The consequences of a trade collapse: Economics and politics in Weimar Germany *

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VERY PRELIMINARY, DO NOT QUOTE WITHOUT PERMISSION

Abstract

What were the economic and political effects of the trade collapse that affected Germany during the Great Depression? Using novel micro-level data we find causal evidence that the decline in German exports considerably contributed to the decline in economic activity and employment during the Great Depression, accounting for 23% of the total observed output contraction across industries. The effect of the export shock on the rise of the NSDAP is instead more nuanced. While we find that exposure to the shock increased support for the NSDAP among blue collar workers, we find no such effect among the self employed, and a negative impact on white collar workers. This finding is in line with the NSDAP autarkic policies and the party's push to replace unemployment benefits with a public work ("work and bread") programs that especially benefitted unskilled workers. Our analysis also uncovers an important role for spatial spillovers, with declines in domestic demand for agricultural products playing an important role in increasing support for the NSDAP in rural areas.

JEL Classifications: F14, F44, N14, N44
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1 Introduction

Does a collapse in international trade, by causing an economic downturn, foster the radicalization of the electorate? We tackle this question focusing on interwar Germany, a country that experienced a collapse in exports by more than 50% during the Great Depression, which was accompanied by the rise of the Nazi party, the NSDAP, from a small political force accounting for only 3% of the votes in 1928 to the main party in the elections of June 1932.

The Great Depression had its roots in a US domestic shock, which then drove much of the subsequent downturn around the world (Lewis 1949; Romer 1993). While the main focus of the literature explaining its consequences has focused on financial instability and its relation with the gold-standard (Eichengreen 1992; Bernanke 1995), international trade played an important role in transmitting the economic downturn from the US to other countries (Polak 1939; Crucini & Kahn 1996; Grossman & Meissner 2010; Albers 2018),[1] both via an early decline in foreign demand, as well as via subsequent currency devaluations and protectionist backlashes (De Bromhead et al. 2019; Albers 2019).

The severity of the economic decline caused by the Great Depression has been blamed as one of the main factors contributing to political extremism in the 1930s (De Bromhead et al. 2013).[2] As an important driver of this economic downturn, the collapse in Germany's exports might have crucially affected the rise of the Nazi party. There were, however, many specific domestic factors, interacting with the decline in economic activity brought about by the trade collapse, which contributed to the radicalization of the electorate.[3] Some of these – which contributed to deepening the economic downturn – were deliberate policy decisions, like severe austerity measures, which had a direct impact on radical voting and social unrest (Galofré-Vilà et al. 2021; Ponticelli & Voth 2020).[4]

The evolution of Germany's economy during the Weimar Republic has received considerable attention in the literature, but little emphasis has been put on the role played

[1] Figure A.1 in the Appendix depicts the relationship between export decline and economic growth 1928-32 across countries. The presented correlation suggests that a 1% decline in exports is associated with a 0.38% decline in GDP growth across countries during the Great Depression.

[2] For Germany, the question whether economic factors (high unemployment rates, and declining wages) played a key role in the rise of the Nazis or whether it can be mostly explained by socio-cultural conditions (the lost war, the treaty of Versailles, reparation payments, and low political stability) has been a long-standing debate (see e.g. Weck & Frey 1981; Falter et al. (1985); Falter et al. 1986; Manstein 1988; Falter 1991; Evans 2005; Childers 2010).

[3] This is illustrated in Appendix Figure A.2 which plots the rise in seats obtained by fascist parties on the drop in GDP associated with the decline in a countries exports and the residual decline in GDP. While the decline in GDP related to the trade collapse does not appear to be associated with the rise of fascist parties, the residual decline in GDP displays a strong negative association with the success of fascist parties, especially when excluding the relatively established Anglo-Saxon democracies. This seems to suggest that while the severity of the Great Depression across countries contributed to the rise of extremist parties, rather country specific features of the crisis were responsible than declining foreign demand.

[4] A recent example would be the effect of austerity after the Great Recession in the UK on support for Brexit (Fetzer 2019).

by the trade collapse during the Great Depression as a driver of the economic downturn that led to its demise. To fill this gap in this paper we first study to what extent did the trade collapse contribute to the decline in economic activity across Germany, and then investigate whether – and to what extent – it contributed to the rise of the Nazi party. While there is evidence of the effects of increasing international competition on support for protectionist policies and extremist voting (Colantone & Stanig 2018; Dorn et al. 2020; Dippel et al. 2020; Che et al. 2016), little is known about the effect of a trade collapse.[5] This paper contributes to the literature by using a novel dataset exploiting historical records at the industry, city and electoral district levels to causally assess the effect of the decline in exports at the height of the Great Depression on the rise of the Nazi party.

Our analysis shows that the decline in German exports decreased economic activity, both across industries as well as across German cities, and that the decline in exports can explain a considerable share of the total decline in economic output and employment in Germany during the Great Depression.[6] Interestingly however, our findings do not support the idea that the economic hardship caused by the trade collapse directly translated into higher support for the NSDAP. We find instead evidence that areas more exposed to the decline in exports were more likely to support more moderate parties and politicians.

We next investigate the mechanism that could help explain these results. One important candidate is the set of economic policies advocated by the Nazi party in this period, which focused on a combination of increased self reliance (e.g. a push towards autarky to reduce the country's dependence on international trade) and significant cuts in unemployment benefits, to be replaced instead by a policy of "work and bread" implemented trough a massive plan of infrastructure building. Moreover, while females were increasingly taking on white collar jobs at this time, the NSDAP supported a more traditional family structure, encouraging women to stay at home. All these measures appear to have hurt those white collar workers, which lived in areas particularly badly hit by the export shock, decreasing their support for the NSDAP. In contrast, we document that the export shock increased support for the Nazi party among blue-collar workers, which were the main beneficiaries of the manual labor intensive public works proposed by the NSDAP.[7]

[5]Notable exceptions are Bhavnani & Jha (2014) and Bonfatti & Brey (2020), which highlight that the decline in demand for Indian agricultural exports during the Great Depression and reduction in British import competition during WW1 helped the Indian National Congress broaden their support and achieve independence from Britain. However, as highlighted by Findlay & O'rourke (2009) the consequences of the disruptions to trade during the interwar period fundamentally differed between developed and developing countries.

[6]This result also highlights that the decline in trade was not just pivotal in small economies (Grossman & Meissner 2010; Albers 2018), but also played a considerable role what was the third largest economy at the time.

[7]Voigtländer & Voth (2014) provide evidence that these public works did increase support for the Nazi regime after it came to power, even if more through a propaganda success, rather than by actually reducing the number of unemployed.

In the last part of the paper, we study the spillover effects of the collapse in industrial exports on the agricultural sector. We start by documenting that cities more affected by the export shock experienced a larger decline in the price of agricultural staple goods – confirming on the one hand that the market for agricultural products in Germany at the time was still segmented, and on the other, that the decline in income in the cities had a significant impact on the livelihoods of farmers in the surrounding areas. Importantly, these spillovers into the agricultural economy appear to have been an important source of increasing support for the Nazi party: rural areas in close proximity of areas severely hit by the export shock experienced a significant increase in support for the NSDAP. This result is also in line with the emphasis on self–reliance mentioned above.

The ramainder of the paper is organised as follows. Section 2 provides some historical background. Section 3 presents the data used in the analysis, whereas section 4 describes our empirical approach. Section 5 presents our economic results. Section 6 presents the effect of the export shock on support for the NSDAP. Section 6.1-6.2 show that areas directly exposed to the export shock saw support for the Nazi party decline, whereas Section 6.3 highlights how through linkages with the rural economy the export shock did contribute to the rise of the Nazi party at the broader level. Section 7 concludes.

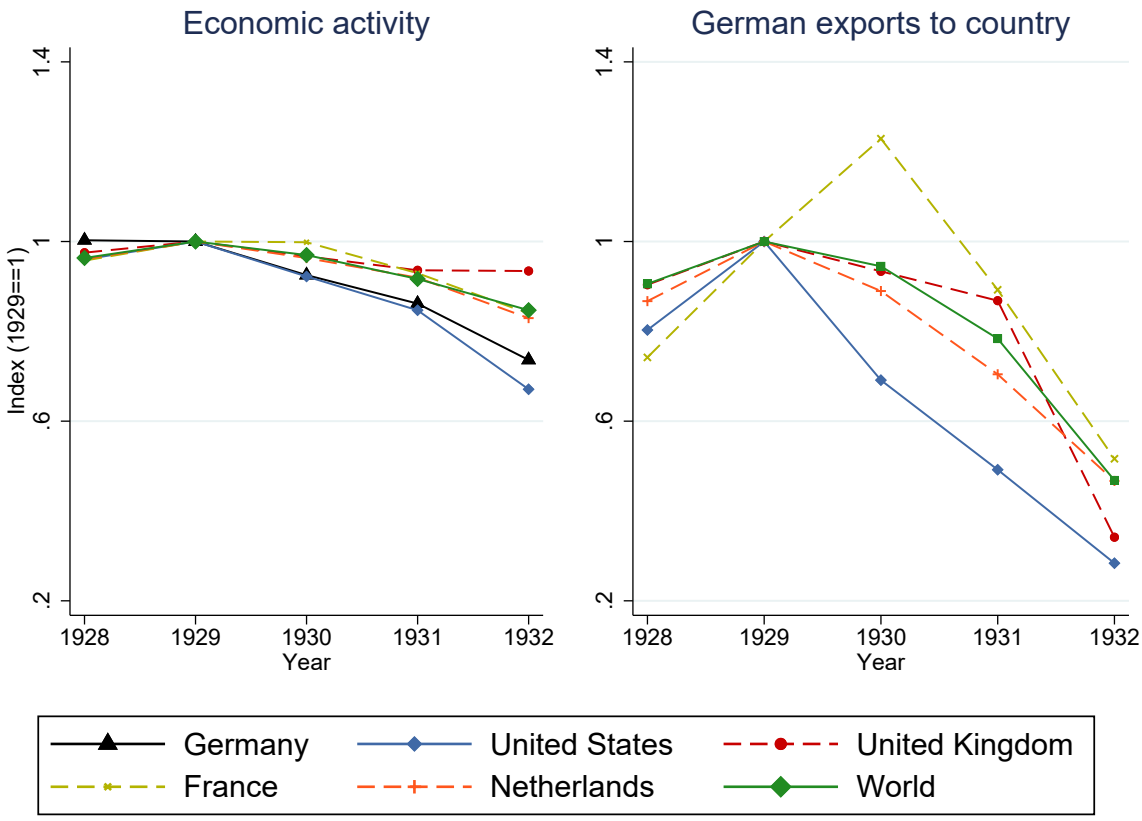
2 Historical context

2.1 The German economy in the Great Depression

Even-though the Great Depression had domestic origins in the United States, the crisis quickly spread (Lewis 1949; Romer 1993) and Germany was amongst the countries worst hit. Economic activity fell by about 30% between 1928 and 1932, much more than in other industrialized countries outside the U.S. (see Figure 1, left panel). The registered number of unemployed quadrupled from 1.6 million in October 1929 to 6.1 million in February 1932 – representing a third of the working-age population and industrialised urban areas were particularly hard hit. As a result, the unemployment insurance scheme – designed to accommodate 800,000 unemployed per year – was completely overloaded (Stachura 1986), and able to provide only minimal support especially to the long-term unemployed. The effect of the crisis extended beyond the unemployed as individuals who did not lose their jobs were often put on short working hours, small business owners and entrepreneurs suffered severe income declines, and public sector employees experience declines in their wages as part of a series of austerity measures.

Several studies have highlighted the role played by the drastic decline and reorientation of trade flows in worsening the global downturn (**?**; Albers 2018). To a considerable extent the collapse in trade was driven by a protectionist retrenchment (Eichengreen & Irwin 2010; De Bromhead et al. 2019; Albers 2019), and Germany's export industries

FIGURE 1: ECONOMIC ACTIVITY AND GERMAN EXPORTS ACROSS COUNTRIES 1928-32



Notes: The left figure depicts economic activity across countries in June of the respective year relative to 1929. World based on average economic activity across 28 countries for which data is available. The right figure depicts German exports to the respective country based on total exports for the respective year. Exports to world reflect total German exports. Countries included based on 4 main German export destinations in 1928. Source: Albers 2018 (left); Statistisches Reichsamt 1925-1938 (right)

were particularly exposed to the shock as they faced high labour costs and difficulties in securing export financing (Eichengreen 1992). As a result German exports declined by 53.3% between 1928 and 1932, in particular to the origin of the crisis the U.S. (see Figure 1, right panel). This has likely considerably contributed to the severity of the economic crisis in Germany as exports accounted for about 16% of German GDP by 1928.

2.2 The rise of the NSDAP

During Weimar's "Golden Years" the NSDAP was just one of several small "fringe" parties, receiving a mere 2.6% of the votes in the 1928 Reichstag election.[8] However, Weimar politics drastically changed after 1929, becoming increasingly polarised as the Great Depression deepened. In 1930 Müller, the last chancellor commanding a parliamentary

[8]The party had only recently been formed again in 1925 after being banned and Adolf Hitler being imprisoned due to the failed 1923 coup in Munich (Stachura 1978).

majority, resigned due to disagreements in his grand coalition over how to finance the increasing costs of unemployment insurance. He was replaced by Brüning, who governed without a parliamentary majority and enacted severe austerity measures (Bracher 1978), leading him to be dubbed the "hunger chancellor" by 1931 (Evans 2005). His government collapsed in May 1932, as President Paul von Hindenburg withdrew his support leading up to the Reichstag elections of July 1932, in which the NSDAP reached its highest popular support in a free election (37%). Despite the NSDAP being the leading political force, Hindenburg did not appoint Hitler to lead the government and decided instead to name in quick succession von Papen and von Schleicher to lead two short lived Präsidialkabinetten. As the political crisis deepened, new parliamentary elections were called in November 1932 and notwithstanding a 4 percentage points decline in NSDAP support, Hindenburg appointed Hitler as Reichskanzler on January 30th, opening the way to the Nazi dictatorship.

Various explanations have been proposed for the evolution of the electoral support of the NSDAP during the period 1928–32. First, historians have identified it as a protest party, whose electoral success went hand in hand with the decline in performance of the German economy. The rapid increase peaked in June 1932, at the height of the Depression, and the drop in support between June and November 1932 has been explained by the improving performance of the German economy in this period. At the same time, several other studies have questioned this interpretation, highlighting how industrial workers and the unemployed – the groups that most directly suffered from the decline in foreign demand for German products – did not switch in mass to the NSDAP in this period (see e.g. Falter 1991; Childers 2010). There is instead some evidence that the general economic decline might have increased support for the NSDAP through secondary channels, e.g. thanks to the worsening of the banking crisis (Voth et al. 2019) and the severity of austerity measures (Galofré-Vilà et al. 2021) undertaken by the various governments in office. Another explanation put forward by historians is that following a poor showing at the polls in 1928, the party changed its image, no longer advocating a violent overthrow of the established democratic order, and focusing instead on legal means to come to power. This made the NSDAP more appealing to middle- and upper-class voters (Evans 2005; Childers 2010), and also led to the creation of links with sections of the business elites (Ferguson & Voth 2008). For example, the party cooperated with nationalist politician and media baron Alfred Hugenberg and the German National People's Party (DNVP) in the referendum against the rescheduling of Germany's war reparations obligations ("Young Plan"). This successful campaign might have been key to the first electoral breakthrough of the NSDAP, which won 18.3% of the vote in the 1930 election. The increased popularity of the party was also the result of the widespread perception among middle class voters that it was the only political force able to oppose the communist KPD, a group that was gaining support among the unemployed (Childers 2010).

This more nuanced view highlights also the important role played by the political platform of the NSDAP in shaping its electoral support. Given the focus of our analysis, it is particularly important to understand how the party planned to address the fallout of the Great Depression. From the "Emergency Economic Program of the NSDAP" published just before the July 1932 election (see Nationalsozialistische Deutsche Arbeiter-Partei 1932), it emerges that the party's position on trade is that foreign powers were trying to systematically "strangle" German exports, and that this "attack" on the German economy worsened significantly the country's economic conditions. The party's proposed answer was a switch towards autarky, to make the country less reliant upon foreign trade.[9] Such a policy, far from being pursued by Germany alone, has long been highlighted to be one of the reasons for the deepening of the Great Depression (see e.g. Friedman 1974; Albers 2019), and was particularly unlikely to speed up the recovery of the exporting sectors of the economy (Eichengreen 1992).

Another important area to consider to understand the evolution of the NSDAP electoral support is to analyze how the party planned to use government intervention in the economy to address the consequences of the Great Depression. The main policies outlined by Nationalsozialistische Deutsche Arbeiter-Partei 1932 were aimed at dismantling unemployment benefits, while creating jobs in agriculture and in large state sponsored infrastructural projects. This type of interventions were more likely to result in employment opportunities for manual workers ("shovel in hand to serve the nation though labor" Nationalsozialistische Deutsche Arbeiter-Partei 1932, p.32) rather than for skilled workers, even if white collar workers – especially in the industrial sector – were particularly badly hit by the crisis.[10] In other words, while white collar workers with their strong anti-proletarian sentiment were a potential source of support for the NSDAP during the Depression, the party's economic policies put them at risk of being "proletarized" and as a result the main white collar unions were at best ambivalent towards the Nazi party, with the GdA even noting that "The Nazis have nothing to offer white-collar employees" (see Childers 2010, p.237). Industrial white collar workers received also comparably less attention in the NSDAP propaganda campaigns than any other major social group (Childers 2010). For example, the leaflets addressed by the NSDAP Reichspropagandaleitung to civil servants outnumbered those to industrial white collar workers by ten to one, and

[9] "The reparations policies of post-war governments have made Germany one of the poorest civilized nations. It would be an irresponsible waste to accept a negative balance of payments with foreign countries in the future. The German people does not exist in order to accept the surplus production of other peoples. [...] National Socialism opposes the liberal world economy, as well as the Marxist world economy. Instead, it demands that each people's comrade be protected from foreign competition. [...] Therefore, a guideline of National Socialist policy is to cover the German people's needs by its own production as far as possible, securing the amount in excess of domestic production from friendly European states, particularly if they are wiling to accept industrial products from Germany as payment." Nationalsozialistische Deutsche Arbeiter-Partei 1932, page 16ff.

[10] In fact white collar workers in industry experienced a rapid increase in unemployment during this period – accounting for 8% of the total in 1930, and 12% by 1936 (see Statistisches Reichsamt 1925-1938).

the text of these leaflets rarely addressed white-collar workers specific issues. In contrast, small middle class parties, like the DVP, focused their programs on the low wages and high unemployment of this group, denouncing the simplistic solutions of both "red" and "brown" socialism (Childers 2010). The widespread decline in economic conditions led also to an increase in female white collar employment (Stachura 1986; Childers 2010). These women – while paid typically less than their male counterparts – helped support their families, at times even becoming the main bread winner. While the NSDAP policies promoted more traditional family roles, the DVP leveraged this situation, appealing to women voters to defend their newly gained role (Childers 2010).[11] In line with the low appeal of the NSDAP economic policies to white collar industrial vorkers, (Childers 2010) highlights that the rise in support from this group was in fact modest.

The NSDAP profused significant efforts to improve support among blue collar workers. It set up its own labor organization, the NSBO (Nationalsozialistische Betriebszellenorganisation), using Marxist terminology and tactics to gain an audience, taking positions on specific economic issues and at times supporting strikes for propaganda purposes (e.g. the Berlin transport strike). As already discussed it offered a message of "work and bread" (see Appendix Figures A.3) emphasizing that the state had an obligation to guarantee every German a job, possibly through a massive program of public works, including the construction of roads, dams, canals and housing (Childers 2010). While the NSDAP had difficulties gaining traction among organised blue collar workers, its policy mix with a blend of anticapitalist and anti-Marxist rhetoric was popular with a section of the German working class – i.e. the young and those who felt neither accepted by the entrepreneurial middle class nor by the organized working class (Stachura 1986; Childers 2010). Still, considering blue collar industry workers, the NSDAP's appeal was greatest among the self-employed in handicrafts and small-scale manufacturing (Childers 2010).

While the evidence we have discussed so far suggests that the increase in support for the NSDAP among those employed in the industrial sector was only modest, several studies have shown that the Nazi party made significant gains among protestant rather than catholic voters (Spenkuch & Tillmann 2018), among small farmers, and among large parts of the middle class – in particular shopkeepers, independent artisans, students, and civil servants (Childers 2010). As a result, the varied set of parties representing protestant rural and middle class interests experienced a collapse in their support between 1928 and 1932. In contrast support for the SPD, representing urban blue-collar workers, and Zentrum, the party of German Catholics, remained comparably stable between 1928 and 1932 (see also Appendix Figure B.4). While this provides some insight into which groups

[11] "In the Third Reich your right to work will be taken away [...] Do you want to sit at home, a burden to those to whom you used to be a support? Do you want your impoverished parents to rot because you are not allowed to earn money? Do you want your abilities to atrophy because the single woman in the Third Reich is treated as an inferior and is forbidden to exercise her talents?"

were in general more susceptive to the Nazis, there is little knowledge on how the economic decline influenced the shift within these groups to the Nazis.

3 Data

To assess the effect of the decline in exports during the Great Depression on the German economy and politics we require data on German exports by industry over time and employment by industry and geographic area before the Great Depression to construct local measures of exposure to the export shock. We also need information on economic and political outcomes in 1928 and 1932 across geographic areas. This section provides some background on the sources of these data and on how our main variables have been constructed. Further details can be found in Data Appendix B. Summary statistics for the main variables can be found in Table A.1 in Appendix A.

We digitized trade data from the German Trade Statistics 1928-1932 (see Statistisches Reichsamt 1928-1932). These contain information both on the value and the quantity of exports and imports by country and product. The trade data are in organised along four levels of detail. We collect information on 2278 (respectively 2344) trade categories, the most detailed level available for the year 1928 (1932), to be subsequently merged with aggregate industrial sectors to match German census data. These data indicate that the decline in German exports per worker differed considerably across sectors, with the most exposed ones experiencing a more than 10 fold higher decline in exports than the average. Also, for a small set of sectors exports remained stable or even grew during the Great Depression (see Figure B.2 in Data Appendix B.1).

In addition to trade data collected from German sources, we also digitized detailed US imports by product category[12] from United States Department of Commerce (1928-1932). These data provides information at a level of detail that is comparable to that of the German trade statistics. This additional source allows us to compare German exports to the U.S. and U.S. imports from Germany by category to assess the quality of our data, and the results we obtain are very reassuring.[13] We use this second source to obtain trade data on US imports from the UK and France, to construct an exogenous measure of the decline in foreign demand for German products that is reasonable to assume was not affected by internal developments in Germany during the Great Depression. More details on the Trade data is provided in Appendix B.1.

The most comprehensive source of information on industrial employment in Germany before the Great Depression is the German census of 1925 (see Statistisches Reichsamt

[12]We do this exercise for Germany, the UK, France and total imports.

[13]The value of trade from the two different sources —US trade data reporting imports from Germany and German trade data reporting exports to the US— displays a nearly perfect linear relationship of 0.93 (in 1928) and 0.94 (in 1932) across the merged categories. More detail on this is provided in Data Appendix B.6.

1925). The industrial categories are reported along four levels of detail, recording up to 426 different industries (in tradable manufactures).[14] The census information on employment across industries is provided by city ("Stadtkreis") and rural district ("Landkreis")[15], and spans the entire country. The census records provide information on 1481 geographic areas. However, yearly data on economic outcomes is only available for a selected set of towns with more than 50000 inhabitants, while political data on election outcomes is available at the district level. So depending on the data availability for our dependent variable of interest we either use the city level (economic analysis) or construct consistent local labour market areas combining cities and their surrounding rural districts (political analysis). At both levels we deal with changes in geographic boundaries by merging the geographic areas affected, following earlier work by Hubatsch & Klein (1975) and MPIDR (2014). Finally, we collect data from the Census on blue-collar, white collar and self-employed workers within industries. More details on the Census data is provided in Appendix B.2.

We manually match our 2000+ trade categories with our 426 census categories into 144 merged industrial categories. This considerable drop in number of categories is due to us aggregating trade and census categories to a level were they uniquely match into one merged industrial category. For example we match 41 different 4-digit trade categories of cotton yarn and thread, which are part of the 3-digit trade category *"spun cotton (Gespinste aus Baumwolle)"* from the German trade statistics to the 3-digit census categories *"cotton mill (Baumwollspinnerei)"* and *"cotton twisting (Baumwollzwirnerei, -spulerei, -haspelei)"* both part of the 2-digit census category *"cotton industries (Baumwollindustrie)"* into the merged category *"cotton yarn and thread"*. The availability of aggregate categories and detailed individual categories makes us confident in our matching in the absence of a formal crosswalk, which to the best of our knowledge does not exist. More detail on the industry matching is provided in Data Appendix B.6.

Using the 1928-32 change in German exports across 144 traded sectors and combining this information with the 1925 census data on population and district-level employment in those sectors, we are able to construct the district-level measure of exposure to the export shock (formally defined in equation 3 – see Section 4). Figure 2.A depicts the distribution of the decline in exports per person between 1928-32 across Germany. It highlights that the industrial heartlands around the Ruhr, Saxony and Silesia as well as Berlin and Württemberg were especially affected by the decline. In contrast, the impact of the trade shock on more agricultural Bavaria, Pomerania and East-Prussia was limited. These patterns in part reflect different levels of industrialization across districts, but even

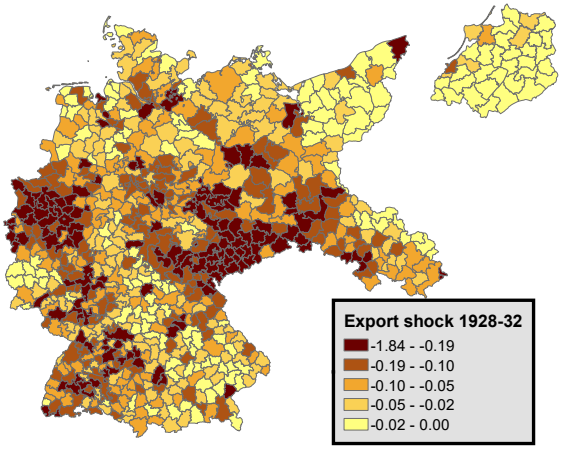
[14]The data also provides information on firms in non-tradables, i.e. construction, utilities (gas, water & electricity) and services. The data does not provide information on employment in agriculture so that our measure of Export shock excludes any change in demand for German unprocessed agricultural products.

[15]A rural district can either surround a city or is simply an area without a major urban centre.

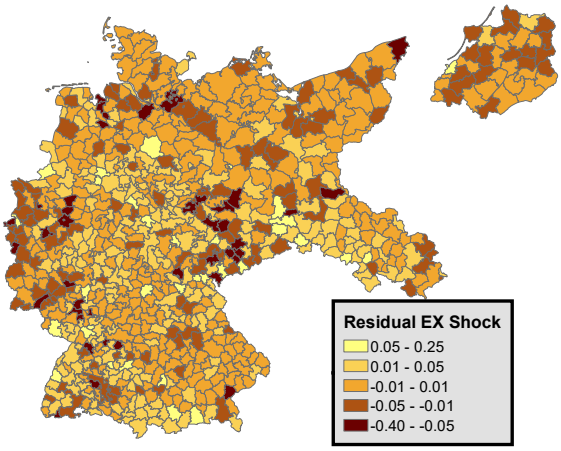
after accounting for them (as measured in 1925) – see Figure 2.B – considerable variation in the exposure to the decline in exports remains.

FIGURE 2: MAPPING MAIN VARIABLES 1928-32

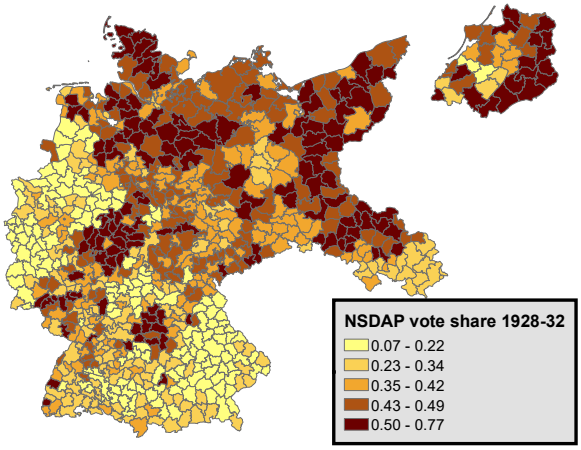
A) EXPORT SHOCK



B) RESIDUAL EXPORT SHOCK



C) NSDAP VOTE SHARE



Notes: Figure A) shows exposure to the change in German exports per person between 1928 and 1932. Figure B) shows the residual change in exports after accounting for differences in industrialization. This is the residual of a bivariate regression regressing EX shock on manufacturing employment share. Figure C) shows the change in the Nazi party vote share 1928-32.

Exposure to the trade shock for the average district amounted to 60RM per person (≈304€ in 2015) – or roughly 2 weeks wages for an unskilled worker.[16] Note only 12% of the total population was employed in traded industries, this figure roughly corresponds to 17 weeks wages for an unskilled worker and 12 weeks for a skilled worker (50RM weekly wage for skilled workers) in that sector.[17] This sizeable shock can be expected to have a

[16]The weekly wage for an unskilled worker was approximately 38RM per week in April 1928, while that for a skilled worker was 50RM – see Statistisches Reichsamt (1925-1938).

[17]Our export shock and manufacturing share are constructed based on the employment in traded industries and total district population and numbers reported reflect the average across districts corresponding

considerable impact on the local economy. There is also considerable geographic variation in exposure to the export shock. Districts at the 75th percentile of exposure experienced a decrease in exports of 80RM per person, which is roughly four times as large as that faced by a district at the 25th percentile (see Appendix Table A.1).

Our key question is whether the decline in exports affected the political landscape of the Weimar Republic. For this we need information on election outcomes. We obtain the share of votes for different parties (including the NSDAP) across district from ICPSR (2005).[18] This allows us to measure the change in support for parties between 1928 and 1932. We focus primarily on the elections of 20th May 1928 and 31st July 1932.[19] Between these elections the NSDAP increased its support from 2.6% (corresponding to 12 out of 491 Reichstag seats) to 37.27% (e.g. 230 out of 608 Reichstag seats). Focusing on these elections has the benefit that they present the last vote before the Great Depression and that taking place at its peak, and both occur at a similar point in time within the year.

Figure 2.C depicts the change in the NSDAP vote share between 1928 and 1932 across Germany. Comparing this to the export shock depicted in 2.A and 2.B suggests that areas most affected by the export shock experienced a smaller rise in the NSDAP vote share. More details on the political outcomes are provided in Data Appendix B.3.

To study the effect of the export shock on the economy itself, we collect data from three additional sources. The first is the Statistical Yearbook of Germany (see Statistisches Reichsamt 1925-1938), which provides yearly industry level data on output, number of firms, prices, employment and wages at the national level. The second is the Statistical Yearbook of German Cities (see Deutscher Städtetag 1925-1934), which provides yearly data on economic indicators (electricity usage, commuting, tax revenues, unemployment, savings) at the city level. Third, we collect food price data from the Prussian Statistical Yearbook (see Preussisches Statistisches Landesamt 1927-1934) and the already mentioned Statistical Yearbook of Germany (see Statistisches Reichsamt 1925-1938) at the city level.[20] Details on this data is presented in Data Appendix B.4.

to the summary statistics in Appendix Table A.1. We use population rather than total employment as denominator because the data in the Betriebszahlung we digitized from the Statistisches Reichsamt 1925 only reports manufacturing and services, but not agriculture. Note that total population in Germany was 62.4 million, employment was 31.9 million, manufacturing employment 13.2 million (including also non-traded construction and utilities in the German census) and traded manufacturing employment 9.7 million. So that employment in traded industries accounted for about 30% of German employment.

[18]From this source we also use the 1925 census data on population, religion, employment in sectors outside of industry, unemployment, Wahlkreiscode and Land-Reg Bezirk code.

[19]We also use the outcomes of the June 1920 and May 1924 elections to check for any pre-trends.

[20]Figure B.5 in Data Appendix B.4 highlights the considerable variation in prices across cities in 1928 and 1932. This suggests little agricultural market integration across Germany at the time. The figure also highlights the sharp decline in food prices between 1928-32.

4 Empirical Approach

We analyse the effect of the change in German exports during the Great Depression both across industries and geography. We start by discussing the industry-level empirical strategy and turn then to present the analysis across geographic areas. Our measure of industry-level exposure to changes in exports during the Great Depression is defined as follows:

$$\Delta \text{EX}_i = \frac{\Delta EX^{GER}_{i,32-28}}{Output_{i,28}} \tag{1}$$

where $\Delta(EX)^{GER}_{i,32-28}$ is the change in total German exports (in 1,000 Reichsmark) in industry i between 1928 and 1932, and $Output_{i,28}$ is the 1928 value of the total output (in 1,000RM) of the industry. Our baseline specification at the industry level is given by:[21]

$$\Delta \Lambda_i = \beta_1 \Delta \text{ EX}_i + X_i' \beta_2 + \epsilon_i \tag{2}$$

with the dependent variable, $\Delta\Lambda_i$, being either the percentage change in (i) the value of output, (ii) the price of output, (iii) employment, (iv) wage and (v) number of firms between 1928 and 1932. The coefficient of interest β_1 captures the effect of a 1% change in foreign demand (as a share of total 1928 output) on the change in the dependent variable. For example, if the dependent variable is the change in total output, β_1 captures the extent to which a 1% decline in foreign demand feeds through to a decline of that industry's total output. A coefficient close to one this would imply that a decline in export demand leads to a one for one reduction in industry output, i.e. there is no adjustment through increased sales at home (coefficient smaller than one). X_i' is a vector of controls accounting for initial industry characteristics. The errors ϵ_i are clustered at the level of aggregate industry categories (as reported in Statistisches Reichsamt 1925-1938).

We turn next to study the effect of the shock across different geographic areas. While the trade data cover the full universe of German exports, the other industry level information used in the estimation of equation 2 covers only a subset of manufacturing industries.[22]. To obtain accurate coverage of the export shock across geography and industry we have thus decided to use the comprehensive 1925 census data. Our measure of

[21] This specification is closely related to Acemoglu et al. (2016).

[22] For more details on the precise data sources see Section 3.

variation in exposure to changes in German exports across geographic units n[23] is thus defined as follows:

$$\Delta \text{ EX}_n = \sum_{i=1}^{I} \frac{L_{n,i,25}}{L_{n,25}} \frac{\Delta EX_{i,32-28}^{GER}}{L_{i,25}} \tag{3}$$

where $\Delta(EX)_{i,32-28}^{GER}$ is again the change in total German exports (in 1,000RM) in industry i between 1928 and 1932.[24], $L_{i,25}$, is the total employment in industry i obtained from the 1925 Census, [25] and $L_{n,i,25}$ is the total employment in the same industry in area n and $L_{n,25}$ the area's total population.[26] ΔEX_n thus captures an area's exposure to the change in German exports between 1928 and 1932, in 1,000RM per worker.

The baseline specification deployed in study the effects of the export shock across space is analogous to equation 2:

$$\Delta\Lambda_n = \beta_1 \Delta \text{ EX}_n + X_n^{'}\beta_2 + \epsilon_n \tag{4}$$

This specification will be used to study the effect of the shock on both the evolution of economic activity and on political outcomes over the same time period, e.g. 1928–1932. Information on economic activity at the local (city) level is constrained by data availability and covers the following outcomes: (i) electricity consumption, (ii) commuting flows, (iii) revenue from a set of different taxes, (iv) unemployment rates across different schemes, and (v) the change in bank deposits. The political outcomes we will be studying are measured at the district level and cover support for the main political parties active in this period, e.g. Adolf Hitler's right wing Nationalistiche Deutsche Arbeiterpartei (NSDAP), the left wing Kommunistiche Partei Deutschlands (KPD), the mainstream traditional parties like Deutschnationale Volkspartei (DNVP), the Sozialdemokratische Partei Deutschlands (SPD) and Zentrum as well as the votes obtained by the remaining

[23]The area of interest is either the district or city level. This is due to economic outcome data only being available at the city level from the Statistical Yearbook of German Cities (covering cities with more than 50000 inhabitants), while we have election outcomes for the whole of Germany at the district level. At the district level we combine cities ("Stadtkreis") with their surrounding areas ("Landkreis") if they are reported separately to obtain a better reflection of local labour markets. For example the census reports the statistics for Amberg-city "1. Kreisunm. Stadt Amberg" and the surrounding area Amberg-district "2. Bezirksamt Amberg", we combine this into a single geographic unit "Amberg". In addition, voting information and employment information is not necessarily provided for the same "Stadtkreis" and "Landkreis" distinctions, so that it seems consequential to merge all of these.

[24]The industry level i for matched categories (from trade and census data categories) here is both more detailed and covers the full universe of manufacturing industries compared to the industry-level specified in Equation 1. This is due to the fact that the Statistical Yearbook provides only information on a selected set of more aggregated industry categories, while at the same time providing higher frequency (yearly) data across a set of industries. While the results from the industry and geographic level analysis are not directly comparable, they complement each other.

[25]Note that the 1925 census provides information employment, it does not provide information on industrial output.

[26]We use population here as this is the only information available at the city level, and by doing so we insure greater comparability of our city and district level results. Results are similar when using employment across districts instead of population in the analysis of electoral outcomes.

smaller parties. X_n' again is a vector of initial controls – e.g. observed before the Great Depression, including the employment share in traded industries. Controlling for the employment in traded industries means that the effect of our export shock is based on variation within manufacturing in the exposure to the decline in demand for exports, and not on differences in the degree of industrialisation across districts (which would otherwise be mechanically correlated). We cluster the errors ϵ_n at the next higher administrative level of Reg.-Bez. (governmental districts). Results are robust to alternatively using Conley standard errors.

The main concerns with our approach is that the export shock in equation 1 & 3 might be driven in part by an increase in local demand (which would lead us to under-estimate its true impact), or a decrease in local productivity (which would lead us to over-estimate it). For example, in the case of an increase in German demand for locally produced goods, one would expect to observe a decrease in exports at the same time as an increase in German industrial activity, but it would be a mistake to conclude that the former has caused the latter. Conversely, in the case of a decrease in German productivity, one would also observe a decrease in German exports at the same time as a decrease in German industrial activity, but it would again be a mistake to conclude that the former has caused the latter. While the former seems rather implausible during the Great Depression, the later issue seems an important concern in our historical context.

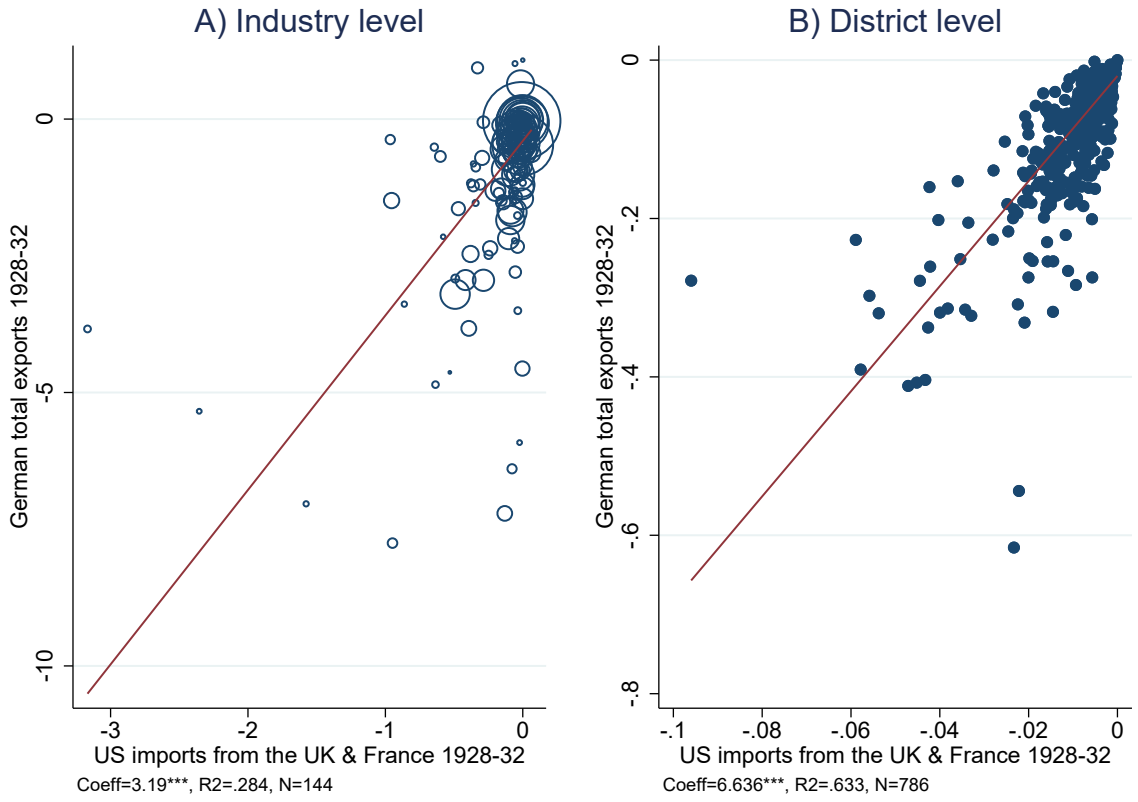
We address these issues by exploiting changes in exports of other countries (namely the UK and France) to the origin of the Great Depression, the US.[27] In other words, our IV-strategy is based on the long-standing argument that domestic shocks were the cause of the US depression, while what happened elsewhere can be traced back to the crisis in the US (Lewis 1949; Romer 1993). This corresponds also to the pattern of output and German exports by country illustrated in Figure 1, which shows how the US experienced the steepest decline in GDP among western countries and that German exports to the US were the most negatively impacted during the Great Depression. Importantly the US was not just the origin of the economic downturn, but also represented the third largest export market for Germany, accounting for more than 10% of total German exports in 1928 providing sufficient relevance to explain a part of the decline in German exports (see Figure B.1 in the Appendix). We define our instrumental variable in the following way:[28]

[27] We use the UK and France as they are the two main European trade partners of the US apart from Germany in 1928, with a similar level of economic development and – taken together – with a similar industrial structure. In 1928 the US imported 222 million dollars worth of goods from from Germany (18% of the total imports from Europe), 349 (28%) from the UK, and 159 (13%) from France. Canada was the main source of US imports in that year with 489 million US$, but a very large share of these imports were agricultural products.

[28] We illustrate this for the export shock across geographic areas, but the procedure is analogous for the industry level export shock from Equation 1.

$$\Delta \text{US Demand}_n^{UK|FR} = \sum_{i=1}^{I} \frac{L_{n,i,25}}{L_{n,25}} \frac{\Delta \text{US Imports}_{i,32-28}^{\text{UK|FR}} * Ratio_{i,28}}{L_{i,25}} \tag{5}$$

FIGURE 3: FIRST STAGE



Notes: The figures display the change in US imports from the UK and France per worker and change in German total exports 1928-32. The left (right) scatter-plot presents the relationship at the industry (district) level. The circle size represents employment size of an industry in 1925. This is also used to weight the regression to make the effect better comparable between the two plots. US imports from France & the UK are adjusted to be in RM so that they correspond to the size of German exports to the US in 1928. Red solid line represents the linear fit.

NOTE THE ROLE FO SMOOT-HAWLEY AND US-DEFLATION IN INCREASING TARIFF RATES SEE LITERATURE FOLDER ALSO; On retaliation to Smoot-Hawley Mitchener et al. 2021 and on the US tariff increase through deflation Harrison 2018 Bond et al. 2018 . MAKE CLEAR INSTRUMENT ONLY NEEDS TO CLAIM THAT LOCAL GERMAN DEMAND OR PRODUCTIVITY CHANGES CAN AFFECT EXPORTS. where $L_{i,25}$, $L_{n,i,25}$, $L_{n,25}$ are again German employment in industry i at the national level, in district n, and total district population as in Equation 3. ΔUS Imports$_{i,32-28}^{\text{UK|FR}}$ is the change in US Imports from the UK and France between 1928-32 in industry i in 1,000RM.[29] $Ratio_{i,28}$ is the ratio

[29]We adjust the data from US$ to RM using the exchange rate of exchange rate 4.19RM per US$ in 1928 and 4.21RM per US$ in 1932.

of US imports from the UK and France in 1928, relative to US imports from Germany in 1928, i.e.: $Ratio_{i,28} = \frac{\text{US Imports}_{i,28}^{\text{GER}}}{\text{US Imports}_{i,28}^{\text{UK|FR}}}$. This normalization accounts for initial differences in industry size between the UK & France compared to Germany. Not accounting for this would mechanically lead to shocks of greater (smaller) magnitude in industries that are relatively large (small) in the UK & France compared to Germany. Figure 3 A) and B) illustrate the relevance of the first-stage at the industry and district level, respectively. It highlights that the decline in British and French exports to the US is highly predictive of the German decline in exports across industries. This suggests that the decline in export demand across industries is driven by factors affecting Germany, the UK and France in a similar way (e.g. Smoot-Hawley Tariff Act). Also considering the massive drop in German exports to the World of more than 50% during the Great Depression we would expect our OLS and IV results to be relatively similar in size as local demand and productivity shocks likely, if at all, only played a minor role in the observed change in exports.

5 Declining exports and the economic downturn

5.1 Industry-level economic results

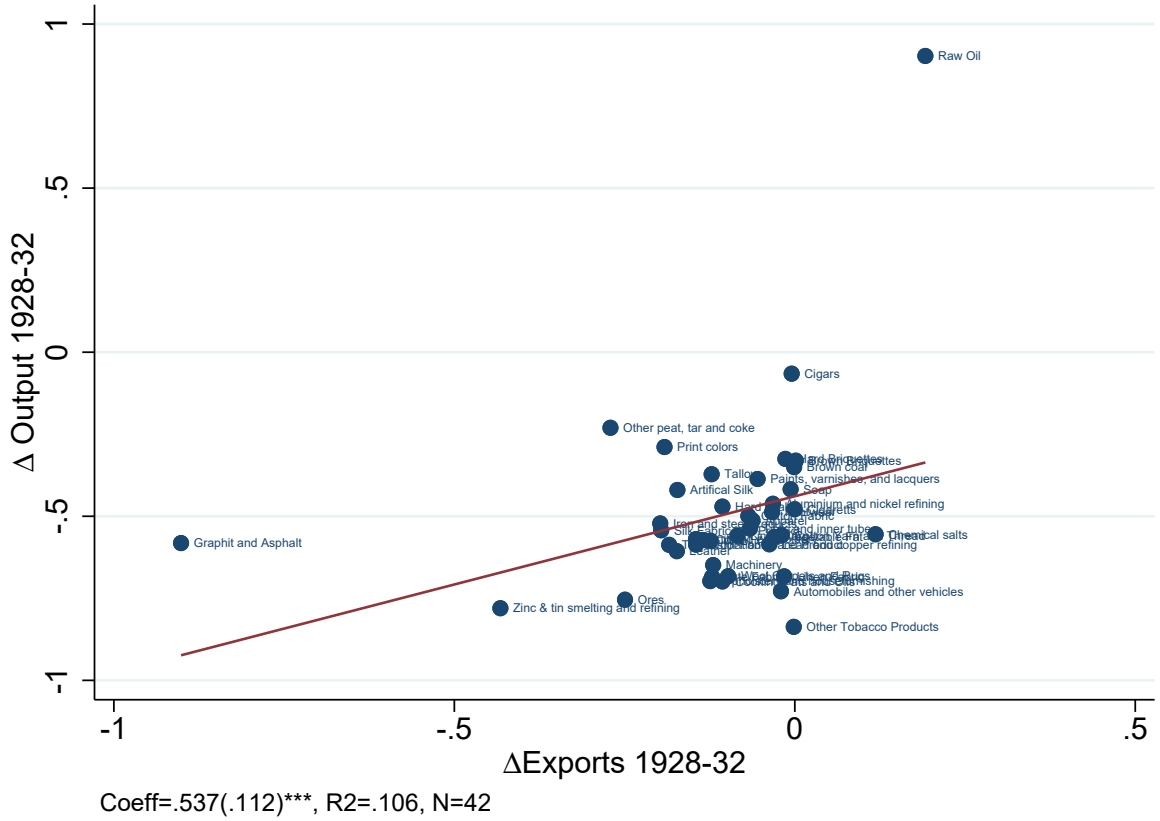
In this section we analyse the effect of the decline in demand for German exports on economic activity in Weimar Germany. We start by focusing on a set of major industrial sectors, for which we have yearly data on performance measures (e.g. output, number of firms, prices, employment and wages). These sectors account for 30% of German manufacturing output.[30]

Figure 4, plots a simple bivariate regression of the change in the value of sectoral output between 1928 and 1932 on our measure of exposure to the export shock brought about by the Great Depression,[31] and it illustrates a substantial decline in the output of those industries facing a larger decrease in foreign demand (see also column (1), panel (A) of Table 1). In column (2) we additionally control for initial log employment in 1928, whereas in column 3 we also account for broad industrial sector, e.g. "mining", "metal & machinery", "chemicals" and "food" with the omitted group being "textiles and leather". The estimated coefficients indicate that the initial size of the industry did not have a separate effect on the subsequent industry dynamics and that apart from mining all major industrial sectors were similarly affected by the Great Depression once we account for the impact of the trade shock. Importantly, the impact of the export shock is broadly

[30] The industries covered in Statistisches Reichsamt (1925-1938) correspondingly employ 3 out of the 10 million Germans in (traded) manufacturing, i.e. not including construction and utilities.

[31] A value larger than 0 implies growth in exports, a value equal 0 suggests no change in exports, and a value of 0 to -1 reflects a foreign demand decline as a percentage of total industry value of output in 1928. Accordingly, this can be interpreted as the decline in foreign demand for a firm's output. Accordingly, a value of -1 would suggest that initially all of an industries output was exported and that exports completely stopped between 1928 and 1932.

Figure 4: Export shock and output growth across industries



Notes: The figure plots the change in German exports and change in output 1928-32 across industries. The graph is equivalent to the first column from Panel A of Table 1. The coefficient decreases in size, but remains significant, when excluding "Raw Oil" from the sample: Coeff.=.158(.083)*.

similar across all specifications. Panel B presents the effect when we instrument the change in German exports with the decline in US imports from France and the UK. This coefficient provides a causal estimate of the decline in foreign demand caused by the Great Depression, not affected by any demand or productivity shocks within Germany. The size of the estimated coefficient is broadly similar to the OLS estimate, and this finding is in line with expectations given the that the severity of the drop in German exports during the Great Depression is unlikely to be explained by purely internal factors.

To assuage the size of our coefficient of interest we will focus on column (3) of Panel B. Recall that a one unit change represents a decline in exports equivalent to 1% of the value of output in 1928, so that the coefficient suggests that each 1RM decline in export demand leads to a corresponding 0.98RM drop in output produced. This result suggests that the domestic market was unable to absorb any of the decline in foreign demand. For the set of industries covered the average decline in output was 49.7% with the average decline in exports being 11.5% of the total drop in output between 1928 and 1932.[32].

[32]This figure corresponds closely to the overall drop in German exports by 53.3% and accounting for 15.9% of German GDP in 1928 (calculated based on Statistisches Reichsamt 1928-1932; Statistisches

Table 1: Export shock and industry output

	(1)	(2)	(3)
Panel A. OLS			
Δ EX 28-32	0.537***	0.657***	0.735***
	(0.112)	(0.207)	(0.230)
Log employment		-0.047	-0.047
		(0.036)	(0.040)
Mining			0.264***
			(0.009)
Metal & machinery			0.022
			(0.066)
Chemicals			-0.056
			(0.046)
Food			-0.025
			(0.052)
R^2	0.106	0.197	0.315
Panel B. IV			
Δ EX 28-32	0.622***	0.817***	0.975***
	(0.112)	(0.192)	(0.220)
F-stat (1st stage)	11.31	11.96	9.31
First stage coeff.	6.070***	5.962***	5.794***
	(1.279)	(1.252)	(1.380)
R^2	0.103	0.188	0.296
$N(industries)$	42	42	42

Notes: For all regressions the dependent variable is the growth in value of output between 1928 and 1932. Panel A presents the results for the change in exports between 1928 and 1932 as percent of total value of output in 1928. Panel B presents the corresponding IV-results results using US imports from France and the UK as instrument. Reference category for the industry dummy variables are industries producing non-food products from plants and animals (primarily textiles and leather products). Clusters based on industry groups as reported in Statistisches Reichsamt (1925-1938) and industry dummies based on combining up to 6 closely related industry groups reported. Results robust to excluding outliers "Raw Oil" & "Graphit and Asphalt" with coefficient in Panel B (3): $\beta = .546(.224)^{**}$ (excl. Oil); $\beta = 1.439(.867)^{*}$ (excl. Graphit); $\beta = .986(.471)^{**}$ (excl. Oil & Graphit). Robust standard errors clustered on industry groups as reported in Statistisches Reichsamt (1925-1938). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The estimated coefficient suggests also that about 23% (11.5*0.97/49.7) of the decline in German industrial production during the Great Depression is purely due to the decline in foreign demand. Even if the industry groupings considered in our analysis are quite aggregated, there is a significant degree of heterogeneity in exposure to the decline in export demand. Our estimate suggests that at the first quartile of exposure the export

Reichsamt 1925-1938). This suggests a decline in the value of exports of 8.47% in terms of 1928 GDP. The decline was mostly concentrated in manufacturing rather than agriculture and services (see Data Appendix B.1)

shock is responsible for a 16% decline in output, while at the third quartile the decline in output due to the export shock was only only 2%. This of course only provides a partial equilibrium estimate and does not take into account the potential up-stream impact on reducing demand for intermediate inputs produced in Germany.

Table 2: Industry level results

	Output (1)	Firms (2)	Price (3)	Empl. (4)	Wage (5)
Panel A. OLS					
Δ EX 28-32	0.735***	0.405*	-0.235	0.588*	0.107
	(0.230)	(0.221)	(0.227)	(0.264)	(0.100)
R^2	0.315	0.314	0.409	0.482	0.053
Panel B. IV					
Δ EX 28-32	0.975***	1.030**	0.182	1.413***	0.132
	(0.220)	(0.456)	(0.512)	(0.411)	(0.135)
F-stat (1st stage)	9.31	17.64	9.74	17.64	29.62
First stage coeff.	5.161***	5.794***	5.241***	5.794***	6.475***
	(1.833)	(1.809)	(1.856)	(1.809)	(2.012)
R^2	0.296	0.199	0.305	0.285	0.053
$N(industries)$	42	45	41	45	36

Actually in line with sticky prices and wages a la Keynes. Worth highlighting? Notes: The regressions present the results for the effect of the export shock on the growth rate of output value, domestic prices, employment, yearly wages and number of firms between 1928 and 1932. All specifications present IV estimates and include the full set of controls corresponding to column 3 of Panel B, Table 1. Standard errors clustered on industry groups in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2 extends the analysis by considering additional a series of additional outcome variables at the broad sector level, namely the number of firms, prices, employment, and wages. For the sake of comparability, column 1 again reports the effect on output. Column 2 considers instead the impact on the number of firms in an industry, which declines in line with output. Column 3 focuss instead on prices – suggesting that most of the decline in the value of output was due to a reduction in quantity produced, while there was little differential adjustment in prices across industries. Column 4 reports the effect on employment, which decreased even more than output (e.g. as shown in panel B, by 1.4% for each 1% decline in foreign demand). Column 5 presents the effect on wages per worker – which do not seem to decline more in industries more severely affected by the decline in exports. This highlights that most of the adjustment in output value occurred through the extensive margin, i.e. via reductions in output quantities because of factory closures and lay-offs rather than a reduction in price per unit. Another way to appreciate the magnitude of the effect is to work out the decline in number of employees and firms

with regards to the average decline in exports. The average industry category had 68,382 employees and 855 firms. Our estimates suggests that 11,170 of the 68,382 (16.3%) workers were laid off due to the decline in foreign demand. Similarly, 102 of the 855 firms (11.9%) had to close. Extrapolating these numbers to overall German manufacturing, this suggests an increase in the number of unemployed of 1.63 million workersdue to the decline in export demand, which is about a quarter of the total unemployed observed in 1932. Once again Again these are only partial equilibrium estimates and do not take into account the fact that some worker might have found a new occupation outside of manufacturing or that this decline might have had a knock-on effect on other sectors leading to a further increase in unemployment.

5.2 City-level economic results

To get a better sense of the effect of the decline in German exports on local economic performance we turn next to a city level analysis. We have to focus on cities rather than districts due to no yearly data on economic outcomes being available at the latter level for 1928-32.[33] Detailed information on the alternative outcomes we have used to proxy economic activity at the city level are reported in Data Appendix 3.

Table 3 presents our main results at the city level, following the empirical strategy outlined in Section 4, Equation 4. Panel A reports the OLS estimates, whereas Panel B focuses on the IV. All specifications control for the pre Great Depression share of (traded) manufacturing employment in the population, city size, share of Catholics, share of Jews, and share of unemployed as well as state (Land) fixed effects. As for the industry level analysis, OLS and IV estimates are similar in size, and document the role played by the export shock contributing in explaining economic decline across cities.

Column 1 focuses on the change in electricity consumption from local suppliers per subscriber connected to the network. Most of the electricity consumption is from large industrial customers with electricity providing more energy than steam engines in manufacturing by 1925 (see Deutscher Städtetag 1925-1934; Statistisches Reichsamt 1925). The coefficient suggests that for each 1,000RM decline in German exports, electricity consumption in horsepower declined by 540kWh. The price per KWh in 1928 differed greatly between cities from 0.17RM in Barmen to 0.47RM in Wiesbaden, and our estimate suggest a decline in electricity consumption between 91.8RM and 253.8RM per 1,000RM decline in German exports (see Deutscher Städtetag 1925-1934). Since the average decline in exports per person across cities was equal to 62RM, our estimates suggest a 33.4kWh (-0.06*540) decline in electricity consumption per subscriber for the average city due to

[33]Our dataset comprises the 94 cities with a population above 50,000 inhabitants by 1928 (97 in 1932) and reflects a total population of 21.2 million inhabitants, representing slightly more than one third of the total German population at the time. The actual number of observations in the sample used is smaller as 7 cities undergo considerable administrative changes to their boundaries that cannot be traced over time. More detail in Data Appendix B.4.

the export shock. Accordingly, the average city experienced a 16% (-33.4/202.0) drop in electricity consumption compared to the 1928 level of 202kWh per recipient.

Column 2 looks instead at the effect on commuting measured as the number of journeys made on public transport per inhabitant.[34] The coefficient suggests that for each 1,000RM drop in exports there were 322 fewer journeys on public transport (or around the value of 70RM in single journey fares). This corresponds to a 13% (-0.06*322.2/146.3)[35] drop in the use of public transport for the city with an average exposure to the export shock.

Column 3–5 consider the impact on different tax revenues. While the income tax rate during this period was set at the national level, corporate and consumption tax rates were determined at the local level and were potentially subject to endogenous changes at the city level.[36] However, any tax-rate increases due to the export shock should attenuate our estimates making it harder to find any effect there. These tax returns – on the other hand – provide good proxies for labour incomes, corporate profits and consumption expenditure. The estimate in Column 3 indicate that, for the average city, income tax revenues declined by 6.8% (-0.06*30.7/27.6) due to the decline in exports. Column 4 suggests instead that corporate tax revenue declined by 7.3% (-0.06*25.2/20.5). Finally, the results in column 5 point out that consumption tax revenue declined by 15.0% (-0.06*5.1/2.0).

[34]Depending on the city the cost of a single journey (minimum price) was between 0.15RM and 0.30RM with the average city charging 0.22RM.

[35]Again as for column 1 we take the average exposure to the export shock of 60RM per person and multiply it with the coefficient estimate of the export shock (in 1000RM per person) from column 2 export shock and divide it by the average 1928 electricity consumption per person in the average city in our sample. We follow the same procedure for the subsequent back of the envelope calculations.

[36]This seems to be the case for city-level consumption taxes, which rise between 1928 and 1932, see Table A.1.

Table 3: City level economic effects

	Electricity	Public transport	Tax collection			Unemployment rate			Saving deposits	Pop. growth
			Inc. (N)	Corp. (C)	Cons. (C)	ALU	ALU+KRU	All		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A. OLS										
Δ EX 28-32	362.158***	224.093***	36.173***	42.454*	4.124**	-0.086**	-0.171**	-0.147	3.784***	0.220
	(125.312)	(69.389)	(9.532)	(24.260)	(1.580)	(0.035)	(0.080)	(0.122)	(1.105)	(0.186)
Share ind. empl. 1925	41.307	95.839	-8.847	10.306	5.178***	-0.046**	-0.074**	-0.114**	1.295**	0.328
	(115.863)	(79.311)	(8.096)	(16.347)	(1.306)	(0.021)	(0.033)	(0.053)	(0.631)	(0.226)
Log inhabitants	9.740	-21.668**	-1.665**	0.405	0.438***	0.000	0.002	0.002	0.052	0.017
	(11.539)	(10.311)	(0.723)	(1.078)	(0.089)	(0.001)	(0.002)	(0.004)	(0.039)	(0.016)
Share Catholic 1925	49.759*	-7.221	0.749	-3.544	0.940***	0.004	0.009	0.003	0.077	0.032
	(26.798)	(22.303)	(2.022)	(3.180)	(0.302)	(0.003)	(0.006)	(0.010)	(0.145)	(0.039)
Share Jewish 1925	272.994	272.984	-131.300	-120.958	5.162	0.111*	0.187	0.056	0.137	-0.504
	(571.914)	(1083.865)	(127.353)	(80.501)	(6.743)	(0.060)	(0.120)	(0.185)	(5.627)	(0.801)
Share unemployed 1925	-223.318	186.334	13.191	110.597**	20.606***	0.040	0.006	-0.377**	0.988	-0.805
	(389.410)	(380.149)	(22.991)	(48.484)	(3.988)	(0.072)	(0.131)	(0.184)	(1.831)	(0.506)
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.373	0.397	0.500	0.551	0.642	0.353	0.332	0.431	0.226	0.168
Panel B. IV										
Δ EX 28-32	539.880***	322.192***	30.667***	25.161+	5.134***	-0.088**	-0.177*	-0.116	3.268***	0.254
	(135.080)	(115.604)	(7.247)	(16.276)	(1.434)	(0.039)	(0.099)	(0.143)	(0.917)	(0.233)
F-stat (1st stage)	150.53	201.13	169.75	169.75	116.94	165.20	165.20	165.20	173.60	165.20
First stage coeff.	6.468***	6.284***	6.463***	6.463***	6.212***	6.462***	6.462***	6.462***	6.448***	6.463***
	(0.527)	(0.443)	(0.496)	(0.496)	(0.573)	(0.503)	(0.503)	(0.503)	(0.490)	(0.502)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.362	0.393	0.500	0.558	0.642	0.353	0.332	0.430	0.241	0.169
$N(cities)$	55	58	71	71	63	73	73	73	68	73

Notes: Panel A presents the OLS-results for the change in electricity per recipient, journeys on public transport per person, city tax revenues per person, unemployment rates, growth in saving account deposits, and population growth between 1928 and 1932. Panel B presents the corresponding IV-results results using US imports from France and the UK as instrument. Standard errors clustered on Reg.-Bez in parentheses. $^{+}$ $p < 0.15$ * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Next, we turn to evaluating the effect of the decline in exports on unemployment. Due to the significant changes experienced by the unemployment benefits scheme in this time period, we present the results of three separate exercises. Column 6 focuses on the share of unemployed receiving benefits directly from the unemployment insurance system, column 7 additionally includes the unemployed receiving support through emergency aid and column 8 includes also the unemployed receiving support from community care (see also Data Appendix 3 for more details).[37] The last measure provides the broadest definition of unemployment, but is still likely to underestimate total unemployment as the cities hardest hit by the economic shocks were less likely to be able to provide community support. All estimates suggest that the decline in German exports increased the share of unemployed in a city (even though the estimates are significant only in columns 6 and 7).

Column 9 analyzes the effect of the shock on individual finances by looking at deposits in saving accounts and we see that cities more exposed to the trade shock experienced also significant declines in savings account deposit. Finally column 10 considers the effect of the shock on population growth, uncovering no statistically significant effect. This suggests that there was no out-migration due to the decline in exports. The lack of an effect of the shock on internal mobility is important to interpret the results of our analysis of the effect of the trade shock on political outcomes, to which we turn next.

6 The political consequences of the trade decline

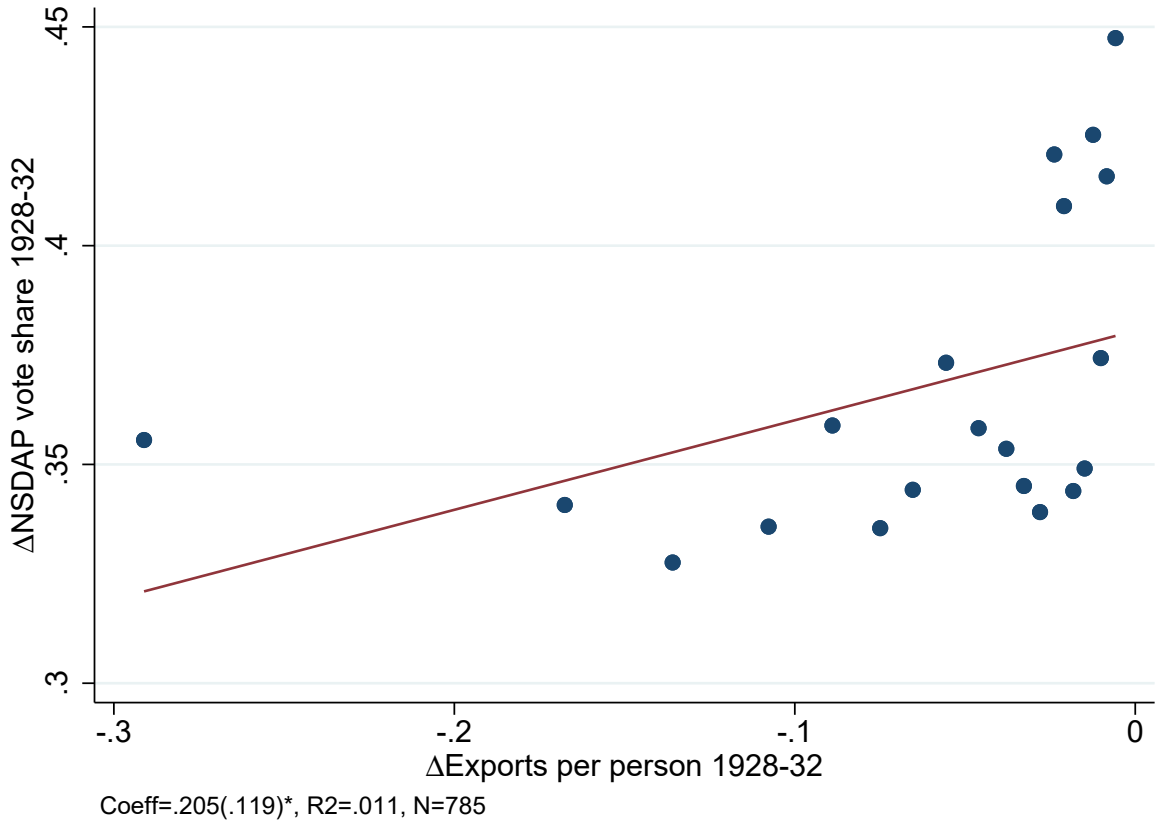
This section analyses the effect of the decline in demand for German exports on political outcomes in Weimar Germany. Section 6.1 looks at the direct impact of the export shock on support for the Nazi party within local labour markets. Our findings highlight that a more severe drop in exports reduced support for the NSDAP. Section 6.2 discusses why the policies put forward by the NSDAP were unappealing in areas directly affected by the export shock, and provides supportive empirical evidence for this. Finally, Section 6.3 highlights that through economic linkages, in the form of declining agricultural prices, the export shock had spillovers on rural areas, which outweighed the direct effect and contributed to the rise of the NSDAP.

[37] The collapse of the unemployment insurance system can be evinced also by inspecting Table A.1, where the former two unemployment rates decline on average, while only the number of unemployed receiving support from community care increases between 1928 and 1932, and even the latter only grows rather modestly by 2 percentage points. This suggests a considerable amount of un- or under-employment that is not reported in the official statistics as by 1932 many individuals were simply barred from benefits and received no support of any kind meaning they were no longer recorded in the used statistics (see e.g. Stachura 1986).

6.1 Political impact of declining exports

Figure 5 presents a simple binscatter plot of the export shock and the change in the NSDAP vote share between 1928-32 in the federal elections for the German parliament ("Reichstagswahl"). Strikingly, the figure shows a substantial decrease in the Nazi party vote share in areas more exposed to the decline in foreign demand. We further investigate this relationship in Table 4 – where column 1 in Panel A corresponds to the result presented in Figure 5.

Figure 5: Export shock and NSDAP vote



Notes: The binned scatter plot presents the change in German exports and change in the Nazi party vote share 1928-32 across German districts (785 districts in 20 bins). The German parliament elections in May 1928 and July 1932 are used to calculate the change in votes. The graph is equivalent to the first column from Panel A of Table 4.

In column 2 we additionally include electoral district and province fixed effects.[38] When accounting for regional shocks in this way the effect of the export shock increases slightly in magnitude and is more precisely estimated. In column 3 we also account for the manufacturing employment share before the Great Depression, to disentangles exposure

[38]The electoral districts are the 35 "Wahlkreise" of the electoral system of the Weimar Republic, where for each 60,000 votes a seat in the Reichstag was provided. Notably, these also account for the administrative division within the Nazi party (Gaue). Provinces are the 14 Prussian provinces comprising more than half of Weimar Germany and the remaining 16 German states.

to the decline in exports from the initial employment share in manufacturing. Doing so might be important, as previous studies have argued that industrial workers, especially blue-collar ones, were less likely to start supporting the NSDAP (see e.g. Stachura 1986; Childers 2010). In column 4 we additionally control for the share of Catholics and Jews in the population and find that both groups were not likely to support the Nazi party. In column 5 we additionally account for the share of employment in the civil service, urbanization rate and unemployment in 1925. Notably, the share of civil service employment and urban population in a district are associated with a lower increase in the NSDAP vote share. Importantly, across the various specifications reported in the Table, the magnitude of the coefficient of interest for the export shock remains similar. Note also that we find the same results at the city-level (see Appendix Table A.6).

Panel B of Table 4 presents instead our IV results, and the estimated size of the coefficient of interest is similar in all specifications to the OLS results. We treat column 5 of Panel B as our baseline.[39] The coefficient of 0.228 indicates that a one standard deviation (70RM) larger decline in exports per person led to a 1.4 percentage point decline in the NSDAP vote share. This suggests that the Nazi were not directly benefitting from the economic hardship caused by the drop in German exports during the Great Depression.

We start by assessing the robustness of the effects of the export shock to other potential trade related mechanisms in Table 5. Column 1 starts by controlling for the initial exposure of a district in 1928 to net exports. By doing so we explore whether an area that initially (e.g. before the Great Depression) more exposed to foreign competition through greater *imports* might be more likely to support the autarkic policies pursued by the NSDAP and conversely, whether an area more dependent on foreign markets for *exports* might be instead less likely to support the Nazi party. Our results indicate that districts with a higher level of net exports in 1928 were less likely to support the Nazi party, but this effect is not statistically significant. In column 2 we extend our analysis by controlling instead for the trend in trade 1927-28. The concern here is that in places where German trade was already declining due to decreasing competitiveness before the Great Depression support for the Nazi party might have increased in subsequent years, but we do not find any evidence for this mechanism. Most importantly even after taking into account the initial exposure to trade or the trend in trade, our coefficient of interest remains similar in size and significant.

Next, we study the effect of the trade shock on support for the NSDAP across geography (see Appendix Table A.7). Panel A distinguishes districts based on their degree of urbanization:[40] in column 1 we consider districts with cities having an urban population of more than 50,000 individuals; column 2 looks at districts with towns having an urban

[39]Results are robust to using Conley standard errors with different spatial cut-offs (25km, 50km, 100km and 200km).

[40]Note, that the average districts exposure to the export shock is 62RM per person. The average exposure is slightly higher, but similar, for large cities of more than 50000 inhabitants and districts

Table 4: Determinants of the NSDAP vote

	(1)	(2)	(3)	(4)	(5)
Panel A. OLS					
Δ EX 28-32	0.205*	0.323***	0.215***	0.185***	0.160***
	(0.119)	(0.064)	(0.079)	(0.053)	(0.049)
Share ind. empl. 1925			-0.153	-0.401***	-0.299***
			(0.130)	(0.083)	(0.082)
Share Catholic 1925				-0.360***	-0.361***
				(0.026)	(0.026)
Share Jewish 1925				-1.151*	0.054
				(0.627)	(0.647)
Share civil service 1925					-0.560*
					(0.283)
Share urban 1925					-0.046***
					(0.014)
Share unemployed 1925					0.173
					(0.324)
Electoral district FE	No	Yes	Yes	Yes	Yes
Province FE	No	Yes	Yes	Yes	Yes
R^2	0.011	0.521	0.522	0.825	0.832
Panel B. IV					
Δ EX 28-32	0.184	0.378***	0.330***	0.236***	0.239***
	(0.125)	(0.078)	(0.109)	(0.090)	(0.082)
F-stat (1st stage)	102.26	61.85	27.90	28.16	29.37
First stage coeff.	6.636***	6.156***	4.068***	4.077***	4.021***
	(0.656)	(0.783)	(0.770)	(0.768)	(0.742)
Reduced form coeff.	1.217	2.327***	1.341**	0.963*	0.961**
	(0.865)	(0.635)	(0.577)	(0.496)	(0.447)
R^2	0.011	0.520	0.521	0.824	0.832
$N(districts)$	785	785	785	785	785

Notes: For all regressions the dependent variable is the change in the Nazi party vote share between the parliamentary elections in May 1928 and June 1932. Panel A presents the OLS-estimates for the change in exports per person on the Nazi party vote share between 1928 and 1932. Panel B presents the corresponding IV-results results using US imports from France and the UK as instrument. Results are similar when using US imports from Germany in 1928-30/32 as well as UK and France individually (See Table A.5). Robust standard errors in parentheses clustered on Reg.-Bez. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

population of less than 50,000, and column 3 looks at purely rural districts. The results suggest that the trade shock had a similar effect on cities and town, but that it did not have an effect in rural areas. The latter result is not surprising, given that rural areas

with towns of less than 50000 urban inhabitants. Only for the 224 purely rural districts with no urban population the exposure is considerably lower with 27RM.

Table 5: Alternative measures of trade flows

	(1)	(2)	(3)	(4)
Δ EX 28-32	0.215**	0.243**	0.403	0.210
	(0.088)	(0.115)	(0.381)	(0.139)
Net EX 27	-0.033			
	(0.026)			
Δ Net EX 27-28		0.008		
		(0.185)		
EX 27			0.126	
			(0.242)	
Δ EX 27-28				-0.057
				(0.247)
Controls	Yes	Yes	Yes	Yes
F-stat (1st stage)	28.68	19.40	6.90	19.00
R^2	0.832	0.831	0.830	0.832
$N(districts)$	785	785	785	785

Notes: The table present additional robustness checks for other trade related channels. All specifications present IV estimates and include the full set of controls corresponding to column 5 of Panel B, Table 4. Robust standard errors in parentheses clustered on Reg.-Bez. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

were much less directly exposed to the decline in demand for German exports. Panel B explores instead how the impact the trade shock varied depending on the level of political stability. Here we use the measure of state-level stability from Satyanath et al. (2017).[41] Column 1 focuses on Prussia with its stable government, column 2 looks at other states with stable governments, and column 3 looks at states with unstable governments. The results suggest that the effect of the export shock on the vote share of the Nazi party was similar in stable and unstable states. As a result, the lower support enjoyed by the NSDAP in the presence of greater export to the export shock does not appear related to local trust in functional, strong, and stable democratic regional governments, but rather universal across Germany.

6.2 Why did the export shock not radicalise voters?

We now turn to study why the NSDAP did not benefit from the export shock. We start by looking at which parties gained votes from (or rather lost less votes to) the NSDAP. Panel A) of Figure 6 presents the estimated effect of the export shock on change in support for

[41] Satyanath et al. (2017) constructed an index of above and below average state-level stability based on (1) the percentage of time that the longest-serving state government was in office, (2) the percentage of time that the longest-serving party was in office, and (3) the percentage of time that a state was governed by at least one party from the "Weimar coalition".

major parties between 1928-32.[42] The coefficient estimates are organised based on their political affiliation from far-right (top estimate) to far-left (bottom estimate). The first coefficient presents the impact of the trade shock on support for the NSDAP (see also Table 4 Panel B column 5); the second captures the impact on the DNVP, a right-wing representing a coalition of nationalists, reactionary monarchists and rural interests; the third presents the effect on a set of minor parties, predominantly centre and centre-right parties, most of which were at least in 1928 willing to support the Weimar republic. The fourth, fifth and sixth coefficients capture respectively the impact on the centrist Zentrum representing the Catholics in Germany, the centre-left SPD, and the communist KPD. The SPD, the Zentrum and the "Other" parties were supportive of the Weimar Republic, whereas the NSDAP, the DNVP and the KPD had a more confrontational attitude towards it . A clear pattern is observable, whereby in areas more affected by the export shock the NSDAP gains relatively less votes, while the set of smaller parties gained support.[43] This suggests that in areas more affected by the export shock parties focussing with a smaller and more specialised electoral basis were better able to retain their support. It is also worth noting that the KPD did not gain votes due to the export shock.

The remaining two panels, B) & C), of Figure 6 confirm that there are no pre-trends in the support for these parties while looking at earlier elections.[44]

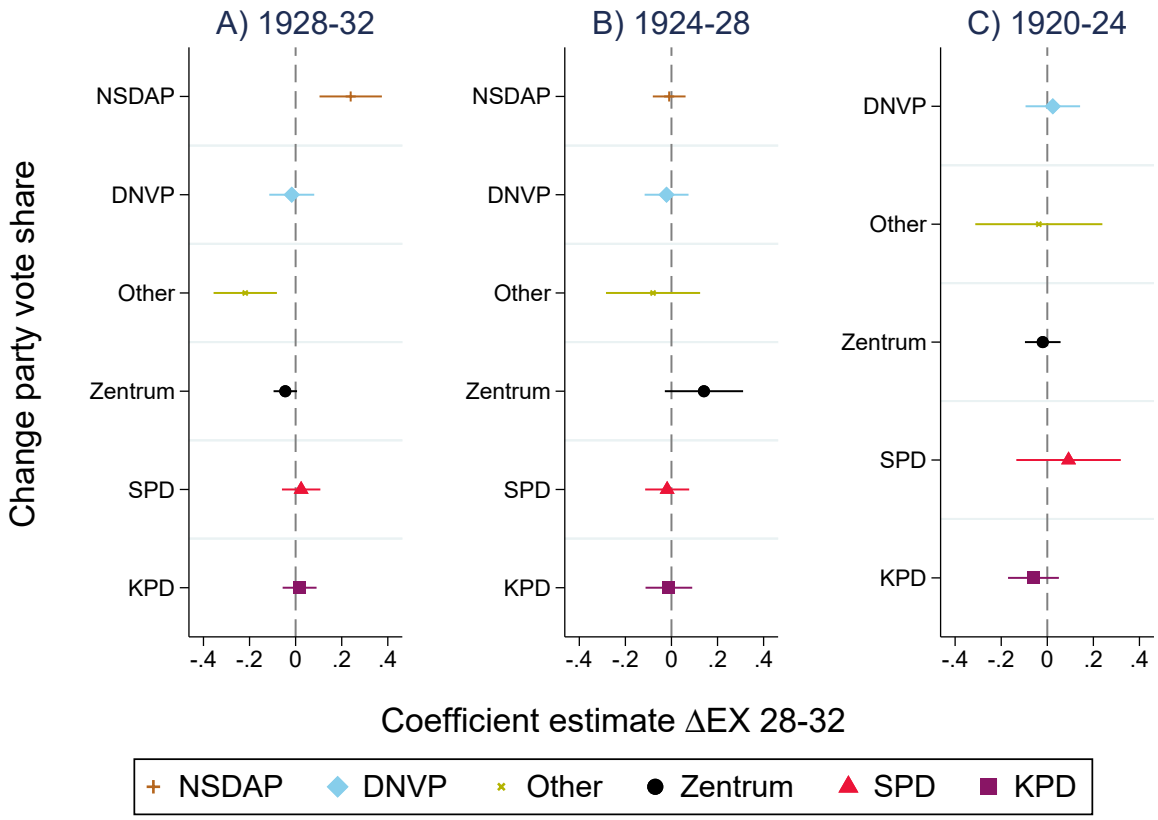
A possible, plausible explanation for why smaller parties lost less support to the NSDAP is represented by the economic policies advocated by the party during the Great Depression. As already noted in Section 2 the idea of severely cutting unemployment benefits and replacing them with labour intensive public works under the slogan "work and bread" had little appeal to more educated workers. The abolishment of unemployment insurance and its replacement with public works would likely have eradicated any socio-economic distinctions between unemployed blue- and white-collar workers, which were of crucial importance to most white collar workers (Childers 2010) and would have led instead to their "proletarization". Furthermore, white-collar employment included an increasing proportion of female workers, who had little to gain from the NSDAP's averse stance towards women in the labour force. As a result, it is plausible that workers in economic distress from the export shock that also had a lot to lose from Nazi economic policies continued to instead support smaller parties, which catered to their specific economic interest.

[42] Appendix Table A.8 presents also the OLS estimates. It also presents the local turnout for elections in Column 7. Turnout declines due to the export shock, suggesting that in areas more affected by the export shock voters turned away from their old parties, but did not necessarily start to vote for the Nazi party.

[43] The Zentrum also seem to gain, but the effect is much smaller and borderline insignificant.

[44] We select the May 1924 election rather than the December 1924 election when calculating the change in vote shares between elections as this way all of the used elections occurred in summer avoiding any seasonal patterns in the voting behaviour.

FIGURE 6: EFFECT ACROSS PARTIES



Notes: The coefficients present the effect across parties as well as whether there is any pre-trend effect on party vote shares for the effect of the export shock 1928-32 beforehand. Parties are ordered based on their political orientation from top (far-right/fascist) to bottom (far-left/communist). Coefficients 3 "Other" to 5 "SPD" represent parties that predominantly supported the Weimar republic. All specifications present IV estimates and include the full set of controls corresponding to column 5 of Panel B, Table 4. The presented estimates are based on the baseline IV specifications as in Table 4 with a full set of controls included in all specifications and depicting a 10% confidence interval. Figure A) looks at the change in votes between May 1928 and June 1932 equivalent to the results resented in Table A.8. Figure B) looks at the change in votes between May 1924 and May 1928. Figure C) looks at the change in the vote share between the June 1920 and May 1924 election. Note that May 1928 is the first Reichstag election the Nazi party (NSDAP) contested (we do not use the vote shares of the National Socialist Freedom Movement in 1924, while the NSDAP was banned). N=785.

To assess this idea we decompose the effect of the export shock on blue- and white-collar and self employed workers in Table A.9.[45] In line with the idea that the NSDAP's policies were targeting blue-collar workers and their economic difficulties during the Great Depression, we observe that a more severe decline in exports for blue-collar workers slightly increased the Nazi party vote share. In contrast, the export shock on white-collar workers led to a decline in support for the Nazi party. The decline in support from white collar

[45]To do this we multiply export shock with the share of blue-collar workers, white-collar workers and self-employed at the industry level, receptively. Than we construct three distinct export shocks at the district level, which sum up to our previously used export shock. The same is done for the instrumental variables.

workers is particularly strong when a large share of white-collar employment is female (see Appendix Figure A.5). This result highlights that the decline in support for the Nazi party due to the severity of the export shock reflects the party's economic policy providing little relief for a section of the electorate severely affected by the decline in exports. It is also worth highlighting that this finding goes against the general trend observable in Table A.9 of white-collar workers increasing their support for the Nazi party more than blue-collar workers between 1928 and 1932.

Table 6: The effect of the export shock across parties and occupations

	NSDAP (1)	DNVP (2)	Other (3)	Zentrum (4)	SPD (5)	KPD (6)
Blue Collar EX	-0.546*	0.027	0.606*	-0.097	-0.162	0.172
	(0.313)	(0.187)	(0.358)	(0.143)	(0.124)	(0.137)
White Collar EX	3.489**	-0.657	-2.798*	0.067	0.617	-0.717
	(1.413)	(0.883)	(1.442)	(0.467)	(0.483)	(0.520)
Self Employed EX	0.727	0.393	-1.943**	0.188	0.364	0.270
	(1.601)	(0.929)	(0.866)	(0.215)	(0.545)	(0.470)
White Collar Share	0.496*	-0.481**	-0.090	0.036	0.077	-0.038
	(0.254)	(0.227)	(0.298)	(0.124)	(0.150)	(0.095)
Self Employed Share	0.252**	-0.112	-0.296**	0.059	0.215***	-0.118**
	(0.103)	(0.080)	(0.124)	(0.047)	(0.055)	(0.049)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
F-stat (1st stage)	10.64	10.64	10.64	10.64	10.64	10.64
R^2	0.832	0.731	0.626	0.410	0.540	0.322
$N(districts)$	785	785	785	785	785	785

Notes: The regressions present the results for the effect of the export shock across different occupational groups on the vote share of main parties between 1928 and 1932. For this we separate our main explanatory variable (and instrument) into three sub-shocks:

$$\Delta \text{EX}_{o,n} = \sum_{i=1}^{I} \frac{L_{n,i,25}}{L_{n,25}} \frac{L_{o,i,25}}{L_{i,25}} \frac{\Delta EX^{GER}_{i,32-28}}{L_{i,25}}$$

The notation o denotes the three different occupational groups within an industry, which are blue collar workers, white collar workers, and self-employed (including owners, directors and individuals in cottage industries). Data on blue collar, white collar and self-employed employment is available at the industry-level from Statistisches Reichsamt (1925). Parties are ordered based on their political orientation with column 1 far-right (fascist) to column 6 far-left (communist). Column 3-5 present parties that predominantly supported the Weimar republic. All specifications present IV estimates and include the full set of controls corresponding to column 5 of Panel B, Table 4. Robust standard errors in parentheses clustered on Reg.-Bez. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Our results are supported by similar findings for the German presidential elections presented in Appendix Table A.9.[46]

[46]There we focus on the change in the vote share received by Hindenburg, Hitler, Thälmann and other candidates in the run-off elections in 1925 and 1932. We observe again that the overall export shock

6.3 Impact on the rural economy and the rise of the Nazis

Our analysis so far has captured the direct effect of the export shock on voting in local labour markets,[47] and can thus be thought of as capturing the partial equilibrium effect of the shock on areas involved in exporting, but not general equilibrium effects on other areas within Germany. However, considering the magnitude of the trade shock, it is important to understand whether it had spillover effects.[48] To gain some insights into the impact of the export shock on the German economy more broadly we can aggregate our data to different administrative-levels: by doing so our estimate will be able to capture more of the up- and downstream impact of the shock on the economy.

Table 7 presents the result at the Regierungsbezirk (governmental districts) and provincial level (Prussian provinces and other German states). Accordingly, we move from small areas with an average size of $596km^2$ (district) to large geographic sub-division of Germany with an area of $15,626km^2$ (province) now reflecting the impact of the export shock at a level of important federal budget decision making (Galofré-Vilà et al. 2021), as well as borders for internal trade for agricultural products within Germany (see Wolf 2009 p.851 & Table 3). The coefficient for the export shock in the OLS as well as the IV specification reverses direction in Column 2 (governmental districts) and 3 (provinces) compared to the district level specification in Column 1. This implies that the export shock increased support for the NSDAP at these more aggregated administrative levels. Note that the effect of the controls remains broadly the same across all specifications. We will provide more detailed evidence on the transmission of the export shock and its political consequences in the remainder of this section.

A transmission channel that can explain the reverse effect when looking at a more aggregate levels of administration are interlinkages between industrial areas directly affected by the export shock and surrounding rural areas acting as the agricultural hinterland supplying food locally. Hausman et al. (2019) and Hausman et al. (2020) have recently highlighted the importance of the agricultural sector during the Great Depression in the US and how the inter-linkage between the agricultural and industrial sector were a key propagation mechanism in worsening the crisis. While Germany started to become more economically integrated after WWI (see e.g. Wolf 2009), this integration was strongest

reduced the vote share received by Hitler and increased Hindernburg's vote share, while the export shock to blue-collar workers increased support for Hitler.

[47] Having merged cities with their surrounding areas the districts we used in our analysis plausibly reflect local labour markets for employment. Our measured effects accordingly captures the direct impact of the export shock on workers employed in these industries and general equilibrium effects that operate within these local labour markets. However, the shock might diffuse to other areas in Germany through internal migration and trade (e.g. reducing the price of traded goods). Table 3 suggests that the export shock did not diffuse through migration across labour markets. However, regional spillover effects on the price of traded goods, especially agricultural products, seems a plausible mechanism considering that the export shock mainly affected urban areas, i.e. importers of food from their respective agricultural hinterlands.

[48] Note that in the baseline specification the Electoral district and Province fixed effects should have absorbed most of these spillovers.

Table 7: Export shock by different administrative levels

	District (1)	Reg.-Bez. (2)	Province (3)
Panel A. OLS			
ΔEX 28-32	0.106*	-0.336*	-1.457***
	(0.056)	(0.169)	(0.483)
Share ind. empl. 1925	-0.260***	-0.455***	-1.377***
	(0.057)	(0.117)	(0.446)
Share Catholic 1925	-0.324***	-0.269***	-0.198***
	(0.007)	(0.020)	(0.042)
Share Jewish 1925	2.032***	1.151	1.066
	(0.587)	(1.048)	(1.149)
Share civil service 1925	-0.888***	-2.690**	-3.261
	(0.188)	(1.334)	(2.039)
Share urban 1925	-0.065***	-0.108**	-0.127**
	(0.012)	(0.049)	(0.058)
Share unemployed 1925	0.355**	0.156	1.908**
	(0.155)	(0.484)	(0.891)
R^2	0.743	0.747	0.751
Panel B. IV			
ΔEX 28-32	0.242***	-0.354	-1.690***
	(0.093)	(0.304)	(0.509)
F-stat (1st stage)	39.28	37.66	16.19
R^2	0.742	0.746	0.749
N	785	75	30

Notes: The table presents the political results at the level of (1) districts, (2) Regierungsbezirke ("administrative district") and (3) states and Prussian provinces reflecting increasing levels of administrative division in Germany. For comparability all specification are presented using robust standard errors and do not include State and Wahlkreis FE. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

for coal and iron, while rather weak for agricultural commodities like rye. As a result, agricultural hinterlands were still likely to supply specific urban and industrial areas. This is reflected in considerable variation in city level agricultural prices (see Appendix Figure B.5). This allows us to study whether prices across Germany adjusted locally to the economic decline. We look at change in prices 1928-32 (in Pfennig) at the city level as a result of the severity of the local export shock in Table 8. Areas that experienced a greater export shock saw a steeper decline in local agricultural prices for staple foods like potatoes, bread, beans and eggs, while there is no clear impact on higher value items like milk and pork.[49] This suggests that local demand changes propagated the export shock to surrounding agricultural areas.

Table 8: City-level agricultural prices

	Potatoes (1)	Beans (2)	Bread (3)	Eggs (4)	Milk (5)	Pork (6)
Panel A. OLS						
Δ EX 28-32	37.031**	49.040	50.109^{+}	20.314***	11.381	-125.568^{+}
	(15.445)	(50.969)	(30.432)	(6.983)	(17.135)	(83.802)
R^2	0.390	0.405	0.267	0.691	0.547	0.500
Panel B. IV						
Δ EX 28-32	61.479**	155.985*	60.608^{+}	27.358**	-17.215	-78.433
	(25.681)	(87.241)	(38.806)	(10.864)	(18.218)	(81.847)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
F-stat (1st stage)	13.74	14.63	13.74	13.74	13.74	14.04
R^2	0.358	0.366	0.266	0.686	0.501	0.496
$N(cities)$	44	42	44	44	44	47

Notes: The regressions present the results for the effect of the export shock on food prices at the city-level. Panel A presents the OLS-results for the change in exports per person on the retail price change for potatoes, beans, bread, eggs, milk, and pork in Pfennig between 1928 and 1932. Panel B presents the corresponding IV-results results using US imports from France and the UK as instrument. Data used combines information from the German Statistical Yearbook (Statistisches Reichsamt 1925-1938) and the Prussian Statistical Yearbook (Preussisches Statistisches Landesamt 1927-1934). Controls included as in Table 3. Robust standard errors in parentheses clustered on Reg.-Bez. $^{+}$ $p < 0.15$ * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

To investigate this mechanism further we study the spatial spread of the export shock on voting patterns across German districts. To do this we calculate for each district n the export shock per person faced by surrounding districts $-n$ within a radius of 25km, 50km, 75km, 100km and 125km:[50]

[49] This might also be because the reporting of varieties of pork is the least consistent across sources.

[50] These regional shocks roughly span an area ranging from about four surrounding districts ($1,963 km^2$) up to a tenth of Weimar Germany ($49,087 km^2$).

$$\Delta\text{Regional EX}_n = \sum_{i=1}^{I} \sum_{-n} \frac{L_{-n,i,25}}{L_{-n,25}} \frac{\Delta EX^{GER}_{i,32-28}}{L_{i,25}} \tag{6}$$

We construct an alternative regional export shock based on a gravity framework, where we assume the relevance of the export shock experienced by other districts $-n$ on district n to be based on their respective population and the inverse of distance from district n (with $-N$ capturing all German districts with the exception of district n itself), which is defined as follows:

$$\Delta\text{Regional EX}_n = \frac{Dist_{-N,n,25}}{Pop_{-N,25}} \sum_{-n}^{-N} \frac{Pop_{-n,25}}{Dist_{-n,n,25}} \Delta\text{EX}_{-n} \tag{7}$$

with ΔEX_{-n}, $Pop_{-n,25}$ and $Dist_{-n,n,25}$ being district $-n$'s export shock, population (proxying for a districts economic dimension) and distance to district n. $Dist_{-N,n,25}$ and $Pop_{-N,25}$ are the sum of population and distance used to normalize this across districts (the size of district n itself cancels out).

Panel A of Table 9 shows that we still observe a similar effect of the local export shock as in previous specifications. The newly included regional export shock affecting the area surrounding the district implies that a larger export shock in nearby areas led to an increase in the Nazi vote share in the district itself.[51] Consistent with geographically closer shocks being more relevant in driving local developments, the size of the effect declines as the area for the regional shock is expanded. Similarly, when using the gravity approach for constructing the regional export shock, we also observe that a larger regional decrease in exports increased local support for the Nazi party.

In Panel B and C of Table 9 we look at the different effect of the regional shock across cities, towns and rural areas.[52] The idea here is that if the decline in exports predominantly led to a rise in the Nazi party's vote share through linkages between industrial and agricultural areas, the regional effect should be stronger in exclusively rural areas. Indeed, we see that only rural areas are clearly affected by the regional export shock, increasing their vote share for the Nazi party considerably more. Instead, if the regional effect would be driven by austerity measures we would expect them to impact non-rural areas equally or even more. Results are similar when using German administrative areas to construct the regional export shock (see Appendix Table A.13).

[51] We do not include any Province or Electoral district FE in this specification as it would absorb some of the geographical spillover effects of the export shock we are particularly interested in.

[52] To keep the table concise we only present IV results and result for cities and towns in one panel. OLS results are similar in size and significant to IV estimates. There is also no significant effect observed for the regional shock when looking at towns and cities separately. Consistent with our interpretation the point estimate for the regional shock is smaller in magnitude for cities than towns. with the point estimate being smaller even smaller in cities.

Table 9: Spatial effect of the export shock

	25km (1)	50km (2)	75km (3)	100km (4)	125km (5)	Weighted (6)
Panel A. All						
Regional EX 28-32	-1.682*	-0.972	-0.701	-0.594	-0.544	-0.317*
	(0.969)	(0.797)	(0.668)	(0.606)	(0.557)	(0.171)
EX 28-32	0.234**	0.235**	0.236**	0.236**	0.238***	0.244***
	(0.099)	(0.106)	(0.113)	(0.093)	(0.090)	(0.082)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geography FE	No	No	No	No	No	No
F-stat (1st stage)	19.79	20.03	19.94	19.86	19.70	19.72
R^2	0.743	0.742	0.742	0.742	0.741	0.743
$N(districts)$	785	785	785	785	785	785
Panel B. Cities & Towns						
Regional EX 28-32	-1.185	-0.691	-0.494	-0.421	-0.391	-0.205
	(0.989)	(0.814)	(0.640)	(0.584)	(0.551)	(0.153)
EX 28-32	0.199*	0.198*	0.200*	0.201**	0.202**	0.205**
	(0.106)	(0.111)	(0.117)	(0.096)	(0.092)	(0.087)
F-stat (1st stage)	15.54	16.02	15.85	15.86	15.89	15.57
R^2	0.725	0.723	0.723	0.723	0.722	0.724
$N(districts)$	563	563	563	563	563	563
Panel C. Rural						
Regional EX 28-32	-3.227*	-1.857*	-1.387*	-1.150*	-1.006*	-0.703**
	(1.729)	(0.990)	(0.737)	(0.612)	(0.536)	(0.285)
EX 28-32	0.325	0.378	0.355	0.332	0.320	0.378
	(0.245)	(0.247)	(0.248)	(0.244)	(0.245)	(0.262)
F-stat (1st stage)	59.79	58.67	59.59	60.22	59.93	66.48
R^2	0.783	0.783	0.783	0.782	0.782	0.785
$N(districts)$	222	222	222	222	222	222

Notes: The regressions present the IV results for the effect of the local decline in exports and the decline of export in an area surrounding the district. OLS results are similar. In columns 1-5 the regional shock is the average decline in exports per person for surrounding districts in a radius of 25km, 50km, 75km, 100km, and 125km. Column 6 presents the regional shock constructed as the export shock in other districts weighted by population size and inverse distance, i.e. measuring the importance of a district within Germany to the respective observation following the most simple gravity model of trade assuming no differences in trade costs per km and income per person. Both Ex 28-32 and Regional EX 28-32 shock are instrumented with the corresponding US-UK/FR import decline, respectively. Distance specific Conley standard errors accounting for spatial correlation in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

7 Conclusion

The drastic trade collapse of the Great Depression coincided with a drastic rise in extreme voting across countries. The economic hardship of the Great Depression has long been blamed for the collapse of the Weimar republic and the rise of the Nazi party in Germany at the start of the 1930s. We have investigated whether the collapse in trade lead to economic hardship across German industries and cities, establishing a casual effect by exploiting the exogenous drop in US demand for imports from France and the UK. We have also studied whether this economic hardship caused by the decline in German exports contributed to the increase in the Nazi party's vote share between 1928 and 1932 across Germany.

German industries that were more exposed to the decline in exports during the Great Depression witnessed a decline in value of output produced and number of individuals employed, as well as more firm closures. In terms of output the decline in foreign demand nearly one to one translated into a decline in output, while employment was even more severely hit. Our estimate suggests that the decline in foreign demand for German products can explain about 23% of the decline in German industrial output. When we look at the effect of the trade collapse across cities, we find that cities more exposed experienced a considerable decline in economic activity, reflected in a decline in electricity consumption and commuting, drop in income, consumption and business tax revenues, and a rise in unemployment. The different estimates suggest that the export shock caused a decline of 5% to 20% in economic activity in the average city.

However, rather surprisingly German districts more exposed to the export shock observed a smaller increase in the Nazi party vote share between 1928 and 1932. In particular, as one moves from the 25th to 75th percentile in exposure to the export shock (that is from 20RM to 80RM per person), the Nazi vote share declined by 1.4 percentage points. Instead voters turned to smaller parties representing predominantly specific segments of the German middle classes and their economic concerns. Reassuringly, a pre-trend analysis reveals that exposure to the export shock does not predict changes in the vote share in the elections that occurred between 1920 and 1928. The decline in the Nazi party vote share appears to be driven by white-collar workers that had much to lose from the Nazi party's economic policies. In contrast, blue-collar workers which had more to gain from the Nazi parties main economic policy of "work and bread" increased their support fdue to the export shock.

Finally, we also find evidence that the export shock had important spillover effects on the support for the Nazi party that go beyond the local areas directly affected. The export shock led to a decline in local food prices in cities more affected by it. In turn this seems to have led to an increase in support for the Nazi party in agricultural areas that

suffered from this decline in demand from cities. Overall these spillover effects outweighed the direct effect of the export shock and contributed to the rise of the Nazi party.

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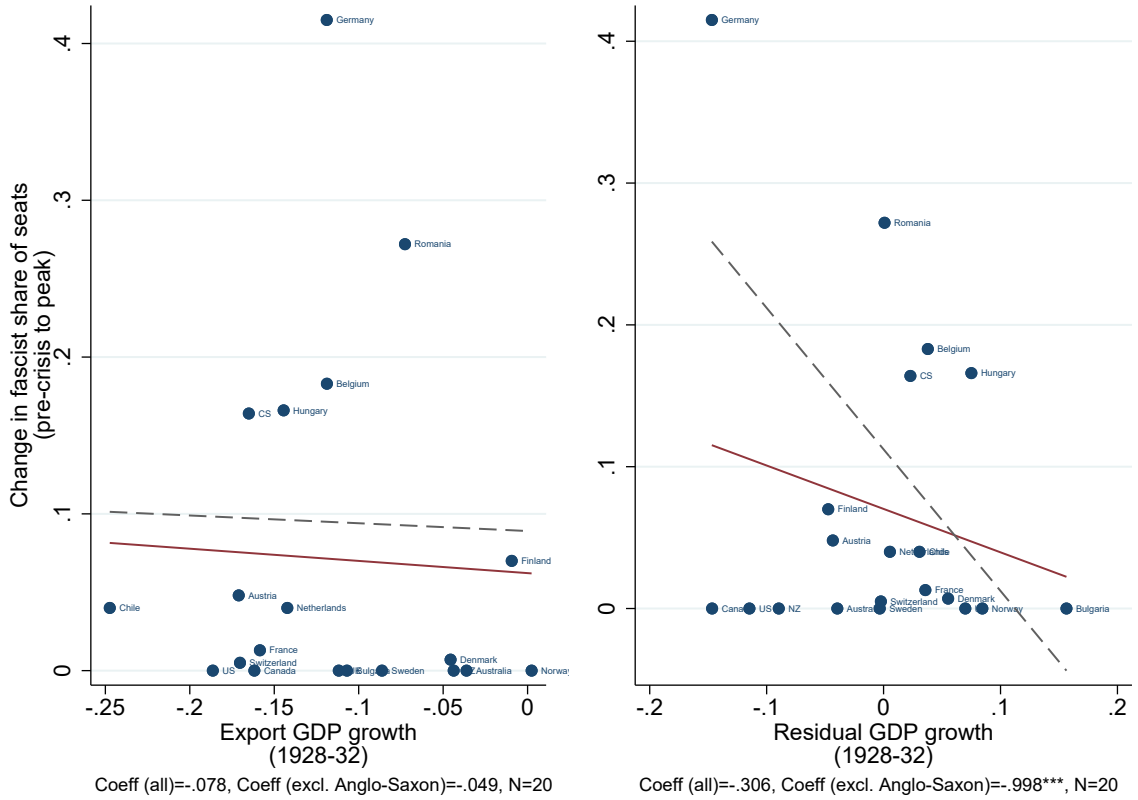
A Additional Figures & Tables

Figure A.1: Trade and the Great Depression

Notes: The figure plots the relationship between export and GDP growth across countries between June 1928 and June 1932. Data source: Albers 2018

Figure A.2: The Great Depression and Extremism



Notes: The figure plots the relationship between the change in share of seats obtained by fascist parties from before 1929 to the peak on GDP growth during the Great Depression. The left figure plots the change in seats on GDP growth associated with the change in exports and the right figure on residual change in GDP between June 1928 and June 1932, respectively. The red-solid line plots the relationship for the full sample, the grey-dashed line plots the relationship excluding the stable Anglo-Saxon democracies. The export and residual related GDP is obtained from the bivariate regression presented in Figure A.1. Data sources: De Bromhead et al. 2013; Albers 2018

Figure A.3: Nazi party propaganda posters aimed at urban areas

Notes: Election posters used by the Nazi party targeted at urban areas. Left poster depicting the starving masses used in the July 1932 election with the caption saying: "Last hope Hitler". Right poster used in the November 1932 election reading "Work and bread through National Socialism" with a working factory in the background. Source: Imperial war museum and German Propaganda Archive.

Figure A.4: Nazi party propaganda posters aimed at rural areas

Notes: Election posters used by the Nazi party targeted at farmers. Left poster used in the March 1933 election depicting a farmer holding its tools in front of a field with the sign saying "impounded" with the caption saying: "Free the fields, Peasants vote for Hitler". Right poster used in the September 1930 election depicting a Nazi swastika representing the sun over a field of grain with the caption saying: "Freedom and Bread". 1930 Source: Library of Congressand German Propaganda Archive.

Table A.1: Summary statistics

	Mean	Std. dev.	25th Perc.	75th Perc.	Valid obs.
Panel A. Industry specification					
Δ Value	-0.50	0.27	-0.61	-0.42	42
Δ Price	-0.33	0.20	-0.48	-0.19	41
Δ Employment	-0.19	0.32	-0.40	-0.11	45
Δ Wage	-0.15	0.23	-0.24	-0.12	36
Δ Firms	-0.03	0.32	-0.23	0.10	45
Δ EX 28-32	-0.12	0.18	-0.16	-0.02	45
Log employment	9.87	1.75	8.74	11.34	45
Mining	0.13	0.34	0.00	0.00	45
Metal & machinery	0.24	0.43	0.00	0.00	45
Chemicals	0.04	0.21	0.00	0.00	45
Food	0.07	0.25	0.00	0.00	45
Panel B. City specification					
Δ Electricity	-19.98	45.76	-41.17	3.60	65
Δ Transport	-55.16	40.63	-79.96	-19.33	70
Δ Income tax	-17.78	4.81	-21.01	-14.64	82
Δ Corporation tax	-9.85	8.24	-14.86	-4.37	82
Δ Consumption tax	1.80	0.90	1.25	2.38	73
Δ ALU unemployment	-0.01	0.01	-0.02	-0.01	85
Δ ALU+KRU unemployment	-0.02	0.02	-0.03	-0.01	85
Δ Total unemployment	0.02	0.03	-0.00	0.03	85
Δ Deposits	-0.30	0.33	-0.53	-0.09	78
Δ Withdrawals	0.21	0.36	0.01	0.40	78
Δ Population	0.06	0.09	0.02	0.06	85
Δ EX 28-32	-0.06	0.05	-0.08	-0.03	89
Share ind. empl. 1925	0.19	0.08	0.13	0.23	89
Log inhabitants	11.76	0.89	11.13	12.33	89
Share Catholic 1925	0.35	0.31	0.05	0.59	78
Share Jewish 1925	0.01	0.01	0.01	0.01	77
Share civil service 1925	0.04	0.02	0.03	0.04	79
Share unemployed 1925	0.07	0.03	0.05	0.09	79
Panel C. Political specification					
Δ NSDAP 28-32	0.37	0.14	0.26	0.47	785
Δ DNVP 28-32	-0.09	0.11	-0.14	-0.01	785
Δ Other 28-32	-0.24	0.11	-0.30	-0.16	785
Δ Zentrum 28-32	0.00	0.04	-0.01	0.01	785
Δ SPD 28-32	-0.08	0.05	-0.10	-0.04	785
Δ KPD 28-32	0.04	0.03	0.02	0.05	785
Δ Vote share 28-32	0.09	0.07	0.05	0.12	785
Δ EX 28-32	-0.06	0.07	-0.08	-0.02	786
UK&FR exports to US 1928-32	-0.01	0.01	-0.01	-0.00	786
Share ind. empl. 1925	0.12	0.08	0.07	0.16	785
Share Catholic 1925	0.37	0.38	0.03	0.82	785
Share Jewish 1925	0.00	0.01	0.00	0.01	785
Share civil service 1925	0.02	0.01	0.01	0.02	785
Share urban 1925	0.29	0.28	0.00	0.43	785
Share unemployed 1925	0.06	0.02	0.05	0.07	785
Blue Collar EX	-0.05	0.06	-0.06	-0.01	786
White Collar EX	-0.01	0.01	-0.01	-0.00	786
Self Employed EX	-0.00	0.01	-0.01	-0.00	786
Female EX	-0.02	0.03	-0.02	-0.00	786
Male EX	-0.05	0.05	-0.06	-0.01	786
White Collar Share	0.09	0.02	0.08	0.10	786
Self Employed Share	0.15	0.04	0.12	0.18	786
Female Empl. Share	0.21	0.07	0.16	0.24	786

Notes: Summary statistics for the main variables used. Panel A presents the variables for the economic analysis at the industry level. Panel B presents the variables for the economic analysis at the city level. Panel C presents the variables for the political analysis at the district level.

Table A.2: Correlation change exports 1928-32 with 1925 district characteristics

Panel A. German exports 1928-32		*Panel B. UK/FR exports to US 1928-32*	
% NSDAP 1928	0.003	% NSDAP 1928	-0.001
	(0.002)		(0.002)
% DNVP 1928	0.005	% DNVP 1928	0.005
	(0.006)		(0.004)
% Other parties 1928	0.003	% Other parties 1928	0.000
	(0.008)		(0.005)
% Zentrum 1928	0.015	% Zentrum 1928	0.017
	(0.012)		(0.013)
% SPD 1928	-0.008	% SPD 1928	-0.011
	(0.008)		(0.007)
% KPD 1928	-0.018***	% KPD 1928	-0.011***
	(0.005)		(0.004)
% Catholic 1925	0.026	% Catholic 1925	0.031*
	(0.019)		(0.018)
% Jewish 1925	0.000	% Jewish 1925	0.000
	(0.000)		(0.000)
% Civil service 1925	0.000	% Civil service 1925	0.001**
	(0.000)		(0.000)
% Urban 1925	-0.064***	% Urban 1925	0.000
	(0.017)		(0.016)
% Unemployed 1925	0.002*	% Unemployed 1925	0.000
	(0.001)		(0.001)
% Female empl. 1925	0.008	% Female empl. 1925	-0.004
	(0.006)		(0.006)
% Blue-collar workers 1925	0.006*	% Blue-collar workers 1925	0.009***
	(0.004)		(0.003)
% White-collar workers 1925	-0.005**	% White-collar workers 1925	-0.004**
	(0.002)		(0.002)
% Heavy industry workers 1925	-0.000	% Heavy industry workers 1925	0.005
	(0.004)		(0.003)

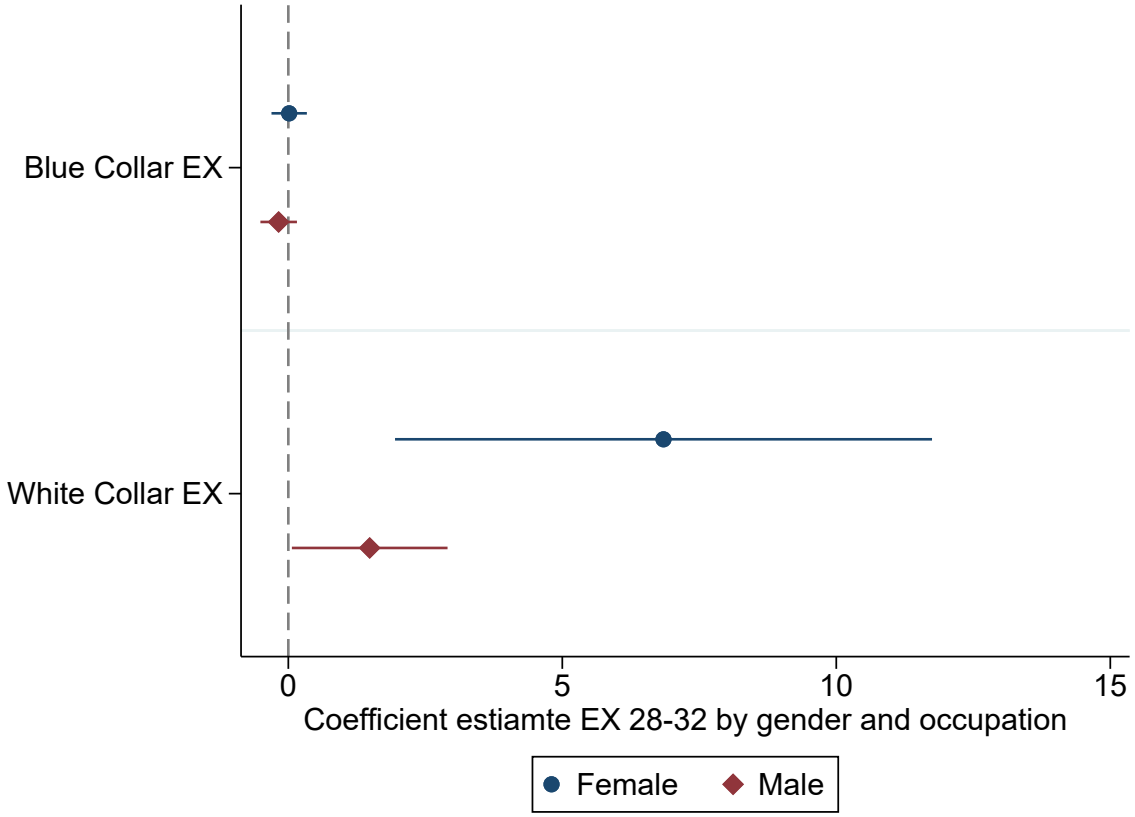
Table A.3: Notes: Correlation A) change in German exports per person 1928-32 and B) the instrumental variable (UK|FR exports to the US) with initial district level characteristics after controlling for 1925 industrial employment share. Coefficient size adjusted to represent a one standard deviation change in German exports per person 1928-32 and UK|FR exports to the US for comparability.

Table A.4: City level economic effect of instrumented export shock - Extended results for Table 3 Panel B

	Elec-tricity	Public transport	Tax collection			Unemployment rate			Saving deposits	Pop. growth
			Inc. (N)	Corp. (C)	Cons. (C)	ALU	ALU+KRU	All		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A. No controls										
Δ EX 28-32	349.268***	208.465**	31.982***	-32.790	2.812	-0.053*	-0.126*	-0.212*	2.070**	0.103
	(77.796)	(89.980)	(8.901)	(39.116)	(3.833)	(0.028)	(0.066)	(0.126)	(0.816)	(0.173)
Panel B. Controls for state fixed effects and 1925 manufacturing share										
Δ EX 28-32	491.763***	429.624**	48.507***	34.336*	6.449**	-0.080*	-0.181*	-0.194	3.596***	0.120
	(101.530)	(177.862)	(16.125)	(17.822)	(2.716)	(0.043)	(0.108)	(0.152)	(0.889)	(0.188)
Share ind. empl. 1925	46.049	192.410**	2.739	0.483	-0.388	-0.056***	-0.089*	-0.049	1.131**	0.248
	(92.317)	(82.773)	(9.628)	(12.993)	(1.866)	(0.020)	(0.046)	(0.073)	(0.540)	(0.181)
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$N(cities)$	65	69	81	81	72	84	84	84	78	84

Notes: The table presents the corresponding results to Panel B of Table 3. Standard errors clustered on Reg.-Bez in parentheses. $^{+}$ $p < 0.15$ * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure A.5: Effect on Nazi vote share by occupation and gender



Notes: Effect of EX shock by main type occupation and gender. Baseline controls plus share of employment by occupation and gender included. Presented results based on OLS estiamtes as no relevant first stage. Confidence interval 90%. N=785

Table A.5: Alternative instruments

	(1)	(2)	(3)	(4)	(5)
Panel A. Instrument: Change in US imports from Germany 1928-32					
Δ EX 28-32	0.197	0.397***	0.376***	0.302**	0.304***
	(0.130)	(0.083)	(0.115)	(0.126)	(0.115)
F-stat (1st stage)	141.35	100.30	66.06	68.03	65.74
First stage coeff.	6.736***	6.220***	4.107***	4.123***	4.084***
	(0.566)	(0.621)	(0.505)	(0.500)	(0.504)
Reduced form coeff.	1.327	2.468***	1.545***	1.246**	1.241***
	(0.872)	(0.604)	(0.469)	(0.480)	(0.417)
R^2	0.011	0.520	0.520	0.823	0.830
Panel B. Instrument: Change US imports from Germany 1928-30					
Δ EX 28-32	0.160	0.406***	0.396	0.306	0.331
	(0.179)	(0.139)	(0.249)	(0.300)	(0.280)
F-stat (1st stage)	34.47	22.08	10.80	10.96	10.71
First stage coeff.	7.771***	6.471***	3.407***	3.438***	3.388***
	(1.323)	(1.377)	(1.036)	(1.039)	(1.035)
Reduced form coeff.	1.243	2.624**	1.348	1.052	1.123
	(1.456)	(1.089)	(0.886)	(1.047)	(0.929)
R^2	0.010	0.519	0.520	0.823	0.830
Panel C. Instrument: Change US imports from UK 1928-32					
Δ EX 28-32	0.109	0.362***	0.291**	0.298***	0.270***
	(0.132)	(0.093)	(0.137)	(0.108)	(0.100)
F-stat (1st stage)	69.17	42.73	18.13	18.10	18.18
First stage coeff.	6.220***	5.673***	3.459***	3.458***	3.379***
	(0.747)	(0.868)	(0.812)	(0.813)	(0.793)
Reduced form coeff.	0.678	2.051***	1.005*	1.030**	0.912**
	(0.848)	(0.678)	(0.594)	(0.506)	(0.452)
R^2	0.008	0.520	0.522	0.824	0.831
Panel D. Instrument: Change US imports from France 1928-32					
Δ EX 28-32	0.178	0.366***	0.295**	0.223**	0.228**
	(0.132)	(0.083)	(0.117)	(0.110)	(0.097)
F-stat (1st stage)	97.44	57.54	25.64	25.98	27.15
First stage coeff.	6.730***	6.196***	3.918***	3.932***	3.877***
	(0.681)	(0.817)	(0.774)	(0.771)	(0.744)
Reduced form coeff.	1.195	2.268***	1.156**	0.877	0.884*
	(0.919)	(0.682)	(0.572)	(0.536)	(0.468)
R^2	0.011	0.520	0.522	0.824	0.832
$N(districts)$	785	785	785	785	785

Would it make sense to use US-FR|UK trade 1928-30? Maybe not relevant. Or Smith-Hawley tariffs as instrument. Notes: For all regressions the dependent variable is the change in the Nazi party vote share between the parliamentary elections in May 1928 and June 1932. Controls used correspond to Table 4. Panel A presents IV-results using US imports from Germany 1928-32 as instrument. Panel B presents uses only the initial decline in US imports from Germany 1928-30 as instrument. Robust standard errors in parentheses clustered on Reg.-Bez. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.6: City-level political results

	NSDAP (1)	DNVP (2)	Other (3)	Zentrum (4)	SPD (5)	KPD (6)
Panel A. OLS						
Δ EX 28-32	0.425*	-0.315	-0.402**	-0.041	-0.101	0.120
	(0.234)	(0.242)	(0.177)	(0.059)	(0.159)	(0.160)
R^2	0.858	0.776	0.869	0.708	0.711	0.629
Panel B. IV						
Δ EX 28-32	0.464***	-0.105	-0.375***	-0.018	-0.063	-0.008
	(0.140)	(0.105)	(0.136)	(0.074)	(0.135)	(0.101)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
F-stat (1st stage)	128.78	128.78	128.78	128.78	128.78	128.78
R^2	0.858	0.776	0.869	0.708	0.711	0.629
$N(cities)$	76	76	76	76	76	76

Notes: The table presents the city level political results. Both specifications include the full set of controls corresponding to Table 3, but control for the politically important and more detailed Electoral district fixed-effects rather than German states as in our baseline specification Table 4. Robust standard errors in parentheses clustered on Reg.-Bez. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.7: Decomposition of the export shock

Panel A. Effect across urban and rural areas			
	Cities	Towns	Rural
	(1)	(2)	(3)
Δ EX 28-32	0.178*	0.202*	-0.084
	(0.107)	(0.113)	(0.282)
Controls	Yes	Yes	Yes
F-stat (1st stage)	13.07	16.18	26.55
$N(districts)$	110	453	222
Panel B. Effect across state political stability			
	Prussia	Other stable	Unstable
	(4)	(5)	(6)
Δ EX 28-32	0.211**	0.532*	0.211**
	(0.094)	(0.275)	(0.103)
Controls	Yes	Yes	Yes
F-stat (1st stage)	32.60	17.06	13.49
$N(districts)$	424	41	314

Notes: The table present a decomposition of the export shock on the Nazi party vote share across different geographic areas. Panel A looks at the geographic distribution of the effect distinguishing it by the localities degree of urbanisation. Column 1 "cities" includes all areas with an urban population of more than 50000. Column 2 "towns" includes all areas with an urban population of up to 50000. Column 3 "rural" includes only areas with no urban population. The used district boundaries encompass both district-free cities ("Stadtkreis") and surrounding area ("Landkreis"), and can even include more than one city, so that more areas are classified as having 50000 urban population than in the city sample. Similar results are obtained when using the city-sample (see Online Appendix Table 4). Panel B looks at the geographic distribution of the effect distinguishing by political stability at the state-level based on the principal component ranking of Satyanath et al. (2017). Column 1 looks at the effect of the export shock in stable Prussia (principal component 1.29). Column 2 looks at all stable states outside Prussia (principal component -1 to 2). Column 3 looks at all unstable states (principal component -3 to -1). All specifications present IV estimates and include the full set of controls corresponding to column 5 of Panel B, Table 4. Robust standard errors in parentheses clustered on Reg.-Bez. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.8: Effect across political parties

Panel A. OLS							
	NSDAP	DNVP	Other	Zentrum	SPD	KPD	Turnout
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Δ EX 28-32	0.160***	-0.040	-0.111	-0.036	0.002	0.025	0.068*
	(0.049)	(0.049)	(0.081)	(0.023)	(0.042)	(0.028)	(0.037)
R^2	0.832	0.729	0.623	0.410	0.528	0.308	0.544
Panel B. IV							
Δ EX 28-32	0.239***	-0.017	-0.219***	-0.045	0.024	0.017	0.109*
	(0.082)	(0.059)	(0.084)	(0.031)	(0.051)	(0.045)	(0.059)
F-stat (1st stage)	29.37	29.37	29.37	29.37	29.37	29.37	29.37
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$N(districts)$	785	785	785	785	785	785	785

Notes: The regressions present the results for the effect of the export shock on the vote share of main parties and turnout between 1928 and 1932. Parties are ordered based on their political orientation with column 1 far-right (fascist) to column 6 far-left (communist). Column 3-5 present parties that predominantly supported the Weimar republic. All specifications present IV estimates and include the full set of controls corresponding to column 5 of Panel B, Table 4. Robust standard errors in parentheses clustered on Reg.-Bez. sym* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.9: Effect on presidential elections

Panel A. OLS				
	Hindenburg	Hitler	Thälmann	Other
	(1)	(2)	(3)	(4)
EX 28-32	-0.616***	0.286***	0.003	0.326***
	(0.189)	(0.093)	(0.024)	(0.126)
F-stat (1st stage)	29.37	29.37	29.37	29.37
R^2	0.847	0.803	0.296	0.840
Panel B. IV				
Blue Collar EX	0.605	-0.716**	0.099	0.011
	(0.524)	(0.334)	(0.104)	(0.292)
White Collar EX	-6.076**	4.782***	-0.499	1.793
	(2.415)	(1.780)	(0.417)	(1.155)
Self Employed EX	0.352	-0.210	0.183	-0.324
	(2.749)	(0.969)	(0.278)	(1.832)
F-stat (1st stage)	10.64	10.64	10.64	10.64
R^2	0.849	0.803	0.293	0.842
Controls	Yes	Yes	Yes	Yes
$N(districts)$	785	785	785	785

Notes: The regressions present the effect on the change in the vote share of candidates in the run-off elections for the Reichspräsident between 1925 and 1932. Hindenburg (especially in 1932) being the moderate candidate supported by a coalition of parties, while Hitler and Thälmann are the candidates for the far-right (Nazi party) and far-left (KPD), respectively. Other represents the votes other candidates received. Panel A presents the overall effect of the export shock and Panel B breaks the export shock down by occupational groups. All specifications are IV estimates and include the full set of controls corresponding to Table A.8 for Panel A and Table 6 for Panel B. Robust standard errors in parentheses clustered on Reg.-Bez. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.10: Aggregate results at the province level

Panel A. OLS							
	NSDAP	DNVP	Other	Zentrum	SPD	KPD	Turnout
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Δ EX 28-32	-1.457***	0.485	0.560	-0.004	0.025	0.391***	-0.492
	(0.483)	(0.583)	(0.462)	(0.121)	(0.438)	(0.104)	(0.331)
R^2	0.751	0.494	0.548	0.514	0.409	0.421	0.495
Panel B. IV							
Δ EX 28-32	-1.690***	-0.365	1.539*	0.153	-0.329	0.693***	-1.166*
	(0.509)	(0.784)	(0.892)	(0.196)	(0.532)	(0.237)	(0.642)
F-stat (1st stage)	16.19	16.19	16.19	16.19	16.19	16.19	16.19
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$N(states)$	30	30	30	30	30	30	30

Notes: The table presents the political results at the level of German states and Prussian provinces including controls from Table 4. This provides an important administrative level for the implementation of austerity measures, including spending cuts and tax rises see Galofré-Vilà et al. (2021), through which the decline in exports might have had spillover effects beyond local labour markets. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.11: Aggregate results at the Reg.-Bez. level

Panel A. OLS							
	NSDAP	DNVP	Other	Zentrum	SPD	KPD	Turnout
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Δ EX 28-32	-0.336*	-0.262	0.546**	0.059	-0.136	0.128*	-0.102
	(0.169)	(0.176)	(0.210)	(0.056)	(0.165)	(0.071)	(0.140)
R^2	0.747	0.388	0.394	0.164	0.372	0.265	0.427
Panel B. IV							
Δ EX 28-32	-0.354	-0.690*	1.137***	0.184*	-0.701***	0.424***	-0.108
	(0.304)	(0.399)	(0.381)	(0.110)	(0.244)	(0.111)	(0.309)
F-stat (1st stage)	37.66	37.66	37.66	37.66	37.66	37.66	37.66
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$N(Reg.-Bez.)$	75	75	75	75	75	75	75

Notes: The table presents the political results at the level of German Reg.-Bez. and including controls from Table 4. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.12: Regional shock by party

	NSDAP	DNVP	Other	Zentrum	SPD	KPD	Turnout
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A. All							
Regional EX 28-32	-0.317*	-0.171	0.352	0.101	0.077	-0.042	-0.187
	(0.171)	(0.274)	(0.304)	(0.064)	(0.102)	(0.032)	(0.180)
$N(districts)$	785	785	785	785	785	785	785
Panel B. Rural							
Regional EX 28-32	-0.703*	0.203	0.116	0.126	0.308**	-0.051	-0.240
	(0.386)	(0.393)	(0.748)	(0.131)	(0.143)	(0.055)	(0.300)
$N(districts)$	222	222	222	222	222	222	222

Notes: The table presents the results across all parties for the regional export shock weighted by population and inverse distance corresponding to Column 6 of Table 9. Results for Cities and Towns not presented as no significant effect observable for the regional export shock. Conley standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.13: Spatial effect of the export shock

	All	Towns	Rural
	(1)	(2)	(3)
Panel A. Regional effect within governmental districts			
EX 28-32	0.250***	0.211**	0.364
	(0.095)	(0.101)	(0.279)
Regional EX 28-32	-0.123*	-0.049	-0.350*
	(0.070)	(0.077)	(0.185)
Controls	Yes	Yes	Yes
Geography FE	No	No	No
F-stat (1st stage)	39.34	31.26	117.98
$N(districts)$	774	552	222
Panel B. Regional effect within electoral districts			
EX 28-32	0.246***	0.210**	0.286
	(0.094)	(0.100)	(0.274)
Regional EX 28-32	-0.120	-0.053	-0.403**
	(0.077)	(0.087)	(0.194)
F-stat (1st stage)	39.44	31.37	116.44
$N(districts)$	782	560	222
Panel C. Regional effect within Prussian provinces			
EX 28-32	0.331***	0.364***	-0.141
	(0.106)	(0.108)	(0.273)
Regional EX 28-32	0.223	0.526***	-0.879**
	(0.149)	(0.160)	(0.394)
F-stat (1st stage)	39.98	62.81	87.92
$N(districts)$	423	324	99

Notes: The regressions present the IV results for the effect of the local decline in exports and the decline of export in the remaining administrative area surrounding the district. The regional shock is calculated based on governmental districts (Reg.-Bez.) in Panel A, electoral districts (Wahlkreise) in Panel B, and Prussian provinces in Panel C. If only one district in administrative area regional shock is treated as missing value. The regional shock is the average decline in exports per person for the surrounding administrative area. Column 1 presents the effect using all districts, column 2 using only district that include cities and towns and column 3 uses only districts exclusively rural. Both Ex 28-32 and Regional EX 28-32 shock are instrumented with the corresponding US-UK/FR import decline, respectively. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

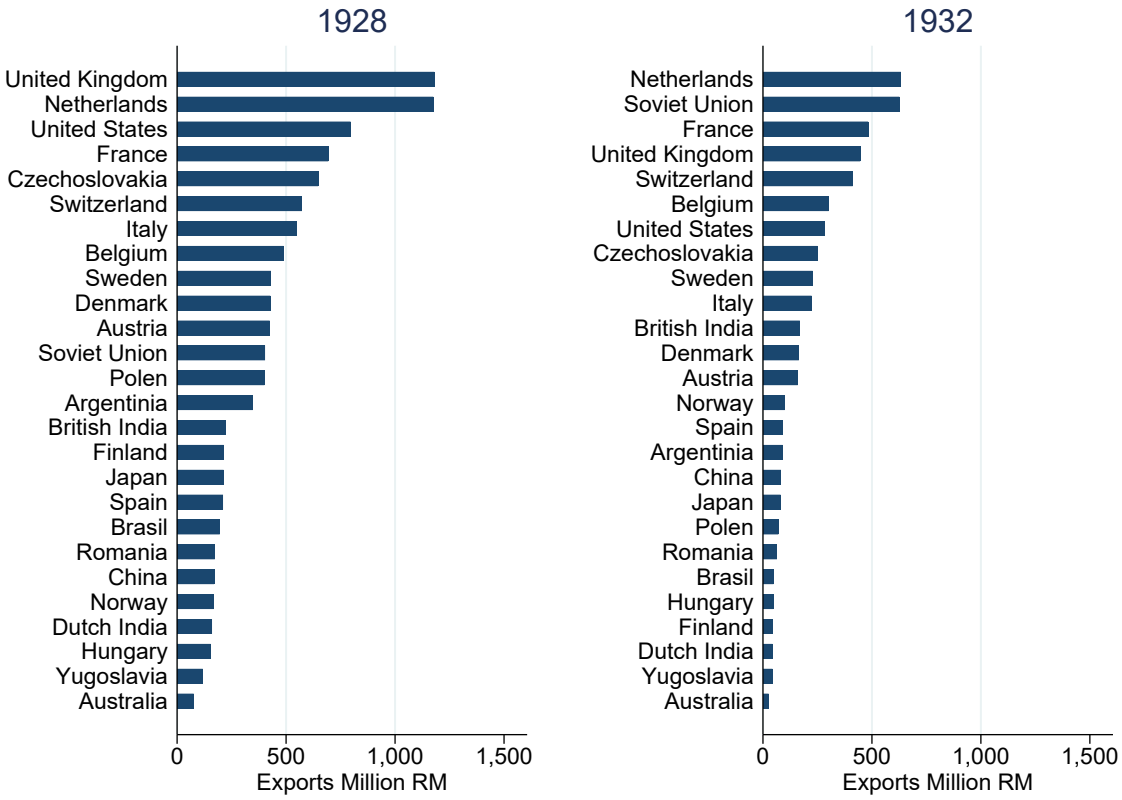
B Data Appendix

B.1 Trade data

We collect our trade data from the German Trade Statistics 1928-1932 (see Statistisches Reichsamt 1928-1932). These contain data on German exports and imports by country and product in terms of value and quantity. The trade categories are in general organised along 4-levels of detail. We collect information on 2278 (2344) trade categories, the most detailed level for the years 1928 (1932), to be merged to aggregated industrial sectors that match German census data (on which more below).

For nearly all categories, trade in terms of value and quantity decreased. This is unsurprising considering that the Great Depression in Germany was a deflationary period (see Rath 2009). It appears likely that prices for products dropped more in sectors harder hit by a decline in foreign demand. Both the effect of the decline in quantity exported and drop in prices should go in the same direction increasing the economic impact of the export shock. For this reason we use nominal values to measure the decline in German exports. In addition, nominal value data does not suffer from the problem that the recorded type of quantity changes between 1928 and 1932 for some products complicating the construction of German export data at the product level in quantity or real values.

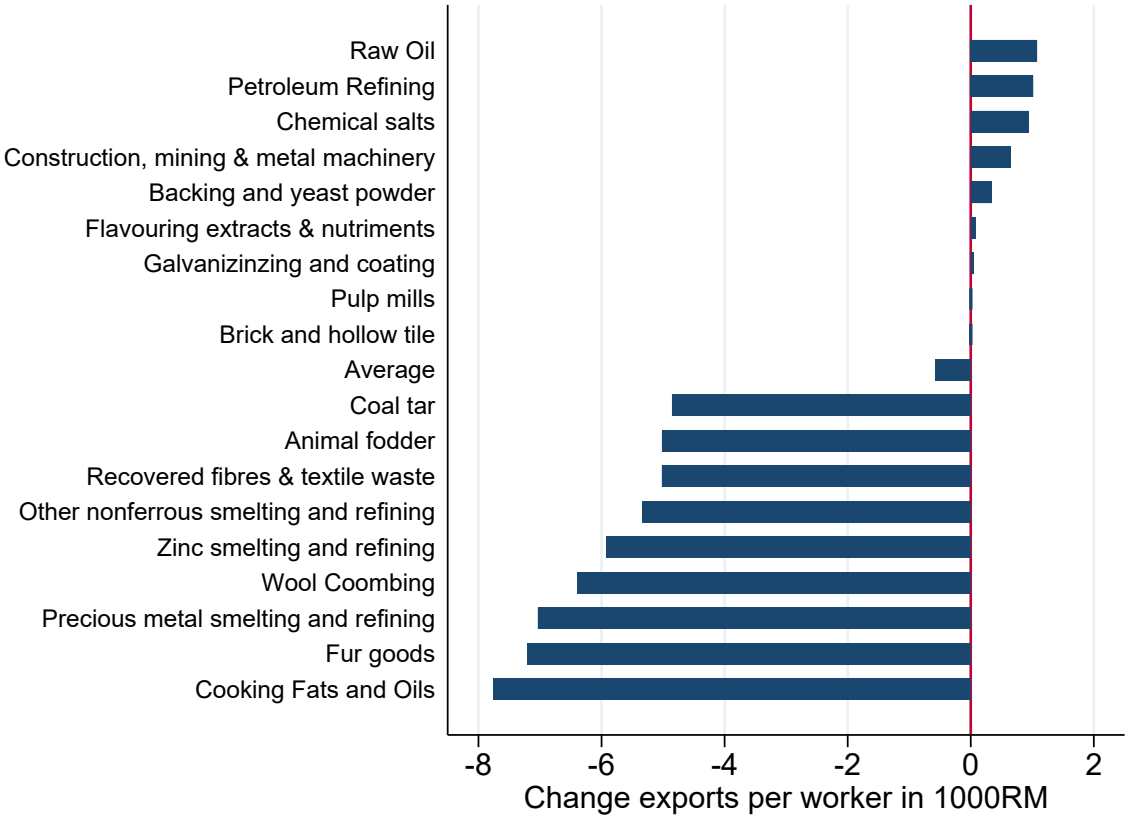
Figure B.1: German exports by country



Notes: German exports to main destination countries in million Reichsmark for the years 1928 and 1932.
Source: Statistisches Reichsamt 1925-1938

Figure B.1 in the Appendix illustrates the drastic decline in German exports between 1928 and 1932. During the 4-year period between 1928 and 1932, the value of German exports declined to all major trade partners (apart from the Soviet Union) by a factor of 2-3, from a total of 12,025 to 5,736 million Reichsmark with the decline being particularly pronounced for the US. This implies a 53.3% decline in German exports. In comparison, the total German GDP (see "Volkswirtschaftliche Bilanz" in Statistisches Reichsamt 1925-1938) was 75,373 (45,266) million Reichsmark in 1928 (1932), which implies the value of German exports was 15.9% and 12.7% of German GDP, respectively. Figure B.2 in the Appendix highlights that this decline was very different across industrial sectors with the most exposed sectors experiencing a more than 10 fold higher decline in exports per worker than the average sector. Also, for a small set of sectors exports remained stable or even grew during the Great Depression.

Figure B.2: Exposure to decline in exports 1928-32

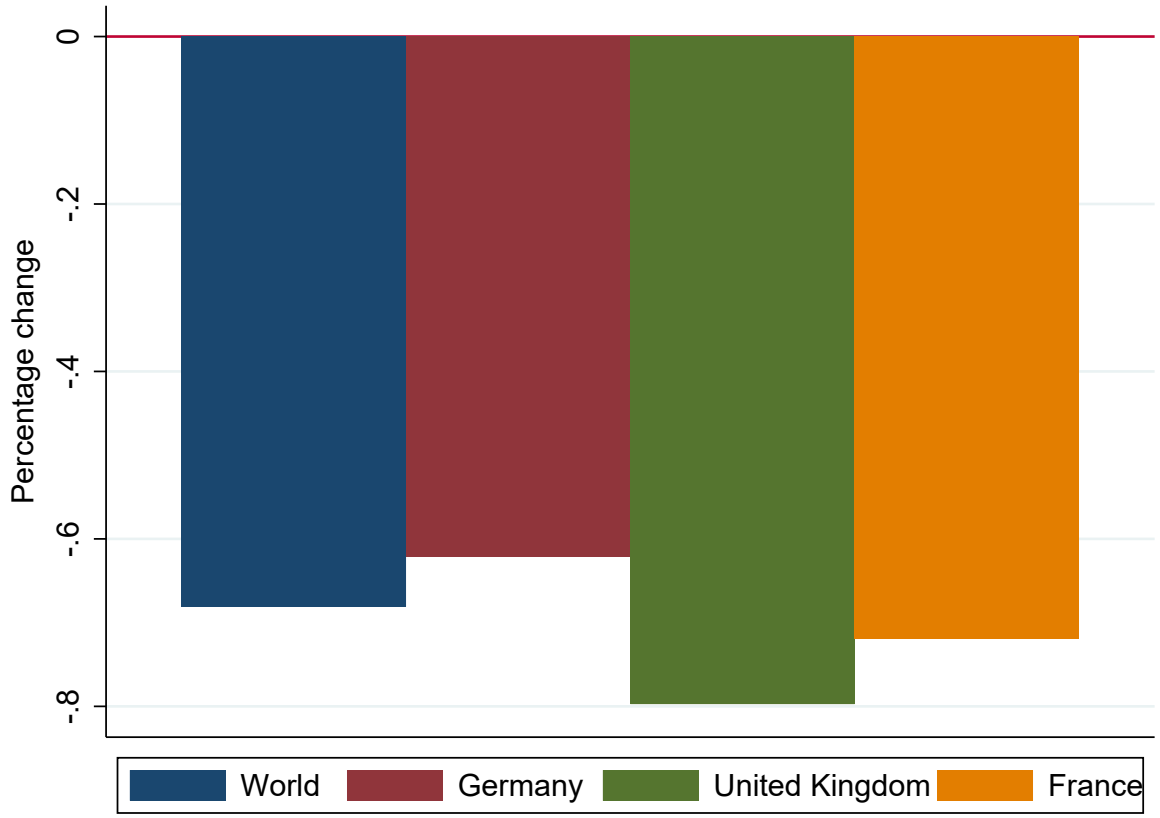


Notes: Change in exports per worker by industry for industries below the 5th percentile and above the 95th percentile. The figure also reports average change as the unweighted mean across all industries. The average income for a worker in 1928 was around 2000RM. Exposure per worker constructed by the authors from Statistisches Reichsamt (1928-1932) and Statistisches Reichsamt (1925) data.

In addition to trade data collected from German sources, we also collect detailed US imports by product category from Germany, the UK and France from the "The foreign commerce and navigation of the United States" (see United States Department of Commerce 1928-1932). The US trade data provides information by origin for more than a thousand different products (the number differs slightly between 1928 and 1932), we also aggregate this data to our merged industrial sectors. Comparing the German records

on exports to the US with US records of imports from Germany after merging the data suggests a decent quality of matching US and German classifications. We use this second source of trade data on US imports from the UK and France to construct our exogenous measure of the decline in foreign demand during the Great Depression that is not affected by developments inside of Germany. Figure B.3 in the Appendix highlights that total US imports of manufactures (excluding raw agricultural products) declined by 68% between 1928 and 1932 and that the decline in US imports across countries was very similar. This suggests that the decline in US imports was driven by an exogenous change in US demand.

Figure B.3: Change in US imports 1928-32



Notes: Percentage change in US imports from main European trading partners between 1928 and 1932.
Source: United States Department of Commerce 1928-1932

B.2 Employment data

To assess the effect of the decline in exports during the Great Depression on the German economy and politics, we need data on industrial employment by industry, that can be matched to our trade categories, and geographic area. The most detailed source of this data is the German census of 1925 (see Statistisches Reichsamt 1925). Note that this employment by industry is based on the sector a worker's firm operates in, while the occupation (with major categories blue-collar, white-collar, owner) is recorded separately. However, the industrial census also provides a breakdown of occupations by industry at the national level. The industrial categories are reported along 3-levels of

detail with the most detailed level we collect recording 426 different industries.[53] The census information on employment across industries is provided by cities "Stadtkreis" and rural districts "Landkreis" (these rural districts can either surround a city or do not have a major urban centre) covering the whole of Germany. This is the German fourth-level administrative divisions below the state ("Land"), province ("Provinz") and administrative region ("Regierungs-Bezirk") and above the municipality ("Gemeinde"). The exact names of these administrative divisions differed across Germany. Note The census records provide information on 1481 geographic areas. Depending on the data availability for our variables of interest we either use the city level (economic analysis) or construct local labour market areas combining cities and their surrounding rural districts (political analysis).[54]

From the 1925 census, we also collect data on a breakdown of industry employment by occupations. We collect data on number of blue- and white-collar workers as well as owners/self-employed individuals for each 2-digit industry (102 categories) at the national level. There is notably considerable variation in employment shares across industries for these groups. This breakdown allows us to further study the differential effect of the trade shock on workers in white- and blue-collar occupations. This is of particular interest as white- and blue collar industrial workers were distinguished socio-economic groups with distinct unions and political parties catering to their interests (see Childers 2010).

We match our 2000+ trade categories with our 426 census categories into 144 merged industrial categories. This considerable drop in number of sectors is due to us aggregating trade and census categories to a level were they uniquely match. For example we match 41 different 4-digit types of cotton yarn and thread part of the 3-digit category "spun cotton" (Gespinste aus Baumwolle) from the German trade statistics to the 3-digit census categories "cotton mill" (Baumwollspinnerei) and "cotton twisting" (Baumwollzwirnerei, -spulerei, -haspelei) both part of the 2-digit census category "cotton industries" (Baumwollindustrie) into the merged category "cotton yarn and thread". The availability of aggregate categories and detailed individual categories makes us confident in our matching in the absence of a formal crosswalk, which to the best of our knowledge does not exist.

Calculating the 1928-32 change in German exports across our 144 traded sectors and combining this information with the 1925 census data on district-level employment in those sectors and population, we can now calculate the district-level measure of exposure to the export shock defined in equation 3. Figure **??** depicts the distribution of the decline in exports per worker 1928-32 across Germany. The left map highlights that areas particularly affected by the decline in exports are the industrial heartlands around the Ruhr, Saxony and Silesia as well as Berlin and Württemberg. In contrast, Bavaria, Pomerania and East-Prussia are little affected. These differences in part reflect the different levels of industrialization across Germany, but even when accounting for the differences in industrialization in the map on the right considerable variation in the exposure to the decline in exports remains.

Exposure to the trade shock for the average district is 60RM per person ($\approx$ 304€in 2015, see Wissenschaftliche Dienste 2016). This would be equal to roughly 2 weeks wages for an unskilled worker (based on a 38RM weekly wage in April 1928 , Source: Statistisches

[53]The data also provides information on firms in services, however we only collect information on manufacturing firms. The number of different industries (426) noted here corresponds to the number of industries in manufacturing.

[54]We also deal in both cases with changes in geographic boundaries through aggregation of geographic areas when necessary. This aggregation is based on Hubatsch & Klein (1975) and MPIDR (2014).

Reichsamt 1925-1938). However, not that our export shock is only for industrial products with the industrial employment share in those sectors making up only 12% of the total population. Accordingly, if the export shock would be affecting all workers the same the shock is equal to 17 weeks wages for an unskilled worker and 12 weeks for a skilled worker (50RM weekly wage for skilled workers). This sizeable shock can be expected to have a considerable impact on the local economy. Table A.1 also documents the considerable geographic variation in exposure to the export shock. Districts at the 75th percentile of exposure experienced a decrease in exports of 80RM per person, which is roughly four times as large as that faced by a district at the 25th percentile.

B.3 Political data

This section discusses the political data collected on election outcomes. We obtain the share of votes for different parties across district from ICPSR (2005). [55] This allows us to measure the change in support for parties between 1928 and 1932. We focus primarily on the elections of 20th May 1928 and 31st July 1932. Between these elections the NSDAP drastically increased their vote share from 2.6% (12 of 491 Reichstag seats) to 37.27% (230 of 608 Reichstag seats). Focusing on these elections has the benefit that they present the last vote before the peak of the Great Depression and also both occur in Summer.[56] The July 1932 election also reflects the peak success of the NSDAP in free election as their vote share started to drop in the November 1932 election to 33.09%.

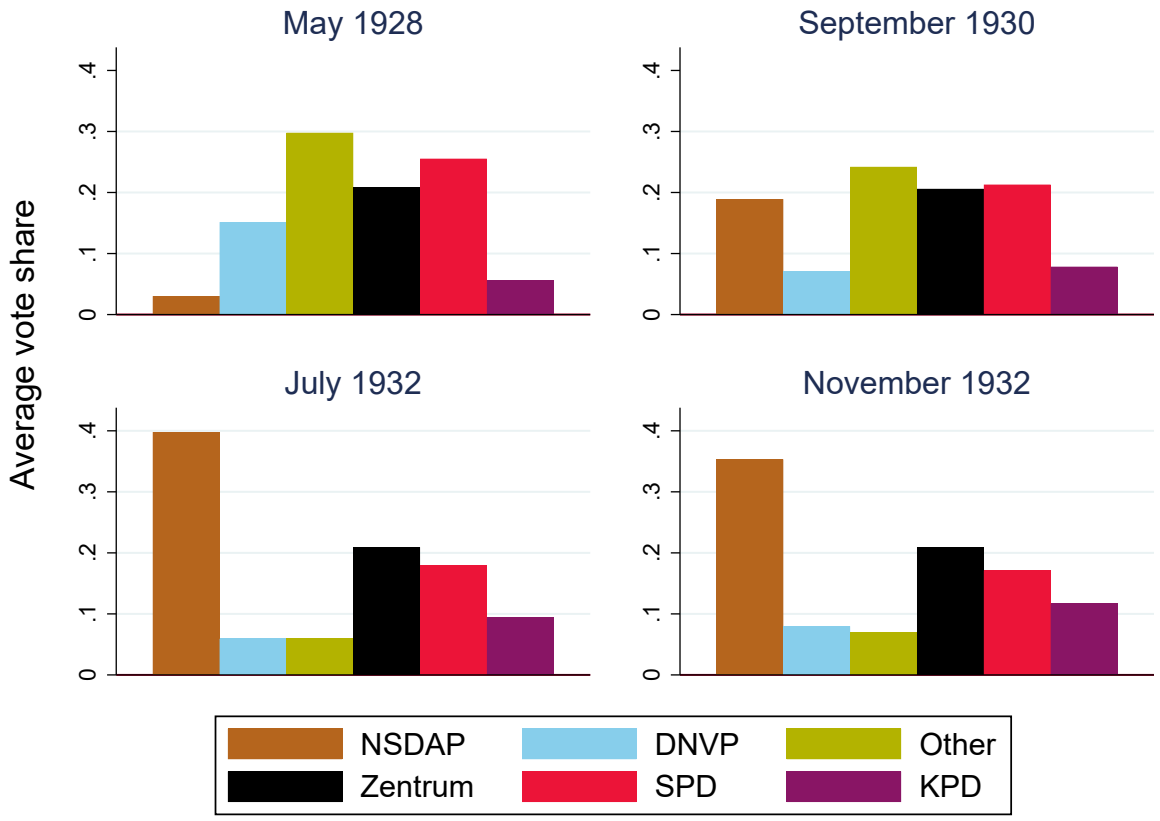
The five largest parties (NSDAP, SPD, KPD, Zentrum, DNVP) won 91.54% of votes and 564 of 608 seats in July 1932. The remainder of the votes were won by a vast set of other parties reflecting a vast set of regional and special interest groups as more than 32 parties received more than 1,000 votes in the July 1932 election. Figure B.4 illustrates the change in the party landscape of Weimar Germany during the Great Depression. It depicts the average vote share of the 5 major parties and other parties ordered roughly along their right to left political orientation. The major parties in 1932, apart from the NSDAP, also received the highest share of votes in 1928. The set of other parties in 1928 reflected a vast set of diverse political parties with the three most important being the German People's Party (8.7% of total votes), German Democratic Party (4.8%) and the Reich Party of the German Middle Class (4.5%). Representing centre-left to right-wing position and predominantly urban-industrial interests. This vast set of parties made up around 30% of the total votes received. Accordingly, in 1928 the political landscape of Weimar Germany was even more fragmented in 1928 than 1932. Figure B.4 also highlights the drastic rise of the Nazi vote share in the 1930 and 1932 elections and the corresponding decline in the vote share of the DNVP and the set of other parties, while the vote share of the Zentrum, SPD and KPD remained relatively stable (the SPD vote share slightly declined while the KPD vote share increased). This was driven by a drastic shift of protestant middle-class and rural voters from these parties to the NSDAP.

We collect three additional pieces of data from ICPSR (2005): First, the outcomes of the June 1920 and May 1924 elections to check for any pre-trends in party vote shares. Second, the election outcomes from the German presidential elections for Hindenburg, Hitler, Thälman and other candidates in 1925 and 1933, which we use to confirm our

[55] For the minor state of Bremen voting data is missing for May 1928 in ICPSR (2005), we use available information on party votes from the previous election (December 1924). Results are robust to excluding all 3 districts of Bremen.

[56] This lessens concerns that our result might be driven by seasonality.

FIGURE B.4: GERMAN ELECTIONS 1928-32



Notes: The figure presents the average vote share across districts for the May 1928, September 1930, July 1932 and November 1932 elections of major parties for the German Reichstag.

results observed for political parties. Third, we use the 1925 census data on population, religion, employment in sectors outside of industry, unemployment, Wahlkreiscode and Land-Reg Bezirk code.

B.4 Other economic data

This section provides detailed information on the data collected from the Statistical Yearbook of Germany (see Statistisches Reichsamt 1925-1938), which provides yearly industry level data at the national level, and the Statistical Yearbook of German Cities (see Deutscher Städtetag 1925-1934), which provides yearly data on economic indicators at the city level.

The first source, the Statistical Yearbook of Germany, provides industry level data on value and quantity of output, employment, wages and number of firms.[57] The data does not correspond directly to the detailed census classification but is considerably more aggregated. To correspond to this we aggregate our measure of the decline in exports

[57]For some industries no data is available to directly construct the change in the variables between 1928 and 1932 as data for some years is missing. Nearly, all of these industries are in textiles for which no data is reported 1929-1932 during the Great Depression, but starts to be reported again in 1933. To deal with this issue we use the data in the next available year and adjust it to the previous year based on the on the change between years for industries in which we have yearly data available.

accordingly. The data also does not report all industries, but it seem to provide a good reflection of the German economy. Industries from the following major sectors are reported (as referred to in the source): 1. Mining, 2. coal industries, 3. iron industries, 4. steel works, 5. chemical industries, 6. textile industries, 9. oil and fat industries, 10. machinery, 11. automobile and tire industries, 12. iron- and steel-ware industries, 13. leather industries, 16. food industries.[58] The collected data allows us to measure the effect of exposure to the export shock on the growth in the respective measure of economic activity across industries. This will provide the first set of evidence on the fact that the decline in exports had a negative economic effect on the Weimar economy.

We complement this data with information from our second source, the Statistical Yearbook of German Cities, which provides information on electricity usage, commuting, tax revenues, unemployment and saving for cities with a population of more than 50,000 inhabitants. These cities account for 32.9% (21.2 of 64,5 million) of the German population in 1928. This covers 94 cities with a population above 50,000 inhabitants by 1928 (97 in 1932). The actual number of observations in the sample used is smaller as 7 cities undergo considerable administrative changes to their boundaries that cannot be traced over time. For example, the creation of the new city of Wuppertal out of the city of Barmen and the towns of Ronsdorf, Vohwinkel and Cronenberg. As we only have data on Barmen, but not Rinsdorf, Vohwinkel and Cronenburg, in 1928 and Wuppertal in 1932 we have to exclude this observation. Also either data for some controls or some dependent variables were not reported for certain cities.

From this data we construct the following variables on economic activity across cities.

(1) The change in electricty usage in kilowatt-hours (kWh) per recipient of a cities electricity supply grid between 1928 and 1932.[59] The electricity usage provides a good proxy for economic activity in a city especially in terms of industrial production. The census suggests that by 1925 roughly half the power used in manufacturing was in the form of electricity with water, wind, steam engines and vehicles reporting a combined power roughly equivalent (see Statistisches Reichsamt 1925).

(2) The change in number of persons transported by public transport per inhabitant measuring the commuting flows of individuals in a cities.

(3) The change in the share of unemployed in a city. As the unemployment support system of the Weimar Republic undergoes considerable changes between 1928 and 1932 we construct 3 different measures for the unemployment rate. The first focusses exclusively on the unemployed in the formal unemployment insurance system (ALU), the second also includes the ones supported by emergency aid (ALU+KRU), the third also includes the unemployed supported by community care (ALU+KRU+WE).[60] The last of course is

[58]The numbering of major sectors changes between years and is mostly based on the 1933 Statistical Yearbook. The not reported sectors are either not traded, e.g. 15. electricity generation, or no data is reported for years close to 1928 or 1932, so that it is not possible to measure the impact of the export shock on these industries.

[59]Further breakdowns of the data, despite differing by electricity supplier in the definition and being not reported for all cities, suggest that more than half of electricity supplied in 1928 is to large industrial customers ("Großabnehmer").

[60]The number of unemployed is only reported from 1930 onwards in the Statistical Yearbook of German Cities, before that we use data on the number of unemployed from the Statistical Yearbook of Germany. However, the data for 1928 only reports number of recipients in the unemployment insurance system (Arbeitslosenversicherung, ALU) at the city level. Recipients receiving support from the Emergency Aid (Krisenfürsorge, KRU) and community care (Gemeindliche Fürsorge, WE) are not reported. As the share of individuals supported in the unemployment insurance drops from 77% in 1929 to 16.2% in 1932 these two insurances appear of particular importance. Accordingly, we construct the share of recipients in the

likely to be somewhat idiosyncratic in measurement as it seems to highly depend on a cities local support provided. So that financial constraints might reduce the number of individuals supported leading us to underestimate the effect of the export shock on this measure of unemployment.

(4) The change in tax collection by city population. Here we again use a variety of measures of tax collection with each providing a different insights into the economic effect and having its unique short-comings. The first measure is the corporation taxes collected by a city. This measure accordingly reflects whether the decline in export demand leads to a change in the revenue of companies. The second measure is the consumption taxes per inhabitant collected by a city. [61] Reflecting local spending on consumption goods by inhabitants. A concern with both measures is that local governments might change tax rates to compensate for declines in revenue due to the economic crisis. However, this would go against us finding an effect of the export shock on the taxes collected and lead us to underestimate the actual effect. The third measure is the tax receipts returned from the central government to cities. These are about 80% based on income taxes imposed and collected by the central government. The remainder was primarily from consumption taxes also administered by the central government. These tax revenues were collected by the central government and than in part returned to the city based on a distribution key with no plan for any horizontal transfers between municipalities (see Palmer 2018). Accordingly, the tax revenues returned to a city should reflect local labour incomes. It should however be noted that this measure, despite no vertical transfers in theory, suffers from some measurement error in practice as there occurred some extra transfers of the central government in 1932 to compensate for cancelled taxes due to austerity measures and reimbursements for state owned companies which might have falsely been recorded as tax returns from the central government (see Deutscher Städtetag 1925-1934). This concern would again go against us leading us to underestimate the effect of the export shock. Accordingly, the presented effects for these variables should be seen as a lower bound here.

(5) We collect data on the value of deposits and withdrawal made to local saving banks. This first variable allows us to look at whether individuals become less able to to save due to the export shock. The effect on withdrawals is less clear, while they might increase if individual still have savings to help them deal with the export shock it could also decline if individuals exhausted all their savings already before 1932.

Any of these measures by itself has shortcomings in measuring economic activity, however together they provide a comprehensive picture of the economic effect of the decline in German exports on economic outcomes across cities. We also collect information on city population in 1928 and 1932 to validate our results as population growth of cities should not in a major way be affected by the decline in export demand.

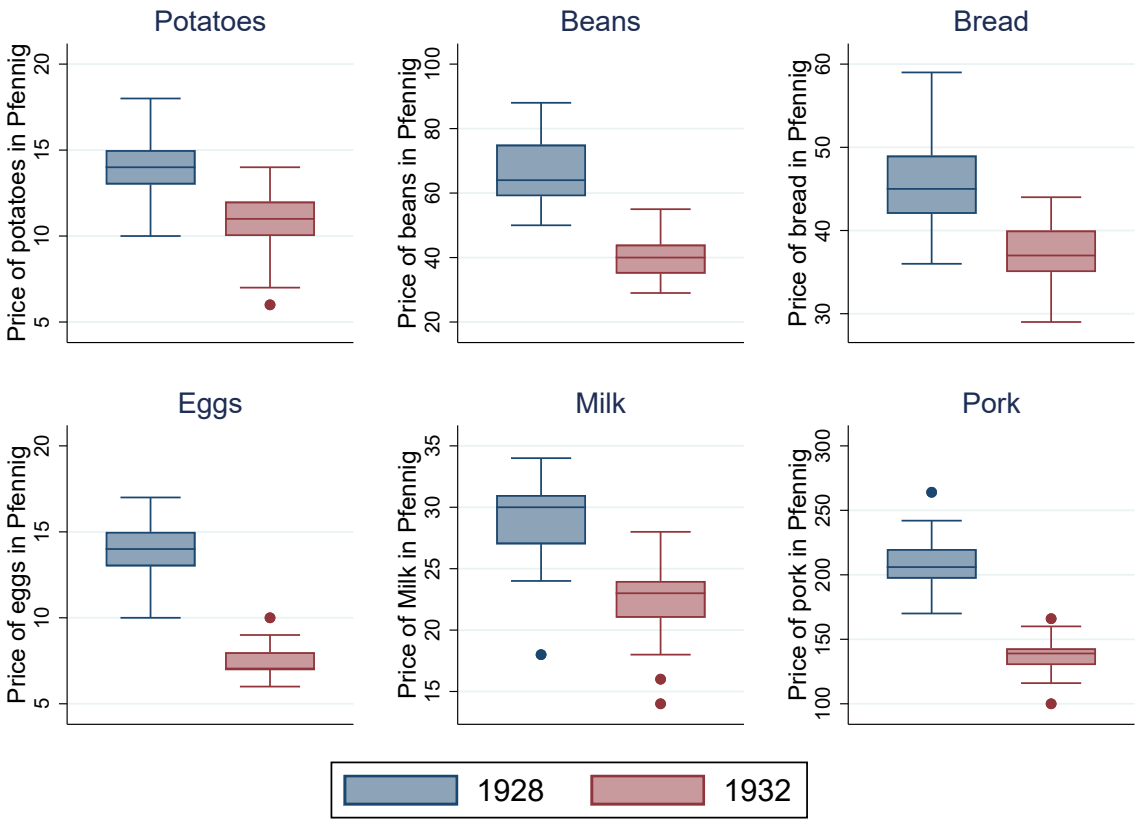
We collect food price data from the Prussian Statistical Yearbook (see Preussisches Statistisches Landesamt 1927-1934) and the already mentioned Statistical Yearbook of Germany (see Statistisches Reichsamt 1925-1938) at the city level to evaluate the impact of the export shock on local food prices in the agricultural hinterland surrounding cities. We focus on a set of staple food products commonly consumed across all cities in Germany being potatoes, beans, bread, eggs, milk and pork (belly cut) in July (based on the most

later two insurance systems for 1928 based on the proportion of recipients at the national level in 1929 times the cities unemployed in the unemployment insurance in 1928.

[61] The local consumption taxes were in terms of revenue generated about half as large as the consumption taxes collected by the central government in 1928.

common price recorded for the item across small stores on a Wednesday). The prices are recorded for 1kg apart from eggs, where the price is for a single egg, and milk, where the price is per 1 litre. Figure B.5 depicts the considerable variation in food prices across cities in 1928 and 1932 as well as the drastic decline in agricultural prices between 1928 and 1932.

FIGURE B.5: FOOD PRICES 1928-32



Notes: The figure presents the food prices for potatoes (1kg), beans (1kg), bread (1kg), eggs (1 unit), milk (1l) and pork (1kg) across German cities in July 1928 and 1932 from Statistisches Reichsamt (1925-1938); Preussisches Statistisches Landesamt (1927-1934).

B.5 Additional notes geographic areas

We aggregate separate geographical observation into our districts for two reasons: (i) geographical boundaries changed during the period 1925-1932 and (ii) a geographical area is denoted as a district-free city ("Stadtbezirk" or "Kreisfreie Stadt"), which we merge to the surrounding geographical area ("Landkreis"). The later merging of cities and the surrounding area is done for two reasons. First, this provides a better reflection of local labour markets as city boundaries do not necessarily reflect the end of a cities build up area and local transportation network. Second, there is considerable discrepancies in the level of detail in the district-free cities recorded between the political data (ICPSR 2005) and the census data (Statistisches Reichsamt 1925). Accordingly, it seems more consistent to not use this geographic distinction of district free city and surrounding districts at all.

For the city-level results where the geographic information is based on the city boundaries (not district boundaries) we use the corresponding geographic data available in the census.

B.6 Additional notes industry categories

We match by hand the industry categories provided in the German Trade Statistics (see Statistisches Reichsamt 1928-1932) and German Industrial Census (see Statistisches Reichsamt 1925) based on the detailed description of the specific categories. The trade data 2278 (2344) categories in 1928 (1932) reported in 4-levels of categorical detail. The data collected from the German Industrial Census comprises 426 manufacturing industries in 4-levels of categorical detail. The detail provided due to the multiple categories reported considerably helped in classifying the correct trade category and census industry category by hand into our aggregated category. We started by matching first more aggregate categories that match into each other and than focussed on matching the more detailed products. The high level of detail in terms of industry categories in both sources allows us to aggregate categories into a unique matching which does not require any weighting, however this reduces the number of industry categories in our matched classification to 144 different categories.

Following this we match similarly detailed US trade statistics (see United States Department of Commerce 1928-1932) reporting categories in a 4-digit classification into our aggregate industry classification for Germany. From the US data we manually collected the most aggregated categories that uniquely match into our classification (for this reason we did not collect purely agricultural products). Our US trade data collected includes 588 (723) categories in 1928 (1932) for quantity and value of US imports from Germany, France, UK and total.

For example we match the following census category reported as German Census 1-digit: *"B. Industrie und Handwerk"* | German Census 2-digit: *"XVI. Nahrungs- und Genussmittelgewerbe"* | German Census 3-digit: *"12. Kaffeerosterei und Kaffee-Ersatzherstellung"* | German Census 4-digit: *"a) Kaffeerosterei"* with two trade statistics categories German Trade 1-digit: *"1. Abschnitt Erzeugnisse der Land- und Forstwirtschaft und andere tierische und pflanzliche Naturerzeugnisse; Nahrungs- und Genussmittel"* | German Trade 2-digit: *"A. Erzeugnisse des Acker-, Garten-, und Wiesenbaues Kolonialwaren u. Ersatzstoffe fur solche"* | German Trade 3-digit: *"61 Kaffee"* | German Trade 4-digit: *"61b Kaffee, nicht roh"* & *"61c Kaffeepulver, gemischt m. Zucker; Kaffee-Essenz, Auszug von rohen Kaffeeschalen, sirupartig eingedickt"* into the matched category *"Roasted Coffee"* in our classification. Noticeably, the first 3-digits here perfectly match into each other and we only had to distinguish the last level of detail from other categories that match into "Raw Coffee" and "Cereal and coffee substitutes". Here we would accordingly match the US Trade 4-digit category: *"1512. Coffee, Roasted"* to our matched category *"Roasted Coffee"* (note that it is only exported from the US so was not reported in US imports so that it has a value of 0 in our case here).

We can confirm the quality of our matching procedure by analysing the correlation between the matched US trade data (reporting imports from Germany) and German trade data (reporting exports to the US), which is 0.93 and 0.83 for 1928 and 1932, respectively. In general suggesting a decent quality of matching US and German classifications. The lower quality match in 1932 seems to be exclusively driven by US trade statistics reporting much higher values for the import of "meat products" and "fertilizer" in 1932 than we

observe for 1932 German exports, while there is no corresponding difference in 1928. Excluding these two categories the data collected from the two sources displays a nearly perfect uphill positive linear relationship of 0.93 (in 1928) and 0.94 (in 1932) across merged categories. As both the US and German classifications only change in a minor way across years this suggests that the main reason for the lower than 1 correlation is the time difference of recording the trade flows between the US and Germany. This idiosyncratic variation in recording however should not be a major concern for our identification when looking at the large decline in trade between 1928 and 1932. Further reasons for the lower than 1 correlation are the following: (i) German trade statistics provide only incomplete information for trade flows of products by partner as the quantities and values reported for individual countries do not sum up to total exports. Also in 1928 only quantities are reported by country for which reason in the German data we have to construct the value of exports to the US based on the price of the product times quantity (with the price being obtained from total export value divided by export quantity). Accordingly, if the price of exports to the US is not equal to the average price this reduces the observed correlation. Importantly, we do not use the German trade data by country in our analysis, so that this is only a concern for comparing the trade flows between German and US trade statistics. (ii) Another potential reason for this discrepancy is the Rotterdam effect, i.e. some US imports recorded arrived from German ports, but did not originate from Germany or vice versa leading to measurement error in the US trade statistics. However at the time this is likely a minor concern. (iii) We, while being as careful as possible, might have made some errors when matching products between their English and German descriptions.

To match our industry level data to the information available on industries from the German statistical yearbooks we simply have to further aggregate our matched categories to correspond to the less detailed information available. Note, also that the German statistical yearbooks only cover a selected subset of important industries and not the whole universe as the Census and the Trade statistics do.

B.7 Online Appendix: Additional Tables

Table B.1: Excluding 19 main traded sectors at a time

Dependent variable: Change in NSDAP vote share 1928-32										
Panel A. OLS	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Δ EX 28-32	0.147***	0.174***	0.160***	0.132**	0.164**	0.138**	0.162***	0.163***	0.157***	0.166***
	(0.050)	(0.050)	(0.049)	(0.056)	(0.072)	(0.054)	(0.050)	(0.050)	(0.050)	(0.051)
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	
Δ EX 28-32	0.159***	0.160***	0.161***	0.176***	0.162***	0.161***	0.160***	0.160***	0.141**	
	(0.050)	(0.049)	(0.049)	(0.050)	(0.052)	(0.050)	(0.052)	(0.049)	(0.060)	
Panel B. IV	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Δ EX 28-32	0.251***	0.281***	0.240***	0.129	0.304***	0.219**	0.243***	0.241***	0.237***	0.244***
	(0.092)	(0.084)	(0.082)	(0.111)	(0.107)	(0.104)	(0.083)	(0.082)	(0.083)	(0.082)
F-stat (1st stage)	25.39	26.82	29.38	20.60	107.05	28.35	29.36	29.44	29.36	29.24
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	
Δ EX 28-32	0.242***	0.238***	0.243***	0.239***	0.275***	0.242***	0.257***	0.239***	0.224***	
	(0.082)	(0.082)	(0.082)	(0.085)	(0.087)	(0.084)	(0.087)	(0.082)	(0.086)	
F-stat (1st stage)	28.73	29.36	29.25	26.56	27.34	28.67	26.79	29.37	26.58	
All specifications:										
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
$N(districts)$	785	785	785	785	785	785	785	785	785	785

Notes: The table excludes each individual main trade category at a time: (1) Food products; (2) Mineral and fossil fuels; (3) Oil, fat and wax products; (4) Chemicals and pharmaceuticals; (5) Textiles; (6) Leather; (7) Rubber products; (8) Braids; (9) Straw and braided products; (10) Brooms, brushes, etc. (11) Carved and moulded products from natural materials; (11) Paper products; (12) Books, pictures, etc.; (13) Stone products; (14) Pottery; (15) Glass; (16) Noble metal products; (17) Base metal products; (18) Machinery and vehicles; (19) Firearms, watches, toys, etc. Note that Chemicals and pharmaceuticals exports account for an outsized proportion of the drop in German exports to the US (20.3%), but for a much smaller share in the total decline in exports (9.6%). Robust standard errors in parentheses clustered on Reg.-Bez. * $p < 0.10$, ** $p < 0.05$, ***

Table B.2: Decomposition of the export shock

Dependent variable: Change in Nazi party vote share			
Panel A. Effect across time			
	May28-Sep30	Sep30-Jun32	Jun32-Nov32
	(1)	(2)	(3)
Δ EX 28-32	0.140**	0.099*	-0.039
	(0.061)	(0.056)	(0.027)
Controls	Yes	Yes	Yes
F-stat (1st stage)	29.37	29.37	25.45
$N(districts)$	785	785	739

Robust standard errors in parentheses clustered on Reg.-Bez.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: The table present a decomposition of the export shock on the Nazi party vote share across time and space. Panel A looks at the temporal distribution of the effect. Column 1 looks the effect of the export shock on the Nazi party vote share between the Reichstag elections in May 1928 and September 1930, column 2 at the effect between September 1930 to June 1932, and column 3 at the effect between June 1932 to November 1932. ....