could be a potential cause or be reflected in political polarization. Fury and despair were channelled into the ranks of populists, demagogues and xenophobes, with people massively voting for Hitler. During these 26 months, Brüning cut public spending by 25-30%, adopted taxes hikes of 105% and cut wages in the face of ever increasing impoverishment. Tragically, Keynes's premonition was borne out, and Germany's deep austerity under Brüning fuelled the rise of the Nazi party and, ultimately, WW2 in Europe.

Could Brüning have taken other policy actions to avoid the rise of the Nazis? Was there an alternative to austerity? In the 1980s, Borchardt argued that there was no realistic alternative to deflation and that, due to the Great Depression, Brüning's room for manoeuvre was severely constrained. However, Borchardt's hypothesis attracted very few supporters. Voth (1993, 267) argues "that the room for manoeuvre was far greater than Borchardt assumes, and that sufficient means may have been available to alleviate the depression" (see also Feinstein et al. 2008). Ferguson (1996) reviews a list of alternatives to austerity that would potentially have brought Germany to the path of growth. One alternative, as also argued by Voth (1993), is that Brüning could have negotiated a near complete end to Young Plan payments in December 1931 (not just re-rescheduling the reparation payments but implementing termination of such payments). The resultant political and economic success of this agreement would have ameliorated somewhat the economic, political and fiscal situation. Later on, Ferguson (2016, 57-58) also commented that "the large public debts incurred during and after the First World War might have been rationally restructured; instead there were moratoriums and defaults after austerity policies had failed." However, Brüning preferred to show the world the suffering of the German population as this was his engine to pursue austerity (Eichengreen 2015). Interestingly, Ferguson (1997, 274) also asks "was there an alternative to the extremes of inflation and

deflation which characterized the Weimar period? The answer is that there was, and it was called National Socialism."

Germany could also have followed the policies of other nations which left the gold standard, devaluing the Reichsmark instead of implementing exchange controls that held the Reichsmark at an overvalued level and limited the potential for recovery via expenditure switching. As discussed by Eichengreen (1992), "the banking crisis of July 1931, followed in September by Britain's abandonment of the gold standard, robbed Brüning's deflationary strategy of its economic rationale" (see also Temin 1990, 70). Crafts and Fearon (2010, 446) also argue that "the link between the gold standard and the Brüning recession, on the one hand, and the rise of the Nazis in the 1930s, on the other, is less than mechanical, but it is there." Without a binding gold standard constraint, Germany could have financed its recovery by increasing government borrowing, with inflation, or by changing expectations about the price level. In the end, the hyperinflation period of the 1920s was probably too vivid and monetary expansion was a non-starter (Ferguson 1996). Temin (1990, 72) further comments "that wage inflation could well have offset a large part of any devaluation. Even so, there would be benefits to the economy. The government would have been freed to undertake more expansionary policies. Social discontent would have been eased, relaxing the political pressure on the Brüning government."[27] Regrettably, as argued by Temin (2001, 12), "pressed to get this mountain of debt under control, Brüning tried a variety of ploys. They all failed."

Although the inter-war German context had several specificities, there are some parallels with contemporary experiences of austerity. Austerity packages in Europe in recent years have correlated, in some countries and at some times, with rising vote shares of far-right and neo-Nazi parties. These include Golden Dawn in Greece, which in the elections of September 2015 won 7% of votes in the Hellenic parliament and 3 seats in the European parliament and the Austrian Freedom Party, which won 35% of the vote in Austrian presidential elections in 2016. The Fidesz-KDNP and Jobbik parties in Hungary won respectively 45% and 20% of the vote in April 2014. In Poland, Law and Justice roared back into government, winning 38% of the vote in 2015. The People's Party Our Slovakia, with 8% of the vote in the elections of March 2016 offers another example. It is also relevant the rise of the UK Independence party (UKIP), which has gone from 3.10% in 2010, to 12.6% in 2015 and the events that followed Brexit, with a backlash against immigration in Europe and elsewhere. France, which also implemented harsh austerity, also experienced an upsurge of the National Front led by Le Pen (father and daughter after 2011), another strong anti-immigrant and xenophobe party, becoming the largest French party in the 2014 European elections with 25% of the votes. Despite losing the

[27] Indeed, relevant literature shows that Brüning did little to confront directly the problems of unemployment, and even linked job creation to the effects of his deflationary policy on wages (Feinstein et al. 2008). Under the pressure of the unemployed masses he only developed a small programme in May 1932 with limited funds for road works and waterworks, but as described by Feinstein et al. (2008) it was by all means insufficient.

presidential elections of 23 April and 7 May of 2017, Le Pen secured 21.30% of the votes (out of 11 candidates) in the first round and 33.90% in the second round (out of 2 candidates).

In 2016 Donald Trump was elected 45th president of the USA campaigning on a central promise to build a wall between Mexico and USA, the shutdown of Muslim and Mexican immigration into the US, and a populist campaign slogan to "make America great again." Geographical analysis of voting patterns reveals a close correlation between worsening life expectancy (capturing multiple disadvantage) and the shift from Democrats to Trump (Bor 2017). Recent events in Germany with the rise of the far-right are also a concern given the interwar experience. The AfD won 4.7% of the votes in the 2013 federal elections, 7.1% in 2014, now with representation in nine German state parliaments (out of 16). In the State of Berlin elections of 18 September 2016, it won the highest share of the vote for the far-right in Berlin since the WW2, with 14%.

We also contribute to the large literature that discusses the impact of unemployment and the rise of the Nazis. Rather than simply being a product of the output declines associated economic hardships typically associated with the Great Depression in most Western countries, Brüning's implementation of harsh deflationary policies and budget cuts in the middle of a severe economic depression seems likely to have led to the rise of the Nazi party. This policy of austerity not only worsened the economic situation, but also contributed to the decline and collapse of the Weimar Republic (Eichengreen 2015, 139). At first pass, this seems puzzling and counterintuitive: both unemployment and austerity impoverish the populations that suffer from their effects. Why then does unemployment and austerity have opposite signs in these regressions? A plausible explanation presents itself. Unemployment is seldom perceived as the intentional outcome of government policy; it might be attributed to political incompetence, but no government wants to increase the rate of unemployment. And, indeed, a high rate of unemployment offers an opportunity for government intervention that will be seen as positive and empathetic from subsidies to policies to incentivise the creation of employment (such as public investment) through formative policies designed to help the unemployed to find a job and so on. Conversely, austerity policies are perceived as the result of direct intervention by government which in turn bring about lower standards of living by effectively reducing disposable income with increased taxation and weakening public services by cutting public expenditure and transfers. James (1986) also stressed that taxpayers blamed directly the state for the increased rates of taxes and saw them as inefficient and unfair.

We only need to add to this picture the connections between the political and financial elites, which can be exploited by populist politicians, to give the full measure of the frustration of those at the receiving end of the austerity packages. Research by Satyanath et al. (2017) shows clearly how elites and dense social networks in interwar Germany contributed to the rise of Nazi vote share and the rapid and widespread dissemination of Nazi ideology. Although still controversial, there is evidence to suggest that big business supported the Nazis (Turner

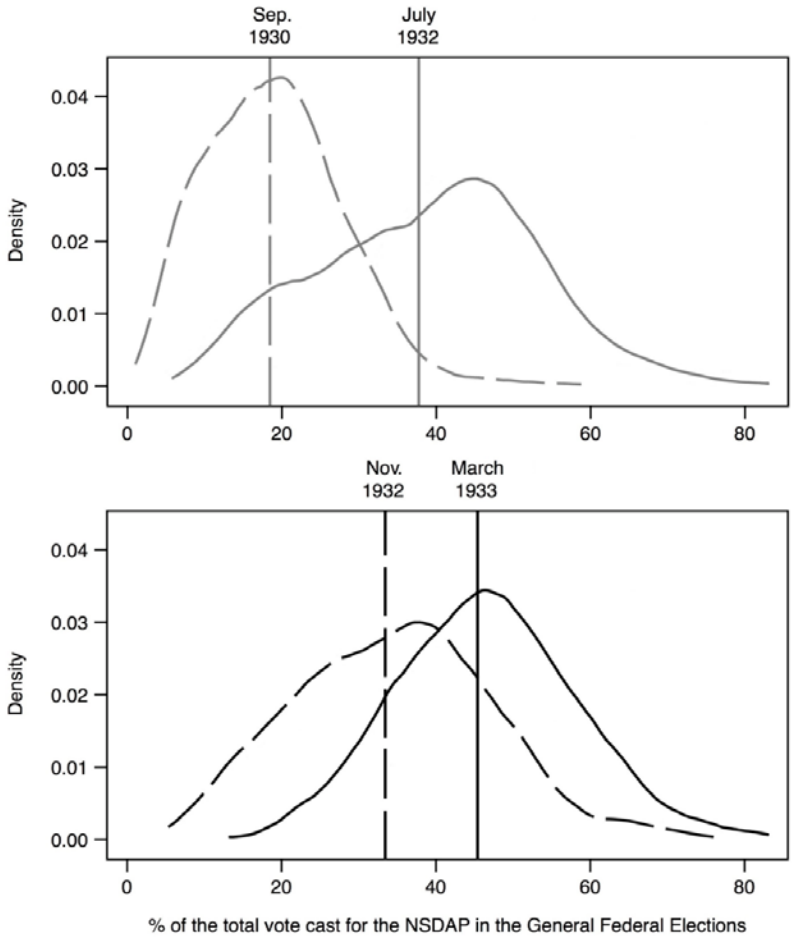
1969).[28] As a result, while unemployment and austerity may seem to impact those suffering from them in a similar fashion (e.g., by worsening their living conditions), they may plausibly lend themselves to completely different readings and interpretations by voting populations. Hence, those suffering from unemployment in Weimar Germany gravitated towards left-wing and communist parties, whereas a populist option that clearly excoriated the political establishment was more attractive for those for whom austerity was the most salient effect of government policy.

As several scholars have noted, the circumstances in which we are living today are eerily reminiscent of the Depression-era (Bordo 2012; Eichengreen 2015; Stuckler and Basu 2013; Temin 2010). The first parallel is the historical background that gave rise to the Great Depression and the Great Recession, created by a credit bubble that burst when the US financial markets collapsed. A second is how the economic situation in the 1930s resembles the situation nowadays facing European countries, with the lack of monetary policy to manoeuvre (in the 1930s with the gold standard and today with the euro), paired with very high unemployment rates. Both then and now the economy collapsed, giving rise to problems of balancing budgets and austerity. Currently, Greece and other European countries have been forced by, ironically, a strong Germany leaded by Angela Merkel and the 'troika' (the tripartite committee led by the European Commission with the European Central Bank and the International Monetary Fund) to pursue fierce austerity policies in exchange for emergency loans. In both cases, the finances of the countries are also dictated by a group of technocrats, with little political experience.

The corollary seems clear: even when the particular history of a country precludes a populist extreme-right option, austerity policies are likely to produce an intense rejection of the established political parties, with the subsequent dramatic alteration of the political order. The case of Weimar Germany explored in this article provides a timely example that imposing too much austerity and too many punitive conditions can not only be self-defeating, but can also unleash a series of unintended political consequences, with truly unpredictable and potentially tragic results.

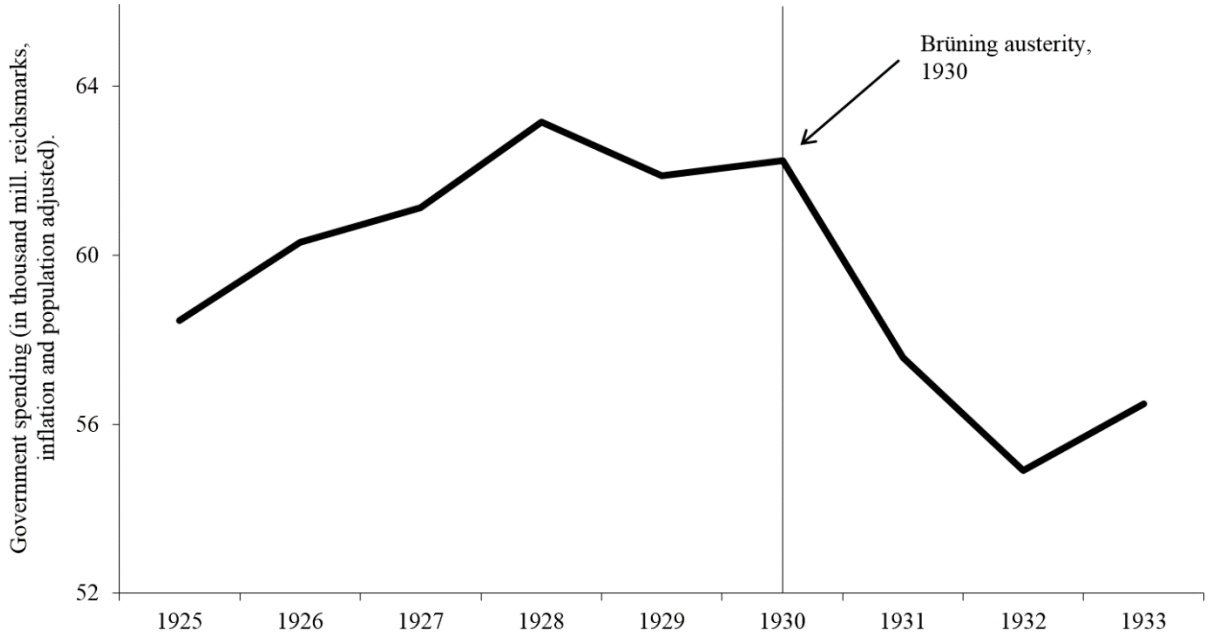
[28] See also the Krupp trials.

Figure 1: Percentage of total vote share for the Nazi party in the different federal elections, 1930-1933



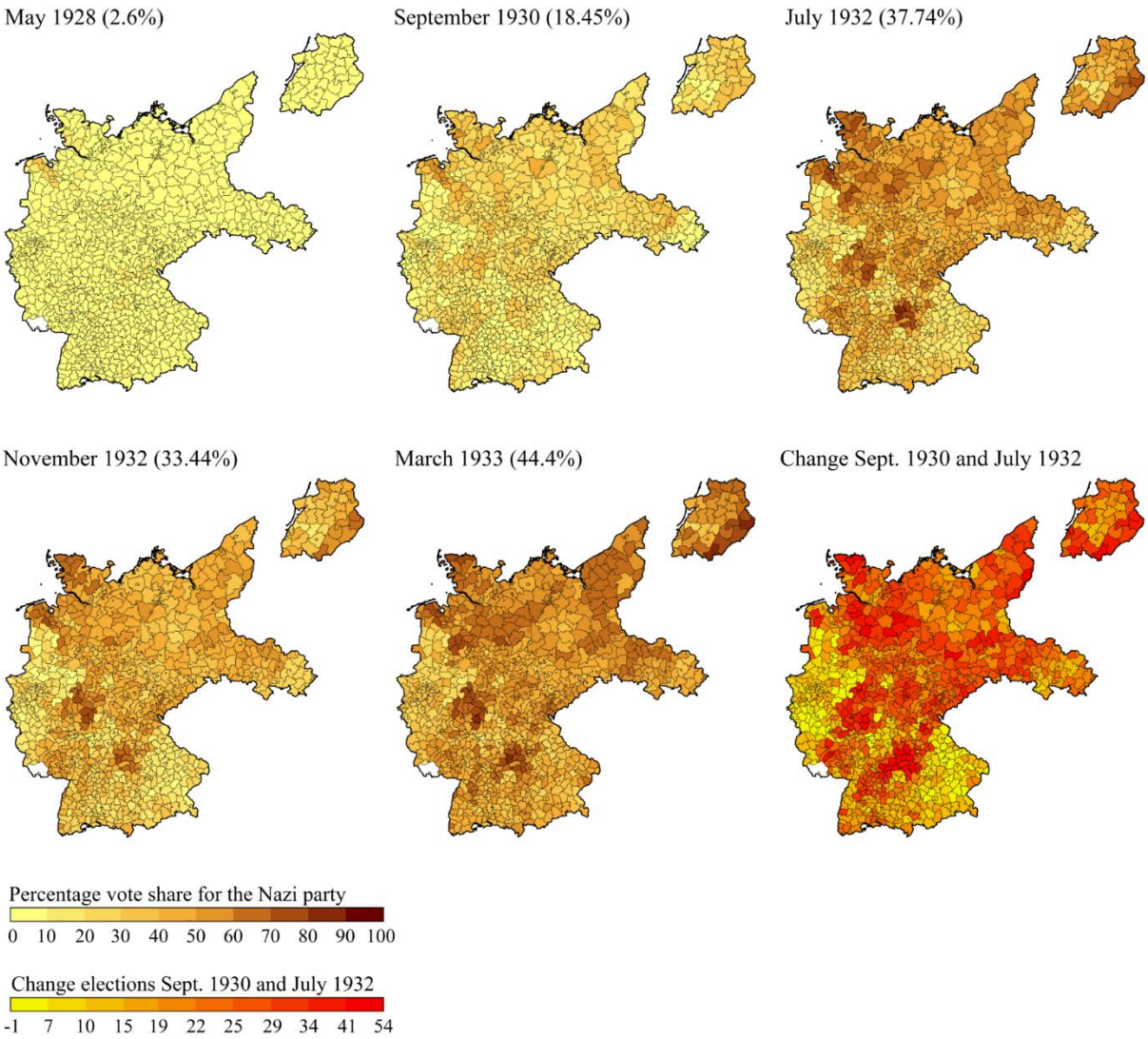
Sources: See text. **Notes**: Vertical dashed lines show the mean value of the total vote cast for the Nazi party in the different elections across districts (in percentage points). The figure does not include the election results for May 1928 as most people did not vote for the Nazi party. The Nazi party only received 2.6% of the vote in this election.

Figure 2: Development of total government spending in the different *states*, 1925-1933



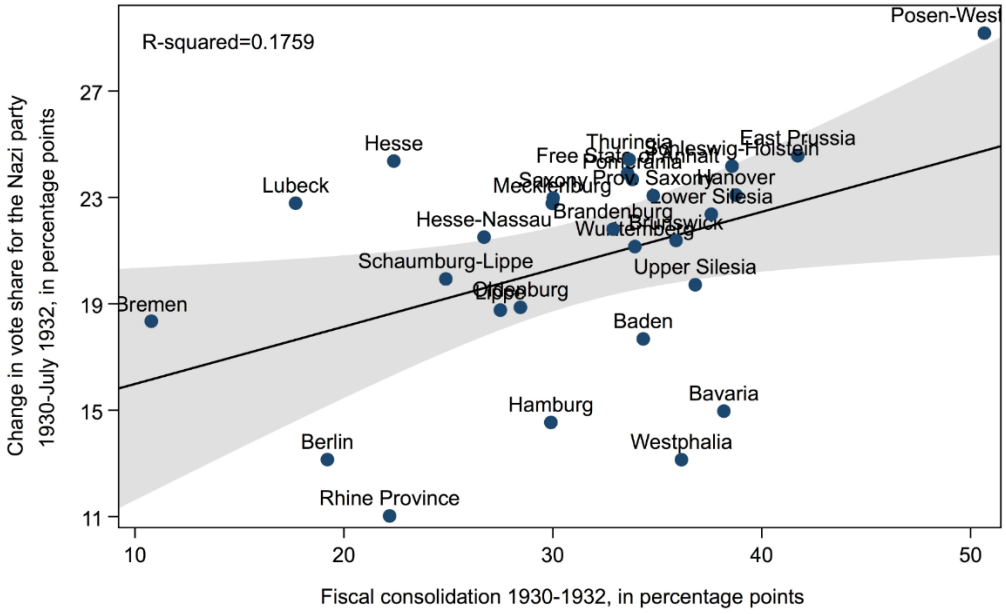
Sources: See text. **Notes**: The figure has been adjusted for inflation using the price index (1950=100) from Piketty and Zucman (2013, Table DE15a, available at http://piketty.pse.ens.fr/en/) and for population using also the data from Piketty and Zucman (2013, Table DE1, available at http://piketty.pse.ens.fr/en/). For the data on the government spending see text. The same overall figure is available in Ferguson (1996, 646, Fig. 2) and Ritschl (2013, 126, Table 4.4).

Figure 3: The rise of the Nazi party across Germany (in percentage points)



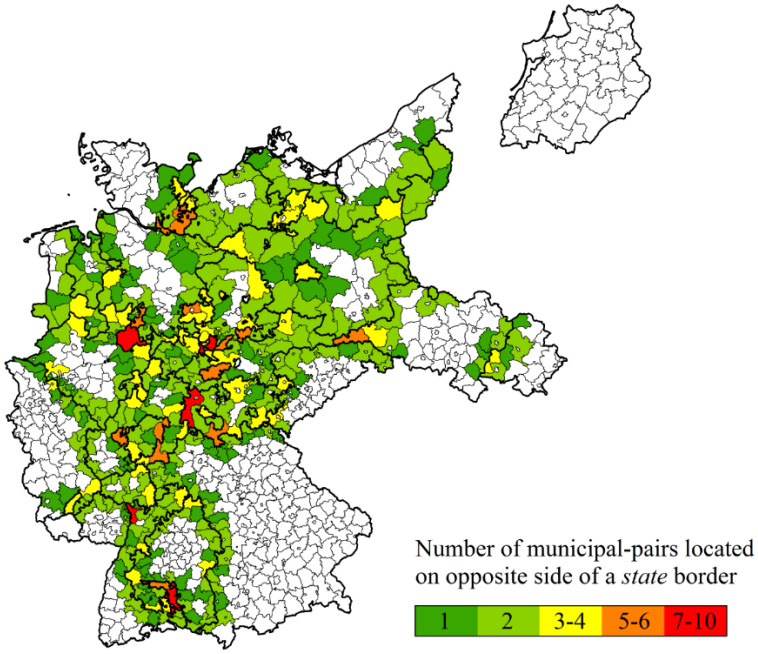
Sources: See text. **Notes**: The percentage of vote share for each election is reported in parentheses. Since in this figure we represent the Nazi vote share between elections using the map of 1933 if a district lacked information from one election (because changes in political borders or missing data) we use data from the previous or following election. The Saarland regions has been excluded from the analysis.

Figure 4: State level change in vote for the Nazi party and increase in the magnitude of fiscal consolidation, 1930-1933.



Sources: See text. **Notes**: We calculated change in vote share for Nazi party using the elections of September 1930 and July 1932. Fiscal consolidation is the sum of cuts to total within-state district spending and state-level spending plus the rise in the average income tax rate and for information on how these variables were calculated see the text. Given data availability we aggregate the data for the Free State of Mecklenburg-Schwerin and Free State of Mecklenburg-Strelitz under the same category (we call it Mecklenburg). Data for the Province of Hohenzollern which accounts for 2 districts are not reported.

Figure 5. District-pairs located on opposite sides of a state border



Sources: See text. **Notes**: Each colour represents the number of district-pairs located on opposite side of a *state b*order. Non-district-pairs are coloured in white. State borders are highlighted by a bold black line.

Box 1: Austerity pursues by Brüning under four Emergency Decrees.

Between 1930 and 1932 there were four emergency decrees to pursue austerity:

- The *First Emergency Fiscal and Economic Decree* (of 26th July 1930), involved, among other measures, a 6% civil service salary cut, a 6% reduction of revenues apportioned to states and municipalities, the retention of the 5% income tax surcharge on incomes above 8,000 RM, and limited the regional shares on turnover taxes (Feldman et al. 1993; Harsch 1993; Hömig 2000; James 1986).
- The so-called *Second Emergency Fiscal and Economic Decree* (promulgated on 5th June 1931) is known for the 'reparations proclamation' announcing that "the limits of what the German people can tolerate have been reached" along with a new 'crisis tax' that levied a surcharge of between 1-5% on income tax.
- A *Third Emergency Fiscal and Economic Decree* (6th October 1931) cut even more Reich transfers to the states and municipalities, restricted the rights of states and municipal parliaments, increased contributions to unemployment insurance, restricted the period of eligibility of unemployment relief, cut civil service salaries, and implemented the exclusion of nearly all people under 21 years from welfare benefits.
- The *Fourth Emergency Fiscal and Economic Decree* (8th December 1931), "to Secure the Economy and Public Finances" included a civil service salary cut of 9%,increased the turnover tax rate by 50-70%, and tried to impose a general deflation by decreeing simultaneous cuts in fixed prices, wages and interest rates (Hömig 2000; James 1986).

Table 1: Economic growth in selected countries, 1926-1936

Year	Austria	France	Germany	Netherlands	UK	USA
1926	1.37	1.99	2.07	6.50	-4.05	5.09
1927	2.71	-2.25	9.33	2.73	7.67	-0.39
1928	4.33	6.68	3.78	3.91	0.79	-0.11
1929	1.13	6.29	-0.94	-0.54	2.73	5.01
1930	-3.05	-3.79	-1.93	-1.52	-1.13	-9.94
1931	-8.31	-6.54	-8.10	-7.45	-5.56	-8.39
1932	-10.59	-6.52	-7.94	-2.89	0.19	-13.76
1933	-3.62	7.07	5.77	-1.56	2.51	-2.68
1934	0.65	-1.12	8.51	-3.06	6.25	7.05
1935	1.93	-2.52	6.78	2.59	3.42	6.91
1936	3.03	3.87	8.03	5.28	4.07	13.48

Sources: Data are from Maddison Project Database (http://www.ggdc.net/maddison). **Notes**: GDP per head is in 1990 International Geary-Khamis dollars (GK$) where the units of measurement are 'purchasing power adjusted' dollars of 1990, so that account has been taken of differences in internal price levels.

Table 2: Industrial unemployment rates (in percentage points), 1926-1938

Year	France	Germany	Netherlands	Norway	UK	US
1926	3.0	18.0	7.3	24.3	12.5	2.9
1927	11.0	8.8	7.5	25.4	9.7	5.4
1928	4.0	8.6	5.6	19.2	10.8	6.9
1929	1.0	13.3	5.9	15.4	10.4	5.3
1930	2.0	22.7	7.8	16.6	16.1	14.2
1931	6.5	34.3	14.8	22.3	21.3	25.2
1932	15.4	43.8	25.3	30.8	22.1	36.3
1933	14.1	36.2	26.9	33.4	19.9	37.6
1934	13.8	20.5	28.0	30.7	16.7	32.6
1935	14.5	16.2	31.7	25.3	15.5	30.2
1936	10.4	12.0	32.7	18.8	13.1	25.4
1937	7.4	6.9	26.9	20.0	10.8	21.3
1938	7.8	3.2	25.0	22.0	12.9	27.9

Sources: Data are from Eichengreen and Hatton (1988) reflecting industrial workers.

Table 3: Main descriptive statistics

	Mean	SD	Min.	Max	N
Percentage vote cast for the Nazi party in the different federal elections					
May 1928	2.66	1.93	0.75	8.64	35
September 1930	18.45	4.85	9.30	28.86	35
July 1932	37.74	9.51	19.22	53.98	35
November 1932	33.44	8.65	16.13	48.54	35
March 1933	45.95	7.49	29.55	57.55	35
Control variables (percentage change, elections September 1930 and 1932)					
Cuts in Municipal spending	29.17	11.58	-6.63	55.23	30
Cuts in State spending	33.98	9.32	18.18	52.70	30
Cuts in Reich spending	31.98	6.45	21.47	46.64	30
Δ Wage tax rate	-46.51	5.92	-59.67	-31.95	30
Δ Income tax rate	10.23	5.74	-1.34	23.65	30
Δ Corporate tax rate	-2.47	4.20	-16.28	7.29	30
Fiscal consolidation 1 (Reich level)	1.89	7.88	-13.68	18.39	30
Fiscal consolidation 2 (Reich level)	42.21	9.30	22.26	63.77	30
Fiscal consolidation 3 (Reich level)	29.51	7.86	14.40	45.86	30
Cuts in Reich Civil Servants earnings	12.80	24.97	-67.87	40.18	16
Δ Wages	20.77	1.43	18.00	24.22	30
Δ Unemployment	47.94	5.93	36.61	60.89	30
Δ Electricity generation	0.60	15.68	-64.76	46.83	30

Sources: See text. **Notes**: Percentage vote cast for the Nazi party in the different federal elections reported for the different constituencies (electoral districts) and control variables at the state' level with the exception of wages that are reported for the main cities within states across Weimar Germany. Control variables are calculated as percentage change. Given data availability, for the income and corporate taxes we use the percentage change between 1929 and 1932, for wage taxes the percentage change between 1928 and 1932 and for civil servants earnings the percentage change between 1930 and 1933. See text for the details. Civil servants earnings are only available for the Prussian states.

Table 4: Cross-district models in differences for the impact of austerity on the Nazi party vote share

	September 1930 and July 1932		September 1930 and November 1932		September 1930 and March 1933		May 1928 and September 1930	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
***Panel 1**: fiscal consolidation 1 (cuts in government spending & change in wage taxes*								
Fiscal consolidation 1	0.922***	0.982***	0.717***	0.721***	0.256***	0.603***	-0.405***	-0.414***
	(0.124)	(0.127)	(0.124)	(0.123)	(0.084)	(0.108)	(0.046)	(0.054)
Δ Wages		0.343***		0.246***		0.756***		0.223
		(0.091)		(0.084)		(0.176)		(0.144)
Δ Unemployment		-0.004		-0.028		-0.016		0.001
		(0.023)		(0.021)		(0.014)		(0.016)
Δ Economic output		-0.029		-0.085		0.041**		0.010
		(0.090)		(0.097)		(0.018)		(0.010)
Number of districts	933	933	933	933	933	933	933	933
R^2	0.049	0.062	0.035	0.050	0.008	0.049	0.073	0.077
***Panel 2**: fiscal consolidation 2 (cuts in government spending & changes in income taxes)*								
Fiscal consolidation 2	0.299***	0.329***	0.185***	0.214***	-0.017	0.015	-0.272***	-0.321***
	(0.064)	(0.062)	(0.060)	(0.058)	(0.048)	(0.050)	(0.064)	(0.065)
Δ Wages		-0.013		-0.002		0.208		0.602***
		(0.091)		(0.084)		(0.149)		(0.140)
Δ Unemployment		-0.079***		-0.080***		-0.038***		0.054***
		(0.022)		(0.020)		(0.014)		(0.014)
Δ Economic output		-0.192**		-0.202**		0.027		0.012
		(0.095)		(0.099)		(0.019)		(0.011)
Number of districts	933	933	933	933	933	933	933	933
R^2	0.347	1.723	0.316	1.620	0.785	3.125	0.494	3.011
***Panel 3**: fiscal consolidation 3 (cuts in government spending & changes in corporate taxes)*								
Fiscal consolidation 3	0.353***	0.465***	0.163	0.269***	-0.114	-0.022	-0.666***	-0.723***
	(0.110)	(0.103)	(0.105)	(0.100)	(0.084)	(0.086)	(0.058)	(0.070)
Δ Wages		0.015		0.026		0.201		0.288**
		(0.091)		(0.085)		(0.154)		(0.144)
Δ Unemployment		-0.081***		-0.080***		-0.037***		-0.010
		(0.022)		(0.020)		(0.014)		(0.015)
Δ Economic output		-0.240**		-0.229**		0.026		0.010
		(0.095)		(0.099)		(0.018)		(0.010)
Number of districts	933	933	933	933	933	933	933	933
R^2	0.011	0.031	0.003	0.025	0.002	0.022	0.131	0.142
***Panel 4**: cuts in Reich spending*								
Cuts in Reich spending	1.616***	1.821***	0.907***	0.054***	-0.204*	0.044	-0.697***	-0.823***
	(0.242)	(0.249)	(0.221)	(0.227)	(0.108)	(0.118)	(0.063)	(0.081)
Δ Wages		-0.033		-0.001		0.233		0.299**
		(0.090)		(0.087)		(0.162)		(0.144)
Δ Unemployment		-0.102***		-0.092***		-0.037***		-0.024
		(0.021)		(0.020)		(0.014)		(0.016)
Δ Economic output		-0.086		-0.139		0.027		0.014
		(0.093)		(0.099)		(0.019)		(0.010)
Number of districts	933	933	933	933	933	933	933	933
R^2	0.051	0.071	0.019	0.042	0.003	0.022	0.127	0.146
***Panel 5**: change in wage tax rate*								
Wage tax rate	0.411***	0.449***	0.452***	0.452***	0.831***	0.923***	0.044	0.297***
	(0.142)	(0.156)	(0.134)	(0.146)	(0.130)	(0.138)	(0.112)	(0.109)
Δ Wages		0.288***		0.241***		0.535***		0.546***
		(0.101)		(0.093)		(0.153)		(0.134)
Δ Unemployment		-0.014		-0.027		-0.004		0.068***
		(0.025)		(0.022)		(0.015)		(0.013)
Δ Economic output		-0.123		-0.142		0.030**		0.012
		(0.089)		(0.096)		(0.015)		(0.010)
Number of districts	933	933	933	933	933	933	933	933
R^2	0.009	0.022	0.013	0.028	0.038	0.062	0.000	0.030

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***Panel 6**: change in income tax rate*								
Income tax rate	0.262***	0.286***	0.172**	0.201***	0.048	0.016	0.546***	0.509***
	(0.080)	(0.076)	(0.077)	(0.072)	(0.073)	(0.075)	(0.059)	(0.069)
Δ Wages		0.039		0.026		0.199		0.097
		(0.091)		(0.083)		(0.153)		(0.151)
Δ Unemployment		-0.066***		-0.073***		-0.038***		0.013
		(0.022)		(0.020)		(0.014)		(0.015)
Δ Economic output		-0.201**		-0.210**		0.026		0.010
		(0.093)		(0.097)		(0.019)		(0.013)
Number of districts	933	933	933	933	933	933	933	933
R^2	0.011	0.026	0.006	0.026	0.000	0.022	0.064	0.065
***Panel 7**: change in corporate tax rate*								
Corporate tax rate	0.014	0.091	-0.042	0.052	0.015	-0.078	-0.639***	-0.735***
	(0.125)	(0.113)	(0.125)	(0.114)	(0.126)	(0.125)	(0.205)	(0.205)
Δ Wages		0.137		0.097		0.227		0.411***
		(0.091)		(0.084)		(0.151)		(0.137)
Δ Unemployment		-0.052**		-0.063***		-0.037**		0.062***
		(0.023)		(0.021)		(0.014)		(0.014)
Δ Economic output		-0.185**		-0.196**		0.028		0.007
		(0.091)		(0.098)		(0.019)		(0.010)
Number of districts	933	933	933	933	933	933	933	933
R^2	0.000	0.014	0.000	0.019	0.000	0.022	0.009	0.035

Sources: See text. **Notes**: Dependent variable is the change in the percentage share (x 100) of valid votes received by the Nazi party. In column 1 we use the controls for 1928 and 1930 for the elections of May 1928 and September 1930, respectively. For column 2 we use the controls of 1930 and 1932 for the elections of September 1930 and March 1933, respectively. For columns 3 and 4 the controls are fixed at 1930 for the elections of September 1930 and 1931 for the elections of July and November 1932. Results report Reich spending (municipal plus state spending). We use the income taxes of 1928 and 1929 for column 1 and 1929 and 1932 for columns 2-4 and wage taxes for 1928 and 1932 for all the columns (1-4). To account for sample selection bias due to redistricting between elections, models from panels 1-7 are adjusted for the same number of observations (933). If we do not account for these models, the total number of observations in the adjusted models are 989 (elections September 1930 and July 1932), 935 (elections September 1930 and July 1932), 935 (elections September 1930 and March 1933) and 993 (elections May 1928 and September 1930). However, unadjusted results for missing values report the same overall findings. Robust standard errors clustered at the district level are in parenthesis, *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Cross-district models in differences for the impact of cuts in civil servants' earnings on the Nazi party vote share

	Reich		State		Municipality	
	(1)	(2)	(3)	(4)	(5)	(6)
Cuts in civil servants' earnings	-0.030	0.449***	0.028	1.876***	0.144***	0.180***
	(0.140)	(0.161)	(0.177)	(0.365)	(0.024)	(0.025)
Δ Wages		2.324***		5.284***		1.434***
		(0.555		(0.869		(0.445)
Δ Unemployment		-0.034		0.074***		0.083***
		(0.024		(0.027		(0.025)
Δ Economic output		0.018**		-0.017		0.023***
		(0.009		(0.010		(0.007)
N	470	470	470	470	470	470
R^2	0.000	0.042	0.000	0.105	0.072	0.117

Sources: See text. **Notes**: Dependent variable is the change in the percentage share (x 100) of valid votes received by the Nazi party. With the exception of civil servant's earnings, we use the controls as described in Table 4. Since data on civil servant's earnings were only available for 1928, 1930 and 1932 we just show a model focusing on the change between September 1930 and July 1932. Data on civil servant's earnings are only available for the Prussian states. Robust standard errors clustered at the district level are in parenthesis, *** p<0.01, ** p<0.05, * p<0.1.

Table 6. Cross-district models in differences for the impact of austerity on Nazi party entry

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
***Panel 1**: Party entry in 1932*								
Fiscal consolidation 1	-0.071	-0.169						
	(0.215)	(0.245)						
Fiscal consolidation 2			0.498**	0.553**				
			(0.224)	(0.246)				
Fiscal consolidation 3					0.312*	0.429**		
					(0.168)	(0.198)		
Cuts in Reich spending							1.476**	1.559**
							(0.715)	(0.773)
Δ Wages		0.043		-0.191		-0.046		-0.059
		(0.116)		(0.140)		(0.103)		(0.111)
Δ Unemployment		-0.035		-0.076**		-0.056**		-0.069**
		(0.025)		(0.032)		(0.024)		(0.030)
Δ Economic output		-0.273**		-0.286***		-0.315***		-0.181*
		(0.110)		(0.104)		(0.114)		(0.102)
N of districts	1,109	1,019	1,019	1,019	1,019	1,019	1,019	1,019
R^2	0.000	0.003	0.015	0.020	0.002	0.007	0.010	0.013
***Panel 2**: Party entry in 1933*								
Fiscal consolidation 1	-0.076	-0.067						
	(0.059)	(0.066)						
Fiscal consolidation 2			0.190***	0.194***				
			(0.057)	(0.063)				
Fiscal consolidation 3					0.141***	0.144***		
					(0.044)	(0.051)		
Cuts in Reich spending							0.554***	0.571***
							(0.178)	(0.194)
Δ Wages		-0.074**		-0.006		0.046		0.038
		(0.030)		(0.036)		(0.027)		(0.029)
Δ Unemployment		0.003		-0.011		-0.003		-0.009
		(0.008)		(0.010)		(0.009)		(0.010)
Δ Economic output		-0.035		-0.039		-0.048		-0.001
		(0.024)		(0.024)		(0.025)		(0.020)
N of districts	1,019	1,019	1,019	1,019	1,019	1,019	1,019	1,019
R^2	0.001	0.004	0.033	0.035	0.007	0.009	0.022	0.024

Sources: See text. **Notes**: Dependent variable is the number of new party members in the Nazi party. Panel 1 uses the number of people who joined NSDAP in 1932 and Panel 2 the number of people who joined the party between February and May 1933 (see text). For the details of the calculations on Nazi party membership see Adena et al. (2015). Data were originally from Brustein and Falter (1995). Results report Reich spending. We use the controls for 1930 and 1932 with the exception of income and wage taxes for which we use 1929 and 1932. Robust standard errors clustered at the district level are in parenthesis, *** p<0.01, ** p<0.05, * p<0.1.

Table 7: Cross-sectional determinants of the district level rise of Hitler in the Presidential elections of April 1932 (second round run-off).

	Hitler		Hindenburg	
	(1)		(2)	
Fiscal consolidation 1	1.047***	(0.191)	-0.929***	(0.202)
Δ Wages	0.048	(0.151)	-0.184	(0.148)
Δ Unemployment	-0.071*	(0.041)	0.045	(0.044)
Δ Economic output	-0.175	(0.110)	0.109	(0.111)
Number of districts	980		980	
R^2	0.035		0.024	
Fiscal consolidation 2	0.216**	(0.094)	-0.584***	(0.097)
Δ Wages	-0.288*	(0.152)	0.312**	(0.149)
Δ Unemployment	-0.138***	(0.042)	0.141***	(0.045)
Δ Economic output	-0.332***	(0.096)	0.275***	(0.099)
Number of districts	980		980	
R^2	0.017		0.036	
Fiscal consolidation 3	0.504***	(0.160)	-1.094***	(0.170)
Δ Wages	-0.338**	(0.153)	0.355**	(0.148)
Δ Unemployment	-0.155***	(0.043)	0.167***	(0.045)
Δ Economic output	-0.397***	(0.104)	0.408***	(0.104)
Number of districts	980		980	
R^2	0.020		0.043	

Sources: See text. **Notes**: Dependent variable is the percentage share (x 100) of valid votes received by each candidate in the presidential elections of April 1932. For the years used in the controls see Table 4. Results report Reich spending. Robust standard errors clustered at the district level are in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table 8: Cross-district models in differences for the impact of cuts in government spending by main spending categories on the Nazi party vote share

	State		Municipal		Reich	
	(1)		(2)		(3)	
1. General administration	0.009	(0.039)	0.067**	(0.024)	0.051*	(0.023)
2. Law and security	0.099**	(0.035)	0.067**	(0.022)	0.089**	(0.031)
3. Education	0.074**	(0.027)	0.057	(0.038)	0.071**	(0.028)
4. Welfare system	0.073**	(0.026)	0.046**	(0.015)	0.052**	(0.017)
Spending in Healthcare	0.048***	(0.016)	0.056***	(0.018)	0.063**	(0.021)
5. Housing	-0.000***	(0.000)	0.088***	(0.012)	0.031	(0.070)
6. Economy and trade	0.192**	(0.087)	0.132	(0.178)	0.180	(0.152)
7. Municipal transfers	0.005	(0.039)	-		-	
Number of districts	471		471		471	
Controls	Yes		Yes		Yes	

Sources: See text. **Notes**: Dependent variable is the change in the percentage share (x 100) of valid votes received by the Nazi party. For the years used in the controls see Table 4. Data are only available for the Prussian states. Robust standard errors clustered at the *state* level are in parenthesis, *** p<0.01, ** p<0.05, * p<0.1.

Table 9: Cross-sectional determinants of the district level rise of radical voters in each election

	May 1928	September 1930	July 1932	November 1932	March 1933
	(1)	(2)	(3)	(4)	(5)
Fiscal consolidation 1	0.266*	1.886***	0.748*	0.458	0.381
	(0.143)	(0.499)	(0.392)	(0.408)	(1.200)
Δ Wages	0.267***	2.110***	-1.348***	-1.218***	0.909
	(0.099)	(0.295)	(0.280)	(0.240)	(1.364)
Δ Unemployment	-0.021***	-0.049**	0.251**	0.184*	-0.123
	(0.008)	(0.023)	(0.100)	(0.097)	(0.134)
Δ Economic output	0.054	0.935***	16.229***	13.564***	0.012
	(0.087)	(0.277)	(2.256)	(2.101)	(0.048)
Number of districts	933	933	933	933	933
State fixed effects	Yes	Yes	Yes	Yes	Yes
R^2	0.276	0.292	0.324	0.289	0.263
Fiscal consolidation 2	0.124*	0.883***	0.609*	0.374	-0.567
	(0.067)	(0.234)	(0.320)	(0.333)	(1.784)
Δ Wages	0.119**	1.062***	-1.580***	-1.360***	-0.253
	(0.047)	(0.133)	(0.342)	(0.305)	(2.319)
Δ Unemployment	-0.014	0.002	0.196**	0.151**	-0.193*
	(0.011)	(0.034)	(0.080)	(0.076)	(0.095)
Δ Economic output	-0.066**	0.084	17.087***	14.090***	-0.033
	(0.031)	(0.082)	(2.548)	(2.406)	(0.096)
Number of districts	933	933	933	933	933
State fixed effects	Yes	Yes	Yes	Yes	Yes
R^2	0.276	0.292	0.324	0.289	0.263
Fiscal consolidation 3	0.359*	2.546***	0.438*	0.269	0.088
	(0.194)	(0.674)	(0.230)	(0.239)	(0.276)
Δ Wages	0.211***	1.708***	-1.185***	-1.118***	0.514**
	(0.073)	(0.206)	(0.263)	(0.228)	(0.233)
Δ Unemployment	0.001	0.112*	0.116*	0.102*	-0.158***
	(0.018)	(0.062)	(0.064)	(0.060)	(0.037)
Δ Economic output	0.075	1.081***	12.941***	11.547***	-0.000
	(0.098)	(0.315)	(1.860)	(1.792)	(0.013)
Number of districts	933	933	933	933	933
State fixed effects	Yes	Yes	Yes	Yes	Yes
R^2	0.276	0.292	0.324	0.289	0.263

Sources: See text. **Notes**: Dependent variable is the percentage share (x 100) of valid votes received by the Nazi party in an election. For the years used in the controls see Table 4. State fixed effects are included in all specifications. Robust standard errors clustered at the district level are in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Table 10: Cross-district fixed effects of austerity on the Nazi party vote share using 2SLS

	OLS	OLS	IV	IV	First stage	First stage
	(1)	(2)	(3)	(4)	(5)	(6)
***Instrument 1**: Swing-voting elections*						
Fiscal Consolidation 1	0.943***	1.005***	4.020***	3.601***	-0.177***	-0.275***
	(0.125)	(0.127)	(1.008)	(0.646)	(0.032)	(0.028)
Δ Wages		0.347***		0.840***		-0.189***
		(0.091)		(0.184)		(0.025)
Δ Unemployment		-0.003		0.112***		-0.057***
		(0.023)		(0.040)		(0.005)
Δ Economic output		-0.027		0.335**		-0.159***
		(0.090)		(0.140)		(0.017)
Number of districts	930	930	930	930	930	930
F-statistic	57.231	19.789	-	-	31.657	57.340
Anderson-Rubin Wald test	-	-	-	-	0.0000	0.0000
Kleibergen-Paap statistic	-	-	-	-	0.0000	0.0000
***Instrument 2**: Social clubs members per capita in the 1860s*						
Fiscal Consolidation 1	1.051***	0.809***	4.663***	5.841**	0.982***	0.743***
	(0.215)	(0.233)	(1.515)	(2.309)	(0.322)	(0.270)
Δ Wages		0.556		-1.455		0.401**
		(0.347)		(1.292)		(0.164)
Δ Unemployment		-0.009		0.075		-0.013
		(0.038)		(0.065)		(0.011)
Δ Economic output		-0.033		0.039		-0.014
		(0.212)		(0.344)		(0.048)
Number of districts	195	195	195	195	195	195
F-statistic	24.014	10.207	-	-	9.277	52.636
Anderson-Rubin Wald test	-	-	-	-	0.0001	0.0002
Kleibergen-Paap statistic	-	-	-	-	0.0018	0.0081
***Instrument 3**: Pogroms in 1349*						
Fiscal Consolidation 1	0.922***	0.982***	3.091***	4.311***	-0.812***	-0.622***
	(0.124)	(0.127)	(1.040)	(1.536)	(0.182)	(0.185)
Δ Wages		0.343***		0.980***		-0.180***
		(0.091)		(0.321)		(0.029)
Δ Unemployment		-0.004		0.146*		-0.044***
		(0.023)		(0.075)		(0.006)
Δ Economic output		-0.029		0.439*		-0.137***
		(0.090)		(0.249)		(0.023)
Number of districts	933	933	933	933	933	933
F-statistic	55.292	19.111	-	-	19.814	25.705
Anderson-Rubin Wald test	-	-	-	-	0.0013	0.0006
Kleibergen-Paap statistic	-	-	-	-	0.0000	0.0010

Sources: See text. **Notes**: Dependent variable is the change in the percentage share (x 100) of valid votes received by the Nazi party. For the years used in the controls see Table 4. The first instrument measures the competitiveness of the federal elections through the cross-district variance within a state. The second instrument, total clubs per 1,000 inhabitants, adds gymnast association members in 1863 and participants from each city in the 1861 Sängerfest (singer festival) in Nuremberg. For the details of the data see Satyanath et al. (2017). The third instrument, pogroms in 1349, is an indicator equal to 1 for cities that saw pogroms against their Jewish communities during the Black Death in 1348-50. The sample includes only cities with a documented medieval Jewish community and we have aggregated cities that lie within a district with the aid of ArcGIS. For the details of the data see Voigtländer and Voth (2012) and Satyanath et al. (2017). Results report Reich spending. For comparative purposes, we adjust models for missing values as in Table 4. Yet for some variables we cannot calculate the instrument for all the 933 districts. For the first instrument we cannot calculate the variance within a state for single district-states units such as Berlin or Lippe and for the second instrument, social clubs in the 1860s, the data from Satyanath et al. (2017) are only available for a restricted number of districts. Robust standard errors clustered at the district level are in parenthesis, *** p<0.01, ** p<0.05, * p<0.1.

Table 11: Panel data on the impact of austerity on the rise of the Nazi party in border and interior districts

	Full sample				State *border* districts				State *interior* districts			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Method estimation:	OLS	OLS	FE	FE	OLS	OLS	FE	FE	OLS	OLS	FE	FE
ln Surplus 1	8.439***	16.950***	14.785***	13.860***	4.355**	13.499***	6.783	0.489	13.071***	16.615***	25.000***	30.819***
	(1.704)	(1.889)	(3.258)	(3.404)	(2.007)	(2.623)	(4.556)	4.290	(2.711)	(2.691)	(4.463)	(5.196)
ln Wages		-19.740***		8.625		-24.222***		0.695		-13.182		3.682
		(6.288)		(6.513)		(8.679)		(11.673)		(8.711)		(8.072)
ln Unemployment		0.879		-0.653		0.101		-18.254***		3.013***		8.035
		(0.687)		(4.030)		(0.853)		(5.814)		(1.049)		(5.343)
ln Economic Output		-4.497***		-12.075		-2.839***		-7.351		-7.422***		-47.540***
		(0.626)		(7.955)		(0.774)		(8.985)		(1.021)		(17.146)
Number of districts	1,978	1,978	1,978	1,978	938	938	938	938	1,040	1,040	1,040	1,040
R^2	0.422	0.493	0.828	0.828	0.462	0.503	0.865	0.869	0.400	0.494	0.799	0.803
ln Surplus 2	6.858***	15.769***	-6.211	-7.364*	1.009	9.449***	-4.652	-8.751*	15.132***	19.996***	2.222	10.234
	(1.723)	(1.890)	(3.907)	(4.370)	(2.090)	(2.581)	(4.757)	(5.027)	(2.619)	(2.859)	(6.583)	(8.166)
ln Wages		-24.317***		4.073		-24.969***		-1.134		-24.607***		-2.067***
		(6.277)		(6.958)		(8.433)		(11.827)		(9.304)		(8.956)
ln Unemployment		0.812		-8.711**		0.278		-20.683***		1.968*		-1.317
		(0.650)		(4.287)		(0.785)		(5.853)		(1.075)		(6.064)
ln Economic Output		-4.385***		-11.072		-2.697***		-3.659		-6.533***		-49.005***
		(0.593)		(8.444)		(0.753)		(9.363)		(1.012)		(18.704)
Number of districts	1,978	1,978	1,978	1,978	938	938	938	938	1,040	1,040	1,040	1,040
R^2	0.419	0.489	0.825	0.827	0.459	0.493	0.865	0.870	0.406	0.501	0.790	0.793
ln Surplus 3	-1.387**	2.113***	7.630***	8.346***	-0.697	2.459**	5.768***	3.912**	-3.304***	-1.619	9.984***	17.736***
	(0.619)	(0.795)	(1.127)	(1.350	(0.702)	(0.938)	(1.507)	(1.540)	(1.086)	(1.482)	(1.757)	(3.285)
ln Wages		-13.056*		9.094		-23.506**		1.958		10.236		1.715
		(7.291)		(6.496		(9.316)		(11.503)		(10.320)		(8.372)
ln Unemployment		1.867***		2.491		0.327		-13.732**		6.147***		8.936*
		(0.650)		(4.113		(0.785)		(6.035)		(1.098)		(5.319)
ln Economic Output		-4.696***		-18.704**		-2.567***		-7.091		-9.247***		-101.615***
		(0.618)		(8.274		(0.755)		(8.975)		(1.092)		(26.893)
Number of districts	1,978	1,978	1,978	1,978	938	938	938	938	1,040	1,040	1,040	1,040
R^2	0.414	0.464	0.830	0.832	0.459	0.487	0.868	0.870	0.387	0.469	0.799	0.811

Sources: See text. **Notes**: Dependent variable is the percentage share of the valid votes cast going to the Nazi party in the elections of September 1930 and July 1932. For the years used in the controls see Table 4. Results report Reich spending, *** p<0.01, ** p<0.05, * p<0.1.

Table 12: The impact of austerity on the rise of the Nazi party in the restrict sample of cross district-pairs located on opposite sides of the borders

		Border pair sample				
	Full sample	District-pair fixed effects	Random effects	Time-varying district-pair fixed effects	District fixed effects	Time varying district-pair fixed effects, district fixed effects
	(1)	(2)	(3)	(4)	(5)	(6)
ln Fiscal Surplus 1	13.860***	7.314**	13.192***	8.210**	8.961*	9.160**
	(3.404)	(3.532)	(3.995)	(4.107)	(4.966)	(3.896)
	[0.000]	[0.039]	[0.001]	[0.046]	[0.071]	[0.019]
ln Wages	8.625*	-9.110	-33.798*	-15.130	-5.420	-16.791
	(6.513)	(13.747)	(18.288)	(18.138)	(18.386)	(18.713)
	[0.186]	[0.508]	[0.065]	[0.404]	[0.768]	[0.370]
ln Unemployment	-0.653	2.616*	-0.341	2.452	3.874*	2.332
	(4.030)	(1.490)	(1.470)	(1.890)	(2.099)	(1.913)
	[0.871]	[0.080]	[0.817]	[0.195]	[0.065]	[0.223]
ln Economic output	-12.075	-2.090*	-1.994*	-2.043	-3.363***	-2.083
	(7.955)	(1.175)	(1.194)	(1.473)	(1.203)	(1.484)
	[0.129]	[0.076]	[0.095]	[0.166]	[0.005]	[0.161]
Overall R^2	0.828	0.799	0.542	0.845	0.526	0.846
Number of districts	1,978	1,826	1,826	1,826	1,826	1,826
Number of clusters (states)	-	27	27	27	27	27
Num. of clusters (border segment)	-	463	463	463	463	463
Two-way clustering	No	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
District-pair fixed effects	No	Yes	No	No	No	No
District-pair fixed effect x year	No	No	No	Yes	No	Yes

Sources: See text. **Notes**: Dependent variable is the percentage share of the valid votes cast going to the Nazi party in the elections of September 1930 and July 1932. For the years used in the controls see Table 4. Results report Reich spending. Model 1 is the same as model 4 of Table 11. We use a balanced panel and the methodology from Dube et al. (2010) for two-way clustering with standard errors (in parenthesis) clustered at the *state* and *border* segment level. P-values are in brackets immediately below the standard errors, *** p<0.01, ** p<0.05, * p<0.1.

Table A1: Central and regional expenditure as % of total expenditure.

Year	Denmark		France		Germany		Ireland		Norway		Sweden		UK	
	C	R	C	R	C	R	C	R	C	R	C	R	C	R
1925	52.8	47.2	n/a	n/a	45.4	54.7	n/a	n/a	n/a	n/a	n/a	n/a	65.4	34.6
1926	52	48	77	23	46	54.1	n/a	n/a	n/a	n/a	50.2	49.8	63.5	36.5
1927	50.4	49.6	n/a	n/a	46.7	53.3	70.7	29.3	n/a	n/a	n/a	n/a	62.6	37.4
1928	50.1	49.9	n/a	n/a	50.4	49.6	68.7	31.3	n/a	n/a	48.8	51.2	63.5	36.5
1929	49.7	50.3	72.6	27.4	51.5	48.6	70.8	29.2	n/a	n/a	n/a	n/a	63.4	36.6
1930	49.1	50.9	n/a	n/a	53.8	46.2	70.4	29.6	48.5	51.5	48.3	51.7	63.3	36.7
1931	48.8	51.2	n/a	n/a	52.9	47.2	69.3	30.7	48	52	n/a	n/a	63.5	36.5
1932	47.8	52.2	73.6	26.5	49	51	69.2	30.8	47.8	52.2	48.6	51.4	64.7	35.3
1933	52.4	47.6	n/a	n/a	51.3	48.7	67.9	32.1	47.9	52.1	n/a	n/a	63.4	36.6
1934	49.6	50.4	n/a	n/a	59.5	40.5	68.6	31.4	48.8	51.2	49.8	50.2	62.4	37.6
1935	44.9	55.1	69.9	30.1	63.6	36.5	68.5	31.5	49.5	50.5	n/a	n/a	61.7	38.3
1936	48.1	51.9	n/a	n/a	67.2	32.9	68.4	31.6	50.6	49.4	51.5	48.5	61.2	38.8
1937	50.3	49.7	n/a	n/a	71.8	28.1	68.6	31.4	50.2	49.8	n/a	n/a	61.8	38.2
1938	48.4	51.6	75.9	24.2	78.9	21.2	71.3	28.7	49.5	50.5	53.6	46.4	66.5	33.5

Sources: Flora (1983). **Notes**: *C* stands for Central government and *R* for regional governments adding regional and local governments. Figures show the shares in total expenditure.

Table A2: Cross-district models in differences for the impact of austerity on the Communist Party vote share

	September 1930 and July 1932		September 1930 and Nov. 1932		September 1930 and March 1933		May 1928 and September 1930	
	(1)		(2)		(3)		(4)	
Fiscal consolidation 1	-0.073*	(0.039)	-0.018	(0.044)	-0.104**	(0.042)	-0.022	(0.019)
Δ Wages	-0.008	(0.027)	0.128***	(0.034)	0.035	(0.064)	-0.009	(0.040)
Δ Unemployment	0.007	(0.006)	0.038***	(0.007)	0.013***	(0.005)	0.006	(0.005)
Δ Economic output	0.031*	(0.019)	0.071***	(0.020)	-0.006	(0.005)	0.005	(0.004)
Number of districts	933		933		933		933	
R^2	0.012		0.043		0.027		0.011	
Fiscal consolidation 2	-0.022	(0.018)	0.000	(0.020)	-0.040*	(0.021)	-0.051**	(0.022)
Δ Wages	0.018	(0.025)	0.131***	(0.033)	0.131**	(0.067)	0.029	(0.039)
Δ Unemployment	0.013**	(0.006)	0.039***	(0.007)	0.017***	(0.005)	0.008**	(0.004)
Δ Economic output	0.043**	(0.019)	0.073***	(0.019)	-0.006	(0.005)	0.005	(0.004)
Number of districts	933		933		933		933	
R^2	0.009		0.019		0.005		0.004	
Fiscal consolidation 3	-0.027	(0.032)	-0.001	(0.036)	-0.103***	(0.037)	-0.034*	(0.020)
Δ Wages	0.015	(0.027)	0.132***	(0.034)	0.096	(0.061)	0.004	(0.037)
Δ Unemployment	0.013**	(0.006)	0.039***	(0.007)	0.018***	(0.005)	0.006	(0.005)
Δ Economic output	0.046**	(0.019)	0.074***	(0.020)	-0.003	(0.005)	0.005	(0.004)
Number of districts	933		933		933		933	
R^2	0.019		0.020		0.005		0.004	
Cuts in Reich spending	-0.035	(0.060)	0.102	(0.065)	-0.096**	0.047)	-0.050**	(0.022)
Δ Wages	0.010	(0.025)	0.121***	(0.032)	0.076	0.061)	-0.005	(0.037)
Δ Unemployment	0.012**	(0.006)	0.036***	(0.007)	0.016***	0.005)	0.004	(0.005)
Δ Economic output	0.040**	(0.018)	0.078***	(0.019)	-0.006	0.005)	0.005	(0.004)
Number of districts	933		933		933		933	
R^2	0.008		0.046		0.023		0.014	
Wage tax rate	-0.077*	(0.045)	-0.067	(0.049)	-0.057	0.051)	0.031	(0.046)
Δ Wages	-0.016	(0.030)	0.111***	(0.037)	0.109	(0.070)	0.014	(0.043)
Δ Unemployment	0.005	(0.007)	0.034***	(0.008)	0.014***	(0.005)	0.010**	(0.005)
Δ Economic output	0.034*	(0.018)	0.067***	(0.019)	-0.004	(0.005)	0.005	(0.004)
Number of districts	933		933		933		933	
R^2	0.011		0.046		0.019		0.010	
Income tax rate	-0.030	(0.022)	-0.011	(0.033)	-0.048*	(0.029)	-0.010	(0.043)
Δ Wages	0.019	(0.025)	0.136***	(0.033)	0.158**	(0.076)	-0.010**	(0.005)
Δ Unemployment	0.013**	(0.006)	0.040***	(0.007)	0.018***	(0.005)	0.005	(0.004)
Δ Economic output	0.045**	(0.019)	0.075**	(0.020)	-0.005	(0.005)	-0.011	(0.004)
Number of districts	933		933		933		933	
R^2	0.010		0.048		0.021		0.012	
Corporate tax rate	-0.029	(0.039)	-0.035	(0.045)	-0.111**	(0.055)	0.060	(0.078)
Δ Wages	0.012	(0.027)	0.138***	(0.034)	0.155**	(0.071)	0.005	(0.038)
Δ Unemployment	0.012*	(0.006)	0.041***	(0.007)	0.018***	(0.005)	0.008**	(0.004)
Δ Economic output	0.048**	(0.020)	0.080***	(0.021)	-0.000	(0.004)	0.005	(0.004)
Number of districts	933		933		933		933	
R^2	0.010		0.048		0.021		0.012	

Sources: See text. **Notes**: For the years and the details used in the controls see Table 4. Results report Reich spending. Robust standard errors clustered at the district level are in parenthesis, *** p<0.01, ** p<0.05, * p<0.1.

Table A3: Cross-district models in differences for the impact of austerity on the Center Party vote share

	September 1930 and July 1932		September 1930 and Nov. 1932		September 1930 and March 1933		May 1928 and September 1930	
	(1)		(2)		(3)		(4)	
Fiscal consolidation 1	-0.241***	(0.035)	-0.222***	(0.038)	0.164***	(0.044)	0.128***	(0.028)
Δ Wages	-0.008	(0.027)	-0.097***	(0.033)	0.519***	(0.076)	0.232***	(0.051)
Δ Unemployment	-0.009	(0.007)	-0.023***	(0.007)	0.051***	(0.008)	0.032***	(0.006)
Δ Economic output	-0.035**	(0.007)	-0.047***	(0.014)	0.006	(0.006)	0.009***	(0.003)
Number of districts	933		933		933		933	
R^2	0.044		0.045		0.070		0.090	
Fiscal consolidation 2	-0.050***	(0.017)	-0.010	(0.017)	0.088***	(0.021)	0.046*	(0.024)
Δ Wages	0.064**	(0.029)	-0.050	(0.035)	0.365***	(0.070)	0.141***	(0.047)
Δ Unemployment	0.006	(0.007)	-0.012*	(0.007)	0.043***	(0.007)	0.015***	(0.005)
Δ Economic output	0.003	(0.012)	-0.015	(0.013)	0.006	(0.006)	0.009**	(0.004)
Number of districts	933		933		933		933	
R^2	0.006		0.011		0.082		0.058	
Fiscal consolidation 3	-0.101***	(0.025)	-0.047*	(0.024)	0.135***	(0.038)	0.111***	(0.027)
Δ Wages	0.069**	(0.028)	-0.041	(0.034)	0.413***	(0.071)	0.188***	(0.048)
Δ Unemployment	0.009	(0.007)	-0.010	(0.007)	0.043***	(0.008)	0.025***	(0.005)
Δ Economic output	0.015	(0.014)	-0.008	(0.014)	0.001	(0.007)	0.009***	(0.003)
Number of districts	933		933		933		933	
R^2	0.013		0.008		0.051		0.031	
Cuts in Reich spending	-0.407***	(0.071)	-0.259***	(0.066)	0.306***	(0.052)	0.116***	(0.035)
Δ Wages	0.080***	(0.026)	-0.028	(0.033)	0.539***	(0.071)	0.184***	(0.049)
Δ Unemployment	0.014**	(0.007)	-0.006	(0.007)	0.045***	(0.008)	0.026***	(0.006)
Δ Economic output	-0.019	(0.012)	-0.027**	(0.013)	0.009	(0.006)	0.009**	(0.003)
Number of districts	933		933		933		933	
R^2	0.042		0.022		0.063		0.029	
Wage tax rate	-0.127***	(0.042)	-0.168***	(0.044)	-0.089	(0.072)	0.288***	(0.053)
Δ Wages	-0.000	(0.029)	-0.104***	(0.034)	0.338***	(0.076)	0.266***	(0.055)
Δ Unemployment	-0.008	(0.007)	-0.026***	(0.007)	0.042***	(0.008)	0.025***	(0.005)
Δ Economic output	-0.013	(0.014)	-0.032**	(0.014)	0.002	(0.006)	0.010***	(0.002)
Number of districts	933		933		933		933	
R^2	0.011		0.021		0.044		0.047	
Income tax rate	-0.028	(0.019)	0.015	(0.019)	0.079**	(0.031)	-0.070**	(0.028)
Δ Wages	0.049*	(0.029)	-0.061*	(0.035)	0.322***	(0.076)	0.212***	(0.053)
Δ Unemployment	0.004	(0.007)	-0.014**	(0.007)	0.043***	(0.008)	0.021***	(0.005)
Δ Economic output	0.003	(0.013)	-0.018	(0.013)	0.004	(0.007)	0.009***	(0.003)
Number of districts	933		933		933		933	
R^2	0.004		0.006		0.047		0.019	
Corporate tax rate	-0.016	(0.021)	0.014	(0.022)	-0.010	(0.048)	0.211***	(0.053)
Δ Wages	0.041	(0.028)	-0.058*	(0.034)	0.372***	(0.073)	0.173***	(0.050)
Δ Unemployment	0.002	(0.007)	-0.014*	(0.007)	0.045***	(0.007)	0.014**	(0.005)
Δ Economic output	0.002	(0.014)	-0.019	(0.014)	0.003	(0.006)	0.010***	(0.004)
Number of districts	933		933		933		933	
R^2	0.002		0.006		0.043		0.020	

Sources: See text. **Notes**: For the years and the details used in the controls see Table 4. Results report Reich spending. Robust standard errors clustered at the district level are in parenthesis, *** p<0.01, ** p<0.05, * p<0.1.

Table A4: Cross-district models in differences for the impact of austerity on the Social Democratic Party of Germany vote share

	September 1930 and July 1932		September 1930 and Nov. 1932		September 1930 and March 1933		May 1928 and September 1930	
	(1)		(2)		(3)		(4)	
Fiscal consolidation 1	-0.256***	(0.058)	-0.305***	(0.061)	-0.206	(0.053)	0.093***	(0.023)
Δ Wages	-0.035	(0.044)	-0.174***	(0.048)	-0.441***	(0.086)	-0.055	(0.057)
Δ Unemployment	-0.003	(0.009)	-0.020**	(0.010)	-0.035***	(0.007)	-0.017***	(0.006)
Δ Economic output	-0.024	(0.026)	-0.063**	(0.028)	-0.022***	(0.007)	-0.012**	(0.005)
Number of districts	933		933		933		933	
R^2	0.028		0.039		0.043		0.054	
Fiscal consolidation 2	-0.037	(0.026)	-0.056**	(0.025)	-0.003	(0.022)	0.125***	(0.029)
Δ Wages	0.032	(0.043)	-0.087*	(0.048)	-0.253***	(0.073)	-0.167***	(0.059)
Δ Unemployment	0.018**	(0.008)	-0.001	(0.009)	-0.028***	(0.007)	-0.028***	(0.005)
Δ Economic output	0.015	(0.021)	-0.016	(0.022)	-0.017***	(0.006)	-0.013***	(0.004)
Number of districts	933		933		933		933	
R^2	0.005		0.013		0.026		0.057	
Fiscal consolidation 3	-0.118***	(0.044)	-0.106**	(0.046)	0.006	(0.043)	0.182***	(0.026)
Δ Wages	0.048	(0.044)	-0.084*	(0.048)	-0.251***	(0.075)	-0.066	(0.055)
Δ Unemployment	0.023***	(0.009)	0.002	(0.010)	-0.028***	(0.007)	-0.012**	(0.006)
Δ Economic output	0.031	(0.022)	-0.004	(0.025)	-0.017***	(0.006)	-0.012**	(0.005)
Number of districts	933		933		933		933	
R^2	0.011		0.014		0.026		0.082	
Cuts in Reich spending	-0.356***	(0.092)	-0.371***	(0.091)	0.034	(0.054)	0.204***	(0.029)
Δ Wages	0.050	(0.042)	-0.078	(0.047)	-0.234***	(0.080)	-0.069	(0.055)
Δ Unemployment	0.025***	(0.008)	0.005	(0.009)	-0.028***	(0.007)	-0.009	(0.006)
Δ Economic output	-0.004	(0.020)	-0.037*	(0.022)	-0.016**	(0.006)	-0.013**	(0.005)
Number of districts	933		933		933		933	
R^2	0.019		0.024		0.026		0.081	
Wage tax rate	-0.168**	(0.066)	-0.224***	(0.069)	-0.372***	(0.064)	-0.120**	(0.052)
Δ Wages	-0.036	(0.047)	-0.182***	(0.052)	-0.385***	(0.073)	-0.146**	(0.059)
Δ Unemployment	-0.002	(0.010)	-0.023**	(0.011)	-0.041***	(0.007)	-0.034***	(0.006)
Δ Economic output	-0.004	(0.066)	-0.042	(0.027)	-0.018***	(0.006)	-0.013***	(0.005)
Number of districts	933		933		933		933	
R^2	0.011		0.022		0.059		0.044	
Income tax rate	-0.014	(0.032)	-0.042	(0.031)	-0.005	(0.030)	-0.066**	(0.033)
Δ Wages	0.019	(0.042)	-0.099**	(0.048)	-0.250***	(0.076)	-0.060	(0.061)
Δ Unemployment	0.015*	(0.008)	-0.003	(0.009)	-0.028***	(0.007)	-0.023***	(0.006)
Δ Economic output	0.014	(0.022)	-0.016	(0.023)	-0.017***	(0.006)	-0.012**	(0.006)
Number of districts	933		933		933		933	
R^2	0.003		0.010		0.026		0.042	
Corporate tax rate	-0.057	(0.059)	-0.036	(0.062)	0.018	(0.057)	0.216**	(0.084)
Δ Wages	0.025	(0.043)	-0.109**	(0.047)	-0.249***	(0.073)	-0.095*	(0.054)
Δ Unemployment	0.017*	(0.009)	-0.005	(0.009)	-0.028***	(0.007)	-0.030***	(0.005)
Δ Economic output	0.024	(0.025)	-0.013	(0.028)	-0.016**	(0.006)	-0.012**	(0.005)
Number of districts	933		933		933		933	
R^2	0.004		0.009		0.026		0.044	

Sources: See text. **Notes**: For the years and the details used in the controls see Table 4. Results report Reich spending. Robust standard errors clustered at the district level are in parenthesis, *** p<0.01, ** p<0.05, * p<0.1.

Table A5: Social, economic and religious structure between border districts located on opposite sides of the border.

	Border	N	Mean	SE	SD	Min.	Max.	t-test
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Economic structure, 1925								
Agriculture	District	1,029	36.32	0.57	18.24	0.24	83.65	(-0.07)
	Pair	1,029	36.36	0.57	18.24	0.24	83.65	[0.95]
Industry	District	1,029	35.66	0.46	14.69	4.17	96.45	(0.18)
	Pair	1,029	35.58	0.45	14.50	4.17	79.57	[0.86]
Trade	District	1,029	12.02	0.19	6.19	2.48	43.97	(-0.52)
	Pair	1,029	12.14	0.20	6.39	2.48	43.97	[0.60]
Medical	District	1,029	1.12	0.02	0.64	0.05	5.57	(-0.85)
	Pair	1,029	1.14	0.02	0.67	0.05	5.57	[0.40]
Domestic	District	1,029	2.56	0.03	1.06	0.66	7.58	(-0.24)
	Pair	1,029	2.57	0.03	1.06	0.66	8.01	[0.81]
Self-employed	District	1,029	24.43	0.24	7.84	4.44	48.31	(0.00)
	Pair	1,029	24.43	0.25	7.90	4.44	48.31	[1.00]
White-collar	District	1,029	10.98	0.16	5.09	2.41	37.91	(-0.43)
	Pair	1,029	11.06	0.16	5.16	2.41	37.91	[0.67]
Blue-collar	District	1,029	39.73	0.37	11.97	11.35	92.73	(-0.00)
	Pair	1,029	39.73	0.37	11.96	11.35	92.73	[1.00]
Unemployed, 1933								
Unemployed	District	1,029	6.30	0.12	3.99	0	25.43	(0.38)
	Pair	1,029	6.25	0.12	3.90	0	20.56	[0.71]
No full-time job	District	1,029	7.70	0.11	3.63	0	28.72	(0.03)
	Pair	1,029	7.69	0.11	3.62	0	28.72	[0.98]
Religion, 1925								
Catholics	District	1,029	26.24	1.00	32.22	0.40	98.43	(0.19)
	Pair	1,029	26.05	1.00	32.13	0.40	98.43	[0.85]
Jews	District	1,029	0.48	0.02	0.65	0	4.99	(0.00)
	Pair	1,029	0.48	0.02	0.65	0	4.99	[0.99]
Social welfare								
Welfare recipients	District	1,015	22.73	0.41	13.11	1.04	29.16	(-0.58)
	Pair	1,015	22.45	0.41	12.99	3.50	93.90	[0.56]
War participants	District	1,015	0.62	0.07	2.08	0	22.16	(-0.08)
	Pair	1,015	0.62	0.06	2.05	0	22.16	[0.94]
Social renters	District	1,015	8.11	0.14	4.35	1.04	29.16	(-0.85)
	Pair	1,015	7.97	0.13	4.20	1.04	29.16	[0.39]

Sources: Data are taken from Adena et al. (2015). Data are originally from the census of 1925 and 1933 collected by Falter and Gruner (1981) with the exception of 'social welfare' data that are originally from *Statistik des Deutschen Reichs*. See the online Appendix from Adenat et al. (2015) for the details of the sources. **Notes**: We adjusted data for missing values in districts and pair districts. In column 8 we first report the t-statistic (in parenthesis) and the corresponding two-tailed p-value (in brackets). Since none of the p-values are greater than 0.05 we conclude that the mean difference between 'district' and 'pair district' in the different variables are not different from 0. Data are percentage points. 'Agriculture' is the share of agricultural workers in 1925, 'industry' is the share of workers in industry and manufacture in 1925, 'trade' is the share of workers in trade and transportation in 1925, 'medical' is the share of medical workers in 1925, 'domestic' is the share of domestic workers in 1925, 'self-employed' is the share of self-employed workers in 1925, 'white-collar' is the share of white-collar workers in 1925, 'blue-collar' is the share of blue-collar workers in 1925, 'unemployment' is the share of unemployed in 1933, 'people without full-time job' is the share of people without full-time occupation in 1933, 'catholics' and 'jews' are the shares of Catholics and Jews in 1925. The variables 'welfare recipients', 'war pèarticipiants' and 'social renters' are reported per 1,000 population.

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