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 risks are extreme, the payoff uncertain. In this paper, we argue that reciprocity is a key factor. Examining welfare spending in the U.S. 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 citizens 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 purely economic considerations. Data on World War I patriotic support shows that 1930s emergency spending predicts the *increase* in patriotism between World Wars, not its pre-existing level. Pre-New Deal droughts are also not correlated with patriotism after 1941.

Keywords: nationalism, patriotism, welfare state, cultural economics, New Deal, U.S. History, World War II, volunteering, war bonds, heroism

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

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

Warfare is as old as mankind. To survive, groups of humans need the ability to defend themselves since time immemorial. Anthropologists have long highlighted the puzzling nature of "parochial altruism", the willingness to fight for one's own group (Bowles and Gintis 2004; Choi and Bowles 2007). If fighting benefits the group but is individually costly, how do groups convince their members that it is "sweet and honorable" to die for the community? In small tribes, the problem is typically solved through social pressure. In contrast, it is much harder for large, modern societies to motivate individuals to fight for the common good. The problem became more acute after 1800, when army sizes expanded, and warfare changed from a "game of princes" to total war — an all-encompassing effort that required complete dedication of the entire society (Parker 1996). As the German general Carl von Clausewitz (1832) observed: "War became the business of the people".

The rise of mass armies coincided with the coming of the social welfare state. Since the late 19th century, governments have added old age pensions, health care, and education to their primary tasks. Some of this expansion took place during wartime: many governments made lavish promises of "homes fit for heroes", by expanding the welfare state after victory. A recent theoretical literature argues that the need for larger armies and to motivate soldiers led to the creation of the welfare state, to democratization, and to deliberate efforts by governments to spread nationalist ideology (Alesina and Reich 2013; Alesina *et al*. 2018; Ticchi and Vindigni 2008).[1] While there are good reasons to assume that welfare states motivated citizens to fight, there is little systematic evidence demonstrating a direct link.

In this paper, we examine empirically whether there can be a causal connection between welfare and warfare. We do so for the case of the United States before and during World War II. Prior to 1933, U.S. welfare spending was limited and the Federal Government played almost no role in it. Under President Roosevelt's "New Deal", this changed dramatically: in 1933, the Agricultural Adjustment Administration started helping farmers in distress; two years later, the Social Security Act extended support to the unemployed, the elderly, and the single mothers. In 1935, the President launched the Works Progress Administration (WPA), a federal agency which became the largest employer in the U.S., paying millions of men and women to undertake public works. For the first time in U.S. history, the Federal Government became a visible source of everyday support for millions of citizens (Fishback *et al.* 2005). The New Deal did not only support millions of Americans – it permanently changed the role of the Federal Government. At a time when the majority of political experiments around the globe were anti-democratic in nature, the New Deal rekindled hope that liberal democracies could survive (Schlesinger 1957 Katznelson 2013).

In this paper, we ask whether higher generous welfare spending under the New Deal in the 1930s spelled more patriotism during World War II. The war absorbed a large share

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[1] Relatedly, some have argued that universal education was introduced because it was seen as helping a nation's military efforts (Aghion *et al*. 2018).

of US resources. Almost 18 million people served in the U.S. military – 39 percent voluntarily. Some 400,000 died on active duty (Hastings 1999). Many soldiers performed heroic actions, recognized with citations and medals. Those who remained at home financed the war with their taxes and savings, and often worked in war production. We use three costly actions to measure patriotism. First, we look at purchases of war bonds, a financially unattractive investment that required sacrificing part of current consumption. Second, we use individual-level data on the geographical origin of volunteers. Third, we look at military awards and use the spatial distribution of war 'heroes' as an indicator. Medal recipients typically performed brave and costly actions, well beyond the call of duty. While many factors affect heroism on the battlefield (Costa and Kahn 2003), commitment to the national cause is one of them, and we use it to measure patriotic sentiment.

Fig. 1 illustrates the basic patterns. We plot the county-level value of relief grants per capita (on the x-axes) against three measures of patriotic support (on the y-axes). Panel A shows per capita value of war bond purchases; Panel B the share of volunteers among army registrants; Panel C, the number of military awards per 1,000 army registrants. For each of these measures of patriotism, the raw data reveal a strong and positive correlation with the level of New Deal support before World War II. In the empirical section we show that these correlations survive the inclusion of a rich set of controls.

Next, we focus on one specific component of the New Deal, and present evidence that supports a causal link between welfare relief and patriotic sentiment. Starting in 1933, the federal Agriculture Adjustment Administration (AAA) extended grants to farmers in distress. The program was one of the first and biggest New Deal projects, representing 12.1 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. For identification, we exploit the fact that a significant portion of AAA grants were made in response to local weather shocks, especially droughts. We show that New Deal-era droughts are a strong predictor of AAA payments. There is also a clear reduced form relationship between droughts and patriotism during World War II, as measured by war bond purchases, volunteering rates and share of army heroes. Two-stage least squares estimates confirm the existence of a strong, positive relationship between agricultural relief and patriotism.

We validate the causal interpretation of our estimates in a number of ways. First, we argue that the strong positive relationship between droughts and all three measures of patriotism is hard to explain with economic incentives. More intense droughts in the 1930s may have caused worse economic conditions in the 1940s and offered reasons to leave and join the army. Even though drought-induced economic distress may explain a higher rate of volunteering, this mechanism is hard to reconcile with two other results: the higher likelihood of becoming a war hero and especially the larger purchasing of war bonds. Given the diverse nature of our measure of patriotism, we take the full set of results as strong evidence of the mechanism we propose.

Second, we do not attempt a full mediation analysis of droughts and AAA grants, as it is not valid in the context of endogenous variables. However, we ask what the effect of droughts on patriotism when not associated with Federal Government relief. While severe droughts hit different parts of the United States in the years before 1933, until the New

Deal they were never met with public relief. For the pre-New Deal era, we find no significant correlation between droughts and patriotic sentiment: post-1933 weather shocks did not matter *per se*, but because they induced a public response.

Third, we use recorded occupation of enlisted men to show that our results on volunteering are strongest among farmers. This result is consistent with the idea that farmers reciprocated – the public relief they received during difficult times led to greater volunteering when their nation was in peril. Finally, we collect the distribution of volunteers and war hero during World War I and show that agricultural support does not correlate with pre-existing patriotic sentiments.

To assess the magnitude of our effect, we ask how much welfare spending is needed to (i) sell one additional $25 war bond; (ii) convince an extra man to volunteer; (iii) have one additional medal-worthy hero. We find that in the county with median agricultural relief, the Federal Government sold one extra war bond for every $43 of relief, and it recruited one extra volunteer and one extra hero for every $6,144 and $572,000 respectively.

A battery of robustness tests confirms the strength of our findings. First, results are robust when including state fixed effects and correcting standard errors for spatial autocorrelation with the formula of Conley (1999). Second, we apply Conley *et al.* (2012) methodology, and verify that our two-stages least squares estimates are robust to violations of the exclusion restriction. We find that the direct effects of post-1933 droughts on patriotism would have to be between 50 and 90 percent of the entire effect to rule out an effect of New Deal on patriotism. Given the near-zero correlation between pre-1933 droughts and patriotism, we believe that direct effects of this magnitude are unlikely. Third, we verify that results remain strong in the sample of counties without sharecropping. The AAA induced some farmers to take some land leased to sharecroppers out of production, creating unemployment (Fishback *et al.* 2003).[2] Finally, we confirm all results when we re-estimate our regressions using entropy balancing.

Related literature. Our paper relates to the rich historical literature on the origins of nationalism. A well-established school of thought sees nation states as a product of the modern era, promoted by deliberate policies of the elites and made possible by economic changes since the Industrial Revolution. Central to these theories is the idea that nation states are "imagined communities" of genetically unrelated individuals, who are induced to pledge themselves to a common cause by government policies (Anderson 2006). Among these policies, there is the creation of modern, national school systems (Hobsbawm 1990; Weber 1976; Gellner 1983), the standardization of language, and the promotion of a common culture through new media such as the press (Anderson 2006) and national television (Hobsbawm 1990). These reinforce the sense of nationhood that comes from shared myths, collective memory, and traditions (Hobsbawm and Ranger 1983).[3]

Our results are also closely related to the work of Colley (1992) and Weber (1976) who study the role of war in the making of national identity in Britain and France. In contrast with the modernizing force of capitalism and the rise of capable states, an alternative

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[2] We thank Price Fishback for drawing our attention to these perverse effects.
[3] The creation of these traditions is also key to the "ethnosymbolism" theory of Smith (1991), who emphasizes the role of ethnic groups in developing these myths and traditions.

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tradition emphasizes the exclusionary origins of modern nationalism (Marx 2003; Colley 1992), sometimes motivated as a reaction to the conquests of revolutionary France (Echternkamp 1998).

Several economists have recently formalized some of these theories. Alesina and Reich (2013) and Acemoglu *et al.* (2016) show how elites can exploit nationalism to establish strong, high-end states that are able to levy taxes and enforce laws. Besley and Persson (2010) focus on war and argue that external threats can lead to state capacity building. Within this literature, our results speak directly to the theory of Alesina *et al.* (2018), who suggest that states started providing public goods through a comprehensive welfare system in order to induce large armies of citizens to fight for the nation.

Our paper is part of a growing literature that analyzes these theories empirically. Fouka (2018) finds that during World War I, an aggressive U.S. education policy aimed at integrating the children of German immigrants backfired: she shows that German children who were forbidden to speak their mother tongue in school were more likely to marry other Germans and call their own children "Karl" or "Adolf." Dehdari and Gehring (2017) find similar results in the case of Alsace and. Bandiera *et al.* (2015) show that during the 19th century, U.S. states with stronger needs to integrate immigrants introduced compulsory schooling earlier: a deliberate policy to "build the nation". Dell and Querubin (2016) also focus on war and nation-building, and show that more destructive U.S. air strikes on Vietnam villages strengthened Vietnamese resistance activity during the Vietnam War.[4]

Finally, our results on voluntary enlistment and heroic actions are related to research that has studied what motivates people to join the army and die for the nation. Campante and Yanagizawa-Drott (2016) show that sons of U.S. combatants are more likely to go to war themselves. Costa and Kahn (2003, 2007) study the importance of unit cohesion and of tightly-knit communities of origin. Looking at aerial combat, Ager *et al.* (2018) argue that status competition led World War II German pilots to perform better when one of their peers was publicly recognized.

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 leads to a greater willingness to fight for one's country. Second, we show that government intervention can modify attitudes: New Deal spending drove *changes* in patriotism between the two world wars.

1.   Historical background

In this section, we outline the main welfare programs implemented as part of the "New Deal" and briefly summarize America's involvement in World War II.

The Great Depression began in 1929. By 1933, US GDP had shrunk by a third (Christiano *et al.* 2004; Fishback 2010); unemployment climbed to more than 30 percent and remained high for the rest of the decade (Romer 1992; Margo 1993). The Great

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[4] More broadly, our paper is related to the literature that studies the determinants of identities (Akerlof and Kranton 2000; Shayo 2009), attitudes and beliefs (Bisin and Verdier 2000; Voigtländer and Voth 2012; Guiso *et al.* 2016).

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). Misery and lack of opportunities undermined self-respect of men and women, who felt that the promises of the 1920s had been broken (Kennedy 1999; Hemingway 1935; Dickson 2004). Farmers were hit hard by a combination of low prices and adverse weather. The droughts of the 1930s, by eroding the soil in the Central Plains, created the *dust bowl,* which bankrupted many farmers (Hornbeck 2012).

The "New Deal" was a set of federal programs implemented by the Roosevelt administration between 1933 and 1939. It represents the greatest public sector expansion in U.S. history: between 1933 and 1939 the government share in GNP more than doubled: from 4 to 9 percent (Wallis and Oates 1998). The New Deal meant to bring "relief, recovery and reform" (Fishback *et al.* 2003). While there is debate over its effectiveness (Fishback *et al.* 2003, Cole and Ohanian 2004; Eggertsson 2012) there is no question that these policies revolutionized the Federal Government and changed the relationship between Americans and their government (Barone 1990).

The New Deal was implemented by a variety of agencies and composed of numerous programs. The Federal Emergency Relief Administration was designed to bring immediate relief between 1933 and 1935. The Agricultural Adjustment Administration transferred almost 2 billion dollars to American farmers. A number of separate programs (including Public Work Administration, Civil Works Administration, Works Progress Administration and others) helped unemployed workers by hiring them on publicly-sponsored projects. The Home Owners Loan Corporation extended loans to home-owners with troubles paying their mortgages. Finally, the Social Security Act of 1935 introduced pensions and unemployment benefits. While many of these policies served Roosevelt's political agenda (Wright 1974; Wallis 1998) the different programs tried to target every group which suffered during the Depression. These policies helped countless Americans (Schlesinger 1958; 1960), and their popularity underwrote Roosevelt's electoral success during the 1930s.

The United States entered both World Wars late and reluctantly. In 1914, when war broke out in Europe, most Americans saw it as a distant conflict that Europeans should settle among themselves (Kennedy 2004). These sentiments were clearly expressed in the 1915 presidential campaign, when Wilson won re-election on a platform of keeping the U.S. out of the war. In 1939, American attitudes towards war were equally cool. During the presidential campaign both Roosevelt and his competitor Willkie avoided making war a salient issue (Kennedy 1999)

In both World Wars, the United States eventually joined the fighting. In January 1917, the infamous Zimmermann telegram forced President Wilson's hand – Germany's Foreign Ministry had promised the Mexican President parts of U.S. territory in exchange for declaring war. British intelligence intercepted the telegram and released it to the American public (Boghardt 2012). In 1941, the Japanese attack on Pearl Harbor forced the U.S. to enter the war; Germany declared war on the U.S. immediately thereafter.

After the outbreak of war, both in 1917 and in 1941, people expressed their patriotism in a variety of ways. In this paper, we measure patriotism with three separate indicators, capturing varying degrees of commitment to the national cause: the purchase of war

bonds, military volunteering and heroic actions awarded a military medal. We observe volunteering and military awards in both World Wars, while war bond purchases are available only for World War II. Here we briefly discuss why these measures capture patriotic sentiment.

The Federal Government issued war bonds ("Series E bonds") between May 1941 and December 1945: overall, the bonds financed about 186 billion dollars of the war debt (Department of Commerce 1975). The first bonds appeared before the declaration of war and were known as "defense bonds." Soon after Pearl Harbor, the Federal Government began marketing bonds more aggressively, in successive "war loan drives" that appealed to the patriotic sentiment. Advertisements presented the purchase of war bonds as the only honorable alternative to direct engagement in combat. Bonds were non-transferable and redeemable in 10 years. In 1942 they also offered relatively low yields (18 percent lower than high-grade municipal bonds and 30 percent less than high-grade corporate bonds, Federal Reserve Bulletin 1944). The face value of the war bonds varied from $25 to $10.000. With a 1940 monthly median income of about $75,[5] the cheapest war bond was worth about one third of monthly income: buying it required forgoing current consumption, and we take it as an indicator of support for the national cause.

Our second measure of patriotism is voluntary enlistment in the U.S. Army. This is available for both World Wars. In 1917 and again in 1941, the U.S. armed forces took in a large number of volunteers in the first months of the war. Between April and June 1917, half a million men volunteered to serve in the U.S. army, a number so large that military officials worried that it would jeopardize the war effort (Crowder 1918).[6] Similarly, within one year from the outbreak of war with Japan and Germany, approximately 3 million men had volunteered to join the U.S. military (NARA 2002). During both conflicts, volunteering was eventually suspended, and replaced by a Selective Service System that equalized the risk of military service across districts. The Army ceased to accept volunteers on the 15th of December 1917 during World War I (Crowder 1919: p.6) and on the 5th of December 1942 during World War II.[7] In both conflicts, signing up for the Army meant leaving one's family and forgoing profitable employment at home. As the economy quickly reached full employment during both conflicts, such opportunities must have been more attractive than the meager pay offered by the Army, and volunteering must have appeared a relatively costly choice.[8]

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[5] The median yearly income 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.

[6] U.S. Major General Enoch H. Crowder, responsible of the 1917 Selective Service Draft 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 in the face of an enemy as Germany, 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; emphasis added).

[7] Franklin D. Roosevelt: "Executive Order 9279—Providing for the most effective mobilization and utilization of the national manpower and transferring the selective service system to the war manpower commission", December 5, 1942.

[8] In 1942, Roosevelt passed the Pay Readjustment Act that set pay for a regular soldier to $50 a month. This compares to a median income of $75 in 1940 or an average monthly salary in manufacturing of $95 in 1939 (Bowden 1946).

Our final measure of patriotism looks at war 'heroes'. We capture World War II heroes by looking at recipients of particular military awards – the Silver Star, the Distinguished Service Medal, and the Congressional Medal of Honor.[9] While the U.S. medal system emphasized battlefield valor less than, for example, the German system (van Creveld 1980), these three awards capture heroism to a significant extent: Recipients of these awards had to go well beyond the call of duty, taking initiatives that exposed them to great dangers. Some 37.4 percent of the heroes in our database received their award for actions posthumously (Willbanks 2011). Heroes are obviously not representative of either the population at large or of most soldiers; nonetheless, we believe that if some counties were home to more men performing outstandingly on the battlefield, they should be considered more 'patriotic'. While none of these measures is perfect, we believe that each of them captures relevant aspects of patriotism that are informative about underlying sentiments towards the nation.

2. Data

We assemble data from a variety of sources. We proxy county-level patriotism sentiment with three variables: purchases of war bonds, military volunteering and military awards. We measure the level of New Deal financial support with county-level expenditure from every program the Federal Government financed between 1933 and 1939. We identify the causal effect of one of these programs, the Agricultural Adjustment Administration, by exploiting data on the incidence of severe droughts between 1933 and 1939. Controls include World War I volunteers and medals, as well as demographic and economic variables from the 1920, 1930 and 1940 Censuses.

We measure the diffusion of war bonds at the county level with the average purchases per capita in 1944. We exclude sales to corporations, so that our figures only account for sales to individuals. The Treasury Department collected the data from reports of the Federal Reserve Banks. The Census Bureau published these tables in the *County Data Book* of 1947 and ICPRS digitized them in the 1970s (Haines 2010).

Volunteering in the two wars comes from two separate sources. For World War I, we use data from data from Crowder (1918). Maj. Gen. Crowder was responsible for the implementation of the Selective Service System of 1917. In order to ensure that the Army draft inducted men homogeneously across the country, his department collected county-level data on voluntary army enlistments to June 30, 1917 (Crowder 1918: p.15). We digitize these data and calculate World War I volunteering as the share of soldiers who volunteered from each county. We construct an equivalent measure for World War II 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 records of U.S. soldiers who served in the Army between 1938 and 1946. We collect the full population of records digitized and identify volunteers and inducted men by the first digit of soldiers' serial number. Our measure of volunteering in World War II is equal to the

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[9] We deliberately exclude recipients of the distinguished service awards of the Army and the Navy, which were often given to high-ranking officers for non-combat performance.

number of men who volunteered divided by the total number of men enlisted in every county.[10]

The sample of war medal recipients of World War II comes from the online source *Home of Heroes*.[11] It represents a 15'000-page encyclopedia of American soldiers and war medals. We collect data for Medals of Honor, Distinguished Service Crosses and Silver Stars. We normalize the number of medals with the number of registrants in each county and scale it by one thousand.

Fishback *et al.* (2003) collected county-level data on each federal program implemented between 1933 and 1939 from the U.S. 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. We normalize total expenditure by dividing it by the 1930 county population. We normalize the agricultural relief with 1930 farmers. Population, number of farmers and other demographic and economic characteristics come from the U.S. Decennial Census (King *et al.* 2010).[12]

Agricultural relief was higher in counties that were hit by adverse weather shocks. 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 the National Climatic Data Center of NOAA, which provides the Palmer Drought Severity Index for every month since 1900 for 376 climate divisions in the continental U.S. The index ranges from -7 to 7, and drought months take index values of -3 or lower.

Table 1 presents summary statistics for our main variables. In the average county, people purchased war bonds worth $68 per person. The share of volunteers declined from 35 percent in 1917 to 17.7 percent in 1940-1945. In both 1918 and 1942 he Army ceased to accept volunteers after the first year of war: the lower volunteering rate in World War II reflects its longer duration. In an average county, 165 soldiers volunteered to fight in World War I and 498 in World War II. These figures vary significantly by county (as indicated by the large standard deviations). The average county had one war hero, or 0.43 every 1,000 soldiers. Fig. 2-Panels A-C illustrate the spatial distribution of per capita war bonds purchases, volunteer rate and medals per registrants during World War II. Fig. 2 Panel D shows the geographic distribution of total New Deal grants per capita.

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[10] Most records of men inducted 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.

[11] We collect data on some 3,000 medal recipients from http://www.homeofheroes.com/. A different source (The Hall of Valor Project) mentions some 13,000 medal recipients during World War II. This suggests that we observe about one-fourth of awards. It is hard to determine the representativeness of the sample.

[12] In addition, we use the share of soldiers killed during World War I in the balancedness table. We collect the full population of soldiers killed in World War I from *Soldiers of the Great War* (Haulsee et al. 1920).

3.   Empirical Analysis

a. War support and New Deal Welfare

In this section, we document the correlation between World War II patriotism and New Deal spending. Fig. 1 summarizes our main result. Places that received greater New Deal support display more determined support for their nation during World War II both at home (through war bond purchases) and on the battlefield (through volunteering and heroic awards).

Could the strong correlation between patriotism and New Deal spending be driven by the effects of just one of the many programs initiated by the Roosevelt administration? We examine this question by breaking down federal relief, distinguishing grants from loans. For the former, we report results for the Work Progress Administration (WPA), Federal Emergency Relief Administration (FERA) and Agricultural Adjustment Administration (AAA). Together, they accounted for 67% of total New Deal grants. We also analyze the effects of the Home Owners Loan Corporation (HOLC) and the Reconstruction and Finance (RFC), which managed 72 % of New Deal loans.

Table 1 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 21 regression coefficients is positive and significant.

To examine the data more systematically, we estimate:

$$\text{WWII Patriotism}_i = \alpha + \beta \log(\text{New Deal grants per capita})_i + \gamma\, X_i + SC_i + u_i \qquad (1)$$

The unit of observation is a county. WWII Patriotism$_i$ is one of our three measures of World War II patriotism – the log of per capita war bonds purchases in 1944, the share of volunteers, and the fraction of soldiers who received a medal during World War II. We are interested in coefficient β on log(New Deal grants per capita), i.e. the link between World War II patriotism and welfare spending. X_i is a vector of county-level controls, including the (logarithm of the) number of soldiers enlisted, the 1917 volunteering rate, the casualty rate during World War I, an indicator for whether the county was home of a World War I hero, unemployment share in 1940 and an indicator for whether a county was urban in 1930. Data on World War I volunteering and medal recipients allows us to control for pre-existing levels of patriotism. In the most demanding specifications, we include nine *service command* fixed effects (SC$_i$) to account for unobserved geographical heterogeneity.[13]

Table 3 reports results. Our first estimate indicates that a one percent increase in New Deal spending is associated with a 0.49 percent increase in war bonds purchases. In column 2, we add controls and the coefficient remains unaffected in size and significance. In column 3, we add service command fixed effects, and the size of the coefficient falls but remains highly significant. In column 4, we disaggregate New Deal spending into farm support and other relief and find that they had effects roughly similar in size.

Next, we examine volunteering for military service. Overall, 19 percent of registered men volunteered for service between 1941 and 1945. Column 5 implies that when New Deal

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[13] The U.S. Army organized recruitment in continental states across nine separate *Service Commands*.

expenditure doubled, volunteering increased by 4 percent, or one fifth of the baseline volunteering rate. Emergency relief alone explains 7.5 percent of the variation in volunteering rates. In column 6, we add a set of controls. The size of the coefficient falls but remains significant. In column 7, we add service command fixed effects: these reduce the size of the coefficient further, but it does not affect significance. Finally, in column 8, we show results for disaggregated New Deal spending, differentiating between AAA expenditure and all other transfers. We find that both mattered.

We look at medal recipients in cols 9-12 of Table 3. In the baseline specification we find that a doubling of New Deal spending was associated with 0.15 more heroes for every 1,000 soldiers, about one third of the baseline level of this variable. In column 10 we add controls and in column 11 the service command fixed effects: the size of the coefficients remains positive throughout and is significant at the 1 percent level with controls and at the 9.8 percent with service command fixed effects. In the last column we break down welfare support into agricultural and non-agricultural. Here we find that the agricultural component of welfare support is strongly associated with the presence of war heroes, while the rest of New Deal spending is not.

b. Identification and 2SLS results

Table 3 suggests that Americans who received more generous support during the Great Depression reciprocated in World War II, by making sacrifices for their country. However, unobserved characteristics unrelated to welfare support may have attracted New Deal funds in the 1930s, while also leading to greater patriotism in the 1940s.[14]

In order to demonstrate the causal relation between welfare spending and patriotic support, we need plausibly exogenous variation in New Deal support. The breadth of New Deal programs makes it hard to identify a variable that affected public relief in the 1930s and that at the same time is excluded from equation (1). We focus on a single New Deal program: the Agricultural Adjustment Administration (AAA). The program accounted for 12.1 percent of all 1933-39 spending and was designed to relieve agricultural distress (Fishback *et al.* 2003). In Table 2 and 3, we showed that this part of New Deal spending is positively associated with patriotic support during World War II.

We use AAA because it 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 public relief in difficult times. The program was popular among farmers, and had a large impact. Crucially, because AAA grants were partly designed to compensate for weather shocks, we can identify causal effects through an instrumental variable strategy. Agricultural relief is also not correlated with WWI volunteering (β = 0.01, p = 0.93) nor with pre-New Deal Democratic support (β = 0.00, p = 0.33). Thus, omitted variable bias and strategic spending are not evident.

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[14] For example, it is possible that New Deal funds were directed towards more patriotic counties. While controlling for World War I patriotic support never affects the estimates in Table 2, the share of volunteers in 1917 is positively correlated with New Deal spending. Additionally, Wright (1974), Wallis (1998) and Fishback *et al.* (2003) suggest that parts of federal spending were allocated for political reasons. Counties where the Democratic party performed worse in 1896-1928 receive significantly more funds during the New Deal. Strategic spending and omitted variables may bias estimates in Table 3.

During the 1930s, severe droughts hit the USA. Dry spells led to crop failures and soil erosion (Hornbeck 2012). Low agricultural prices after World War I had 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; Briggs *et al.* 2013). The 1938 bill promoted soil conservation, to counter negative consequences of past droughts.

We use the severity of droughts as an instrument for agricultural relief. Table 4 shows that droughts are uncorrelated with WWI patriotism, urbanization, unemployment, or pre-New Deal Democratic support. As droughts were more prevalent in the center of the country, they were more likely to hit less populous counties.[15]

Fig. 3-Panel A shows the raw data, and documents the strong unconditional correlation between droughts (on the x-axis) and agricultural support expenditure (on the y-axis). Next, we estimate:

$$\log(\text{AAA grant per farmer})_i = \theta + \delta \log(\text{\# droughts months})_i + \zeta X_i + SC_i + u_i \quad (2)$$

where we regress the log of AAA grants per farmer on the log of the number of months with severe drought and a set of controls. Column 1 of Table 5 reports estimates (full results are in Appendix Table A1). Severe droughts strongly predict agricultural relief. The elasticity is 0.47 and the F-test is well above the rule-of-the-thumb value of 10, indicating a strong instrument (Stock *et al.* 2002).

The last three panels of Fig. 3 summarize the reduced form relationship between droughts and WWII patriotism. Droughts during the 1930s were associated with more war bonds purchases (Panel B), more volunteering (Panel C) and more medals (Panel D). These are unconditional correlations: columns 2-4 in Table 5 show that they survive the inclusion of the usual set of controls (full results are in Appendix Table A2). Drought coefficients are always positive and highly significant.

The last three columns of Table 5 report IV estimates (full results are in Appendix Table A3). When instrumenting AAA spending with 1930s droughts, we still find a strong effect of welfare support on patriotism. Column 5 indicates an elasticity of 0.46 between AAA grants and war bond purchases. Column 6 implies that a 1 percent increase in grants was associated with a 3.8 percentage points higher volunteering rate. The coefficient for medals in column 7 implies that for every 4 percent increase in agricultural relief, one extra medal was won for every 1,000 soldiers.

To assess the magnitude of effects, we ask how much AAA money was needed to (i) sell one additional $25 war bond; (ii) convince an additional man to volunteer; (iii) create one extra medal-worthy hero. In a county with median AAA expenditure, the Federal Government sold one extra war bond for every $43 of AAA expenditure, it recruited one extra volunteer for every $6,144. One extra war hero cost an additional $572,000.[16] Since

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[15] While we do not think that this channel can explain IV results, we consider the effect of violations of the exclusion restriction in Section 4.b.

[16] To calculate the cost of one extra bond, 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 (0.45) and obtain the percentage increase in

median income in 1940 was $880, each volunteer cost about 7 annual incomes, and one hero, about 650.

c. Earlier droughts and patriotism

The key assumption of our IV analysis is that New Deal droughts affected WWII patriotism only via agricultural relief. The exclusion restriction would be violated if droughts had a direct effect on patriotism. We know that adversity often fosters co-operation and droughts may have increased patriotism through this channel (Bauer *et al.* 2016). To examine the plausibility of the exclusion restriction, we look at the effect of droughts not accompanied by welfare support.

We perform two exercises: First, the drought of 1931 was as severe as the worst New Deal drought (Fig. 4-Panel A). However, there was little help for farmers in distress (Fig. 4-Panel B). Importantly, only post-1933 droughts predict war bond purchases (Fig. 5-Panel A), volunteering (Fig. 5-Panel B) and medals (Fig. 5-Panel C). Droughts that happened before 1933 had a zero or negative impact on patriotism.

Since there was no federal emergency relief before WWI, droughts before 1914 offer another opportunity to examine the effects of distress in the absence of government support. Pre-WWI droughts are not correlated with WWI volunteer rate: ($\beta = 0.003$; $p = 0.46$) nor with WWI medals ($\beta = 0.031$; $p = 0.87$). Appendix Fig. A1 visualizes these two results. In combination, these results suggest that droughts by themselves had no effect on patriotism.

4. Interpretation and Robustness

This section interprets our results and demonstrates their robustness.

a. Interpretation

Did welfare spending make people more pro-social and supportive of the war – or did a lack of support in difficult times translate into lower patriotism? In Appendix Fig. A2, we plot our three outcomes variables against the deviation from predicted levels of AAA support, as derived from a regression of AAA spending on the severity of droughts. The slope changes at zero: less support than expected barely affected war bond purchases, volunteering, and medals – it was the positive surprises that led to more patriotism.

Did welfare spending increase war participation because individuals felt grateful towards the nation – or because in places where more people received support, many people coordinated towards a high-collaboration equilibrium? In other words, did people simply volunteer because everyone around them did so? To address this issue, we add the share of farmers in the population of each county to our regressions. Since farmers benefitted

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war bonds sales per capita in this county: +0.000001%. This increase is equivalent to 0.003 cents per capita. In the median county there were 19,229 people in 1940: multiplying the per capita effect times this number we obtain $0.58 additional war bond sales for every dollar spent on AAA. Thus, to sell one extra $25 war bond, the Federal Government has to transfer $43. 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 ($181) as well as the average number of farmers (2,105) and the average number of registrants (600) in the same county. We reduce the final cost of one hero by three-quarters because we sample approximately 25% of all WWII medals.

from the AAA, any externality from a general wave of joining should be reflected in a positive coefficient on the share of other farmers. In Appendix Table A4, we actually find the opposite – the higher the share of farmers, holding constant the level of support, the lower the number of war bond purchases and volunteers, and the fewer 'heroes' there were. This suggests that patriotic actions were not a 'herd phenomenon' – it was the receipt of welfare support by the individual that mattered (a point also borne out by the profession-by-profession analysis in Fig. 6).

One alternative interpretation is that areas that were hit more by the Depression and the Dust Bowl continued to be poorer afterwards. The wartime expansion of the U.S. military may have provided men with an attractive outside option, leading to more volunteering. This mechanism cannot explain the result for medals and bonds – areas that were poorer are unlikely to have purchased war bonds, nor should they 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. Second, including a measure of 1940 economic activity (retail sales per capita) in our regressions has no effect on our conclusions.[17] Third, the share of 1939 wage earners that earned less than an army recruit is *negatively* correlated with the WW2 volunteering rate. Places with low wage levels volunteered substantially less (Figure A5 in the Appendix).

Finally, we address reverse causality and ask whether the government directed more funds towards counties where patriotism had deep historical roots. There is no correlation between World War I volunteering or medals and 1930s agricultural support ($\beta = 0.01$; s.e.= 0.09 for volunteering and $\beta = -0.004$; s.e.= 0.003 for medals). Greater patriotism during the First World War does not predict more support in the 1930s.

b. Robustness

The U.S. is a vast country, with big differences in culture and productive structure. Results should not reflect differences between the South and the North-West, for example. Wallis (1998) and Fishback *et al.* (2003) demonstrate that some states received more funds than others. We use state fixed effects to exploit within-state variation in patriotism and relief only. Results in Appendix Table A5 show that all coefficients remain large and highly significant.

Second, we address the possible effect of spatial correlation. Because both volunteering and welfare support vary smoothly over space, robust standard errors may be downward-biased. In Appendix Table A6 we adjust standard errors with the formula proposed by Conley (1999) to account for spatial correlation. We allow error terms to be correlated up to 300 km, and only find small changes in significance.

Next, we use the Conley *et al*. (2012) procedure to relax the exclusion restriction in our IV-estimation. This effectively asks: how big must the direct effect of drought on patriotism be for the IV estimates to become insignificant? Appendix Fig. A3-Panels A-C give the answer. For war bonds and volunteering, almost all of the reduced form effect has to be direct for the IV estimates to become insignificant. For medal recipients, the direct effect must be over half of the reduced form coefficient. We find such large direct

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[17] Results are available upon request.

effects unlikely, especially because of the small effect of pre-New Deal droughts on patriotism.

Another concern is that AAA relief programs initially paid farmers to reduce output. Some farmers leasing to share-croppers had an incentive to take land out of production, causing unemployment. This pool of idle men might have facilitated army recruitment. To deal with the issue, we can drop all areas of the U.S. where share-cropping was prevalent. Appendix Table A7 shows the results: After eliminating all counties with more than one-third 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.

To confirm that results are not driven by systematic differences in observables, we use entropy-balancing (Hainmueller 2012). This reweights observations so as to ensure balancedness of control variables between areas receiving high vs low support. Appendix Fig. A4, Panel A looks at war bonds, and compares OLS estimates (in black) to entropy-balanced estimates (dark red). The first three pairs of estimates confirm that New Deal spending is strongly correlated with war bonds even after entropy balancing. The last pair of estimates is for AAA spending. Again, we find similar results. Panel B and C repeat the exercise for volunteers and medals: point estimates are largely unaffected by entropy balancing.

c. Results by occupation

Detailed, individual-level data on the occupation of army recruits allows us to look at the effect of AAA spending conditional on a soldier's profession. To test which occupation reacted more to AAA spending, we regress its share among volunteers on AAA spending and control for the occupation's share among draftees overall.

Fig. 6 displays the occupation-specific effects of agricultural and non-agricultural relief spending on the different target groups. In areas with high spending on agriculture, farmers volunteered more – and everyone else volunteered less. Conversely, the effect of non-agricultural spending on farmer's proclivity to volunteer is actually negative (lower half of the left panel of Fig. 6), whereas the semi-skilled (most likely to benefit materially) volunteered in much greater numbers. These disaggregated results suggest that welfare won the hearts and minds of those who directly benefitted from it – and it may have crowded out some volunteering among those who did not.

5.   Summary

Humans are the only animal that routinely cooperates 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 is particularly puzzling – it is costly for the individual, but beneficial for the group. At the same time, a growing literature has highlighted the importance of reciprocity to overcome selfish behavior – by either altruistically punishing defection, or by altruistically rewarding cooperation (Fehr and Gächter 2002; Sober and Wilson 1998).

In this paper, we combine these two perspectives and argue that they are intimately connected – that reciprocity may be one of the factors that drives altruistic behavior, such as volunteering and fighting in wartime. We show that greater emergency relief during the 1930s boosted Americans' willingness to engage in patriotic actions during World War II. Roosevelt's New Deal fundamentally changed the role of the Federal Government in American society, vastly expanding its reach and ushering in an unprecedented expansion of the welfare state (Schlesinger 1957). One strand of the literature on the link between welfare and warfare has focused on future benefits for soldiers as a motivating force, in the form of additional government handouts promised in the event of victory (Alesina *et al.* 2018). We emphasize a related but different perspective: an increased willingness to fight for one's own country after having already received important economic support in times of crisis.

Three key empirical facts support our argument: U.S. 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 hit by adverse weather conditions. Because of the link between adverse weather and emergency relief, it seems likely that the relationship between welfare support and patriotism is causal.

These results suggest that individuals reciprocated towards their nation when the Federal Government came to their aid in bad times. Therefore, attitudes and behaviors common in small-group settings – where they may have helped to create the basis of human cooperation – can be successfully transposed to the national level. Reciprocity towards the nation state is facilitated if people experience immediate support in times of distress, making them feel like a member of a "super organism" composed of millions of compatriots (Haidt 2012).

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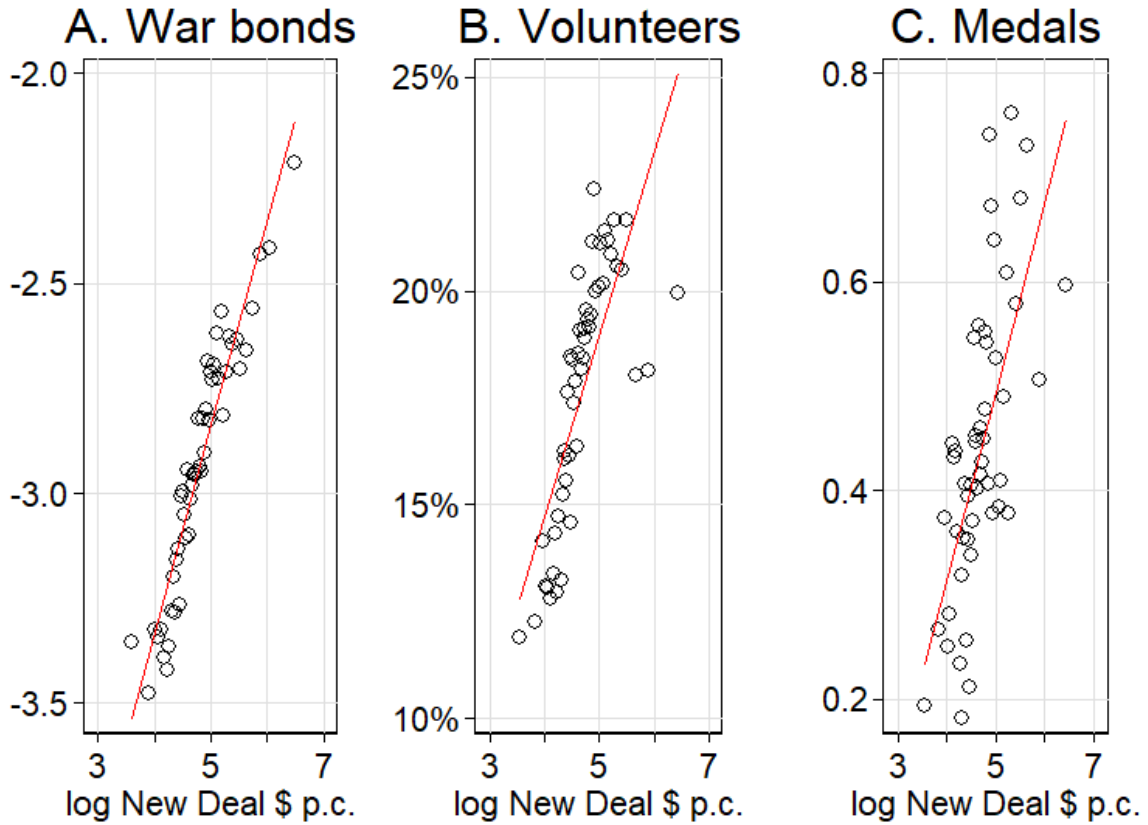
Figure 1. New Deal spending and World War II patriotism in the US. Panel A: log per capita New Deal grants (x-axis) and log of 1944 purchases of war bonds per capita (y-axis). Panel B: log per capita New Deal grants (x-axis) and World War II volunteering rate (y-axis). Panel C: log per capita New Deal grants (x-axis) and military award per 1000 soldiers (y-axis).
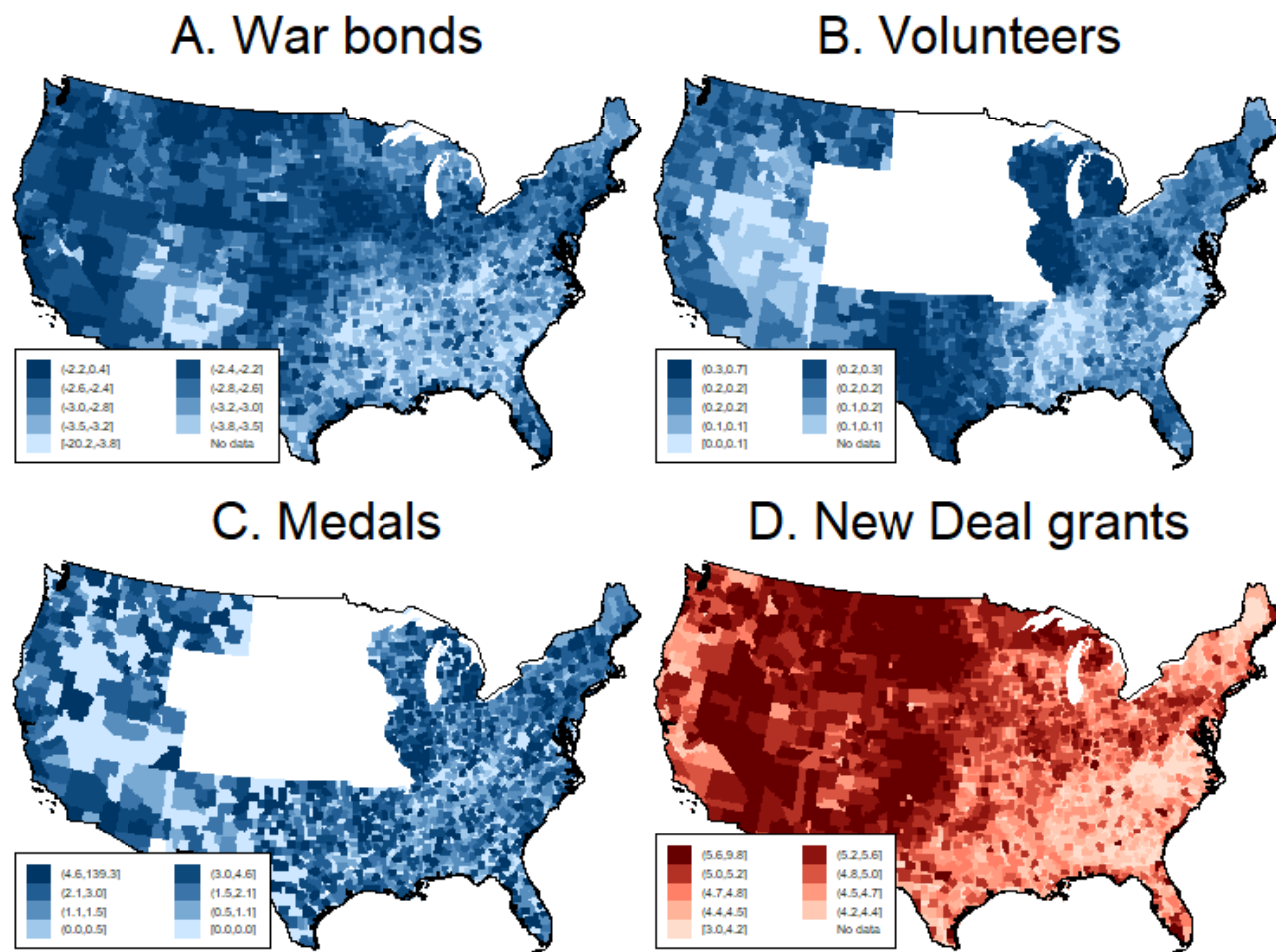
Figure 2. Geographical distribution of World War II patriotism and New Deal spending. Panel A: log war bond purchases in 1944 per 1940 population. Source: ICPSR. Panel B: World War II volunteers per soldiers. Source: NARA (2002) and 1940 U.S. Census. Panel C: World War II military awards per 1000 soldiers. Source: homeofheroes.com and 1940 U.S. Census. Panel D: log New Deal grants per 1940 population. Source: Fishback *et al.* (2003) and 1940 U.S. Census. Since army records of service command 7 were destroyed, we exclude these states in panel B and C.
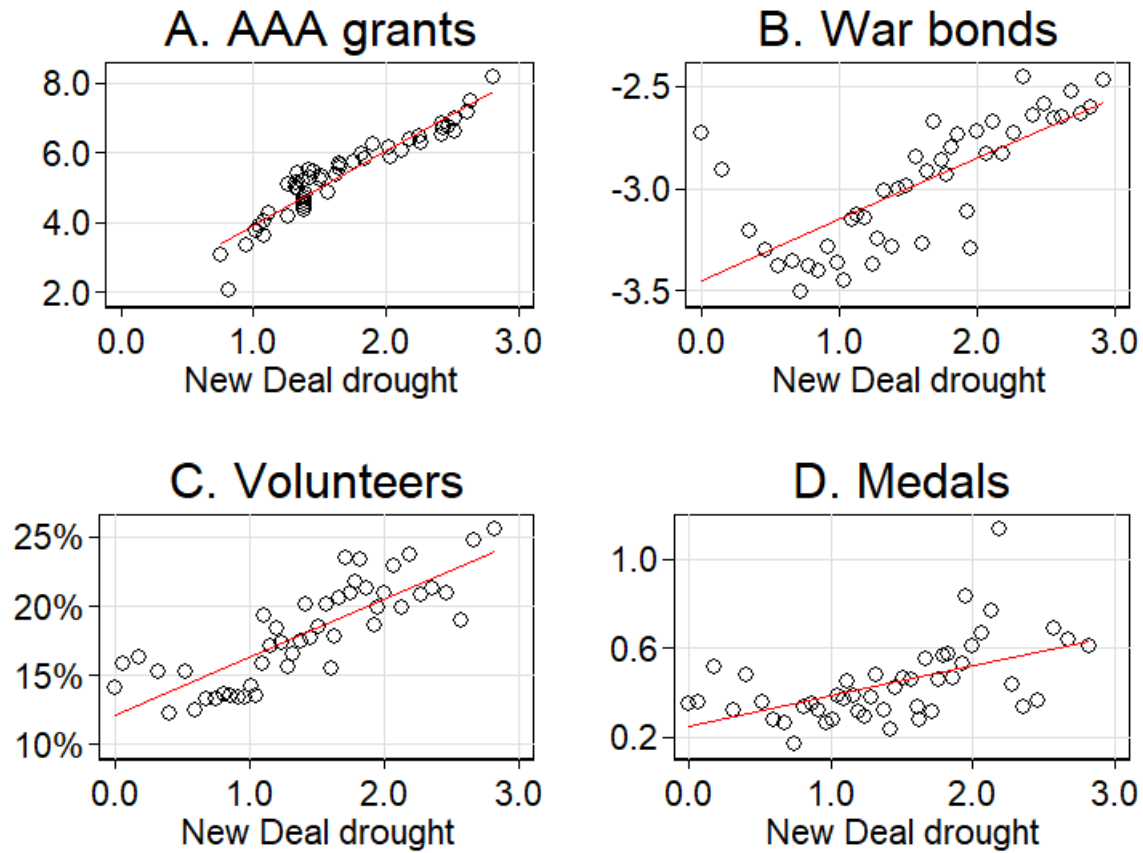
Figure 3. Identification: New Deal droughts, AAA support and patriotism. Panel A: log number of months of severe drought 1933-1939 (x-axis) and log AAA grants per farmer (y-axis). Panel B: log number of months of severe drought 1933-1939 (x-axis) and log war bonds purchases per capita (y-axis). Panel C: log number of months of severe drought 1933-1939 (x-axis) and volunteering rate (y-axis). Panel D: log number of months of severe drought 1933-1939 (x-axis) and number of medals per 1000 soldiers (y-axis).
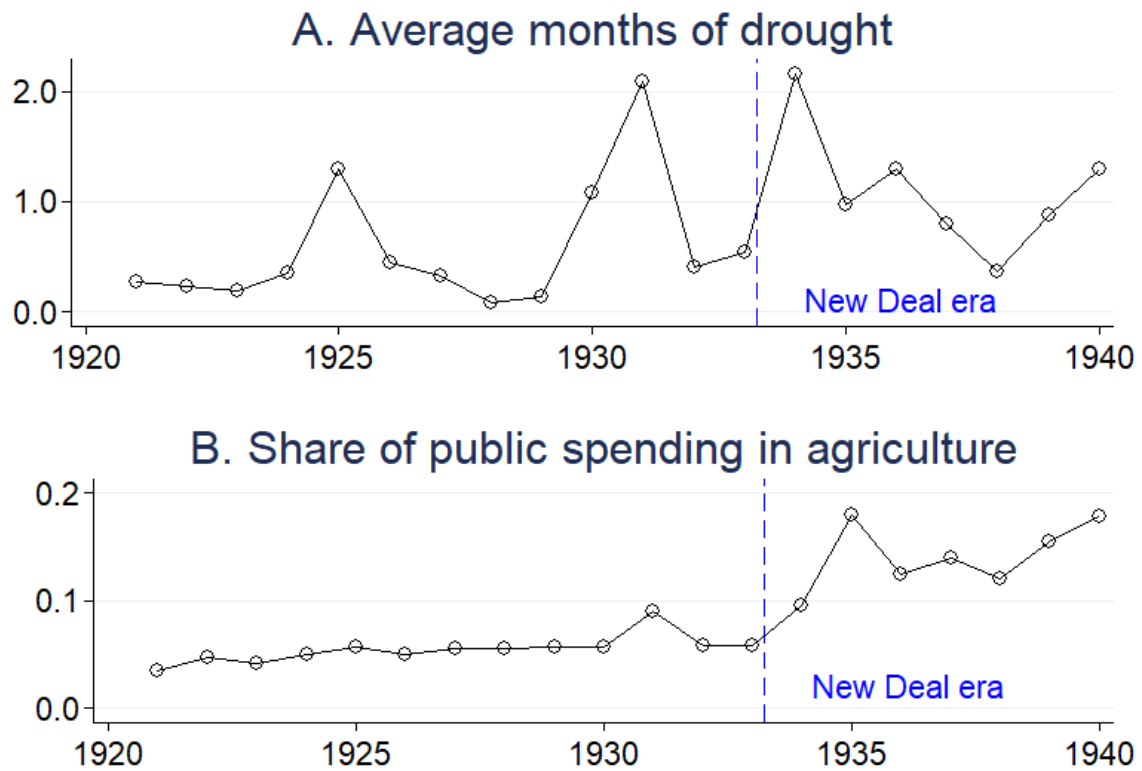
Figure 4. Droughts and public spending in agriculture. Panel A: average number months with severe drought across time in the U.S. Source: NOAA. Panel B: share of agricultural spending over total government spending. Source: Libecap (1997). In both panels, the dashed blue line marks Roosevelt's inauguration (4th March 1933).
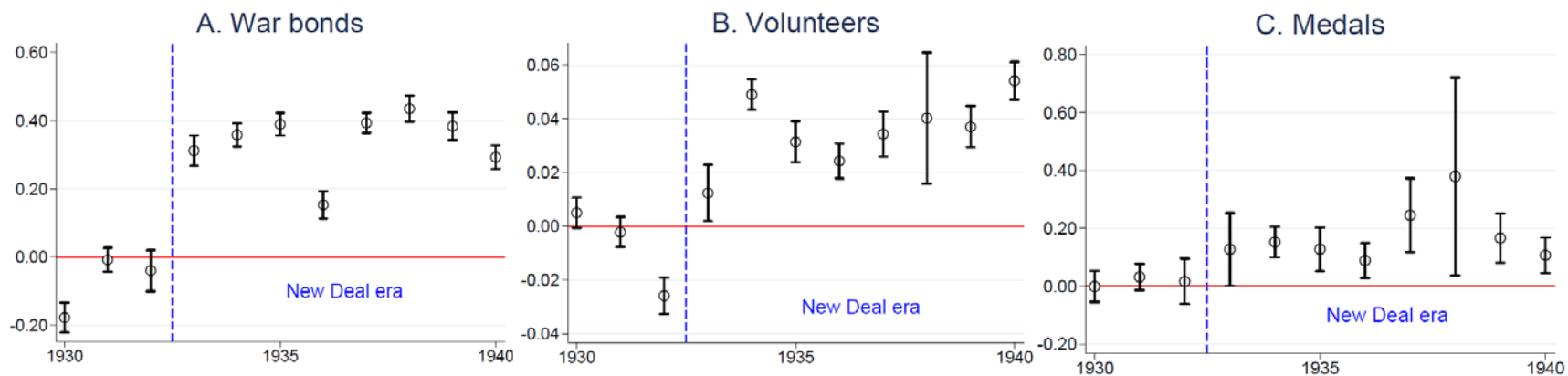
Figure 5. Pre-New Deal droughts and World War II patriotism in the U.S. Each panel shows point estimates and 95% confidence intervals for the effect of droughts in every year of the 1930s on the three measures of patriotism. Panel A: dependent variable is log war bonds purchases per capita. Panel B: dependent variable is volunteering rate. 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).
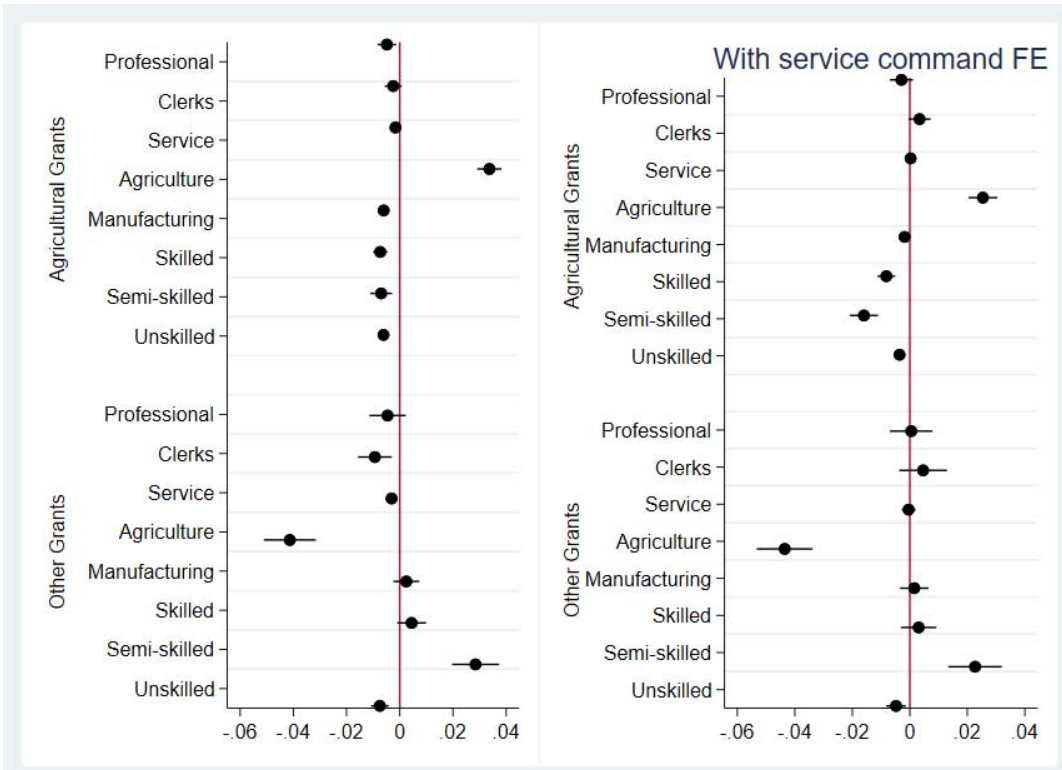
Figure 6. Welfare spending and occupation of volunteers. Each panel shows point estimates and 95% confidence intervals for the effect New Deal spending on share of volunteers within different professions. Upper panel: New Deal spending is AAA grants per farmer. Lower panel: New Deal spending is non-agricultural grants per capita. Left panel: regressions control for profession's share among draftees. Right panel: regressions control for profession's share among draftees and service command fixed effects.

TABLES

World War II variables	Mean	St. dev.	Observations
1944 war bond purchases per capita	67.23	68.72	2'846
World War II army registrants	2'824	8'253	2'240
World War II army volunteers	498	1'559	2'240
Share of World War II army volunteers	0.177	0.081	2'240
Number of World War II military awards	1.081	3.143	2'240
Number of World War II military awards per 1000 soldiers	0.433	0.744	2'240
World War II volunteers: 1942	192	694	2'240
Share of World War II volunteers: 1942	0.165	0.104	2'240

New Deal variables	Mean	St. dev.	Observations
New Deal grants per capita	149	138	2'846
Agricultural Adjustment Administration grants per farmer	430	1'203	2'846
Other New Deal grants per capita	106	118	2'846

Weather variable	Mean	St. dev.	Observations
Number of months with a severe drought: 1933-1939	6.994	8.314	2'846

County controls	Mean	St. dev.	Observations
Share of World War I volunteers: 1917	0.352	0.252	2'846
World War I medal (dummy)	0.622	0.485	2'846
Unemployment rate: 1930	0.059	0.040	2'846
Unemployment rate: 1940	0.073	0.037	2'846
Urban county: 1930 (dummy)	0.561	0.496	2'846
Average Democratic vote: 1896-1928	0.493	0.188	2'846

Table 1. Summary statistics.

Dep. var.:	War bonds (1)	Volunteers (2)	Medals (3)
log **New Deal grants** p.c.	0.417***	0.274***	0.111***
	(0.000)	(0.000)	(0.000)
log WPA grants p.c.	0.136***	0.214***	0.064***
	(0.000)	(0.000)	(0.003)
log FERA grants p.c.	0.194***	0.262***	0.073***
	(0.000)	(0.000)	(0.001)
log AAA grants per farmer	0.314***	0.218***	0.092***
	(0.000)	(0.000)	(0.000)
log **New Deal loans** p.c.	0.495***	0.246***	0.131***
	(0.000)	(0.000)	(0.000)
log HOLC loans p.c.	0.545***	0.218***	0.083***
	(0.000)	(0.000)	(0.000)
log RFC loans p.c.	0.306***	0.137***	0.050**
	(0.000)	(0.000)	(0.019)
Observations	2,913	2,240	2,240

Table 2. New Deal spending and World War II patriotism. Each cell reports the beta 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 in 1944 per 1940 population. Column 2: dependent variable is share of World War II volunteers. Column 3: dependent variable is World War II military awards per 1000 soldiers. p-values based on robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Dep. var.:	log 1944 war bond purchases per capita				World War II volunteering rate				World War II medals per 1000 soldiers			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
log New Deal grants p.c.	0.487***	0.504***	0.368***		0.041***	0.029***	0.012***		0.153***	0.129***	0.069*	
	(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)		(0.000)	(0.001)	(0.098)	
log AAA grants per farmer				0.189***				0.008***				0.051***
				(0.000)				(0.000)				(0.004)
log other grants p.c.				0.157***				0.006**				0.023
				(0.000)				(0.020)				(0.475)
log WWII registrants		0.197***	0.131***	0.118***		0.005	0.012**	0.012**		0.109	0.105	0.107
		(0.000)	(0.001)	(0.004)		(0.491)	(0.018)	(0.015)		(0.122)	(0.140)	(0.136)
1917 volunteering rate		-0.005	-0.042*	-0.070***		0.004	0.001	-0.001		0.060	0.052	0.043
		(0.834)	(0.059)	(0.001)		(0.314)	(0.764)	(0.854)		(0.120)	(0.180)	(0.269)
WWI medal		0.084***	0.145***	0.148***		-0.016***	-0.002	-0.001		-0.064***	-0.040**	-0.037**
		(0.000)	(0.000)	(0.000)		(0.000)	(0.233)	(0.349)		(0.000)	(0.027)	(0.040)
1940 unemployment rate		-2.394***	-2.312***	-0.937***		0.013	0.081*	0.137***		-0.647	-0.831*	-0.443
		(0.000)	(0.000)	(0.006)		(0.751)	(0.057)	(0.002)		(0.139)	(0.066)	(0.338)
Urban status 1930		0.329***	0.278***	0.224***		0.047***	0.023***	0.020***		0.108***	0.076*	0.062
		(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)		(0.007)	(0.064)	(0.130)
Share Democrats 1896-1928		-0.009***	-0.002***	-0.004***		-0.001***	-0.000***	-0.000***		-0.003***	-0.000	-0.001
		(0.000)	(0.003)	(0.000)		(0.000)	(0.001)	(0.000)		(0.006)	(0.690)	(0.349)
Constant	-5.274***	-5.580***			-0.016	0.169***			-0.287*	0.327		
	(0.000)	(0.000)			(0.330)	(0.000)			(0.073)	(0.137)		
Service command F.E. (9)			✓	✓			✓	✓			✓	✓
Average dependent variable		-2.932				0.177				0.433		
R-squared	0.174	0.369	0.444	0.462	0.075	0.175	0.505	0.511	0.012	0.025	0.036	0.038
Observations	2,913	2,913	2,913	2,913	2,240	2,240	2,240	2,240	2,240	2,240	2,240	2,240

Table 3. New Deal welfare relief and World War II patriotic support. Columns 1-4: dependent variable is log war bond purchases in 1944 per 1940 population. Columns 5-8: dependent variable is share of World War II volunteers. Columns 9-12: dependent variable is World War II military awards per 1000 soldiers. Regressions on columns 5-12 exclude service command 7. Other grants is New Deal grants minus agricultural grants. p-values based on robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Dep. var.:	log 1930 population	WWI volunteering	WWI medal	WWI casualty rate	1930 unemployment	Urban status 1930	% Democrats 1896-1928
log months of drought 1933-39	-0.246***	-0.001	0.015	0.002	0.000	-0.004	-0.622
	(0.000)	(0.928)	(0.379)	(0.217)	(0.841)	(0.826)	(0.190)
Service command F.E. (9)	✓	✓	✓	✓	✓	✓	✓
Average dependent variable	9.968	0.336	0.631	0.055	0.063	0.597	52.60
R-squared	0.163	0.062	0.069	0.152	0.148	0.047	0.503
Observations	2,240	2,240	2,240	2,240	2,240	2,240	2,240

Table 4. Balancedness: New Deal-era droughts and pre-existing characteristics of the county. Dependent variables are log of population in 1930, share of volunteers in WW1, a dummy for having a World War I medal veteran, death rate among World War I soldiers, unemployment rate in 1930, unemployment rate in 1930, share of rural citizens in 1930, average democrat vote share in presidential election from 1896 to 1928. All models in panel B use service command fixed effects. p-values based on robust standard errors in parentheses. * $p < 0.10,$ ** $p < 0.05,$ *** $p < 0.01.$

Equation:	First stage		Reduced form		Two-stage least squares		
Dep. var.:	log AAA grants p.f.	War bonds	Volunteers	Medals	War bonds	Volunteers	Medals
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
log AAA grants per farmer					0.456***	0.038***	0.246***
					(0.000)	(0.004)	(0.002)
log months of drought 1933-39	0.466***	0.212***	0.016***	0.104***			
	(0.000)	(0.000)	(0.007)	(0.001)			
log WWII registrants	0.034	0.134**	0.012*	0.101	0.119**	0.015*	0.121
	(0.724)	(0.011)	(0.093)	(0.216)	(0.041)	(0.061)	(0.154)
1917 volunteering rate	0.081*	-0.072**	-0.001	0.042	-0.109***	-0.006	0.010
	(0.098)	(0.034)	(0.839)	(0.352)	(0.001)	(0.165)	(0.838)
WWI medal	-0.086**	0.155***	-0.000	-0.029	0.194***	0.002	-0.014
	(0.014)	(0.000)	(0.937)	(0.102)	(0.000)	(0.452)	(0.468)
1940 unemployment rate	-6.333***	-1.291**	0.122	-0.579	1.599***	0.353***	0.916
	(0.000)	(0.016)	(0.134)	(0.161)	(0.005)	(0.002)	(0.207)
Urban status 1930	0.178***	0.228***	0.020***	0.060	0.147***	0.013**	0.011
	(0.002)	(0.000)	(0.000)	(0.132)	(0.000)	(0.018)	(0.797)
Share Democrats 1896-1928	0.009***	-0.003*	-0.000	-0.000	-0.007***	-0.001***	-0.004**
	(0.000)	(0.076)	(0.143)	(0.818)	(0.000)	(0.000)	(0.011)
Service command fixed effects	✓	✓	✓	✓	✓	✓	✓
Average dependent variable	5.374	-2.932	0.177	0.433	-2.932	0.177	0.433
R-squared	0.447	0.420	0.514	0.040	0.299	0.387	-0.024
Observations	2,913	2,913	2,240	2,240	2,913	2,240	2,240
F-test of excluded instrument	57.4						
Rubin-Anderson test (p-value)					0.000	0.007	0.001

Table 5. Identification: New Deal droughts, agricultural relief and patriotism. Column 1: first stage regression; dependent variable is log AAA grants per farmer. Columns 2-4: reduced form regressions; dependent variables are log war bond sales per capita (Column 2); World War II volunteering rate (Column 3) and military awards per 1000 soldiers (Column 4). Columns 5-7: two-stage least square estimates; instrument of log AAA grants per farmer is log months of droughts between 1933 and 1939; dependent variables are log war bond sales per capita (Column 5); World War II volunteering rate (Column 6) and military awards per 1000 soldiers (Column 7). p-values based on standard errors clustered at climatic division level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

	(1) Farmer-Vol/Vol	(2) Farmer-Vol/Vol	(3) Farmer-Vol/Vol	(4) Farmer-Vol/Vol
log AAA grants per farmer	0.314*** (0.000)	0.199*** (0.000)		
log other grants p.c.			-0.193*** (0.000)	-0.069*** (0.000)
Share farmers among draftees		0.525*** (0.000)		0.510*** (0.000)
1917 volunteering rate		0.008 (0.626)		0.004 (0.814)
Service command fixed effects	No	Yes	No	Yes
R^2	0.099	0.408	0.037	0.381
Observations	2240	2240	2240	2240

Table 6: Effect of agricultural spending on farmers. Outcome is the share of farmer volunteers over all volunteers in a county. Variable "share farmers among draftees" is the share of drafted farmers over all soldiers and therefore aims to control for the local labor market structure. Log other relief per capita is log total grants minus agricultural grants. Constant is omitted from regression table. P-values based on robust standard errors are given in parantheses. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

APPENDIXES

A. Additional figures and tables

A.1 Figures
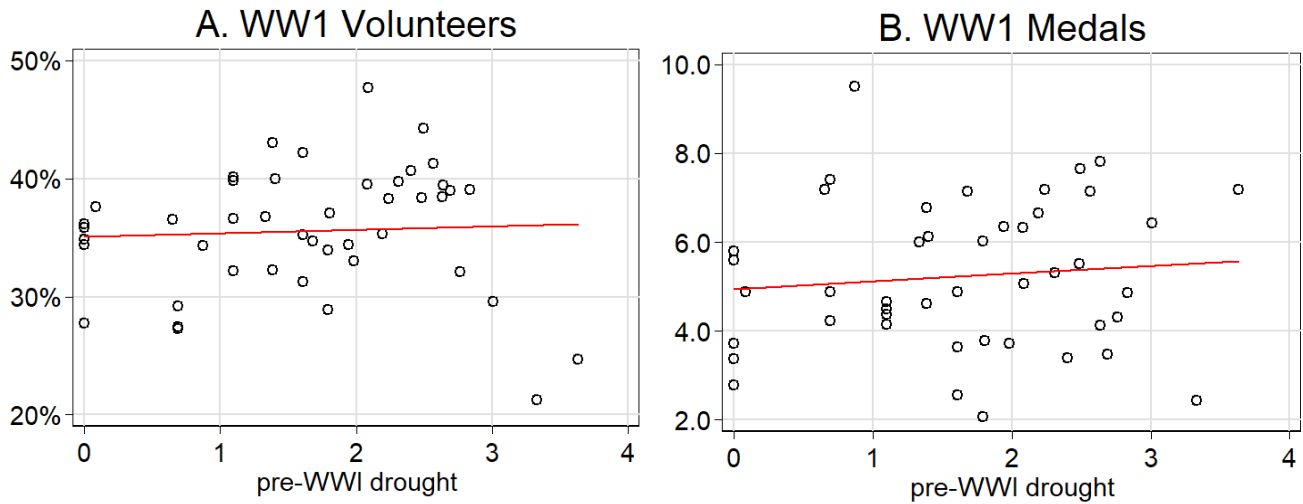
Figure A1. Pre-World War I droughts and World War I patriotism. Panel A: log number of months with extreme drought 1907-1915 (x-axis) and World War I volunteering rate (y-axis). Panel B: log number of months with extreme drought 1907-1915 (x-axis) and World War I medals per 1000 soldiers.
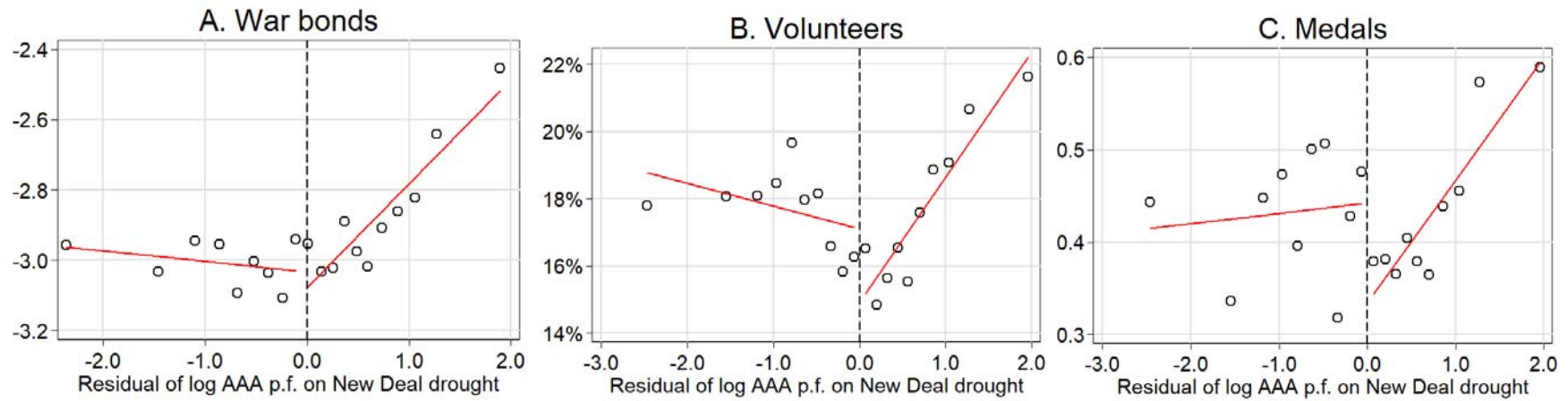
Figure A2. Predicted AAA relief and patriotism. Binscatters of patriotism measures and deviations from predicted relief payments under AAA, as predicted by droughts. We calculate two separate lines, for values of residuals below and above one. Panel A: log of 1944 purchases of war bonds per capita on the y-axis. Panel B: World War II volunteering rate on the y-axis. Panel C: military award per 1000 soldiers on the y-axis.
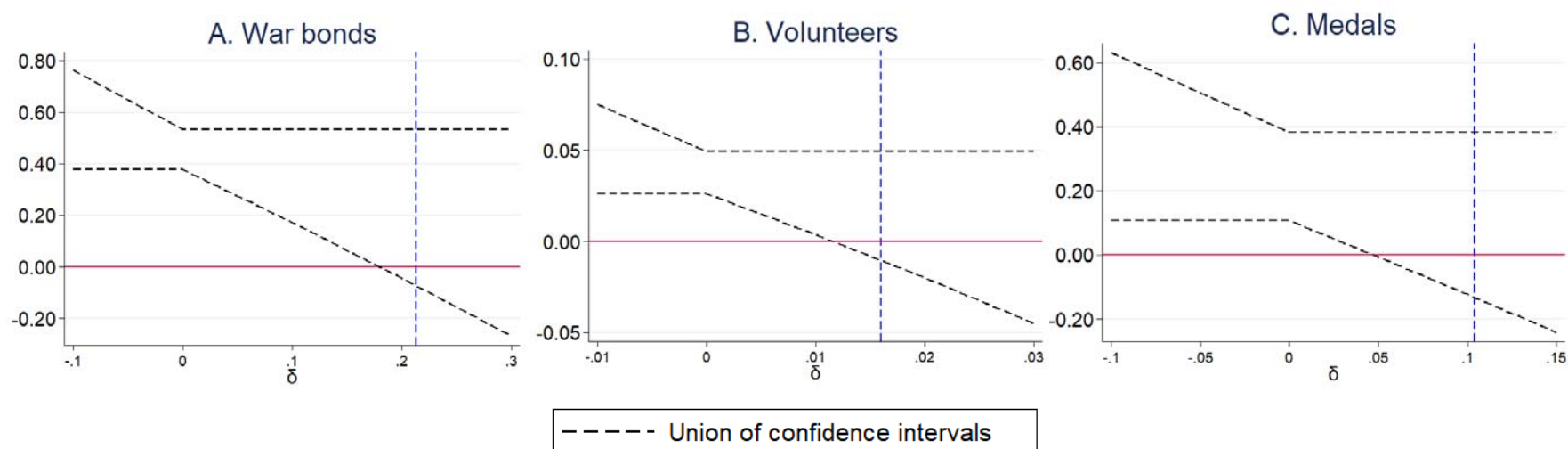
Figure A3. Plausibly exogenous test for two-stages least squares regressions (Conley *et al.* 2012). Union of confidence intervals of the two-stages least squares coefficient (y-axis) when the exclusion restriction is violated and New Deal droughts have a direct effect on patriotism δ (x-axis). Panel A: dependent variable is log war bond purchases in 1944 per 1940 population. Panel B: dependent variable is share of World War II volunteers. Panel C: dependent variable is World War II military awards per 1000 soldiers. We include the standard set of controls and service command fixed effects. In each panel the dashed blue line marks the point estimate of the reduced form regressions in Columns 2-4 of Table 5.
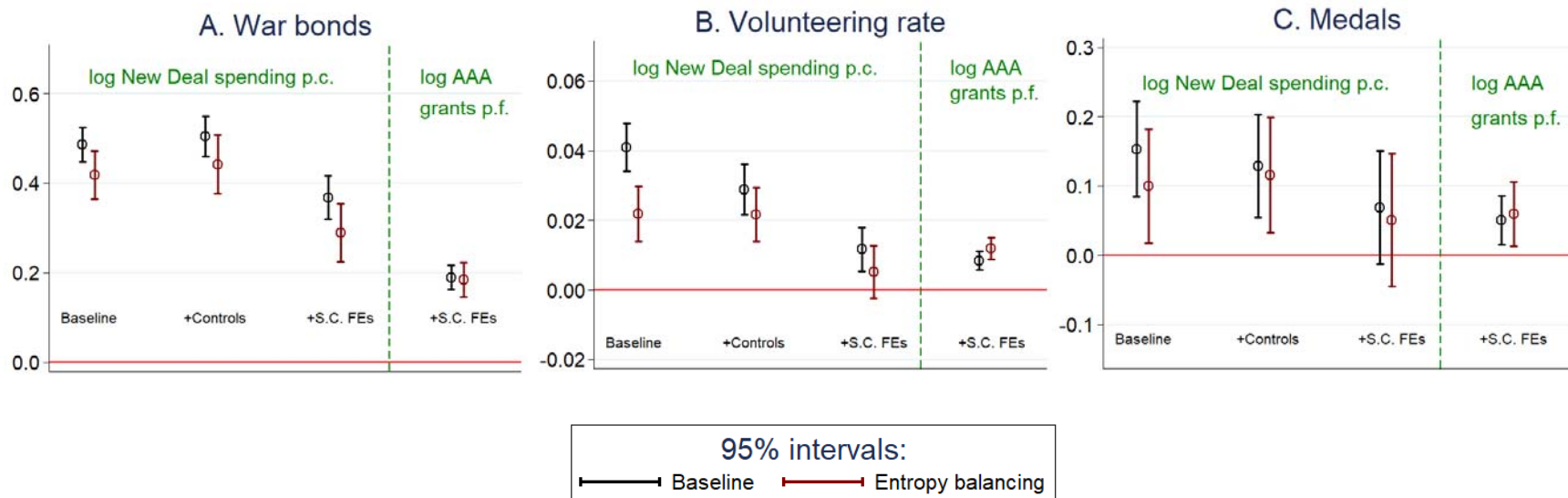
Figure A4. Entropy balancing. The graphs compares the point estimates and the 95 % intervals of the effect of welfare spending on patriotism with and without entropy balancing. Each marker represent the coefficient of a different regression. Black dots correspond to baseline regressions, and they reproduce point estimates on Table 3. In the first three regressions welfare spending is the log of total New Deal grants per capita. In the last regression welfare spending is the log of AAA grants per farmer. Dark red dots correspond to regressions in which observations are re-weighted so that treated and control observations have identical distribution of observables (Hainmueller 2012). In the first three regressions, treated observations are counties that received more than the median county in New Deal grants per capita. In the last regression treated observations are counties that received more than the median county in AAA grants per farmer. The first regressions include no controls. The second regressions include the standard set of controls. The last two regressions include the standard set of controls and service command fixed effects. Panel A: dependent variable is log war bonds purchases per capita. Panel B: dependent variable is volunteering rate. Panel C: dependent variable is number of medals per 1000 soldiers.

Figure A5. WW2 volunteering rate and share of wage earners below army pay: Share of wage earners receiving less than the pay of a regular ($600 a year in 1939: x-axis) and share of volunteers among all soldiers from a county (y-axis).

Dep. var.:	log AAA grants per farmer		
	(1)	(2)	(3)
log months of drought 1933-39	0.727***	0.680***	0.466***
	(0.000)	(0.000)	(0.000)
log WWII registrants		0.063	0.034
		(0.518)	(0.724)
1917 volunteering rate		0.051	0.081*
		(0.327)	(0.098)
WWI medal		-0.177***	-0.086**
		(0.000)	(0.014)
1940 unemployment rate		-5.721***	-6.333***
		(0.000)	(0.000)
Urban status 1930		0.252***	0.178***
		(0.000)	(0.002)
Share Democrats 1896-1928		0.009***	0.009***
		(0.000)	(0.000)
Constant	4.154***	5.208***	
	(0.000)	(0.000)	
Service command F.E. (9)			✓
Average dependent variable:		5.374	
R-squared	0.299	0.386	0.447
Observations	2,913	2,913	2,913
F-test of excluded instrument	259.4	197.4	57.4

Table A1. First stage. Dependent variable is log AAA grants per farmer. p-values based on standard errors on standard errors clustered at climatic division level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Dep. var.:	log 1944 war bond purchases per capita			World War II volunteering rate			World War II medals per 1000 soldiers		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
log months of drought 1933-39	0.260***	0.264***	0.212***	0.038***	0.031***	0.016***	0.130***	0.104***	0.104***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.007)	(0.000)	(0.000)	(0.001)
log WWII registrants		0.203***	0.134**		0.004	0.012*		0.109	0.101
		(0.000)	(0.011)		(0.659)	(0.093)		(0.175)	(0.216)
1917 volunteering rate		-0.046	-0.072**		0.002	-0.001		0.052	0.042
		(0.193)	(0.034)		(0.643)	(0.839)		(0.239)	(0.352)
WWI medal		0.103***	0.155***		-0.011***	-0.000		-0.051***	-0.029
		(0.000)	(0.000)		(0.004)	(0.937)		(0.009)	(0.102)
1940 unemployment rate		-0.563	-1.291**		0.115	0.122		-0.183	-0.579
		(0.409)	(0.016)		(0.128)	(0.134)		(0.643)	(0.161)
Urban status 1930		0.261***	0.228***		0.039***	0.020***		0.086**	0.060
		(0.000)	(0.000)		(0.000)	(0.000)		(0.042)	(0.132)
Share Democrats 1896-1928		-0.010***	-0.003*		-0.001***	-0.000		-0.002**	-0.000
		(0.000)	(0.076)		(0.003)	(0.143)		(0.012)	(0.818)
Constant	-3.368***	-3.763***		0.124***	0.219***		0.252***	0.670***	
	(0.000)	(0.000)		(0.000)	(0.000)		(0.000)	(0.000)	
Service command F.E.s (9)			✓			✓			✓
Average dependent variable		-2.932			0.177			0.433	
R-squared	0.123	0.317	0.420	0.127	0.216	0.514	0.017	0.027	0.040
Observations	2,913	2,913	2,913	2,240	2,240	2,240	2,240	2,240	2,240

Table A2. Reduced form. Columns 1-3: dependent variable is log war bond purchases in 1944 per 1940 population. Columns 4-6: dependent variable is share of World War II volunteers. Columns 7-9: dependent variable is World War II military awards per 1000 soldiers. Regressions on columns 4-9 exclude service command 7. p-values based on standard errors on standard errors clustered at climatic division level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Dep. var.:	log 1944 war bond purchases per capita			World War II volunteering rate			World War II medals per 1000 soldiers		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
log AAA grants per farmer	0.358***	0.389***	0.456***	0.062***	0.049***	0.038***	0.211***	0.165***	0.246***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)	(0.000)	(0.000)	(0.002)
log WWII registrants		0.179***	0.119**		0.010	0.015*		0.127	0.121
		(0.002)	(0.041)		(0.386)	(0.061)		(0.120)	(0.154)
1917 volunteering rate		-0.066**	-0.109***		-0.001	-0.006		0.042	0.010
		(0.037)	(0.001)		(0.823)	(0.165)		(0.345)	(0.838)
WWI medal		0.172***	0.194***		-0.004	0.002		-0.027	-0.014
		(0.000)	(0.000)		(0.346)	(0.452)		(0.202)	(0.468)
1940 unemployment rate		1.663***	1.599***		0.320***	0.353***		0.509	0.916
		(0.004)	(0.005)		(0.001)	(0.002)		(0.277)	(0.207)
Urban status 1930		0.163***	0.147***		0.025***	0.013**		0.037	0.011
		(0.000)	(0.000)		(0.000)	(0.018)		(0.396)	(0.797)
Share Democrats 1896-1928		-0.013***	-0.007***		-0.001***	-0.001***		-0.005***	-0.004**
		(0.000)	(0.000)		(0.000)	(0.000)		(0.000)	(0.011)
Constant	-4.854***	-5.789***		-0.138**	-0.009		-0.642***	-0.100	
	(0.000)	(0.000)		(0.010)	(0.890)		(0.006)	(0.743)	
Service command F.E.s (9)			✓			✓			✓
Average dependent variable		-2.932			0.177			0.433	
Observations	2,913	2,913	2,913	2,240	2,240	2,240	2,240	2,240	2,240
Rubin-Anderson test (p-value)	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.001

Table A3: Two stage least squares. Columns 1-3: dependent variable is log war bond purchases in 1944 per 1940 population. Columns 4-6: dependent variable is share of World War II volunteers. Columns 7-9: dependent variable is World War II military awards per 1000 soldiers. Regressions on columns 5-12 exclude service command 7. p-values based on standard errors on standard errors clustered at climatic division level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

VARIABLES	log 1944 war bond purchases per capita		World War II volunteering rate		World War II medals per 1000 soldiers	
	(1)	(2)	(3)	(4)	(5)	(6)
log New Deal grants p.c.	0.335***		0.008**		0.074*	
	(0.000)		(0.013)		(0.076)	
log AAA grants per farmer		0.185***		0.009***		0.048***
		(0.000)		(0.000)		(0.007)
Share of farmers in population	-4.137***	-4.795***	-0.376***	-0.398***	0.532	0.359
	(0.000)	(0.000)	(0.000)	(0.000)	(0.220)	(0.410)
log WWII registrants	0.068*	0.063	0.007	0.007	0.113	0.113
	(0.079)	(0.104)	(0.158)	(0.139)	(0.116)	(0.114)
1917 volunteering rate	-0.022	-0.053**	0.003	0.001	0.049	0.041
	(0.306)	(0.011)	(0.327)	(0.640)	(0.204)	(0.293)
WWI medal	0.085***	0.081***	-0.007***	-0.007***	-0.033*	-0.033*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.096)	(0.099)
1940 unemployment rate	-3.681***	-1.868***	-0.044	0.023	-0.655	-0.221
	(0.000)	(0.000)	(0.292)	(0.586)	(0.155)	(0.624)
Urban status 1930	0.180***	0.104***	0.014***	0.011***	0.088**	0.070*
	(0.000)	(0.000)	(0.000)	(0.001)	(0.037)	(0.095)
Share Democrats 1896-1928	-0.002**	-0.004***	-0.000**	-0.000***	-0.001	-0.001
	(0.028)	(0.000)	(0.018)	(0.000)	(0.619)	(0.286)
Constant	-4.491***	-3.748***	0.224***	0.220***	0.226	0.359*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.385)	(0.063)
Service command F.E.s (9)	✓	✓	✓	✓	✓	✓
Average dependent variable		-2.932		0.177		0.433
Observations	2,913	2,913	2,240	2,240	2,240	2,240
R-squared	0.486	0.504	0.531	0.539	0.036	0.038

Table A4. Patriotism and the share of farmers in the population. Columns 1-2: dependent variable is log war bond purchases in 1944 per 1940 population. Columns 3-4: dependent variable is share of World War II volunteers. Columns 5-6: dependent variable is World War II military awards per 1000 soldiers. Regressions on columns 5-12 exclude service command 7. p-values based on standard errors on standard errors clustered at climatic division level in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Equation:	OLS			First stage	Reduced form			Two-stage least squares		
Dep. var.:	War bonds	Volunteers	Medals	log AAA grants p.f.	War bonds	Volunteers	Medals	War bonds	Volunteers	Medals
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
log AAA grants per farmer	0.125***	0.005***	0.033*					0.455***	0.051***	0.222
	(0.000)	(0.000)	(0.096)					(0.000)	(0.003)	(0.131)
log months of drought 1933-39				0.299***	0.136***	0.015***	0.063			
				(0.000)	(0.000)	(0.008)	(0.117)			
log WWII registrants	0.097**	0.023***	0.133*	0.071	0.106**	0.024***	0.136	0.074	0.019**	0.115
	(0.018)	(0.000)	(0.088)	(0.382)	(0.025)	(0.000)	(0.118)	(0.197)	(0.014)	(0.186)
1917 volunteering rate	-0.045**	0.005**	0.020	-0.001	-0.042*	0.006**	0.023	-0.042	0.005*	0.020
	(0.036)	(0.029)	(0.635)	(0.975)	(0.092)	(0.018)	(0.631)	(0.106)	(0.095)	(0.674)
WWI medal	0.160***	-0.001	-0.030	-0.082***	0.160***	0.000	-0.027	0.197***	0.005	-0.009
	(0.000)	(0.739)	(0.132)	(0.008)	(0.000)	(0.869)	(0.148)	(0.000)	(0.150)	(0.726)
1940 unemployment rate	-1.065***	0.097**	-0.831*	-5.257***	-1.648***	0.080	-0.968**	0.742	0.328***	0.109
	(0.001)	(0.020)	(0.090)	(0.000)	(0.000)	(0.307)	(0.029)	(0.215)	(0.008)	(0.902)
Urban status 1930	0.177***	0.019***	0.062	0.149***	0.186***	0.018***	0.063	0.118***	0.009*	0.022
	(0.000)	(0.000)	(0.140)	(0.001)	(0.000)	(0.000)	(0.117)	(0.001)	(0.083)	(0.648)
Share Democrats 1896-1928	0.000	-0.000***	-0.000	0.015***	0.002	-0.000	0.000	-0.005**	-0.001***	-0.003
	(0.796)	(0.004)	(0.981)	(0.000)	(0.230)	(0.103)	(0.824)	(0.016)	(0.005)	(0.256)
State fixed effects (48)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
R-squared	0.550	0.653	0.059	0.559	0.536	0.658	0.059			
Observations	2,913	2,240	2,240	2,913	2,913	2,240	2,240	2,913	2,240	2,240
F-test of excluded instrument				26.9						
Rubin-Anderson test (p-value)								0.000	0.008	0.117

Table A5: Robustness to including state fixed effects. Cols 1-3: OLS; dependent variables are log war bond purchases in 1944 per 1940 population (Col 1) share of World War II volunteers (Col 2) and World War II military awards per 1000 soldiers (Col 3). Col 4: first stage regression; dependent variable is log AAA grants per farmer. Cols 5-7: reduced form regressions; dependent variables are log war bond sales per capita (Col 5); World War II volunteering rate (Col 6) and military awards per 1000 soldiers (Col 7). Cols 8-10: IV estimates; instrument of log AAA grants per farmer is log months of droughts 1933-39; dependent variables are log war bond sales per capita (Col 8); World War II volunteering rate (Col 9) and military awards per 1000 soldiers (Col 10). p-values based on robust standard errors (Cols 1-3) and on standard errors clustered at climatic division level (Cols 4-10) in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Equation:	OLS			First stage	Reduced form		
Dep. var.:	War bonds	Volunteers	Medals	log AAA grants p.f.	War bonds	Volunteers	Medals
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
log AAA grants per farmer	0.189	0.008	0.051				
Robust s.e.	(0.014)***	(0.001)***	(0.018)***				
Conley: 50 Km	(0.014)***	(0.001)***	(0.018)***				
Conley: 100 Km	(0.017)***	(0.002)***	(0.019)***				
Conley: 150 Km	(0.020)***	(0.003)***	(0.019)***				
Conley: 200 Km	(0.023)***	(0.003)***	(0.019)***				
Conley: 300 Km	(0.027)***	(0.004)**	(0.020)**				
log months of drought '33-'39				0.466	0.212	0.016	0.104
Robust s.e.				(0.030)***	(0.017)***	(0.002)***	(0.029)***
Conley: 50 Km				(0.032)***	(0.018)***	(0.002)***	(0.029)***
Conley: 100 Km				(0.043)***	(0.023)***	(0.003)***	(0.031)***
Conley: 150 Km				(0.053)***	(0.029)***	(0.004)***	(0.031)***
Conley: 200 Km				(0.062)***	(0.034)***	(0.005)***	(0.030)***
Conley: 300 Km				(0.076)***	(0.042)***	(0.006)**	(0.030)***
Controls	✓	✓	✓	✓	✓	✓	✓
Service command F.E.	✓	✓	✓	✓	✓	✓	✓
Observations	2,913	2,240	2,240	2,913	2,913	2,240	2,240

Table A6: Robustness to spatial autocorrelation. Columns 1-3: OLS regressions; dependent variables are log war bond purchases in 1944 per 1940 population (Column 1) share of World War II volunteers (Column 2) and World War II military awards per 1000 soldiers (Column 3). Column 4: first stage regression; dependent variable is log AAA grants per farmer. Columns 5-7: reduced form regressions; dependent variables are log war bond sales per capita (Column 5); World War II volunteering rate (Column 6) and military awards per 1000 soldiers (Column 7). Standard errors robust to spatial autocorrelation in parentheses (Conley 1999). *** p<0.01, ** p<0.05, * p<0.1.

| Equation: | OLS | | | First stage log AAA grants p.f. | Reduced form | | | Two-stage least squares | | |
| Dep. var.: | War bonds | Volunteers | Medals | | War bonds | Volunteers | Medals | War bonds | Volunteers | Medals |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
log AAA grants per farmer	0.128***	0.005***	0.029					0.374***	0.020*	0.144*
	(0.000)	(0.001)	(0.170)					(0.000)	(0.070)	(0.078)
log months of drought 1933-39				0.517***	0.193***	0.010*	0.070*			
				(0.000)	(0.000)	(0.070)	(0.071)			
log WWII registrants	0.153***	0.000	0.074	0.012	0.146**	-0.001	0.067	0.141**	0.002	0.087
	(0.008)	(0.978)	(0.426)	(0.920)	(0.029)	(0.899)	(0.519)	(0.048)	(0.817)	(0.400)
1917 volunteering rate	-0.170***	-0.003	0.015	0.031	-0.179***	-0.004	0.011	-0.191***	-0.006	-0.002
	(0.000)	(0.412)	(0.803)	(0.639)	(0.000)	(0.365)	(0.888)	(0.000)	(0.191)	(0.978)
WWI medal	0.146***	-0.002	-0.028	-0.056	0.160***	-0.001	-0.022	0.181***	-0.001	-0.021
	(0.000)	(0.471)	(0.238)	(0.195)	(0.000)	(0.812)	(0.365)	(0.000)	(0.851)	(0.385)
1940 unemployment rate	-0.896**	0.106**	-0.615	-5.232***	-1.466**	0.091	-0.668	0.493	0.184*	-0.010
	(0.029)	(0.019)	(0.312)	(0.000)	(0.013)	(0.265)	(0.266)	(0.421)	(0.050)	(0.989)
Urban status 1930	0.308***	0.028***	0.053	0.077	0.301***	0.028***	0.051	0.272***	0.026***	0.040
	(0.000)	(0.000)	(0.389)	(0.327)	(0.000)	(0.000)	(0.434)	(0.000)	(0.000)	(0.540)
Share Democrats 1896-1928	-0.000	-0.000**	-0.002	0.006*	0.001	-0.000	-0.002	-0.001	-0.001**	-0.003
	(0.910)	(0.012)	(0.222)	(0.076)	(0.478)	(0.197)	(0.393)	(0.698)	(0.018)	(0.100)
Service command fixed effects (9)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Average dependent variable	-2.898	0.181	0.449	4.884	-2.898	0.181	0.449	-2.898	0.181	0.449
R-squared	0.365	0.481	0.035	0.440	0.360	0.483	0.037			
Observations	1,439	1,133	1,133	1,439	1,439	1,133	1,133	1,439	1,133	1,133
F-test of excluded instrument				66.7						
Rubin-Anderson test (p-value)								0.000	0.070	0.071

Table A7: Robustness: counties where more than two third of farmers are farm-owners. Cols 1-3: OLS; dependent variables are log war bond purchases in 1944 per 1940 population (Col 1) share of World War II volunteers (Col 2) and World War II military awards per 1000 soldiers (Col 3). Col 4: first stage regression; dependent variable is log AAA grants per farmer. Cols 5-7: reduced form regressions; dependent variables are log war bond sales per capita (Col 5); World War II volunteering rate (Col 6) and military awards per 1000 soldiers (Col 7). Cols 8-10: IV estimates; instrument of log AAA grants per farmer is log months of droughts between 1933 and 1939; dependent variables are log war bond sales per capita (Col 8); World War II volunteering rate (Col 9) and military awards per 1000 soldiers (Col 10). p-values based on robust standard errors (Cols 1-3) and on standard errors clustered at climatic division level (Cols 4-10) in parentheses.*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

	Log New Deal grants p.c.				Log AAA grants per farmer			
	Before		After		Before		After	
	Control	Treatment	Control	Treatment	Control	Treatment	Control	Treatment
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1917 volunteering rate	0.33	0.37	0.34	0.38	0.34	0.36	0.36	0.36
	(0.24)	(0.26)	(0.26)	(0.28)	(0.25)	(0.25)	(0.28)	(0.25)
WWI medal	0.64	0.59	0.64	0.58	0.63	0.60	0.61	0.61
	(0.48)	(0.49)	(0.48)	(0.49)	(0.48)	(0.49)	(0.49)	(0.49)
log WWII registrants	7.14	6.57	6.82	6.33	7.16	6.56	6.57	6.57
	(1.00)	(1.24)	(0.94)	(1.05)	(1.15)	(1.07)	(0.98)	(1.07)
1940 unemployment rate	0.06	0.08	0.06	0.07	0.08	0.06	0.06	0.06
	(0.04)	(0.04)	(0.03)	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)
Urban status 1930	0.59	0.52	0.61	0.52	0.55	0.56	0.57	0.57
	(0.49)	(0.50)	(0.49)	(0.50)	(0.50)	(0.50)	(0.50)	(0.50)
Share Democrats 1896-1928	55.53	42.94	55.66	42.60	49.26	49.13	49.19	49.19
	(19.82)	(14.71)	(19.81)	(14.68)	(19.27)	(17.84)	(19.40)	(17.85)
Observations	1,509	1,508			1,495	1,495		
Sum of weights			1,469	1,445			1,467	1,447

Table A8. Entropy balancing. Results show difference in covariates between above and below median welfare recipient counties before and after weighting. Variables correspond to our standard set of controls.

B. Data sources and variable constructions

World War II variables

1944 war bond purchases per capita. We source the value of 1944 war bond purchases by private individuals from the *County Data Book* of 1947 (Haines 2010). The Federal Government collected individual information of bond customers to enforce limits on the amount of bond that any individual could purchase. In all regressions, we divide the value of war bond purchases by 1940 population (King *et al.* 2010) and take the natural logarithm.

Share of World War II volunteers. We collect the universe of World War II U.S. Army soldiers digitized by the U.S. National Archives. 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 1.77 million records of officers, of National Guardsmen or of soldiers with no information on residence before enlistment. We also drop half a million soldiers who registered in the 7th Service Command, for which the National Archive series has poor coverage (most serial numbers starting with digits "37" are missing: these serial numbers were assigned in the 7th Service Command: NARA 2005). The 7th Service Command included the states of Colorado, Iowa, Kansas, Minnesota, Wyoming, Missouri, Nebraska, North Dakota and South Dakota. 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 inducted men (Army Regulation 615-30, 1942; see also Fouka 2018). We divide the number of World War II volunteers in the army by the total number of army soldiers (NARA 2002)

Number of World War II 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*. The website assembles a 15'000 pages encyclopedia on American soldiers and war medals. We focus on recipients of the Medal of Honor, the Distinguished Service Cross and the Silver Star for which the website reported the county of residence before the war. In all regressions we use the number of awards in each county divided by the total number of soldiers in the county (NARA 2002). In all regressions we multiply this variable by 1000 and winsorize the 1% tail of the distribution.

Log World War II registrants. We use the same source as the share of World War II volunteers (NARA 2002). The variable is defined as the natural logarithm of the total number of army soldiers sent by each county.

Farmer-Volunteers/Volunteers. The share of volunteers in WW2 that are also farmers. This is coded up in the exact same way for each profession. We assign occupations to soldiers using the Dictionary of Occupational Titles codes provided by the National Archives (NARA 2002).

Farmer-Draftee/Draftees. The share of draftees in WW2 that are also farmers. This is coded up in the exact same way for each profession. We assign occupations to soldiers

using the the Dictionary of Occupational Titles codes provided by the National Archives (NARA 2002).

World War I variables

Share of World War I volunteers. We source information on World War I volunteering from the 1st Report of the Provost, a document prepared by Maj. Gen. Crowder to record the operations of the World War I Selective Service System (Crowder 1918). The Selective Service Act of 1917 mandated the President to induct men uniformly across the country. Because half a million men volunteered before the law entered into force, Maj. Gen. Crowder collected county-level information on the number of men who volunteered. We use the tables printed at the end of the 1st report to construct the share of World War I volunteers over total soldiers. Our variable is equal to the "credit" divided by the "total quota." The total quota was calculated as a constant fraction of the population living in every county, while one credit was awarded to a county for every volunteer sent before the Selective Service Act.

World War I medal. We collect information on the presence of at least one recipient of World War I award from the website *Home of Heroes*. Because coverage of World War I is less extensive than for World War II we use a simple dummy indicating the presence of at least one war hero.

World War I casualty rate. We digitize the name and county of origin of every soldier listed in Haulsee *et al.* (1920). This is the most comprehensive list of U.S. soldiers who died in World War I. It includes casualties resulting from wounds received in combat, but excludes those soldiers who died in Europe after the end of conflict during the Spanish flu epidemics. We normalize the number of casualties by dividing it times the number of soldiers sent to war (Crowder 1918: variable "total quota").

New Deal

Log total grants per capita. Natural logarithm of total non-repayable grants (Fishback *et al*. 2003) divided by total population in 1930 (King *et al*. 2010).

Log Agricultural Adjustment Administration (AAA) grants per farmer. Natural logarithm of AAA grants (Fishback *et al*. 2003) divided by total number of farmers in 1930 (King *et al.* 2010).

Log other grants per capita. Natural logarithm of other grants divided by total population in 1930. Other grants are equal to total grants less AAA grants.

Weather

Log drought in 1933-39. National Climatic Data Center provides a panel of 376 climate divisions for the continental U.S. since 1900. We assign each county to a climate division and count the number of months with severe drought in each year. Severe drought is defined as having a Palmer Drought Severity Index of -3 or lower. We aggregate the total number of months with severe drought for the time span of the New Deal (1933-39) and take the natural logarithm of this number.

Other controls

Unemployment rate 1930/1940. We use the full count of the U.S. census from IPUMS (King *et al*. 2010) to compute unemployment rate in 1930 and 1940. We divide the number of unemployed by the labor force.

Average Democratic vote: 1896-1928. We take this from Fishback et al (2003). It is the mean share of votes cast in favor of the democratic party from 1896-1928 in presidential elections.

Urban county: 1930 (dummy). Dummy equal to 1 for every county with at least part of the population living in a urban population area in 1930 (King *et al*. 2010).