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Abstract

Why do people fight for their country? The risks are extreme, the payoff uncertain. In this paper, we argue that reciprocity is a key factor. Examining welfare spending in the US in the 1930s under the New Deal, we show that support for World War II became more common where welfare support had been more generous: war bonds were sold in greater volume, more men and women volunteered, and more soldiers performed heroic actions recognized by a medal. We use weather shocks in the form of droughts to instrument for agricultural emergency relief, and show that results hold. Because both war bond purchases and volunteering respond to welfare support, we argue that results cannot be driven by opportunity cost considerations. Data on World War I patriotic support shows that 1930s emergency spending is only predictive for World War II support. Pre-New Deal droughts are also not correlated with patriotism after 1941.

JEL Classification: N/A

Keywords: warfare, Welfare state, New Deal, World War II, volunteering, war bonds

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From Welfare to Warfare: New Deal Spending and Patriotism during World War II *

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Abstract

Why do people fight for their country? The risk is high, the payoff uncertain. We show that receiving welfare support can be a key motivating factor. During the 1930s New Deal, welfare spending surged in the US. Support for World War II was greater where pre-war welfare support was more generous: citizens bought more war bonds, volunteered more, and more soldiers won a medal. Two instruments suggest that the effect is causal: weather shocks (droughts) and congressional committee representation predict New Deal spending, leading to more bond buying, volunteering, and medals. Economic factors cannot account for these patterns.

Nationalism, patriotism, welfare state, cultural economics, soldiers' motivation, New Deal, US History, World War II, war bonds, volunteering, heroism.

JEL Classification: D64, D74, D91, H53, H56, I38, P16, N31, N41.

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1 Introduction

Dulce et decorum est pro patria mori.
Horace, Odes (III.2.13)

Humans are the only animal to cooperate routinely in large-scale groups of genetically unrelated individuals. What sustains such cooperation is a key question in the social sciences (De Quervain et al., 2004). From an evolutionary perspective, the willingness to fight and die for one's group ("parochial altruism") represents a puzzle — it is costly for the individual, but benefits the group (Bowles and Gintis, 2004; Choi and Bowles, 2007).

A recent theoretical literature suggests that democratization, strong national identities, and welfare provision are key motivating factors for soldiers (Alesina and Reich, 2013; Alesina et al., 2017; Ticchi and Vindigni, 2008).[1] Anecdotal evidence supports this: the rise of mass armies in the 19th century coincided with the birth of the welfare state, which added old-age pensions, health care, and education to the government's primary tasks. Many governments have promised "homes fit for heroes" in wartime, committing to an expansion of the welfare state after victory (Swenarton, 2018). Britain's modern welfare system was born out of the Beveridge Report, published in the middle of World War II (Timmins, 2001). Also Hitler's Germany provided generous social support during WWII to shore up public support (Aly, 2005). At the same time, there is little systematic evidence of a direct link between the expansion of the welfare state and the motivation of citizen soldiers.

In this paper, we argue that welfare spending directly led to (costly) patriotic actions in the United States during WWII. Before 1933, federal welfare spending was largely conspicuous by its absence. This changed dramatically under President Roosevelt's "New Deal." For the first time in US history, the Federal Government directly supported millions of citizens (Fishback et al., 2005). From the Agricultural Adjustment Administration helping farmers to emergency relief for home-owners and businesses in distress, from work for the unemployed to old-age pensions, federal welfare spending quickly touched the lives of millions. At its peak, the Works Progress Administration (WPA), was the largest employer in the US.

This expansion of the welfare state occurred immediately before WWII, the deadliest conflict in recent history. The war absorbed a large share of US national resources for 4 years. Almost 18 million people served in the US military — 19 percent of them volun-

[1] Relatedly, other scholars have argued that universal education was introduced because it helps a nation's military efforts (Aghion et al., 2018).

tarily. Some 400,000 service personnel died on active duty (Hastings, 2011). To measure active support on the part of citizens, we use three measures of patriotism: war bond purchases, volunteering rates, and medal recipients. War bonds were a financially unattractive investment. Volunteering was even costlier. Volunteers traded civilian pay, comfort, and security at home for low pay and the risk of violent death. The most costly actions are acts of heroism that could result in death. Military awards are designed to recognize and incentivize such forms of risk-taking.[2]

Higher welfare spending in the 1930s spelled more patriotic actions during WWII. Figure 1 illustrates the main patterns. We bin-scatter the county-level value of relief grants per capita (on the x-axes) against three measures of patriotism (on the y-axes) — per capita value of war bond purchases (Panel A), the share of volunteers among the population (Panel B), and the number of military awards per 1,000 Army registrants (Panel C). These correlations survive the inclusion of many controls, including a full set of state fixed effects.

Areas receiving more welfare spending during the 1930s might still have been more distressed in 1941. Also, volunteers might come from "frontier" areas. With their emphasis on rugged self-reliance in a physically demanding environment, these might have been more natural recruiting grounds than, say, urban centers. Both these factors could lower the opportunity cost of volunteering, and make omitted variable bias a concern. To establish causality, we focus on one particular type of welfare spending and use two instruments. The Agriculture Adjustment Administration (AAA) extended grants to farmers in distress, and was one of the first and biggest New Deal programs, accounting for 12 percent of total New Deal spending (Fishback et al., 2003). It was also highly visible among farmers, an occupational group hit hard by the Great Depression. AAA grants were often made in response to local weather shocks, especially droughts. The level of spending was also higher in congressional districts whose Member of Congress sat on the Agricultural Committee. New Deal era droughts and committee membership drove agricultural spending and they strongly predict all three measures of patriotism after 1941. Two-stage least squares estimates confirm the existence of a strong, positive relationship between agricultural relief — determined by drought incidence and committee memberships — and patriotism.

Economic incentives cannot explain the effect of droughts. Worse economic conditions in the 1940s may have offered reasons to join the Army, but they would not have led to

[2]Many factors affect heroism on the battlefield (Costa and Kahn, 2003), but commitment to the national cause is one of them, and we use it to measure patriotic sentiment.

higher bond purchases. Also, there is no obvious connection between poverty at home and heroic actions at the front. Could negative shocks — such as adverse weather — have a direct effect on patriotic actions?[3] Severe droughts also hit parts of the United States before 1933, when farmers received little relief. Pre-New Deal era droughts do not predict post-1941 patriotism. Similarly, neither pre-World War I droughts nor pre-World War I representation on the Agricultural Committee correlate with WWI patriotism. These placebo results strengthen the case for a causal interpretation of our IV estimates.

We can also exploit rich data on the volunteers' occupational background. Groups receiving welfare support volunteered more: in areas receiving AAA support, farmers joined the US Army in droves, but low-skilled workers did not. These results suggest that welfare support mattered both in absolute and relative terms. When groups received more than their neighbors, they volunteered more.

What was the price of patriotism? We can calculate how much welfare spending was required to sell an additional $25 war bond, convince an extra man to volunteer or to inspire an additional medal-worthy hero. In a county with median agricultural relief, the Federal Government sold one extra war bond for every $74 of relief, and it recruited one extra volunteer for every $6,485 of spending. Heroes cost an average of $1,096,000 (in 1939 dollars).

Importantly, patriotism during WWII showed a different geographical pattern than during WWI. For WWI, we collect data on volunteering and medal recipients. New Deal support did not go to areas that were already more patriotic; it created a *new* geography of patriotism. This is important because many attitudes appear to persist for a long time (Becker et al., 2016; Guiso et al., 2016; Voigtländer and Voth, 2012).

Our results are robust: First, when we only exploit within-state variation, using state fixed effects, all of our results remain strong and significant. Second, results are unaffected when we correct standard errors for spatial autocorrelation in the spirit of Conley (1999) or Kelly (2019). Third, we apply the Conley et al. (2012) method and show that 2SLS estimates are largely robust to violations of the exclusion restriction. Only if the direct effects of post-1933 droughts on patriotism had accounted for 60 to 80 percent of the overall effect could we rule out a causal link between New Deal spending and patriotism. Given the near-zero correlation between pre-1933 droughts and patriotism, this seems unlikely. Fourth, we verify that results remain strong in a subset of counties with few sharecroppers. AAA induced farmers to take land out of production. Much of it was leased to

[3]This would be in line with recent work by Bauer et al. (2016), who show that pro-sociality increases after conflicts.

sharecroppers, creating unemployment (Depew et al., 2013).[4] Fifth, results are robust to dropping high-migration counties or any one individual state as well as to controlling for the inverse of the population. Finally, results are stronger if we use entropy balancing (Hainmueller, 2012) or coarsened exact matching (Iacus et al., 2012).

Our research relates to work on the origins of national identity. Colley (1993) and Weber (1976) study the role of war in the making of national identity in 18th century Britain and France. An alternative tradition emphasizes the exclusionary origins of modern nationalism (Marx, 2005; Colley, 1993), sometimes driven by a response to the French invasion during the Napoleonic wars (Echternkamp, 1998). A well-established school of thought sees the rise of national identity and nation-states as a product of the modern era, promoted by elites and made possible by economic changes since the Industrial Revolution (Alesina et al., 2017). Central to these theories is the idea that nation-states are "imagined communities" whose members pledge themselves to a common cause because of government policies (Anderson, 2006). Among such policies, the creation of public school systems, the standardization of language (Hobsbawm, 1990; Weber, 1976; Gellner and Breuilly, 1983), and the promotion of a common culture through the press (Anderson, 2006) and national television (Hobsbawm, 1990) feature prominently. These factors reinforce the sense of nationhood that comes from shared myths, collective memory, and traditions (Hobsbawm and Ranger, 1983; Smith, 1991).

Relatedly, Alesina and Reich (2013) and Acemoglu et al. (2016) show how elites can exploit nationalism to create highly capable states levying high taxes and enforcing laws effectively. Besley and Persson (2009) argue that war leads to state capacity building, while Scheve and Stasavage (2010) find that tax progressivity increases the most after armed conflicts in a bid to distribute the burden of war equally. Our results speak to the argument in Alesina et al. (2017), who suggest that states create comprehensive welfare systems to induce large numbers of citizens to fight for their country.

Several papers have begun to test theories of nationalist sentiment. Fouka (2019) finds that during WWI, US states that forced the children of German immigrants to speak English saw worse integration outcomes. Bandiera et al. (2018) show that during the 19th century, US states with a greater need to integrate immigrants introduced compulsory schooling earlier —- a deliberate policy to "build the nation." Dell and Querubin (2017) also focus on war and nation-building, demonstrating that more destructive US airstrikes strengthened guerrilla activity during the Vietnam War.

[4]We thank Price Fishback for drawing our attention to these effects.

More broadly, our paper is related to the literature studying attitudes, beliefs, and identities (Bisin and Verdier, 2000; Akerlof and Kranton, 2000; Shayo, 2009). There is good evidence on the parent-to-child transmission of attitudes (Dohmen et al., 2011). In the aggregate, many cultural traits and economic outcomes persist over the long run (Becker et al., 2016; Guiso et al., 2016; Valencia Caicedo, 2018). How and when attitudes can change is less clear. Alesina and Fuchs-Schündeln (2007) show that Communist rule in East Germany strongly affected attitudes about the role of the state and social policy. Nunn and Wantchekon (2011) find that slave-catching in Africa led to a culture of mistrust. Voigtländer and Voth (2012) argue that large trading cities in Germany showed less persistent anti-Semitism than small towns. Fouka et al. (2019) show that recent US immigrants in the early 19th century were more readily integrated in towns and cities that received larger inflows of African-Americans from the South, while Fernández et al. (2019) argue that the HIV-AIDS epidemic after 1980 contributed to the de-stigmatization of homosexuality.

Finally, our results on voluntary enlistment and heroic actions are related to work on soldiers' motivation. Campante and Yanagizawa-Drott (2015) show that sons of US combatants are more likely to go to war themselves. Costa and Kahn (2003, 2007) study the importance of unit cohesion and tightly-knit communities in the place of origin. Ager et al. (2016) argue that status competition was a key motivating factor for WWII fighter pilots.

Relative to the existing literature, we make two main contributions: First, ours is — to our knowledge — the first paper to empirically demonstrate that higher welfare provision can boost the willingness to fight for one's country. Second, we contribute to the literature on attitudes and beliefs in cultural economics, by demonstrating that massive government interventions can modify attitudes quickly: New Deal spending drove *changes* in patriotism between the two world wars.

2 Historical background

In this section, we introduce the historical context. We first describe the Great Depression in the United States and the "New Deal." We then summarize America's involvement in WWII.

2.1 Depression and "New Deal"

During the Great Depression, US GDP shrank by a third (Christiano et al., 2004; Fishback, 2017); unemployment climbed to more than 30 percent, and a wave of bank failures destroyed a large part of the financial system (Calomiris and Mason, 2003; Bernanke, 1983). Consumer prices fell by over 20%. At the trough of the Depression in 1932, stocks were down 89% from their peak in 1929. Home prices had slumped in all major US cities. Deflation increased the real value of debt and disincentivized investments (Mishkin, 1978). Farmers were particularly hard-hit because of a combination of low prices and adverse weather.

The Great Depression brought more than just economic distress. During the early 1930s, insecurity afflicted the majority of Americans, as jobs were few and often temporary (Hickok, 1981; Romer, 1992). Misery and lack of opportunities undermined trust in the political system (Kennedy, 1999; Hemingway, 1935; Dickson and Allen, 2006). In the minds of many, the very survival of the free enterprise system was in doubt:

> "A malaise was seizing many Americans, a sense at once depressing and exhilarating, that capitalism itself was finished" (Schlesinger, 1957, p.205)

After the election of Franklin D. Roosevelt in 1932, the US government intervened in the economy on an unprecedented scale. A national bank holiday in 1933 put an end to bank runs, and Federal Deposit Insurance was introduced (Folsom, 2009). The US dollar was devalued relative to gold in a bid to raise prices. Farm prices began to stabilize, and unemployment slowly declined. Nonetheless, recovery from the Great Depression was slow (Margo, 1993). Output remained below its pre-Depression peak until the 1940s, and the years 1937-38 saw another recession. The droughts of the 1930s created the "dust bowl," causing a wave of bankruptcies (Hornbeck, 2012).

To overcome the Great Depression, the Roosevelt administration implemented the "New Deal" — the greatest expansion of the public sector in US history. The government intervened in price and wage setting, dispensed welfare payment and created public sector jobs on an unprecedented scale, intending to bring "relief, recovery and reform" (Fishback et al., 2003). Between 1933 and 1939, the government share of GNP more than doubled, rising from 4 to 9 percent (Wallis and Oates, 1998). The New Deal revolutionized the relationship between Americans and their government (Barone, 1990) even if not all policies were effective (Fishback et al., 2003; Cole and Ohanian, 2004; Eggertsson, 2012).

Numerous agencies put the New Deal into practice. The Federal Emergency Relief

Administration was designed to help distressed individuals and regions between 1933 and 1935. AAA transferred almost 2 billion dollars to American farmers. To implement its policies, it hired over 100,000 men in farming counties, temporarily "becoming ... the largest employer in the Federal Government" (Folsom, 2009). Several programs including the Public Work Administration, Civil Works Administration, and the Works Progress Administration employed workers to build airports, dams, schools, and community facilities all over the country. Before 1933, most Americans had interacted with the Federal Government only through the US Post Office; by 1939, the Federal Government had become the largest employer in the country.

In addition, the Home Owners Loan Corporation extended loans to distressed homeowners. The Social Security Act of 1935 introduced pensions and unemployment benefits. These policies served Roosevelt's political agenda (Wright, 1974; Anderson and Tollison, 1991; Wallis, 1998), and they targeted every major group suffering from the Depression. By helping countless Americans, and reinforced by effective radio propaganda, the New Deal underwrote Roosevelt's popularity and electoral success (Strömberg, 2004; Schlesinger, 1958, 1960).

2.2 US involvement in World War II

The US entered WWII after Japan's attack on Pearl Harbor, in December 1941. Nazi Germany declared war on the US shortly thereafter. The United States had provided some support to Britain before 1941, and the US armed forces had already been expanding rapidly since 1940. After Pearl Harbor, the total US armed forces grew to over 16 million men and women, and the economy was quickly put on a wartime footing. By 1944, the US was spending 45% of its GDP on the war. By the time the conflict ended in 1945, it had suffered over a million dead and wounded (Clodfelder, 2002).

Patriotism took a variety of forms. The war was financed through both taxes and debt issuance. Private consumption was severely restricted as cars and tyres were rationed and many consumer durables were no longer produced (Jones, 1945). To help finance the war, the Federal Government issued war bonds ("Series E bonds") starting from May 1941. Overall, the bonds financed about 186 billion dollars of war expenditure (Census Bureau, 1975). The first bonds appeared before the declaration of war and were known as "defense bonds." Soon after Pearl Harbor, the Federal Government marketed bonds through war loan drives, appealing to patriotic sentiment. Bonds were non-transferable

and redeemable after 10 years, offering low yields.[5] The face value of war bonds varied from $25 to $1,000 (Federal Reserve, 1941: p.405). This compares with a 1939 monthly median wage of $75.[6] In other words, the cheapest war bond cost about a third of monthly income.

To create armed forces numbering 16 million Americans, the United States used conscription. In addition, just as in 1917, the US Army, Navy, Marines, and Army Air Corps accepted volunteers during the early months of the war. Within one year from the outbreak of war with Japan and Germany, approximately 3 million men had volunteered to join the US military (NARA, 2002).[7] During both conflicts, volunteering was eventually replaced by a Selective Service System that equalized the risk of military service across districts. The US Army stopped taking volunteers in December 1917 during WWI and in December 1942 during WWII. During WWII, volunteering spelled risk, relatively low pay and often, service overseas.[8] The US draft selected about one in five eligible men; volunteers increased their risk of service by a factor of five.

The US armed forces were relatively generous in awarding medals. Awards were not cumulative, as in the German Army (Van Creveld, 1982). The five highest classes of medals — the Congressional Medal of Honor, the Distinguished Service Cross, the Distinguished Service Medal, the Silver Star, and the Legion of Merit — were awarded 100,086 times during WWII, equivalent to one medal for every three men killed.[9]

3 Data

In this section, we describe the indicators of patriotic behavior that we use, and our data sources.

[5] 18 percent lower than high-grade municipal bonds and 30 percent less than high-grade corporate bonds (Federal Reserve, 1944)

[6] The median yearly wage of 14 to 60 years old employees was $880 (King et al., 2010). Income of farmers and self-employed workers is not reliable in 1940 and we exclude them from this calculation.

[7] Between April and June 1917, half a million men volunteered to serve in the US Army (Crowder, 1918). Military officials worried that volunteering would jeopardize the war effort. As US Major General Enoch H. Crowder wrote in 1918: "If farms, factories, railroads and industries were not to be left crippled, if not ruined by the indiscriminate volunteering of key and pivotal men, then ... the total military effectiveness of the Nation would have been lessened rather than strengthened by the assembly of 1,000,000 volunteers." (Crowder, 1918, p.6).

[8] In 1942, Roosevelt passed the Pay Readjustment Act that set pay for a regular soldier at $50 a month. This compares to a median wage of adult males of $94 in 1939 or an average monthly wage in manufacturing of $102 (King et al., 2010).

[9] The equivalent German ratio is 1:100, with fewer than 6,000 men receiving one of the five highest awards (Van Creveld, 1982)

3.1 Patriotism

We use three county-level variables to capture local patriotic sentiment and actions: purchases of war bonds, military volunteering and military awards.

War bonds. The Treasury Department collected data on war bond sales from reports of the Federal Reserve Banks. We use average purchases per capita in 1944 as our indicator, excluding sales to corporations. The data is taken from County Data Book of 1947, as published by the Census Bureau, and digitized by ICPRS (Haines et al., 2005).

Volunteers. Data on volunteering comes from two separate sources. For WWI, we use data from Crowder (1918). Maj. Gen. Crowder was responsible for the Selective Service System of 1917. In order to ensure that the draft inducted men evenly across the country, his department collected county-level data on voluntary Army enlistments up to June 30, 1917 (Crowder, 1918, p.15). We digitize these data and calculate WWI volunteering as the share of soldiers who served from each county.

We construct an equivalent measure for WWII with enlistment data from the National Archives (NARA, 2002). The National Archives used pictures of the original punch cards to digitize 9.2 million individual service records of US soldiers who served in the Army between 1938 and 1946. We use the full population of digitized records and identify volunteers and inducted men by the first digit of their serial number. Our measure of volunteering in WWII is equal to the number of men who volunteered divided by the total population of each county.[10]

Medals. To measure patriotism, we also collect data on military awards — the Distinguished Service Cross and the Congressional Medal of Honor. We deliberately exclude recipients of the Distinguished Service Medals of the Army and the Navy, which were often given to high-ranking officers in non-combat positions (Van Creveld, 1982). These two awards capture major acts of heroism: recipients of these awards had to show conspicuous gallantry in the face of the enemy, go well beyond the call of duty, and expose themselves to great danger. Some 57 percent of WWII "heroes" in our database received their award for actions during which they were killed (during WWI, 19 percent of medal recipients were killed in action; see also Willbanks, 2011). We consider counties that were home to more men performing outstandingly on the battlefield as more "patriotic." War

[10]Most records of men joining the US Army in Service Command 7 are missing (NARA, 2002) and we exclude these states from volunteering and medal regressions. Service Command 7 included: Colorado, Iowa, Kansas, Minnesota, Wyoming, Missouri, Nebraska, North and South Dakota. In section 5 we show that volunteering results are robust to including these states.

medal recipients for both WWI and WWII come from the online source *Home of Heroes*.[11] The website assembles information on war medals throughout US history. For both wars, we normalize the number of medal recipients with the number of Army soldiers from each county.

3.2 New Deal spending and its determinants

We have data on spending per county for every program the Federal Government financed between 1933 and 1939. To identify the causal effect of one of these programs, the Agricultural Adjustment Administration, we employ data on the incidence of severe droughts between 1933 and 1939, and on Congressional Committee membership. Additional controls include demographic and economic variables from the 1930 and 1940 Censuses.

New Deal grants. Fishback et al. (2003) collected county-level data on each federal program implemented between 1933 and 1939 from the US Office of Government reports. Our two main explanatory variables are the total value of non-repayable grants and the total value of Agricultural Adjustment Administration grants, one of the largest items funded by the New Deal. We observe both measures at the county level. To normalize total expenditure, we divide grant spending by the 1930 county population. We normalize the agricultural relief with the number of farmers in 1930.

Droughts. Agricultural relief was higher in counties hit by adverse weather. We identify the causal effect of agricultural relief by predicting Agricultural Adjustments Administration grants with the (logarithm of the) number of months with a severe drought between 1933 and 1939. We take drought data from NOAA's National Climatic Data Center (National Oceanic and Atmospheric Administration, 2014), which maintains monthly weather records for a panel of 376 climate divisions over the continental US since 1900. We use the Palmer Drought Severity Index. The index ranges from -7 to 7, and we define droughts as months with a Palmer index of -3 or lower.

Committee membership. We take Congressional Committee membership from ICPSR and McKibbin (1997). The database contains the complete list of US congressmen between 1789 and 1996. For every congressional term, and for every member of Congress, we observe biographical and tenure data, including years in office and committee membership.

[11] We collected data in January 2018. The website claims to cover all known recipients of these awards.

We focus on membership in the Agricultural Committee during the 73rd Congress: 1933–35.[12] During these years, Roosevelt launched the AAA, and a seat on the Agricultural Committee offered the opportunity to channel some of this money back to the home constituency.[13] For every congressional district, we predict AAA relief with the log of the tenure in the Agricultural Committee of the congressmen representing the district. We then assign this value to all the counties within the congressional district, based on the NHGIS shape files.

Other controls. Population, number of farmers, and other demographic and economic characteristics come from the US Census of 1930 (King et al., 2010), with three exceptions. First, because we do not observe income in 1930, we use the 1939 wage from the 1940 US Census instead. Second, we collect 1941–45 war contracts per capita at the county level from the County Data Book of 1947 (Haines et al., 2005). Third, we use the average share of votes received by the Democrats between 1898 and 1928 from Fishback et al. (2003) to control for differences in political preferences.

US map. We conduct our analysis at the county level, using 1930 counties. We consolidate a few counties in Virginia and New York to accommodate New Deal spending data.[14] Whenever a variable is defined at a different level of geographical aggregation, we use NHGIS shapefiles (Manson et al., 2019) and the method of Hornbeck (2010) to create a correspondence. Appendix A provides further details on data construction.

3.3 Descriptives

Table 1 presents summary statistics for our main variables. In the average county, every citizen bought $66 of war bonds (the average of the log is -2.9). The share of volunteers (out of all soldiers inducted in the US Armed Forces) was 35 percent in 1917. For WWII, we use the number of volunteers per capita: in the average county there were 6 volunteers per 1000 people.[15] The average county registered 0.4 war heroes every 1,000 sol-

[12] While Senators in the Agricultural Committee could also attract funds to their home state, we can not identify their impact on AAA spending and patriotism because we include state fixed effects in every regression.

[13] We experiment with agriculture committee membership in the 3 New Deal Congresses (73–75, from 1933 to 39) and find very similar results.

[14] We thank Price Fishback for sharing this consolidated list of counties.

[15] The volunteering rate during WWII was 19 percent (we exclude the 7th Service Command in these calculations). In both 1918 and 1942, the Army ceased to accept volunteers after the first year of war: the lower volunteering rate in WWII reflects the fact that in WWII, only one war year out of 4 saw volunteering, whereas in WWI, volunteering was allowed half of the time.

diers. Across New Deal programs, counties received $150 per capita between 1933 and 1939. Disbursement of the AAA program were high, and amounted to $386 for every farmer. The average county experienced almost 15 months of drought between 1933 and 1939. Finally, only 8 percent of the counties had a representative on the Congressional Agricultural Committee, with an average tenure of around 2 years. Figure 2—Panels A–C illustrate the spatial distribution of per capita war bonds purchases, volunteering rate, and medals per registrants during WWII. Figure 2—Panel D displays the geographic distribution of total New Deal grants per capita, and Panel E that of AAA grants per farmer. Finally, Figure 2—Panel F shows the spatial distribution of New Deal droughts.

4 Empirical analysis

In this section, we demonstrate the strength of the association between WWII patriotism and New Deal spending, and argue that it is causal.

4.1 War support and New Deal expenditure

Figure 1 summarizes our main result. Counties receiving more New Deal support are more patriotic during WWII — they buy more war bonds, volunteer more, and perform more heroic deeds.

To go beyond simple correlations with total New Deal spending, we disaggregate federal relief, distinguishing grants from loans. For the former, we report results for 9 expenditure categories. These include the three largest relief programs: Work Progress Administration (WPA), Federal Emergency Relief Administration (FERA) and Agricultural Adjustment Administration (AAA). Together, these programs accounted for 67% of total New Deal grants. We also consider four other "workfare" programs. "Other relief" in Table 2 includes outlays of the Public Road Administration (PRA), Civil Works Administration (CWA), Public Buildings Administration (PBA), and Public Works Administration (PWA).[16] These 4 agencies accounted for an additional 20% of New Deal grants. Finally, we look at New Deal loans, provided through the Home Owners Loan Corporation (HOLC) and the Reconstruction and Finance Corporation (RFC), which allocated 72% of New Deal lending.

[16] We only consider PWA's Federal projects.

Table 2 reports the coefficients of simple bivariate regressions between the three measures of patriotism, aggregate grants and loans, as well as the five individual programs. Every one of the 24 regression coefficients is positive and significant.

To examine the data more systematically, we estimate:

$$\text{WWII Patriotism}_i = \beta \log(\text{New Deal grants pc})_i + \gamma X_i + \xi_s + u_i \quad (1)$$

The unit of observation is a county. WWII Patriotism is one of our three measures of patriotic actions —- the log of per capita war bonds owned in 1944, the volunteers per capita, and the fraction of WWII soldiers who received a medal. We are interested in coefficient β on $\log(\text{New Deal grants pc})$, i.e. the link between patriotic actions and welfare spending. X_i is a vector of county-level controls, including the pre-existing levels of patriotism (measured as the volunteering rate and the number of awards per 1000 soldiers during WWI). We also control for socio-economic characteristics in 1930 — the (log of) population, the unemployment rate and the share of veterans in the population, the share of blacks, and the share of people born in one of the major Axis countries (Germany, Japan and Italy). The average vote share for Democratic Party candidates between 1898 and 1928 captures political factors that may affect New Deal support and patriotism. We also include two variables observed at the end of the New Deal: the log of WWII war contracts per capita and the average wage of employees in 1939.[17] We include these variables to control for alternative mechanisms driving our results. For example, it is possible that WWII patriotism responded to 1940s local economic conditions, or that men and women employed in war industries became more patriotic.[18]

Importantly, we always include 48 state fixed effects (ξ_s) to account for unobserved heterogeneity.[19] Our estimates therefore identify the impact of relief on patriotism *within states*, and are not driven by the general pattern that Western, sparsely-populated states simultaneously received more New Deal support and displayed more patriotism than states in the South or South-East.

Table 3 reports OLS results. Our first estimate indicates that doubling New Deal spending was associated with a 25.9 percent increase in war bonds purchases. Next, we examine volunteering for military service. Around 1,094,000 men volunteered between 1941 and 1945, constituting more than 19 percent of all soldiers inducted into the US Army. In

[17] To calculate average wage we only consider public and private employees, as the income of self-employed and entrepreneurs is unreliable in the Census of 1940.

[18] Results without these controls are stronger — available on request.

[19] Wallis (1998) and Fishback et al. (2003) demonstrate that some states received more funds than others.

an average county volunteers accounted for around 1 percent of the total 1940 population.[20] Where New Deal expenditure doubled, volunteering per capita increased by 0.06 percentage points: 8 percent of the baseline volunteering rate (Col. 2). Emergency relief alone explains 7.7 percent of the variation in volunteering rates. We look at medal recipients in Col 3. In the baseline specification we find that a doubling of New Deal spending was associated with 0.2 more heroes for every 1,000 soldiers. The estimate is not significantly different from zero at conventional levels of significance. Many factors determine heroic actions, and we only capture a small portion of them. With all controls and a full set of state fixed effects, we only explain 5.8 percent of the variation in medal recipients. Nonetheless, it is interesting that there is still a positive association between welfare spending and these extreme patriotic acts.

Col. 4–6 repeat the exercise for AAA grants. We find strong and significant effects. To compare effect sizes, we calculate beta coefficients (at the bottom of Table 3). War bonds are less affected by AAA support, which is not surprising since AAA spending was concentrated in poorer areas. In contrast, the effect of AAA on volunteering is slightly larger the effect of overall spending. Finally, AAA grants are a significant predictor of war medals. The beta coefficient indicates that AAA has a larger effect than New Deal grants per capita.[21] This may reflect the fact that agricultural support *per farmer* is a more precise measure of welfare support for the relevant population than total New Deal grant *per capita*.

For both total grants and AAA support, we also estimate average effect sizes as in Clingingsmith et al. (2009). This method evaluates the joint significance when the same explanatory variable affects multiple variables capturing the same underlying outcome (patriotism in our case). Average effect sizes are reported at the bottom of the table. Both New Deal grants and AAA support have a highly significant and large effect overall. In sum, the results in Table 3 demonstrates a strong association between New Deal spending and patriotic actions during WWII, both for aggregate expenditure and for agricultural support.

[20] We compute these numbers excluding counties in the 7th Service Command.

[21] These beta coefficients are large also compared to other relevant variables. For instance, the beta coefficient of AAA grant in the war bond (volunteer) regression is 44% (40%) the beta coefficient of wage. In the medal regression the wage is not significant and the beta coefficient of AAA grants is 2.5 times larger.

4.2 Identification and 2SLS results

The OLS evidence suggests that Americans who benefitted from more New Deal spending during the Great Depression made greater sacrifices for their country after 1941. Our estimates may suffer from omitted variable bias —- characteristics unrelated to welfare support could have attracted New Deal funds in the 1930s, and have also lead to greater patriotism in the 1940s. For example, a "frontier spirit" and rugged individualism in economically marginal farming areas of the mountain states and the Mid-West may have led to greater volunteering in WWII, and simultaneously may have attracted less welfare receipts prior to 1941. Similarly, pre-existing patriotism could have been associated with New Deal support.[22] Also, federal spending was partly allocated for political reasons.[23] Counties where the Democratic party was weaker prior to the New Deal received significantly more funds during the 1930s. Both strategic spending and omitted variables may bias estimates in Table 3.

In order to demonstrate the causal effect of welfare spending on patriotic support, we use arguably exogenous variation in New Deal support. We focus on a single New Deal program, the Agricultural Adjustment Administration. AAA was designed to relieve agricultural distress, and was one of the first New Deal programs. It was also a well-defined, highly-visible program with a clear target population. The Great Depression hit farmers especially hard, and AAA beneficiaries experienced directly and for many years the benefits of federal support. The program was popular among farmers, and had a large impact. AAA accounted for 12.1 percent of all 1933–39 spending.[24] Spending occurred all over the US, but to a varying extent (Fishback et al., 2003). Table 2 and Table 3 already showed that AAA spending is positively associated with patriotic actions during WWII. We now demonstrate that plausibly exogenous variation in AAA support also predicts WWII patriotism.

We use two separate instrument — the number and severity of droughts hitting a county, and the tenure of district's representative on the Congressional Agriculture Committee. The former simply reflects the incidence of weather shocks; the latter is largely

[22] We find that within states, WWI medals are uncorrelated with New Deal outlays. In contrast, WWI volunteering is significantly correlated with New Deal spending, but the sign is *negative*. Persistence of cultural traits should make it *harder* to find an effect.

[23] Wright (1974); Wallis (1998) and Fishback et al. (2003).

[24] Before discussing our instruments, we also note that focusing on AAA alleviates concerns of reverse causality. In contrast with overall New Deal spending, when we correlate WWI volunteering or medals with AAA support we never find significant effects within states (β = 0.01; s.e.= 0.01 for volunteering and β = -0.02; s.e.= 0.16 for medals).

determined by the earlier history of congressional representation. During the 1930s, several severe droughts hit the US. Dry spells led to crop failures and soil erosion (Hornbeck, 2012). Low agricultural prices after WWI depressed farmers' income, and 1930s droughts sent many of them into bankruptcy (Kennedy, 1999). The Agricultural Adjustment Acts of 1933 and 1938 were designed to help farmers in distress, buying crops at controlled prices, and paying them to reduce land in cultivation (Libecap, 1997; Depew et al., 2013). The 1938 bill also promoted soil conservation, to counter negative consequences of past droughts.

Congressional committee membership in general has strong predictive power for local aggregate New Deal grants (Anderson and Tollison, 1991). We show that in addition, a seat on the *Agricultural* Committee predicts strongly *AAA* spending. In principle, the AAA administration should have dispensed funds according to a set of objective criteria. In practice, however, congressmen who wrote the relevant legislation had considerable influence over the final allocation of funds (Rasmussen et al., 1976).[25] The exclusion restriction is that the local congressman's tenure on the Agricultural Committee in 1932–35 has no direct effect on WWII bond purchases, volunteering, and heroic actions other than through welfare support.

Table 4 shows that within states, droughts are uncorrelated with the democratic vote share before the 1930s, 1930 unemployment, WWI patriotism, urbanization, wages, ethnic minority shares, or WWII war contracts. However, as droughts were more prevalent in the center of the country, they were more likely to hit less populous counties.[26] Committee representation shows somewhat less balance — it is correlated with the democratic vote share 1896–1928, urbanization, the male share of the population, and inversely with the share of Italians. In most cases, the correlation coefficients are small; we control for these variables in our regressions.[27]

Panels A and F in Figure 3 demonstrate the extent to which our instruments are associated with AAA spending. Next, we estimate:

$$\begin{aligned} \log(\text{AAA grants per farmer})_i &= \delta_1 \log(1 + \#\text{ drought months}_i) + \\ &\quad + \delta_2 \log(1 + \text{tenure Agri committee}_i) + \psi X_i + \omega_s + e_i \end{aligned} \tag{2}$$

[25] Strömberg (2004) also shows that New Deal spending responded strongly to political expedience.

[26] We consider the effect of violations of the exclusion restriction in subsection 5.2.

[27] This evidence may suggest that droughts are superior as an instrument. All results are robust to using only droughts (results available upon request). Moreover, the Hansen over-identification test can not reject the null that both instruments are exogenous in each of the three separate IV regressions.

where we regress the log of AAA grants per farmer on the log of the number of months with severe drought, committee tenure, and a set of controls, before using fitted values as explanatory variables for our measures of patriotism. Col. 1 of Table 5 reports the strength of the first-stage relationship. Both droughts and tenure on the Agricultural Committee strongly predict agricultural relief. The elasticity is 0.27 for droughts and 0.54 for committee tenure. The F-test of 15.4 is well above the rule-of-the-thumb value of 10, indicating a strong instrument (Stock et al., 2002).[28]

Figure 3 summarizes the reduced form relationship between droughts, committee tenure, and WWII patriotism. Figure 3—Panels B–D document the strong and positive unconditional correlation between measures of patriotism (on the y-axis) and droughts (on the x-axis). Panels F–H do the same for committee tenure.

Table 5 presents reduced form results formally, including a set of covariates. Col. 2–4 show that tenure on the Agricultural Committee always predicts patriotism strongly. The drought coefficients are always positive and significant except for medals. When we use droughts as the only instrument in Col. 1–3 of Table C.2 we always find a significant correlation of droughts with patriotism. This makes it more likely that droughts and committees capture part of the same exogenous variation in AAA spending. The test of joint significance always rejects the null of no effect at 1.1 percent level or better.

The last three columns of Table 5 report IV estimates. We find a strong effect of welfare support on patriotism. Col. 5 suggests an elasticity of 0.26 between AAA grants and war bond purchases. Col. 6 implies that a doubling of grants was associated with a 0.2 extra volunteers per 100 people. Compared to an average of 0.6 volunteers per 100 people this implies a one-third increase. For medal recipients, every doubling of agricultural relief led to 0.5 extra medals being won for every 1,000 soldiers. Compared with the sample average of 0.43, this implies an effect of two-fifths. The average (standardized) effect size for the three outcomes combined is 0.46.

The high F-statistic of the first stage in Col.1 reflects the strength of our instruments. The low p-value of the Anderson-Rubin test shows that they have high predictive power in the reduced form. Finally, in each of our IV regressions we perform Hansen's over-identification test. Table 4 indicated that droughts are uncorrelated with pre-existing characteristics. This is less clear in the case of committee membership. The p-values of the three over-identification tests can never reject the null that both instruments are exogenous. In subsection 5.2 we show in more detail that our results are robust to violations

[28]Here and in what follows, we cluster standard errors at the level of the climatic division. Results are robust to clustering at the congressional district level (results available upon request).

of the exclusion restriction.

An alternative way to assess the magnitude of effects is to ask how much AAA money is needed to (i) sell one additional $25 war bond; (ii) get an extra volunteer; (iii) motivate one extra soldier to perform medal-worthy actions. In a county with median AAA expenditure, the Federal Government sold one extra war bond for every $74 of AAA expenditure, it recruited one extra volunteer for every $6,485. One extra medal-receiving war hero cost an additional $1,096,000.[29] Since the median wage in 1939 was $880, each volunteer cost more than 7 annual incomes, and one hero, more than 1,200.

4.3 Occupational results

Our results suggest that agricultural relief made welfare beneficiaries more patriotic. Can we find direct evidence that the primary recipients of agricultural relief — farmers — became more patriotic? We use detailed occupational data of WWII volunteers to answer this question. We estimate:

$$\left(\frac{V^o}{V}\right)_i = \alpha + \beta \log(\text{AAA grants per farmer})_i + \gamma X_i + \pi^o \left(\frac{L^o}{L}\right)_i + \xi_s + u_i \qquad (3)$$

where $(V^o/V)_i$ is the share of occupation o among county i volunteers (from NARA, 2002), and $(L^o/L)_i$ is the share of occupation o among workers and employees in a county i, using 1940 Census data (King et al., 2010). The coefficient of interest is π^o, the extent to which a higher share of occupation o in county i spelled more volunteering by the same occupation. X_i is the usual set of controls and ξ_s state fixed effects.

We estimate Equation (3) for 8 broad occupational categories.[30] Figure 6—Panel A plots π^o and its 95 confidence interval from Equation (3), estimated with OLS. Panel B plots

[29] We take one extra AAA dollar spent on the median county and divide it by the number of farmers in this county: this gives 0.05 extra cents to every farmer, an increase of 0.0002%. Next, we multiply this increase with our coefficient (0.26) and obtain the percentage increase in war bonds sales per capita in this county: +0.000001% - equivalent to 0.002 cents per capita. In the median county in terms of AAA spending there were 17,233 people in 1940, which implies an additional $0.33 of war bond sales for every dollar spent on AAA. Thus, to sell one extra $25 war bond, the Federal Government has to transfer $74. We quantify the effect for volunteers and war heroes in the same way, using the median AAA expenditure per farmer in the sample of columns 6 and 7 of Table 5 ($167) as well as the number of farmers (2,065) and the average number of soldiers (1,676) in the same county.

[30] The Army adopted the 1939 Dictionary of Occupational Titles classification to code what occupations recruits had before joining the Army. We use the top-most code, and group workers into: "professional and managerial occupations" (code 0); "clerical and sale occupations" (1); "service occupations" (2); "agriculture, fishery, forestry occupations" (3); "skilled occupations" (4 and 5); "semi-skilled occupations" (6 and 7) and "unskilled occupations" (8 and 9).

the same coefficients when we instrument AAA relief with droughts and political representation (Table C.3 reports these coefficients). OLS and IV results indicate that where agricultural relief was more generous, farmers volunteered in droves. Interestingly, the relationship between AAA support and volunteering tends to be 0 or negative among other types of workers: only direct welfare beneficiaries became more patriotic in their actions. Overall, this evidence connects direct welfare beneficiaries to patriotic actions, and it reduces the risk that results are driven by the ecological fallacy problem.

4.4 Pre-New Deal droughts and committee membership and patriotism

A key assumption of our IV analysis is that New Deal droughts affected WWII patriotism only through agricultural relief. The exclusion restriction would be violated if droughts had a direct effect on patriotism. We know that adversity can foster co-operation. Droughts may therefore have increased patriotism directly (Bauer et al., 2016). To rule out this possibility, we look at the effect of droughts before 1933.

Numerous droughts occurred before 1933. For example, the drought of 1931 was as severe as the worst New Deal drought (Figure 4—Panel A). Importantly, there was little help for farmers in distress (Figure 4—Panel B). When we look at the relationship between droughts and patriotism, only post-1933 droughts predict war bond purchases (Figure 5—Panel A), volunteering (Figure 5—Panel B) and medals (Figure 5—Panel C). Droughts before 1933 had a zero or negative impact on WWII patriotism.

Before WWI, there was no federal emergency relief. Thus, droughts before 1914 offer another opportunity to examine the effects of distress without government support. Table C.4 shows that pre-WWI droughts *reduced* WWI volunteering rates (Col. 1), and were not correlated with WWI medals (Col. 4). In combination, these results suggest that droughts by themselves had no effect on patriotism.

Did congressmen on powerful committees come from more patriotic counties? Membership in congressional committee is largely stable over time; tenure on the Agricultural Committee in the 1920s is almost collinear with tenure during the 73rd Congress. Thus, we can not replicate the pre-trends exercise with our committee variable. However, we can ask whether representation in the Agricultural Committee of the 62nd Congress (1911–13) correlates with patriotic actions during WWI.[31] Col. 2 (Col 5) of Table C.4 show no relation between Agricultural Committee membership and WWI volunteer rate (medals per soldier). Col. 3 and 6 of Table C.4 ask whether representation in the 1911–13 Agricultural

[31] The Agricultural Committee was established in 1911.

Committee translated into more patriotism during WWII. We also find no correlation. These results further support the causal interpretation of our IV results. Representation on powerful committees alone is not correlated with patriotism. It is only when Congressmen are crucial for channeling federal funds to their constituencies that we observe a surge in patriotic sentiment subsequently.

4.5 Interpretation

One of our key results is that volunteering rates after 1941 were much higher in areas that received more welfare support. Opportunity cost could offer an alternative interpretation if areas hit by the Depression and the Dust Bowl continued to be poorer afterwards. In that case, the wartime expansion of the US armed forces may have provided men with an attractive outside option, leading to more volunteering. Aggregate variation in the cross-section speaks against this: places with low wage levels volunteered substantially less (Figure B.1). Importantly, an opportunity-cost mechanism cannot explain our results for medals and bonds – areas that were poorer are unlikely to have purchased more war bonds, nor should they necessarily furnish more "heroes."

Three additional results reinforce the conclusion that economic incentives are not responsible for our results. First, areas that received more agricultural relief in the 1930s had lower than average unemployment by 1940. Within states, a doubling of AAA relief is associated with 0.7% less unemployment, or 11% of the average in 1940. This suggests that areas supported by the AAA were not poorer than the rest of the country at the start of the war. Second, including a measure of economic activity (average wage) in our regressions has no effect on our conclusions.[32] Third, the share of 1939 wage earners that earned less than an Army recruit after 1941 is actually *negatively* correlated with the WWII volunteering rate.

5 Robustness

In this section, we show the robustness of our findings. Results are unaffected if we correct for potential spatial correlation in the residuals or if we allow (limited) violations of the exclusion restriction as in Conley et al. (2012). Results are stronger if we re-weight observations via entropy balancing (Hainmueller, 2012) or if we apply coarsened exact

[32] Results are robust also to controlling for 1940 unemployment or retail sales per capita.

matching (Iacus et al., 2012). Share-cropping, migration, and the influence of individual states are unlikely to be driving our results: estimates are robust to dropping counties with many sharecroppers, high migration rates, or each of the individual 48 continental states. Finally, volunteering results are robust to including counties in the 7th Service Command, as well as the use of an alternative measure of volunteering.

5.1 Spatial error correlation

Our data varies over space. If the level of patriotism and welfare support in adjacent counties is not independent, heteroscedastic-robust standard errors will be downward biased (Colella et al., 2019). We first examine the potential scale of the problem, calculating Moran's I. Table C.5—Panel A gives the results for different distance thresholds. War bonds and volunteering display more spatial correlation than medals. For all three measures, the IV residuals show less spatial correlation. Spatial correlation becomes insignificant and small beyond 600 Km. We correct standard errors in two ways: First, we use the formula in Conley (1999) (Table C.5—Panel B),[33] with four cutoffs: 200, 400, 600 and 800 km. In the most conservative specification, significance remains below 8 percent across outcomes. Second, we follow the randomization inference procedure proposed by Kelly (2019) (Table C.5—Panel C). We generate spatial noise 1,000 times across US counties, and then regress patriotism on this spatial noise (Row 2) and spatial noise on log AAA spending per capita (Row 3). The observed t-statistics always fall within the top 10 percent of the simulated t-statistics. We conclude that spatial correlation is not driving our results.

5.2 Plausibly exogenous identification

The exclusion restriction — that there is no direct effect of either droughts nor committee membership on WWII patriotism — is plausible because droughts or committee membership did not predict WWI volunteering or medals (Table Table C.4). Nonetheless, it is possible to think of ways in which it might be violated. For example, given the well-known association between adverse shocks and pro-social behavior, it could be that weather-induced misery played a role in fostering patriotic behavior.

We use the Conley et al. (2012) procedure to relax the exclusion restriction in our IV-estimation. The Conley procedure asks how big the direct effect of droughts and commit-

[33] We implement these estimates with the ACREG routine of Colella et al. (2019).

tee membership on patriotism would have to be for the IV estimates to become insignificant. Figure B.2—Panels A–C (Panels D–F) illustrate the answer when we allow droughts (committee tenure) to have a direct effect on patriotism. Each panel plots the union of confidence intervals of our IV estimate (y-axis) against different potential direct effects of the instruments (x-axis). Each Panel also displays the value of the reduced form coefficient as a vertical blue line. Across our three outcomes and two instruments, we find that the direct effect of droughts and committee on patriotism must be between two-thirds and four-fifth of the reduced form effect for the IV estimates to become insignificant. Such large direct effects are implausible, given how weak the link between pre-WWI committee membership and droughts on WWI patriotism is.

5.3 Imbalance

An alternative way to address potential problems of endogeneity is to re-estimate OLS regressions on samples where counties with high and low New Deal spending are balanced on observables. We use two separate methods to increase balance: entropy weighting (Hainmueller, 2012) and Coarsened Exact Matching (Iacus et al., 2012).

Entropy balancing re-weights observations so as to ensure balancedness of control variables between areas receiving high vs low support. Table C.6—Panel A compares average value of control variables in counties with low and high AAA support (Cols. 1–2).[34] Most observable characteristics differ significantly between the two groups of counties. Table C.6—Panel A: Cols. 3–4 reports the same variables for the two groups once observations are re-weighted with the formula of Hainmueller (2012). Overall, the balancing is successful. Table C.6—Panel B compares OLS estimates (cols. 1, 4 and 7) with estimates obtained after re-weighting observations (cols. 2, 5 and 8). Entropy balancing increases point estimates and significance.

In the second exercise, we use coarsened exact matching (Iacus et al., 2012). The method looks for counties with low and high AAA support with the *exact* same characteristics.[35] To find exact matches, the method first "coarsens" variables and then finds exact matches within these coarser cells. Counties that can not be matched in this way are dropped from the analysis. We find exact matches within cells defined by state, WWI volunteering, 1930 unemployment, urban status and political leaning before the New Deal.

[34] We split counties at the median AAA per farmer. The median county is Washington (ID) that received $210 per farmer.

[35] Counties with "high" AAA support received above median AAA funding per farmer.

Table C.6—Panel B reports results. Across outcomes, we find point estimates that are larger than the baseline OLS. The results in this section suggest that lack of balance in the baseline OLS biases estimates downward.

5.4 The effect of share-cropping

AAA relief programs initially paid farmers to reduce output (Depew et al., 2013). Some farmers leasing to share-croppers had an incentive to take land out of production. This may have caused unemployment. In turn, a larger pool of idle men might have increased incentives for volunteering. While our finding that economic conditions in 1940 are positively associated with patriotism speaks against this possibility, we can deal with it more directly. We drop all areas of the US where share-cropping was prevalent. Table C.7 shows the results: after eliminating all counties with more than one-half of farms managed by share-croppers, there is no change in coefficients —- the link between New Deal spending and patriotism is not driven by the decline of share-cropping.

5.5 High migration counties

The "Dust Bowl" did not only cause ecological damage on a grand scale. It also triggered a large migration out of affected areas. Table C.8 gives the results when we drop 10% of our sample — the 5% of counties in the top and bottom of population changes between 1930 and 1940. As Table C.8 demonstrates, results are largely unaffected. For both OLS and 2SLS, we find positive coefficients throughout. All of them are highly significant except the coefficient on medals under 2SLS. As the number of observations declines, it is unsurprising that significance in one specification falls below standard levels of significance.

5.6 The impact of individual states

Wallis (1998) notes that the formula to allocate New Deal money favored sparsely populated states in the West. Nevada has particularly high support per capita. Are our results potentially driven by a handful of states? We perform two separate tests to demonstrate the robustness of our estimates. First, we add the inverse of the 1930 population to our main regressions as in Wallis (1998) and Fishback et al. (2003). This term captures one aspect of New Deal politics: namely, that the formula to allocate federal funds assigned each

county a fixed amount of money plus a per capita component. Table C.9 shows estimates when we control for this term. Results are robust.

Second, to show that our effects are not concentrated in a few individual areas of the country, we drop each of the 48 continental states. We then re-estimate OLS and IV models for the 3 outcomes and for the average effect size.[36] Results are in Figure B.3: Panel A–D show point estimates and confidence intervals for OLS regressions run after removing individual states, one at a time. Panel E–H repeat the exercise for IV estimates. No individual state drives our estimates, including Nevada.

5.7 Volunteers: alternative sample and measure

Military records from the 7th Service Command were not digitized by NARA.[37] Table C.10 show that including the 7th Service Command does not affect the significance of the OLS (Col. 1) nor of the IV (Col. 3). In the reduced form (Col. 2) the p-value of droughts is 15.3%, and the two instruments are jointly significant at 3.4%. The size of OLS and IV coefficients falls by one-fourth. This is probably caused by the lower volunteering rate in these states. Since noise increases when we include the 7th Service Command, our results remain remarkably robust.

In Cols. 4–6 of Table C.10 we work with volunteers per soldier instead of volunteers per capita.[38] Col. 4 shows OLS estimates, Col. 5 reduced form and Col. 6 IV. Coefficients are always positive and significant. We conclude that our volunteering results are robust to different definitions of the sample and the volunteering measure.

6 Conclusion

How do groups convince their members that it is "sweet and honorable" to die for their community? In small tribes, the problem is typically solved through social pressure. In large, modern societies, motivating individuals to fight for the common good is more difficult. The problem became acute after 1800 when army sizes expanded, and warfare changed from a "game of princes" to total war — an all-encompassing effort of the whole

[36] When a state accounts for more than 5% of the total sample we drop a random set of counties from that state up to 5% of the sample.

[37] Both volunteers and drafted men are missing from these 9 states, but the problem is particularly severe for drafted men.

[38] We can not calculate this measure for the states in the 7th Service Command.

nation (Parker, 1996). As von Clausewitz (1832) observed: "War became the business of the people."

A growing literature has argued that welfare states were key in convincing citizens to fight for their country (Alesina et al., 2017). We investigate empirically whether the willingness to fight for one's country increases when citizens receive economic support in times of crisis and find major support for this hypothesis: greater emergency relief during the 1930s boosted Americans' willingness to engage in patriotic actions during WWII. Roosevelt's New Deal fundamentally changed the role of the Federal Government in American society, ushering in an unprecedented expansion of the welfare state (Schlesinger, 1957). Where it offered more support, Americans were more likely to help their country in wartime.

Three key empirical facts support our argument: US counties receiving more relief payments during the 1930s bought more war bonds, sent more volunteers to the armed forces, and were home to more soldiers displaying conspicuous gallantry on the battlefield. The same pattern is visible for counties where income support for farmers was greatest because they were either hit by adverse weather conditions or because they were represented in the Agricultural Committee. As a result, we conclude that the relationship between welfare support and patriotism is likely causal. Importantly, using individual-level data on occupations, we find that the group most likely to have received welfare also volunteered more.

In this sense, US citizens acted as if they reciprocated towards the nation after the Federal Government came to their aid in bad times. A growing literature has highlighted the importance of reciprocity to overcome selfish behavior – by either altruistically punishing defection or by rewarding cooperation (Fehr and Gächter, 2002; Sober and Wilson, 1999). Attitudes and behaviors common in small-group settings — where they helped to create the basis of human cooperation —- were transposed to the national level through modern welfare systems: reciprocity towards the nation-state is facilitated if people experience immediate support in times of distress, making them act selflessly as members of a "superorganism" composed of millions of compatriots (Haidt, 2012).

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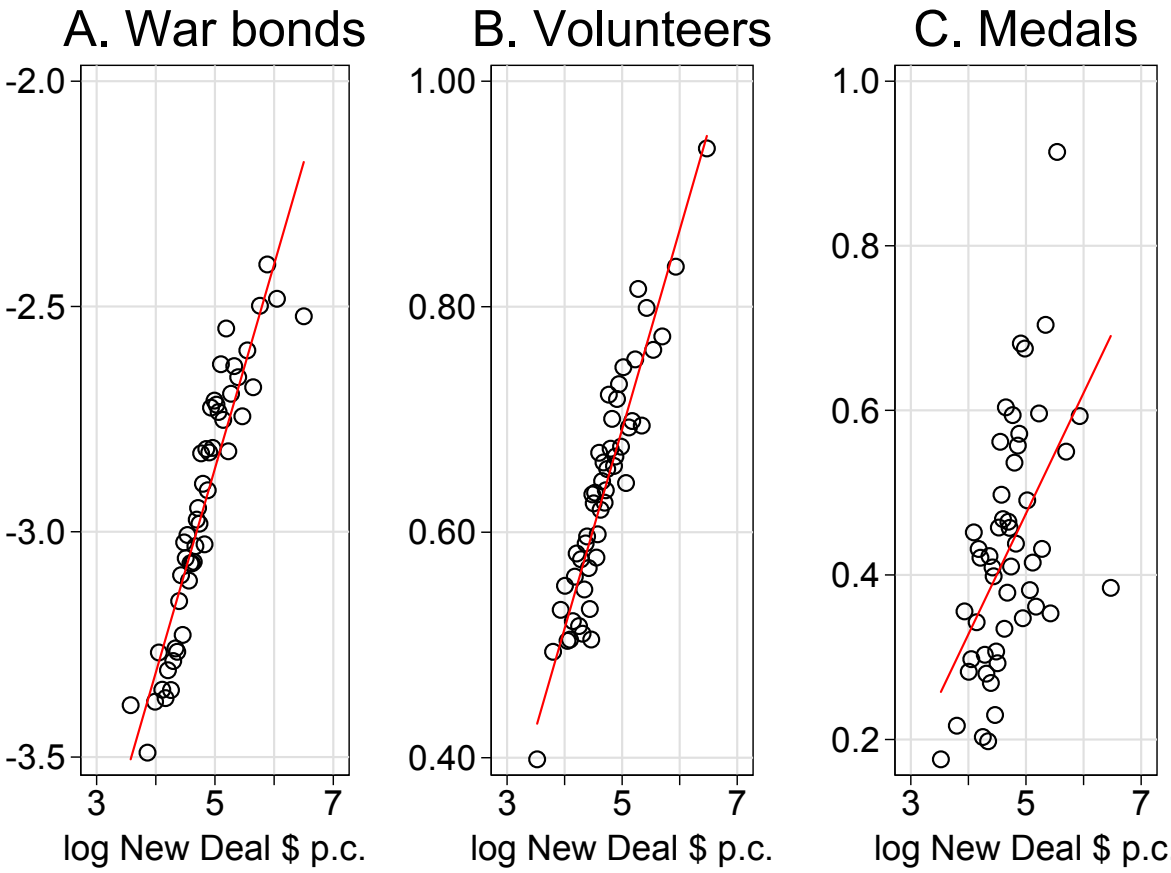
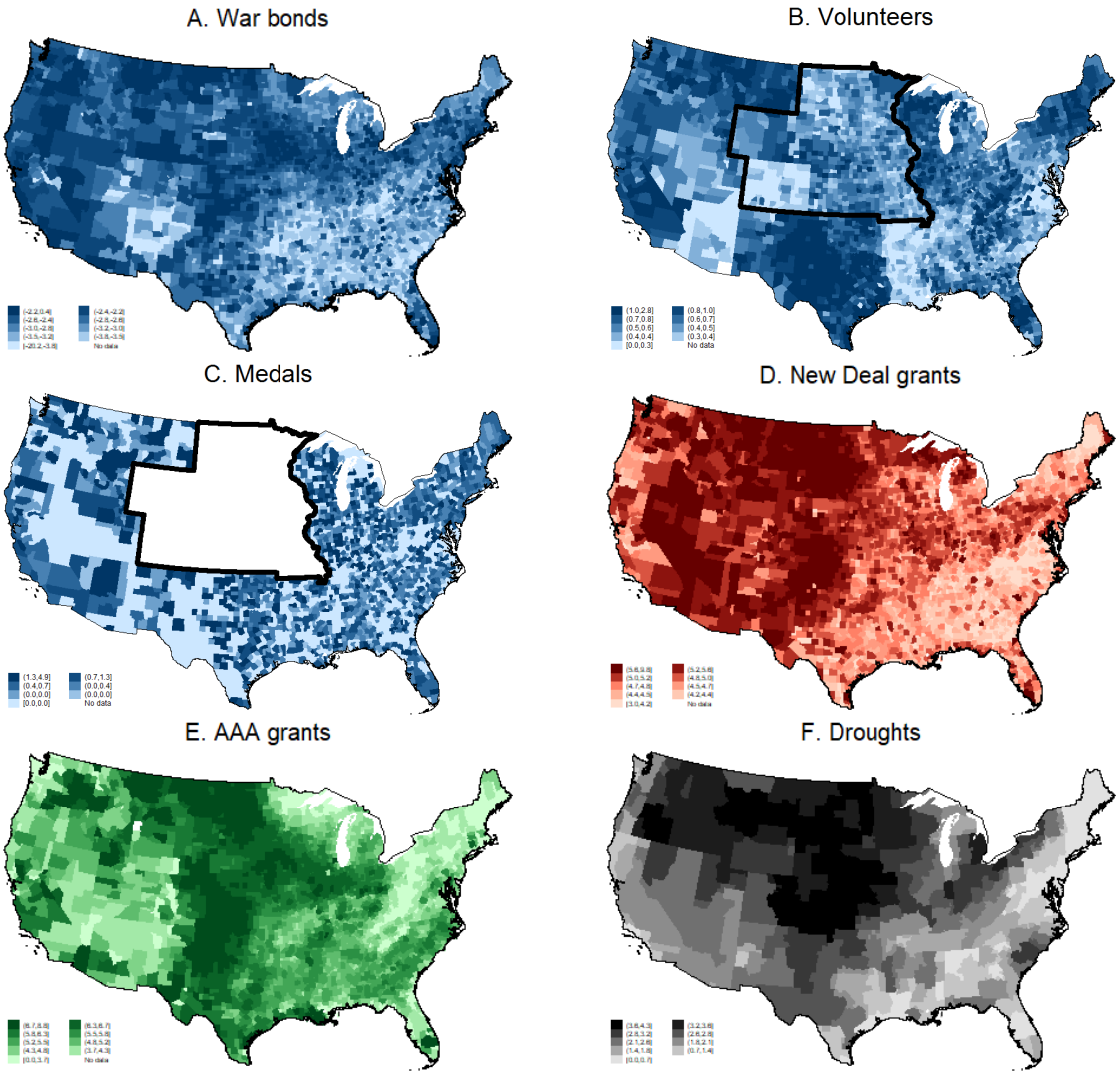
Figures

Figure 1: New Deal spending and WWII patriotism



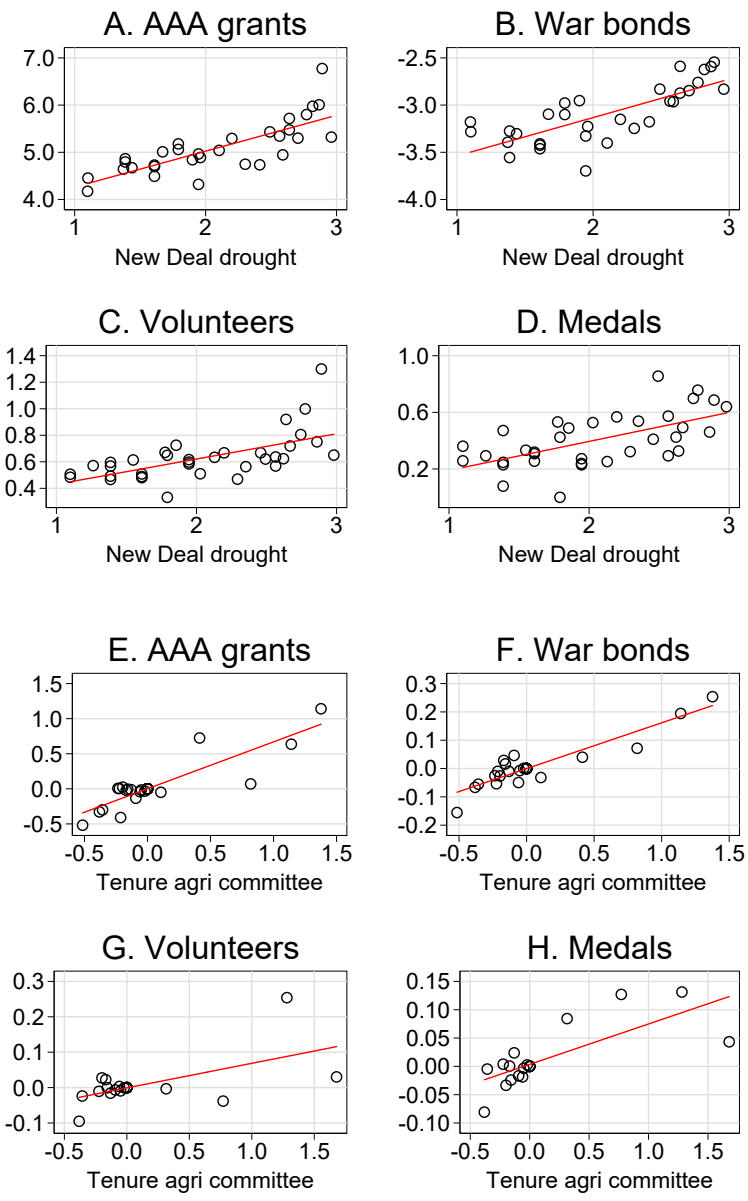
Notes: Graphs are bin-scatters of log per capita New Deal grants (x-axes) and patriotism (y-axes); red lines are linear fits. Panel A: patriotism measure is log of purchases of war bonds per capita (y-axis). Panel B: patriotism is WWII volunteers per 100 people (y-axis). Panel C: patriotism is military award per 1000 soldiers (y-axis). See section 3 and Appendix A for data sources and variable construction. Sample excludes the 7th Service Command in Panel B and C.

Figure 2: Geographic distribution of main variables



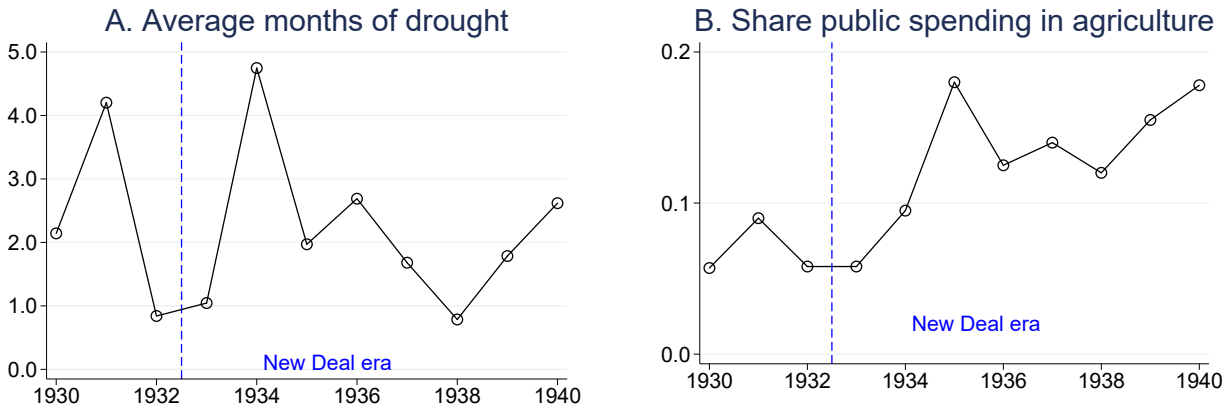
Notes: Panel A: log war bond purchases in 1944 per 1940 population. Panel B: WWII volunteers per 100 people. Panel C: WWII military awards per 1000 soldiers. Panel D: log New Deal grants per capita. Panel E: log AAA grants per farmer. Panel F: log number of months of severe drought 1933–39. See section 3 and Appendix A for data sources and variable construction. Panel B and C show the border of Service Command 7th in black.

Figure 3: Identification



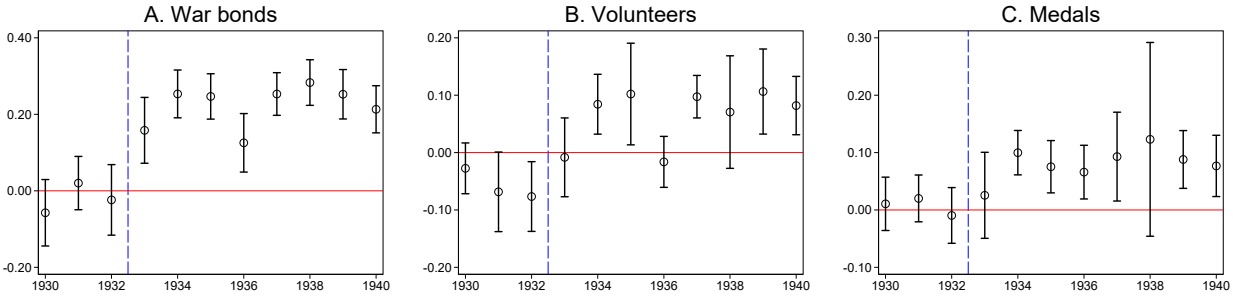
Notes: Graphs are bin-scatters of the instruments (x-axes) against AAA spending and patriotism (y-axes); red lines are linear fits. Panels A–D: instrument is log number of months of severe drought 1933–1939 (x-axis). Panels E–H: instrument is log tenure in the Agricultural Committee (x-axis). Panels A and E: first stage; log AAA spending per farmer on the y-axes. Panels B–D and F–H: reduced form; measures of patriotism on the y-axes. Panel B and F: patriotism is log war bonds purchases per capita. Panels C and G: patriotism is volunteering per 100 people. Panels D and H: patriotism is number of medals per 1000 soldiers. Panel E–H control for state fixed effects and plot residuals. See section 3 and Appendix A for data sources and variable construction. Sample excludes the 7th Service Command in Panel C–D and G–H.

Figure 4: Droughts and public spending in agriculture.



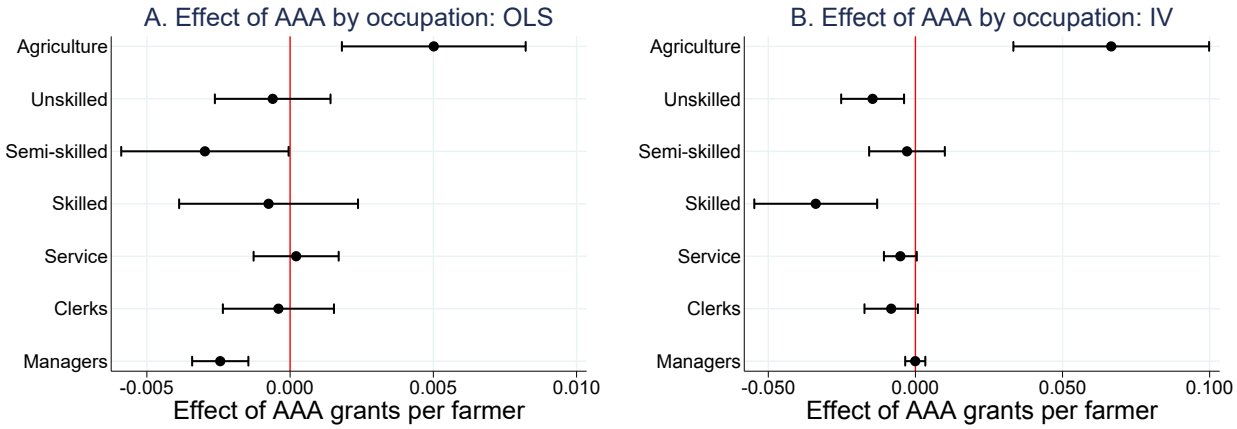
Notes: Panel A: average number months with severe drought across time in the US. Source: NOAA. Panel B: share of agricultural spending over total government spending. Source: Libecap (1997). In both panels, the dashed blue line marks Roosevelt's inauguration (4th March 1933).

Figure 5: Pre-New Deal droughts and WWII patriotism



Notes: Each panel shows point estimates and 95% confidence intervals for the effect of droughts in every year of the 1930s on patriotism. Panel A: dependent variable is log war bonds purchases per capita. Panel B: dependent variable is volunteering per 100 people. Panel C: dependent variable is number of medals per 1000 soldiers. In each panel the dashed blue line marks Roosevelt's inauguration (4th March 1933). See section 3 and Appendix A for data sources and variable construction. Sample excludes the 7th Service Command in Panel B and C. Confidence intervals are calculated based on standard errors clustered at climatic division level.

Figure 6: AAA spending and volunteers: occupation analysis.



Notes: Each panel shows point estimates and 95% confidence intervals for coefficient π^o from Equation (3): the effect AAA spending per farmer on occupational shares among volunteers. Each coefficient is estimated on a separate regression in which the dependent variable is the share of volunteers from each occupation. Panel A: estimation method is OLS and confidence intervals are based on robust standard errors. Full results in Table C.3—Panel A. Panel B: estimation method is IV and instruments are log months of droughts in 1933–39 and log tenure in the Agricultural Committee in 1933–35. Confidence intervals are based on standard errors clustered at climatic division level. Full results in Table C.3—Panel B. Sample excludes the 7th Service Command. See section 3 and Appendix A for data sources and variable construction.

Tables

Table 1: Summary statistics

Patriotism (WWII)	Mean	St. dev.	Obs.
log 1944 war bond purchases p.c.	-2.944	0.746	3022
WWII volunteers per 1940 population (×100)	0.637	0.343	2329
WWII volunteers per soldier	0.193	0.092	2329
WWII medals per soldier (×1,000)	0.430	0.742	2329
New Deal support			
log New Deal grants per 1930 population	4.814	0.578	3022
log AAA grants per 1930 farmers	5.255	1.290	3022
log WPA grants per 1930 population	3.276	0.796	3022
log FERA grants per 1930 population	2.836	0.695	3022
log other workfare grants per 1930 population	3.285	0.820	3022
log New Deal loans per 1930 population	3.991	0.726	3022
log HOLC loans per 1930 population	1.937	0.939	3022
log RFC loans per 1930 population	2.146	1.188	3022
Instruments			
log number of months of severe drought: 1933–39	2.246	1.091	3022
log tenure in Agricultural Committee: 1933–35	0.100	0.355	3022
Patriotism (WWI)			
WWI volunteers per soldier	0.353	0.253	3022
WWI medals per soldier (×1,000)	5.038	8.088	3022
Politics and demographics			
Average vote share for the Democrats: 1898–1928	49.450	18.537	3022
log 1930 population	9.828	1.029	3022
Urban status: 1930	0.547	0.498	3022
1930 share of men	0.517	0.022	3022
1930 share of black	0.112	0.184	3022
1930 share of Japanese	0.001	0.004	3022
1930 share of Germans	0.044	0.058	3022
1930 share of Italians	0.009	0.023	3022
1930 share of veterans	0.115	0.036	3022
1930 share of farmowners	0.613	0.204	3022
1930-40 change in population (%)	0.047	0.163	3022
Economic conditions			
1930 unemployment rate	0.059	0.040	3022
1940 unemployment rate	0.069	0.037	3022
log 1939 average wage	1.606	0.624	3022
log WWII war contract per capita	0.554	0.815	3022

Notes: Summary statistics. See section 3 and Appendix A for data sources and variable construction. Sample excludes the 7th Service Command in rows 2–4.

Table 2: New Deal spending and patriotism: program by program.

	War bonds	Volunteers	Medals
	(1)	(2)	(3)
log New Deal grants pc	0.446	0.173	0.145
	[0.038]	[0.015]	[0.033]
log AAA grants per farmer	0.130	0.050	0.059
	[0.016]	[0.007]	[0.013]
log WPA grants pc	0.134	0.046	0.057
	[0.027]	[0.009]	[0.020]
log FERA grants pc	0.203	0.098	0.063
	[0.037]	[0.011]	[0.024]
log other relief pc	0.277	0.059	0.045
	[0.059]	[0.010]	[0.020]
log New Deal loans pc	0.457	0.130	0.138
	[0.017]	[0.011]	[0.026]
log HOLC loans pc	0.406	0.078	0.062
	[0.016]	[0.007]	[0.015]
log RFC loans pc	0.186	0.016	0.028
	[0.014]	[0.006]	[0.013]
Observations	3,022	2,329	2,329

Notes: Each cell reports the coefficient of a bivariate regression of the variable on the top of the column on the variable in the row. Column 1: dependent variable is log war bond purchases per capita. Column 2: dependent variable is WWII volunteers per 100 people. Column 3: dependent variable is WWII military awards per 1000 soldiers. See section 3 and Appendix A for data sources and variable construction. Sample excludes the 7th Service Command in columns 2–3. Robust standard errors in brackets.

Table 3: New Deal spending and patriotism: basic correlations.

	War bonds	Volunteers	Medals	War bonds	Volunteers	Medals
	(1)	(2)	(3)	(4)	(5)	(6)
log New Deal grants pc	0.259	0.055	0.020			
	[0.031]	[0.016]	[0.047]			
log AAA grants per farmer				0.092	0.028	0.051
				[0.017]	[0.006]	[0.017]
WWI volunteering rate	0.055	0.113	0.079	0.053	0.113	0.077
	[0.054]	[0.026]	[0.078]	[0.054]	[0.027]	[0.077]
WWI awards per soldier	0.004	0.002	0.001	0.004	0.002	0.001
	[0.001]	[0.001]	[0.003]	[0.001]	[0.001]	[0.002]
log 1930 population	0.094	-0.021	-0.035	0.078	-0.023	-0.033
	[0.074]	[0.009]	[0.025]	[0.073]	[0.010]	[0.025]
1930 unemployment rate	0.073	0.643	-0.604	0.630	0.790	-0.425
	[0.457]	[0.188]	[0.458]	[0.428]	[0.197]	[0.443]
1930 urban status dummy	0.069	0.022	0.042	0.033	0.013	0.030
	[0.046]	[0.013]	[0.044]	[0.045]	[0.013]	[0.044]
Mean Democratic vote share: 1898–1928	0.003	0.000	0.002	0.002	-0.000	0.001
	[0.001]	[0.001]	[0.002]	[0.001]	[0.001]	[0.002]
1930 share of men	-1.447	-1.342	-3.557	-0.790	-1.213	-3.482
	[1.484]	[0.551]	[1.233]	[1.519]	[0.566]	[1.222]
1930 share of blacks	-0.257	-0.451	-0.333	-0.309	-0.461	-0.340
	[0.098]	[0.039]	[0.105]	[0.101]	[0.039]	[0.105]
1930 share of Japanese	5.124	0.465	1.921	4.198	0.335	1.845
	[2.863]	[1.191]	[4.741]	[2.723]	[1.183]	[4.785]
1930 share of Germans	1.199	-0.684	-0.474	0.926	-0.774	-0.542
	[0.247]	[0.162]	[0.560]	[0.244]	[0.159]	[0.558]
1930 share of Italians	-0.367	-0.343	1.156	0.005	-0.245	1.332
	[0.957]	[0.244]	[1.153]	[1.018]	[0.241]	[1.165]
1930 share of veterans	-1.313	1.178	1.297	-0.744	1.350	1.413
	[2.993]	[0.328]	[0.555]	[3.015]	[0.324]	[0.530]
log 1939 average wage	0.790	0.243	-0.072	0.795	0.242	-0.069
	[0.108]	[0.032]	[0.091]	[0.107]	[0.031]	[0.090]
log war contracts per capita	0.105	-0.015	-0.013	0.110	-0.014	-0.014
	[0.014]	[0.006]	[0.020]	[0.015]	[0.006]	[0.020]
State FE (48)	Yes	Yes	Yes	Yes	Yes	Yes
Beta coefficient of welfare support	0.201	0.088	0.015	0.158	0.100	0.083
Average effect size		0.210			0.118	
		(0.037)			(0.017)	
R^2	0.514	0.607	0.058	0.509	0.609	0.061
Mean dependent variable	-2.941	0.606	0.430	-2.941	0.606	0.430
Observations	3022	2329	2329	3022	2329	2329

Notes: OLS estimates of (1). Columns 1 and 4: dependent variable is log war bond purchases per capita. Columns 2 and 5: dependent variable is WWII volunteers per 100 people. Columns 3 and 6: dependent variable is WWII military awards per 1000 soldiers. Average effect size is calculated with the method of Clingingsmith et al. (2009). See section 3 and Appendix A for data sources and variable construction. Sample excludes the 7th Service Command in columns 2–3 and 5–6. Robust standard errors in brackets.

Table 4: Balance table.

		Coefficient of:		
	Average	Droughts	Agri committee	Observations
Democratic share 1896–1928	49.450	1.112	1.413	3022
		[0.714]	[0.814]	
WWI volunteering rate	0.353	-0.018	-0.024	3022
		[0.011]	[0.019]	
WWI awards per soldier	5.038	0.215	-0.234	3022
		[0.250]	[0.475]	
log 1930 population	9.828	-0.130	-0.287	3022
		[0.061]	[0.074]	
1930 unemployment rate	0.059	-0.002	-0.005	3022
		[0.002]	[0.003]	
1930 urban status	0.547	-0.015	-0.060	3022
		[0.021]	[0.024]	
1930 share of men	0.517	0.001	0.004	3022
		[0.001]	[0.001]	
1930 share of black	0.112	0.001	-0.019	3022
		[0.015]	[0.016]	
1930 share of Japanese	0.001	0.000	0.000	3022
		[0.000]	[0.000]	
1930 share of Germans	0.044	0.000	-0.000	3022
		[0.002]	[0.003]	
1930 share of Italians	0.009	0.000	-0.002	3022
		[0.001]	[0.001]	
1930 share of veterans	0.115	-0.001	0.001	3022
		[0.002]	[0.002]	
log 1939 wage	1.606	-0.005	-0.052	3022
		[0.032]	[0.046]	
log WWII war contract pc	0.554	0.015	-0.012	3022
		[0.048]	[0.050]	

Notes: Column 1: average of the variable listed on the left. Column 2: each cell reports the coefficient of a separate regression of the variable listed on the left on log drought months 1933–39 and a full set of 48 state fixed effects. Column 3: each cell reports the coefficient of a separate regression of the variable listed on the left on log tenure in the Agricultural Committee and a full set of 48 state fixed effects. Cluster-robust standard errors in brackets. Column 2: cluster is at the level of climatic division. Column 3: cluster is at at the level of the congressional district.

Table 5: Identification: IV and RF results.

	log AAA p.f.	War bonds	Volunteers	Medals	War bonds	Volunteers	Medals
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	FS	RF	RF	RF	2SLS	2SLS	2SLS
log AAA grants per farmer					0.258	0.194	0.188
					[0.051]	[0.034]	[0.056]
log months of severe droughts: 1933–39	0.266	0.052	0.026	0.029			
	[0.066]	[0.031]	[0.015]	[0.020]			
log tenure in Agri Committee 1933–35	0.544	0.163	0.114	0.103			
	[0.126]	[0.052]	[0.040]	[0.043]			
County-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE (48)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Average effect size						0.456	
						(0.059)	
R^2	0.544	0.504	0.617	0.060	0.468	0.415	0.033
Mean dependent variable	5.255	-2.944	0.637	0.430	-2.944	0.637	0.430
F-test of excluded instrument	15.4						
Rubin-Anderson test (p-value)					0.001	0.011	0.003
Hansen J-stat (p-value)					0.392	0.166	0.497
Observations	3022	3022	2329	2329	3022	2329	2329

Notes: Instruments are New Deal droughts and representation on the Agricultural Committee. Col. 1: first stage; dep. var. is log AAA spending per farmer. The F-stat tests the null that both instruments are insignificant. Cols. 2–4: reduced form. Cols. 5–7: IV; log AAA spending per farmer is instrumented with log months of drought and log tenure in the Agricultural Committee. Cols. 2 and 5: dep. var. is log war bond purchases per capita. Cols. 3 and 6: dep. var. is WWII volunteers per 100 people. Cols. 4 and 7: dep. var. is WWII military awards per 1000 soldiers. Average effect size of the IV is calculated with the method of Clingingsmith et al. (2009). The Hansen J-stat tests the null that both instruments are exogenous. See section 3 and Appendix A for data sources and variable construction and Table C.1 for full estimates. Sample excludes the 7th Service Command in cols. 3–4 and 6–7. Standard errors clustered at the level of climatic division in brackets.

Appendices (for online publication)

A Data appendix

A.1 Map of the US and sample

Our units of analysis are 1930 counties in continental US. We start from the list of 3,070 counties in Fishback et al. (2003) and match it to the shapefile of the US in 1930 (Manson et al., 2019): this is our "base map." When a variable is not measured in 1930, we observe it on a map that is different from our base map. In these cases, we calculate the value of the variable in 1930 counties with the method of Hornbeck (2010). We intersect the non-1930 map with our base map and create a many-to-many correspondence of counties. For every match we also compute weights equal to the share of non-1930 counties that falls inside a given 1930 county. We use these weights to compute the values of different variables in 1930 counties. The method effectively assumes that economic activity spreads evenly over space (at least in counties that changed borders).

The database of Fishback et al. (2003) contains 3,068 counties with valid New Deal grant entries.[39] From this list we drop 27 counties with missing volunteer data for WWI and 1 for WWII, 13 with missing unemployment rate in 1940 and 2 in 1930, 4 with missing 1930 farmers and 1 with missing share of democratic votes. We end up with a sample of 3,022 counties: this is our main sample of analysis. When we drop the 7th Service Command we have 2,329 counties.

A.2 Variable description

A.2.1 Patriotism during WWII

1944 war bond purchases per capita. The variable is the natural logarithm of 1944 war bond purchases divided by 1940 population. Both variables come from the *County Data Book* of 1947 (Haines et al., 2005). War bond purchases count only private customers (i.e. it excludes corportation). War bond purchases is `CC00478` and population is `CC00012`.

WWII volunteers per 1940 population. The variable is the number of volunteers from a county divided by 1940 population, times 100. Volunteers are from from NARA (2002) while population is from the 1940 census (King et al., 2010).

[39] Washington D.C. and Yellowstone National Park in Montana have missing values.

NARA (2002) provides the universe of WWII US Army soldiers. These data contain individual-level information digitized from the original punch-cards used to register soldiers during the war. From the full series of 9.2 million men, we exclude 625,806 records of officers and National Guardsmen and 133,841 records of women in the Women's Army Corps. We drop 914,270 records with invalid entries in one of the following fields: serial number, county of residence, county of birth, year of birth and year of enlistment. We exclude 742,943 soldiers who were resident abroad, in Alaska or in the Hawaii before joining the Army. Finally, we drop 162,508 duplicate records. This leaves us with 6,602,862 soldiers.

The Army organized enlistment across 9 "Service Commands," each comprising several states. Coverage of the 7th Service Command is poor:[40] across the US, 5.2 men were drafted and 1 volunteered for every 100 people. In the NARA (2002) data for Service Command 7 these numbers were 3 and 0.86. In the main specification we always exclude the 459,665 men who joined the Army from these states. In Table C.10 we add back the 121,126 men who volunteered from the 7th Service Command.

We identify voluntary enlistment with soldiers' serial numbers. Volunteers were reserved serial numbers starting with "1," while the Army assigned serial numbers starting with "3" to draftees (Army Regulation 615-30, 1942; see also Fouka, 2019).

WWII volunteers per soldier. The variable is the number of volunteers divided by total number of soldiers. Total number of soldiers is equal to volunteers plus draftees. Both volunteers and draftees come from the NARA (2002): see description of "WWII volunteers per 1940 population" for details. When we use this variable, we always exclude 7th Service Command, which has poor coverage.

Occupational shares among WWII volunteers. The variable is equal to the number of volunteers employed in a given occupation before joining the Army, divided by the total number of volunteers. Data come from the NARA (2002): see description of "WWII volunteers per 1940 population" for details. The Army coded occupation using the 1939 Dictionary of Occupational Titles classification. We calculate 6 different occupational shares: for "professional and managerial occupations" (code 0); "clerical and sale occupations" (1); "service occupations" (2); "agriculture, fishery, forestry occupations" (3); "skilled occupations" (4 and 5); "semi-skilled occupations" (6 and 7) and "unskilled occupations" (codes 8 and 9, but we drop all volunteers with recorded occupation 999). When we use

[40] The 7th includes the states of Colorado, Iowa, Kansas, Minnesota, Wyoming, Missouri, Nebraska, North Dakota and South Dakota.

this variable, we always exclude 7th Service Command, which has poor coverage.

Number of WWII medals per 1000 soldiers. We collect individual-level information of every Army soldier who received a military award between 1941 and 1945 from the website *Home of Heroes*.[41] The website assembles a comprehensive list of all American soldiers who received one of the most prestigious awards.[42] We focus on recipients of the Medal of Honor and the Distinguished Service Cross for which the website reported the county of residence before the war. We find 648 Medals of Honor and 2,207 Distinguished Service Cross and we manage to geolocate 98 percent of them. We use the number of awards in each county divided by the total number of soldiers in the county (NARA, 2002). We also multiply this variable by 1000 and winsorize the 1% tail of the distribution.

A.2.2 New Deal

log New Deal grants per capita. The variable is the natural logarithm of total non-repayable New Deal grants divided by 1930 population. New Deal grants are from Fishback et al. (2003), who collected county-level data on each federal program implemented between March 1933 and June 1939 from the US Office of Government reports. Population in 1930 is from the census (King et al., 2010).

log AAA grants per 1930 farmer. The variable is the natural logarithm of one plus Agricultural Adjustment Act grants divided by number of farmers in 1930. AAA grants are from Fishback et al., 2003, and are measured between 1933 and 1939. Number of farmers in 1930 is from the 1930 agricultural census (Manson et al., 2019).

log WPA grants per capita. The variable is the natural logarithm of one plus Work Progress Administration grants dividend by 1930 population and has the top and bottom 0.5% winsorized. WPA grants are from Fishback et al., 2003, and are measured between 1935 (when WPA started) and 1939. Population in 1930 is from the census (King et al., 2010).

log FERA grants per capita. The variable is the natural logarithm of one plus Federal Emergency Relief Administration grants dividend by 1930 population and has the top and bottom 0.5% winsorized. FERA grants are from the final statistical report prepared by

[41] Accessed on January 2018 at: https://homeofheroes.com.

[42] Coverage of lower awards is less complete. For instance, to November 2019 the website still has incomplete coverage of Silver Star recipients. The Silver Star is the third most prestigious US military award.

Whiting (1942), include all grants and are measured between 1933 and 1935. Population in 1930 is from the census (King et al., 2010).

log other workfare grants per capita. The variable is the natural logarithm of one plus grants of four separate workfare programs dividend by 1930 population. The four workfare programs: Public Road Administration (PRA); Public Works Administration (PWA);[43] Civil Works Administration (CWA) and Public Buildings Administration (PBA). Grants are measured between March 1933 and June 1939. Population in 1930 is from the census (King et al., 2010).

log New Deal loans per capita. The variable is the natural logarithm of one plus New Deal loans divided by 1930 population. New Deal loans are from Fishback et al. (2003), who collected county-level data on each federal program implemented between March 1933 and June 1939 from the US Office of Government reports. Population in 1930 is from the census (King et al., 2010).

log HOLC loans per capita. The variable is the natural logarithm of one plus Home Owners' Loan Corporation loans divided by 1930 population. HOLC loans are from Fishback et al., 2003, and are measured between 1933 and 1939. Population in 1930 is from the census (King et al., 2010).

log RFC loans per capita. The variable is the natural logarithm of one plus Reconstruction Finance Corporation loans divided by 1930 population and has the top and bottom 0.5% winsorized. RFC loans are from Fishback et al., 2003, and are measured between 1933 and 1939. Population in 1930 is from the census (King et al., 2010).

A.2.3 Instruments

log months of drought: 1933–39. The variable is the natural logarithm of one plus the number of months with severe droughts between January 1933 and December 1939. We define "severe drought" as a month with Palmer Drought Severity Index of -3 or lower. Palmer Index is from the NOAA's National Climatic Data Center (National Oceanic and Atmospheric Administration, 2014), which maintains monthly records for a panel of 376 climate divisions over the continental US since 1900. We assign each county to a climate division by overlaying the map of climatic divisions to our base map.

[43] We only consider PWA's Federal projects.

log months of drought: 1908–15. The variable is the natural logarithm of one plus the number of months with severe droughts between January 1908 and December 1915. It is constructed as the previous variable.

log tenure in Agricultural Committee: 1933–35. The variable is the natural logarithm of one plus the number of months of tenure on the Agricultural Committee during the 73rd Congress: 1933–35. The data is from ICPSR and McKibbin (1997), which maintains the directory of all US Congressmen between 1789 and 1996. We construct the tenure on the Agricultural Committee by taking every member sitting on the committee in 1935, and summing the years on that position until then. We then assign members of Congress to their congressional district in 1933, superimpose the map of congressional districts to our base map, and assign the value of every district to all the counties inside it. When a county splits across more than one congressional district, we assign values from each of the districts using the share of area in each of them as weights.

log tenure in Agricultural Committee: 1911–13. The variable is the natural logarithm of one plus the number of months of tenure on the Agricultural Committee during the 62nd Congress: 1911–13. It is constructed as the previous variable, except that we use the map of 1911 congressional districts to take it to our base map.

A.2.4 Patriotism during WWI

Share of WWI volunteers. The variable is the number of volunteers divided by total number of soldiers. It comes from the tables at the end of the 1st Report of the Provost (Crowder, 1918). Number of soldiers is the "total quota": it represents the total number of soldiers that each county had to provide to the Army. Number of volunteers is the "credit" in the table: the number of people that volunteered between the declaration of war on the 6th of April 1917 and the date of the draft, the 6th of June 1917.

Number of WWI medals per 1000 soldiers. We collect individual-level information of every Army soldier who received a military award between 1917 and 1918 from the website Home of Heroes.[44] We divide the total number of awards in each county by the number of soldiers who served (from Crowder, 1918). We also multiply this variable by 1000 and winsorize the 1% tail of the distribution.

[44] Accessed on January 2018 at: https://homeofheroes.com.

A.2.5 Politics

Average vote share for the Democrats: 1896–1928. This is 100 times the average vote share of the Democratic presidential candidate between 1896 and 1928. It comes from Fishback et al. (2003).

A.2.6 Demographics

log 1930 population. The variable is the natural logarithm of 1930 population. We construct the variable by aggregating the full count of the 1930 US census from King et al. (2010).

Urban status: 1930. The variable is a dummy that indicates whether at least one person in the county is classified as living in a urban area. We construct the variable by aggregating the full count of the 1930 US census from King et al. (2010). People living in urban areas have `urban` = 2.

1930 share of men. The variable is the number of men divided by 1930 population. We construct the variable by aggregating the full count of the 1930 US census from King et al. (2010). Men have `sex` = 1.

1930 share of black. The variable is the number of black people divided by 1930 population. We construct the variable by aggregating the full count of the 1930 US census from King et al. (2010). Blacks have `race` = 2.

1930 share of Japanese. The variable is the number of people with Japanese ancestry divided by 1930 population. We construct the variable by aggregating the full count of the 1930 US census from King et al. (2010). We define people with Japanese ancestry as those who either are born in Japan (`bpl` = 501) or have at least one parent who was born there (either `fbpl` = 501 or `mbpl` = 501).

1930 share of Germans. The variable is the number of people with German ancestry divided by 1930 population. We construct the variable by aggregating the full count of the 1930 US census from King et al. (2010). We define people with German ancestry as those who either are born in Germany (`bpl` = 453) or have at least one parent who was born there (either `fbpl` = 453 or `mbpl` = 453).

1930 share of Italians. The variable is the number of people with Italian ancestry divided by 1930 population. We construct the variable by aggregating the full count of the 1930

US census from King et al. (2010). We define people with Italian ancestry as those who either are born in Italy (`bpl` = 434) or who have at least one parent who was born there (either `fbpl` = 434 or `mbpl` = 434).

1930 share of veterans. This is the share of veterans among over-30 years old men. We construct the variable by aggregating the full count of the 1930 US census from King et al. (2010). Veterans have `vet` between 1 and 5. We divide the number of veterans by the number of men who are at least 30 years old in 1930 and have non-missing `vet`.

Inverse of 1930 population. The variable is one divided by 1930 population and has the top and bottom 1% winsorized. We construct 1930 population by aggregating the full count of the 1930 US census from King et al. (2010).

Occupational shares in 1940. The variable is equal to the number of men aged 11–60 employed in a given occupation in 1940. We construct the variable by aggregating the full count of the 1940 US census from King et al. (2010). We manually merge census occupation categories to the first digit of the 1939 Dictionary of Occupational Titles classification and calculate 6 different occupational shares: "professional and managerial occupations" (code 0); "clerical and sale occupations" (1); "service occupations" (2); "agriculture, fishery, forestry occupations" (3); "skilled occupations" (4 and 5); "semi-skilled occupations" (6 and 7) and "unskilled occupations" (codes 8 and 9).

A.2.7 Economic conditions

1930 and 1940 unemployment rate. The variables are the number of unemployed divided by the sum of unemployed and employed. We construct the variable by aggregating the full count of the 1930 and 1940 US censuses from King et al. (2010). Employed have `empstat` = 1, and unemployed have `empstat` = 2.

log 1939 average wage. The variable is the natural logarithm of the average wage of public and private employees. We construct the variable by aggregating the full count of the 1940 US census from King et al. (2010). Wage is recorded in `incwage`: because the 1940 census top-coded values above $5,000, we drop all individuals reporting more than this value. We compute average wage only for public and private employees (`classwkr` = 22 or 24).

log WWII war contract per capita. The variable is the natural logarithm of one plus the value of all war-related contracts and projects in a county divided by 1940 population. Both variables come from the *County Data Book* of 1947 (Haines et al., 2005). War related

contract are for combat equipment (CC00443) or other supplies (CC00444); war-related projects are either industrial (CC00445) or military (CC00446). Population is CC00012.

A.2.8 Other variables

Share of farm-owners in 1930. The variable is the share of farmers who are either full- or part-owner. Number of farmers by type is from Manson et al. (2019). Number of farmers is acae001; full- and part-owners are acad002 and acad003. In Table C.7 we drop 1,033 counties that had fewer than 53% of farms operated by either full- or part-owners.

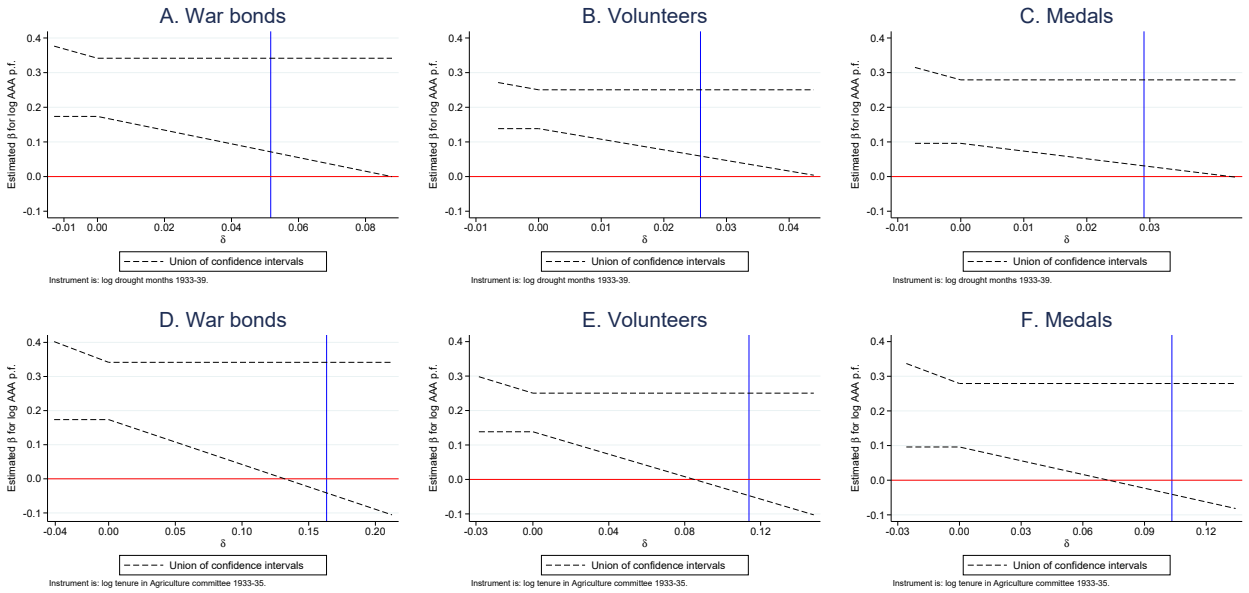
1940-30 population change. The variable is the natural logarithm of 1940 population minus the natural logarithm of 1930 population. We construct both variables by aggregating the full counts of the 1940 and 1930 US censuses from King et al. (2010). In Table C.8 we drop the top and bottom 5% of counties in terms of 1930–40 population change. These were 154 counties that lost 18% or more of their 1930 population and 153 counties that gained 28% or more.

B Additional Figures

Figure B.1: Volunteers and average wage.

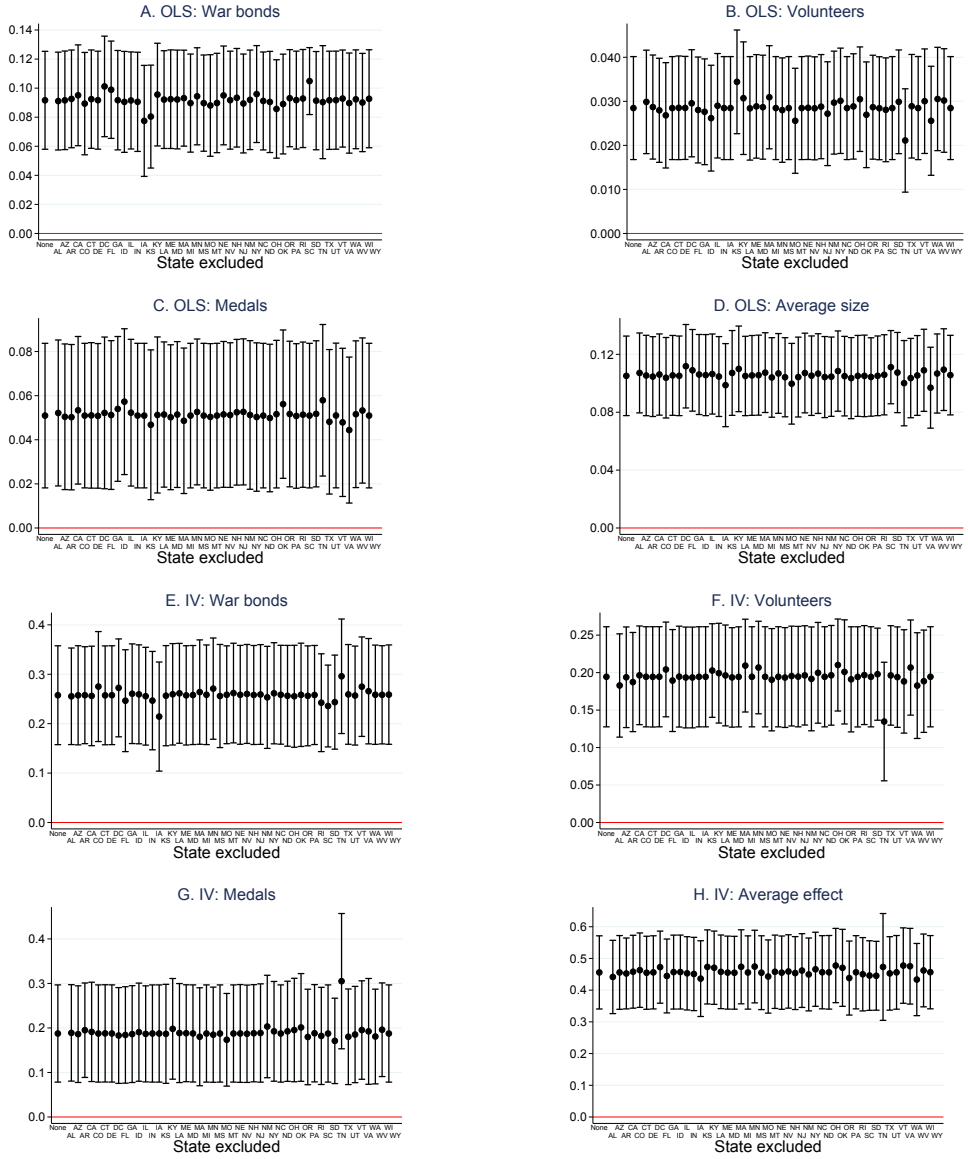
Notes: Graph is a bin-scatter of log 1939 average wage (x-axes) on volunteers per 100 people (y-axes); red line is a linear fit. See section 3 and Appendix A for data sources and variable construction. Sample excludes the 7th Service Command.

Figure B.2: Plausible exogeneity test



Notes: Effect of violation of exclusion restriction (Conley et al., 2012). Union of 90% confidence intervals of the IV estimates (y-axis) when the exclusion restriction is violated (x-axis). We estimate IV using two instruments, and allow one of the two instruments to have a direct effect on the outcomes while maintaining the assumption of strict exogeneity for the other instrument. Panels A–C: droughts is allowed to have a direct effect on outcomes. Panels D–F: committee is allowed to have a direct effect on outcomes. Panel A and D: outcome is log war bonds purchases per capita. Panels B and E: patriotism is volunteering per 100 people. Panels C and F: patriotism is number of medals per 1000 soldiers. All regressions include the full set of controls and 48 state fixed effects. See section 3 and Appendix A for data sources and variable construction. Sample excludes the 7th Service Command in Panel B–C and E–F.

Figure B.3: Robustness to dropping one state at a time.



Notes: Robustness to dropping each of the 48 continental states up to 5% of the sample. Point estimates and 95% confidence intervals of log AAA per farmer in (1). Panels A–D: OLS estimates. Panels E–H: IV estimates, where log AAA spending per farmer is instrumented with log months of drought and log tenure in the Agricultural Committee. Panels A and E: dependent variable is log war bond purchases per capita. Panels B and F: dependent variable is WWII volunteers per 100 people. Panels C and G: dependent variable is WWII military awards per 1000 soldiers. Panels D and H: average effect size calculated with the method of Clingingsmith et al. (2009). See section 3 and Appendix A for data sources and variable construction. Sample excludes the 7th Service Command in Panels B–C and F–G. Confidence intervals based on standard errors clustered at the level of climatic division.

C Additional Tables

Table C.1: Identification: IV and RF results: full estimates

	log AAA p.f.	War bonds	Volunteers	Medals	War bonds	Volunteers	Medals
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	FS	RF	RF	RF	2SLS	2SLS	2SLS
log AAA grants per farmer					0.258	0.194	0.188
					[0.051]	[0.034]	[0.056]
log months of severe droughts: 1933–39	0.266	0.052	0.026	0.029			
	[0.066]	[0.031]	[0.015]	[0.020]			
log tenure in Agri Committee 1933–35	0.544	0.163	0.114	0.103			
	[0.126]	[0.052]	[0.040]	[0.043]			
WWI volunteering rate	0.015	0.059	0.116	0.082	0.056	0.107	0.073
	[0.092]	[0.055]	[0.030]	[0.073]	[0.059]	[0.038]	[0.075]
WWI awards per soldier	-0.001	0.004	0.002	0.001	0.004	0.002	0.001
	[0.002]	[0.001]	[0.001]	[0.003]	[0.001]	[0.001]	[0.002]
log 1930 population	-0.012	0.084	-0.018	-0.030	0.087	-0.013	-0.024
	[0.045]	[0.074]	[0.011]	[0.024]	[0.076]	[0.014]	[0.024]
1930 unemployment rate	-4.090	0.289	0.705	-0.581	1.342	1.308	0.001
	[0.928]	[0.455]	[0.190]	[0.448]	[0.576]	[0.293]	[0.482]
1930 urban status dummy	0.173	0.047	0.017	0.038	0.002	-0.022	0.001
	[0.057]	[0.048]	[0.012]	[0.042]	[0.054]	[0.017]	[0.044]
Mean Democratic vote share: 1898–1928	0.013	0.003	-0.000	0.002	-0.000	-0.003	-0.001
	[0.004]	[0.002]	[0.001]	[0.002]	[0.002]	[0.001]	[0.002]
1930 share of men	-2.966	-1.141	-1.324	-3.602	-0.349	-1.094	-3.384
	[2.384]	[1.569]	[0.567]	[1.126]	[1.725]	[0.803]	[1.167]
1930 share of blacks	0.203	-0.272	-0.438	-0.318	-0.328	-0.474	-0.351
	[0.331]	[0.139]	[0.057]	[0.104]	[0.134]	[0.074]	[0.104]
1930 share of Japanese	4.083	3.943	-0.262	1.305	2.957	0.212	1.744
	[6.935]	[2.575]	[1.780]	[5.685]	[3.599]	[1.422]	[6.587]
1930 share of Germans	0.963	1.001	-0.756	-0.503	0.753	-0.923	-0.665
	[0.664]	[0.307]	[0.223]	[0.586]	[0.283]	[0.208]	[0.589]
1930 share of Italians	-3.731	-0.308	-0.332	1.159	0.623	0.328	1.804
	[1.529]	[0.965]	[0.279]	[1.186]	[0.997]	[0.389]	[1.238]
1930 share of veterans	-0.177	-0.758	1.321	1.355	-0.707	1.575	1.599
	[0.823]	[2.999]	[0.282]	[0.547]	[3.048]	[0.335]	[0.541]
log 1939 average wage	-0.242	0.759	0.225	-0.087	0.820	0.255	-0.059
	[0.159]	[0.110]	[0.033]	[0.097]	[0.120]	[0.048]	[0.097]
log war contracts per capita	0.013	0.111	-0.013	-0.012	0.108	-0.021	-0.020
	[0.025]	[0.016]	[0.007]	[0.023]	[0.017]	[0.010]	[0.024]
State FE (48)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.544	0.504	0.617	0.060	0.468	0.415	0.033
Mean dependent variable	5.255	-2.944	0.637	0.430	-2.944	0.637	0.430
F-test of excluded instrument	15.4						
Rubin-Anderson test (p-value)					0.001	0.011	0.003
Hansen J-stat (p-value)					0.392	0.166	0.497
Observations	3022	3022	2329	2329	3022	2329	2329

Notes: Full estimates of Table 5: see notes to that table for details.

Table C.2: Reduced form.

	War bonds	Volunteers	Medals	War bonds	Volunteers	Medals
	(1)	(2)	(3)	(4)	(5)	(6)
log months of severe droughts: 1933–39	0.071	0.039	0.041			
	[0.034]	[0.021]	[0.020]			
log tenure in Agri Committee 1933–35				0.179	0.123	0.114
				[0.044]	[0.040]	[0.050]
WWI volunteering rate	0.056	0.116	0.081	0.055	0.115	0.080
	[0.055]	[0.029]	[0.073]	[0.055]	[0.027]	[0.071]
WWI awards per soldier	0.004	0.002	0.001	0.004	0.002	0.001
	[0.001]	[0.001]	[0.002]	[0.002]	[0.001]	[0.003]
log 1930 population	0.078	-0.021	-0.032	0.080	-0.021	-0.032
	[0.073]	[0.010]	[0.024]	[0.076]	[0.011]	[0.021]
1930 unemployment rate	0.256	0.700	-0.585	0.279	0.706	-0.579
	[0.456]	[0.190]	[0.447]	[0.505]	[0.202]	[0.410]
1930 urban status dummy	0.048	0.017	0.038	0.048	0.018	0.040
	[0.048]	[0.012]	[0.042]	[0.052]	[0.011]	[0.051]
Mean Democratic vote share: 1898–1928	0.003	-0.000	0.002	0.003	-0.000	0.002
	[0.002]	[0.001]	[0.002]	[0.002]	[0.001]	[0.001]
1930 share of men	-0.996	-1.241	-3.526	-1.182	-1.326	-3.604
	[1.582]	[0.594]	[1.114]	[1.643]	[0.585]	[0.993]
1930 share of blacks	-0.299	-0.460	-0.337	-0.269	-0.436	-0.315
	[0.148]	[0.069]	[0.106]	[0.134]	[0.065]	[0.092]
1930 share of Japanese	4.683	0.238	1.759	4.013	-0.229	1.342
	[2.573]	[1.803]	[5.620]	[2.603]	[1.235]	[4.607]
1930 share of Germans	1.013	-0.752	-0.500	1.005	-0.754	-0.502
	[0.315]	[0.242]	[0.594]	[0.307]	[0.176]	[0.390]
1930 share of Italians	-0.412	-0.392	1.105	-0.244	-0.296	1.199
	[0.974]	[0.283]	[1.181]	[0.991]	[0.286]	[1.105]
1930 share of veterans	-0.746	1.326	1.360	-0.773	1.311	1.344
	[3.006]	[0.288]	[0.557]	[2.994]	[0.318]	[0.564]
log 1939 average wage	0.770	0.234	-0.080	0.765	0.229	-0.083
	[0.111]	[0.032]	[0.098]	[0.112]	[0.028]	[0.094]
log war contracts per capita	0.111	-0.013	-0.012	0.112	-0.013	-0.012
	[0.016]	[0.007]	[0.023]	[0.019]	[0.006]	[0.020]
State FE (48)	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.499	0.607	0.058	0.502	0.616	0.060
Mean dependent variable	-2.944	0.637	0.430	-2.944	0.637	0.430
Observations	3022	2329	2329	3022	2329	2329

Notes: Reduced form estimates for the two instruments separately. Columns 1–3: instrument is log months of drought. Columns 4–6: instrument is log tenure in the Agricultural Committee. Columns 1 and 4: dependent variable is log war bond purchases per capita. Columns 2 and 5: dependent variable is WWII volunteers per 100 people. Columns 3 and 6: dependent variable is WWII military awards per 1000 soldiers. See section 3 and Appendix A for data sources and variable construction. Sample excludes the 7th Service Command in columns 2–3 and 5–6. Cluster-robust standard errors in brackets. Columns 1–3: cluster is at the level of climatic division. Column 4-6: cluster is at at the level of the congressional district.

Table C.3: New Deal spending and volunteers: occupation analysis.

	Share of volunteer employed in the following occupations						
	(1) Agriculture	(2) Unskilled	(3) Semi-skilled	(4) Skilled	(5) Services	(6) Clerks	(7) Managers
Panel A: AAA spending and volunteers: OLS.							
log AAA grants per farmer	0.005	-0.001	-0.003	-0.001	0.000	-0.000	-0.002
	[0.002]	[0.001]	[0.001]	[0.002]	[0.001]	[0.001]	[0.001]
Panel B: AAA spending and volunteers: IV.							
log AAA grants per farmer	0.067	-0.015	-0.003	-0.034	-0.005	-0.008	-0.000
	[0.017]	[0.005]	[0.007]	[0.011]	[0.003]	[0.005]	[0.002]
Share of workers in occupation	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE (48)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean dependent variable	0.205	0.099	0.182	0.296	0.067	0.133	0.018
Observations	2329	2329	2329	2329	2329	2329	2329

Notes: Occupation analysis. Effect of New Deal support on volunteering among different workers. Estimates of π^o from Equation (3). Each cell reports the coefficient of a separate regression in which the dependent variable is the share of volunteers from each occupations. Panel A: estimation method is OLS. Panel B: estimation method is IV and instruments are log of dry months during the New Deal and log tenure in the Agricultural Committee in 1933–35. Sample excludes the 7th Service Command. See section 3 and Appendix A for data sources and variable construction. Panel A: robust standard errors in brackets. Panel B: standard errors clustered at climatic division level in brackets.

Table C.4: Placebo regressions: pre-New Deal droughts and committee membership and patriotism.

	Volunteers			Medals		
	(1)	(2)	(3)	(4)	(5)	(6)
	WWI	WWI	WWII	WWI	WWI	WWII
log months of severe droughts: 1908-15	-0.015			-0.128		
	[0.008]			[0.272]		
log tenure in Agri Committee 1911-13		0.008	0.001		-0.126	0.017
		[0.021]	[0.006]		[0.399]	[0.040]
State FE (48)	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.211	0.209	0.620	0.072	0.072	0.048
Mean dependent variable	0.337	0.337	0.193	5.153	5.153	0.430
Observations	2329	2329	2329	2329	2329	2329

Notes: Placebo regressions. OLS estimates of patriotism on pre-New Deal values of the instruments. Columns 1–2: dependent variable is share of volunteers in WWI. Column 3: dependent variable is share of volunteers in WWII. Columns 4–5: dependent variable is medals per 1,000 soldiers in WWI. Column 3: dependent variable is medals per 1,000 soldiers in WWII. Cluster-robust standard errors in brackets. Columns 1 and 4: cluster is at the level of climatic division. Column 2-3 and 5-6: cluster is at at the level of the congressional district.

Table C.5: Spatial correlation

Panel A. Moran's I (p-values)

	OLS			2SLS		
Bandwidth	Warbonds	Volunteers	Medals	Warbonds	Volunteers	Medals
200 km	0.000	0.000	0.892	0.000	0.000	0.704
400 km	0.001	0.000	0.980	0.986	0.000	0.980
600 km	0.796	0.856	0.926	1.000	1.000	0.944

Panel B: AAA spending and patriotism: robustness to Conley (1999) standard error correction.

	OLS			2SLS		
	Warbonds	Volunteers	Medals	Warbonds	Volunteers	Medals
log AAA grants per farmer	0.092	0.028	0.051	0.258	0.194	0.188
Huber-Ecker-White robust s.e.	[0.017]	[0.006]	[0.017]	[0.051]	[0.034]	[0.056]
Conley (1999) s.e.: cutoff = 200km	[0.022]	[0.010]	[0.017]	[0.050]	[0.062]	[0.104]
Conley (1999) s.e.: cutoff = 400km	[0.027]	[0.013]	[0.016]	[0.052]	[0.061]	[0.086]
Conley (1999) s.e.: cutoff = 600km	[0.030]	[0.015]	[0.014]	[0.049]	[0.056]	[0.075]
Conley (1999) s.e.: cutoff = 800km	[0.033]	[0.017]	[0.014]	[0.043]	[0.052]	[0.064]
County-level controls	Yes	Yes	Yes	Yes	Yes	Yes
State FE (48)	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3022	2329	2329	3022	2329	2329

Panel C. Kelly (2019) procedure.

	Warbonds	Volunteers	Medals
Observed t-statistics (OLS with AAA spending)	5.33	3.97	3.05
Position in the distribution when spatial noise is:			
in the explanatory variable (AAA per farmer)	0.01	0.08	0.00
in the dependent variable (patriotism)	0.07	0.10	0.05

Note: Panel A: *p-value* of Moran's I statistics at different bandwidths. Null hypothesis is no spatial correlation in the residuals of a regression of patriotism on log AAA spending per farmer. Cols. 1–3: OLS regressions. Cols. 4–6: IV regressions. Dependent variable is: cols. 1 and 4: log war bond per capita; cols. 2 and 5: volunteers per 100 people; cols. 3 and 6: medals per 1,000 soldiers. Panel B: correction for spatial correlation with the formula of Conley (1999). Point estimates from Table 3 (cols. 1–3) and Table 5 (cols. 4–6). Standard errors underneath estimates. Row 1: heteroschedastic-robust standard errors. Rows 2–5: standard error corrected with the formula of Conley (1999). Cutoff is 200 (row 2), 400 (row 3), 600 Km (row 4) and 800 (row 5). Cols. 1–3: OLS estimates. Cols. 4–6: IV estimates. Dependent variable is: cols. 1 and 4: log war bond per capita; cols. 2 and 5: volunteers per capita; cols. 3 and 6: medals per soldiers. Panel C: Kelly (2019) procedure. Row 1: t-statistic of OLS regressions: dependent variable is: log war bond per capita (col. 1); volunteers per 100 people (col. 2); medals per 1,000 soldiers (cols. 3). Row 2–3: randomized inference. We generate 1000 times spatial noise over the map of the US and we regress patriotism on spatial noise (row 2) and spatial noise on log AAA spending per capita. We report where the observed *t*-statistic of the OLS regression falls in the distribution of these *t*-stats. Spatial noise generated with Brown et al. (2015) code `RFsimulate`. Range is: 3 degrees (cols. 1–2) and 1 degree (col. 3).

Table C.6: Panel A. Entropy balancing.

	Before balancing		After balancing	
	Control	Treated	Control	Treated
WWI volunteering rate	0.36	0.35	0.36	0.36
	(0.06)	(0.06)	(0.06)	(0.08)
WWI awards per soldier	4.81	5.27	4.81	4.81
	(64.24)	(66.51)	(64.24)	(67.94)
log 1930 population	9.68	9.97	9.68	9.68
	(0.81)	(1.26)	(0.81)	(0.82)
1930 unemployment rate	0.05	0.07	0.05	0.05
	(0.00)	(0.00)	(0.00)	(0.00)
1930 urban status	0.55	0.54	0.55	0.55
	(0.25)	(0.25)	(0.25)	(0.25)
1896–1928 Share Democrats	49.58	49.31	49.58	49.58
	(324.8)	(362.3)	(324.8)	(332.1)
1930 share of men	0.52	0.52	0.52	0.52
	(0.00)	(0.00)	(0.00)	(0.00)
1930 share of blacks	0.10	0.13	0.10	0.10
	(0.03)	(0.04)	(0.03)	(0.03)
1930 share of Japanese	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
1930 share of Germans	0.06	0.03	0.06	0.06
	(0.00)	(0.00)	(0.00)	(0.01)
1930 share of Italians	0.00	0.01	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)
1930 share of veterans	0.12	0.11	0.12	0.12
	(0.00)	(0.00)	(0.00)	(0.00)
log 1940 income	1.65	1.56	1.65	1.65
	(0.46)	(0.32)	(0.46)	(0.25)
log war contracts p.c.	0.45	0.65	0.45	0.45
	(0.59)	(0.72)	(0.59)	(0.47)

Table C.6: Panel B. Entropy weighting and Coarsened Exact Matching.

	War bonds			Volunteers			Medals		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Baseline	Entropy	CEM	Baseline	Entropy	CEM	Baseline	Entropy	CEM
log AAA grants per farmer	0.092	0.103	0.115	0.028	0.031	0.038	0.051	0.062	0.072
	[0.017]	[0.024]	[0.017]	[0.006]	[0.008]	[0.009]	[0.017]	[0.022]	[0.027]
County-level controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE (48)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.509	0.503	0.627	0.609	0.609	0.684	0.061	0.079	0.063
Mean dependent variable	-2.944	-2.944	-3.185	0.637	0.637	0.607	0.430	0.430	0.414
Observations	3022	3022	1406	2329	2329	1224	2329	2329	1224

Notes: Panel A: difference in covariates in counties above and below median AAA spending per farmer. Columns 1–2: averages before re-weighting. Columns 3–4: average after re-weighting with the formula of Hainmueller (2012). Panel B: regressions results with entropy re-weighting and Coarsened Exact Matching. Columns 1, 4 and 7: baseline estimates (from cols. 4–6 of Table 3). Columns 2, 5 and 8: estimates after entropy re-weighting. Columns 3, 6 and 9: estimates on the sub-sample of counties matched by the Coarsened Exact Matching algorithm. We find exact matches within cells defined by state (48 categories), WWI volunteering (above / below median), 1930 unemployment (above / below median), urban status (dummy) and political leaning before the New Deal (solid Democrat / Republican if average vote share for this party was above 55%, swing county otherwise). See section 3 and Appendix A for data sources and variable construction. Sample excludes the 7th Service Command in cols. 2–3 and 5–6. Robust standard errors in brackets.

Table C.7: Robust: regressions without counties with many sharecroppers.

	OLS			2SLS		
	(1)	(2)	(3)	(4)	(5)	(6)
	War bonds	Volunteers	Medals	War bonds	Volunteers	Medals
log AAA grants per farmer	0.075	0.022	0.048	0.226	0.104	0.189
	[0.021]	[0.007]	[0.019]	[0.055]	[0.028]	[0.071]
WWI volunteering rate	-0.012	0.129	0.063	-0.014	0.122	0.050
	[0.061]	[0.032]	[0.100]	[0.066]	[0.035]	[0.092]
WWI awards per soldier	0.003	0.001	0.001	0.004	0.001	0.002
	[0.001]	[0.001]	[0.003]	[0.001]	[0.001]	[0.003]
log 1930 population	0.129	-0.022	-0.043	0.139	-0.015	-0.032
	[0.092]	[0.012]	[0.032]	[0.092]	[0.013]	[0.030]
1930 unemployment rate	0.177	0.874	-0.443	1.168	1.302	0.295
	[0.541]	[0.215]	[0.587]	[0.714]	[0.266]	[0.669]
1930 urban status dummy	0.030	0.012	-0.010	-0.001	-0.006	-0.040
	[0.054]	[0.016]	[0.066]	[0.061]	[0.019]	[0.063]
Mean Democratic vote share: 1898–1928	0.002	-0.002	0.002	-0.000	-0.004	-0.001
	[0.002]	[0.001]	[0.002]	[0.003]	[0.001]	[0.003]
1930 share of men	0.032	-0.379	-3.893	0.893	-0.040	-3.309
	[1.617]	[0.546]	[1.618]	[1.906]	[0.655]	[1.411]
1930 share of blacks	0.126	-0.488	-0.616	0.069	-0.509	-0.652
	[0.221]	[0.064]	[0.186]	[0.265]	[0.083]	[0.183]
1930 share of Japanese	3.764	1.047	3.141	3.228	1.077	3.192
	[2.993]	[1.073]	[4.891]	[3.686]	[1.169]	[6.712]
1930 share of Germans	0.638	-0.409	-0.607	0.463	-0.488	-0.743
	[0.250]	[0.173]	[0.649]	[0.312]	[0.172]	[0.646]
1930 share of Italians	-0.682	-0.266	1.469	-0.311	-0.075	1.798
	[1.173]	[0.246]	[1.260]	[1.157]	[0.324]	[1.312]
1930 share of veterans	-2.608	1.319	1.861	-2.546	1.476	2.131
	[4.004]	[0.353]	[0.725]	[4.049]	[0.296]	[0.750]
log 1939 average wage	0.834	0.203	-0.047	0.853	0.203	-0.048
	[0.125]	[0.035]	[0.132]	[0.138]	[0.042]	[0.141]
log war contracts per capita	0.111	-0.017	-0.037	0.109	-0.021	-0.043
	[0.019]	[0.007]	[0.022]	[0.020]	[0.009]	[0.027]
State FE (48)	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.447	0.534	0.069	0.409	0.461	0.038
Mean dependent variable	-2.859	0.639	0.455	-2.859	0.639	0.455
Rubin-Anderson test (p-value)				0.003	0.009	0.082
Observations	2019	1512	1512	2019	1512	1512

Notes: Robustness to dropping 33% of counties with the highest share of sharecroppers. Columns 1–3: OLS estimates of (1). Columns 4–6: IV estimates of (1); log AAA spending per farmer is instrumented with log months of drought and log tenure in the Agricultural committee. Columns 1 and 4: dependent variable is log war bond purchases per capita. Columns 2 and 5: dependent variable is WWII volunteers per 100 people. Columns 3 and 6: dependent variable is WWII military awards per 1000 soldiers. See section 3 and Appendix A for data sources and variable construction. Sample excludes the 7th Service Command in columns 2–3 and 5–6. Columns 1–3: robust standard errors in brackets; columns 4–6: standard errors clustered at climatic division level in brackets.

Table C.8: Robust: regressions without counties with larges 1930-40 population change.

	OLS			2SLS		
	(1)	(2)	(3)	(4)	(5)	(6)
	War bonds	Volunteers	Medals	War bonds	Volunteers	Medals
log AAA grants per farmer	0.093	0.029	0.040	0.211	0.208	0.102
	[0.012]	[0.006]	[0.017]	[0.056]	[0.045]	[0.102]
WWI volunteering rate	0.020	0.078	0.031	0.018	0.067	0.028
	[0.037]	[0.023]	[0.074]	[0.042]	[0.035]	[0.075]
WWI awards per soldier	0.003	0.001	0.001	0.003	0.001	0.001
	[0.001]	[0.001]	[0.003]	[0.001]	[0.001]	[0.002]
log 1930 population	-0.016	-0.021	-0.044	-0.010	-0.017	-0.043
	[0.015]	[0.008]	[0.029]	[0.018]	[0.013]	[0.026]
1930 unemployment rate	0.159	0.672	-0.028	0.545	1.211	0.159
	[0.235]	[0.184]	[0.463]	[0.337]	[0.304]	[0.524]
1930 urban status dummy	0.061	0.017	0.033	0.042	-0.020	0.021
	[0.021]	[0.013]	[0.044]	[0.027]	[0.017]	[0.047]
Mean Democratic vote share: 1898–1928	0.003	-0.001	0.001	0.001	-0.004	0.000
	[0.001]	[0.000]	[0.002]	[0.001]	[0.001]	[0.002]
1930 share of men	-2.350	-0.833	-2.872	-1.980	-0.439	-2.736
	[0.696]	[0.419]	[1.479]	[0.836]	[0.642]	[1.517]
1930 share of blacks	-0.242	-0.445	-0.325	-0.263	-0.465	-0.332
	[0.090]	[0.037]	[0.109]	[0.119]	[0.075]	[0.112]
1930 share of Japanese	1.980	0.251	1.784	1.712	0.712	1.944
	[2.190]	[1.122]	[5.764]	[2.534]	[1.692]	[6.998]
1930 share of Germans	0.760	-0.767	-0.699	0.622	-0.876	-0.737
	[0.171]	[0.145]	[0.563]	[0.222]	[0.201]	[0.587]
1930 share of Italians	1.318	-0.066	1.272	1.816	0.552	1.487
	[0.478]	[0.236]	[1.198]	[0.588]	[0.425]	[1.233]
1930 share of veterans	2.274	1.694	1.290	2.483	2.068	1.420
	[0.361]	[0.284]	[0.620]	[0.367]	[0.340]	[0.665]
log 1939 average wage	0.776	0.231	-0.041	0.782	0.255	-0.033
	[0.054]	[0.029]	[0.102]	[0.066]	[0.050]	[0.103]
log war contracts per capita	0.093	-0.020	-0.010	0.090	-0.030	-0.014
	[0.013]	[0.005]	[0.021]	[0.014]	[0.009]	[0.024]
State FE (48)	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.660	0.625	0.062	0.637	0.399	0.057
Mean dependent variable	-2.967	0.618	0.423	-2.967	0.618	0.423
Rubin-Anderson test (p-value)				0.007	0.017	0.450
Observations	2728	2132	2132	2728	2132	2132

Notes: Robustness to dropping 10% of counties with highest changes in population. Columns 1–3: OLS estimates of (1). Columns 4–6: IV estimates of (1); log AAA spending per farmer is instrumented with log months of drought and log tenure in the Agricultural Committee. Columns 1 and 4: dependent variable is log war bond purchases per capita. Columns 2 and 5: dependent variable is WWII volunteers per 100 people. Columns 3 and 6: dependent variable is WWII military awards per 1000 soldiers. See section 3 and Appendix A for data sources and variable construction. Sample excludes the 7th Service Command in columns 2–3 and 5–6. Columns 1–3: robust standard errors in brackets; columns 4–6: standard errors clustered at climatic division level in brackets.

Table C.9: Robust: regressions control for inverse of 1930 population.

	OLS			2SLS		
	(1)	(2)	(3)	(4)	(5)	(6)
	War bonds	Volunteers	Medals	War bonds	Volunteers	Medals
log AAA grants per farmer	0.092	0.021	0.052	0.256	0.127	0.195
	[0.017]	[0.005]	[0.017]	[0.051]	[0.040]	[0.055]
Inverse of 1930 population	154.607	267.086	-515.900	261.345	336.062	-587.003
	[212.887]	[96.513]	[418.925]	[259.828]	[103.946]	[385.689]
WWI volunteering rate	0.053	0.095	0.076	0.057	0.097	0.071
	[0.054]	[0.021]	[0.077]	[0.059]	[0.025]	[0.074]
WWI awards per soldier	0.004	0.002	0.001	0.004	0.002	0.001
	[0.001]	[0.001]	[0.003]	[0.001]	[0.001]	[0.003]
log 1930 population	0.090	0.010	-0.070	0.108	0.022	-0.066
	[0.066]	[0.010]	[0.034]	[0.072]	[0.013]	[0.035]
1930 unemployment rate	0.615	0.702	-0.394	1.308	1.149	0.058
	[0.435]	[0.163]	[0.439]	[0.579]	[0.277]	[0.479]
1930 urban status dummy	0.036	0.008	0.018	0.007	-0.011	-0.014
	[0.047]	[0.011]	[0.046]	[0.055]	[0.014]	[0.045]
Mean Democratic vote share: 1898–1928	0.002	-0.000	0.001	-0.000	-0.002	-0.001
	[0.001]	[0.000]	[0.002]	[0.002]	[0.001]	[0.002]
1930 share of men	-0.832	-0.728	-3.343	-0.425	-0.465	-3.221
	[1.547]	[0.464]	[1.213]	[1.743]	[0.603]	[1.156]
1930 share of blacks	-0.311	-0.470	-0.340	-0.332	-0.483	-0.351
	[0.100]	[0.037]	[0.105]	[0.133]	[0.065]	[0.105]
1930 share of Japanese	4.307	-0.130	1.565	3.157	-0.873	1.421
	[2.755]	[1.111]	[4.810]	[3.587]	[1.573]	[6.586]
1930 share of Germans	0.928	-0.601	-0.496	0.758	-0.711	-0.618
	[0.243]	[0.093]	[0.558]	[0.280]	[0.139]	[0.594]
1930 share of Italians	-0.058	-0.523	1.531	0.507	-0.157	2.054
	[0.984]	[0.232]	[1.168]	[0.975]	[0.322]	[1.268]
1930 share of veterans	-0.778	1.036	1.491	-0.764	1.044	1.696
	[2.998]	[0.281]	[0.529]	[3.040]	[0.313]	[0.538]
log 1939 average wage	0.787	0.216	-0.043	0.806	0.229	-0.028
	[0.111]	[0.026]	[0.096]	[0.122]	[0.034]	[0.103]
log war contracts per capita	0.110	-0.011	-0.013	0.107	-0.013	-0.019
	[0.015]	[0.005]	[0.020]	[0.017]	[0.007]	[0.024]
State FE (48)	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.509	0.601	0.063	0.470	0.513	0.032
Mean dependent variable	-2.944	0.604	0.430	-2.944	0.604	0.430
Rubin-Anderson test (p-value)				0.001	0.039	0.002
Observations	3022	3022	2329	3022	3022	2329

Notes: Robustness to controlling for the inverse of 1930 population as in Wallis (1998). Columns 1–3: OLS estimates of (1). Columns 4–6: IV estimates of (1); log AAA spending per farmer is instrumented with log months of drought and log tenure in the Agricultural Committee. Columns 1 and 4: dependent variable is log war bond purchases per capita. Columns 2 and 5: dependent variable is WWII volunteers per 100 people. Columns 3 and 6: dependent variable is WWII military awards per 1000 soldiers. See section 3 and Appendix A for data sources and variable construction. Sample excludes the 7th Service Command in columns 2–3 and 5–6. Columns 1–3: robust standard errors in brackets; columns 4–6: standard errors clustered at climatic division level in brackets.

Table C.10: Robustness of volunteer results: different sample and different measure.

	Volunteers per capita			Volunteers per soldier		
	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	RF	2SLS	OLS	RF	2SLS
log AAA grants per farmer	0.021		0.129	0.007		0.047
	[0.005]		[0.040]	[0.001]		[0.008]
log months of severe droughts: 1933–39		0.020			0.011	
		[0.014]			[0.005]	
log tenure in Agri Committee 1933–35		0.090			0.020	
		[0.035]			[0.009]	
County-level controls	Yes	Yes	Yes	Yes	Yes	Yes
State FE (48)	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.599	0.606	0.506	0.698	0.705	0.539
Sample includes S.C. #7?	Yes	Yes	Yes	No	No	No
Mean dependent variable	0.604	0.604	0.604	0.193	0.193	0.193
Rubin-Anderson test (p-value)			0.034			0.007
Hansen J-stat (p-value)			0.196			0.880
Observations	3022	3022	3022	2329	2329	2329

Notes: Columns 1–3: dependent variable is volunteers per 100 people. Sample includes the 7th Service Command. Columsn 4-6: dependent variable is volunteers per soldiers. Sample excludes the 7th Service Command. Columns 1 and 4: OLS estimates of (1). Columns 2 and 5: reduced form. Columns 3 and 6: IV; log AAA spending per farmer is instrumented with log months of drought and log tenure in the Agricultural Committee. Columns 1 and 4: robust standard errors in brackets; Columns 2–3 and 5–6: standard errors clustered at climatic division level in brackets.