

THE PUBLIC AGGLOMERATION EFFECT

Urban-Rural Divisions in Government Efficiency and Political Preferences

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Abstract

This paper introduces a new explanation of the urban-rural divide in voting and its emergence in the US in the 1930s: agglomeration effects. The provision of government services should be more efficient in urban environments because of nonrivalries, economies of scale, and access costs. If the public sector in cities is more efficient, and voters face a tradeoff between taxation and government spending, urban voters should be more supportive of higher taxes and spending. When redistribution is salient, one should observe an urban-rural divide in voting. As predicted by a formal model, more-urban locations faced lower costs of providing public services and shifted towards the Democrats as the party implemented the New Deal. In addition, urban voters were more supportive of government spending. In the UK, the urban-rural divide also accompanied the rise of redistributive politics. Agglomeration effects influence preferences for redistribution and create political cleavages.

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1 INTRODUCTION

Elections in the United States, and in other democracies, often pit economically conservative rural voters against economically liberal urban voters.¹ This spatial pattern is puzzling, given that rural voters are often poorer than urban voters, and might expect to benefit materially from left-wing economic policies. In countries like the US and UK where the electoral system magnifies the influence of rural voters, this division leads to unrepresentative policy outcomes (Rodden, 2019). It has not, however, always existed. Figure 1 shows the share of the two-party vote won by the Democratic party in counties outside the former Confederacy, aggregated by counties with above- and below-average urban population shares in 1930. The urban-rural divide began, abruptly, in 1936.² Before that point, there is little evidence of systematic rural conservatism: in the 1880s and 1890s, the economically radical Populist party attracted much of its support from rural areas. This article draws on economic geography to offer a new explanation for the urban-rural divide and its emergence in the 1930s.

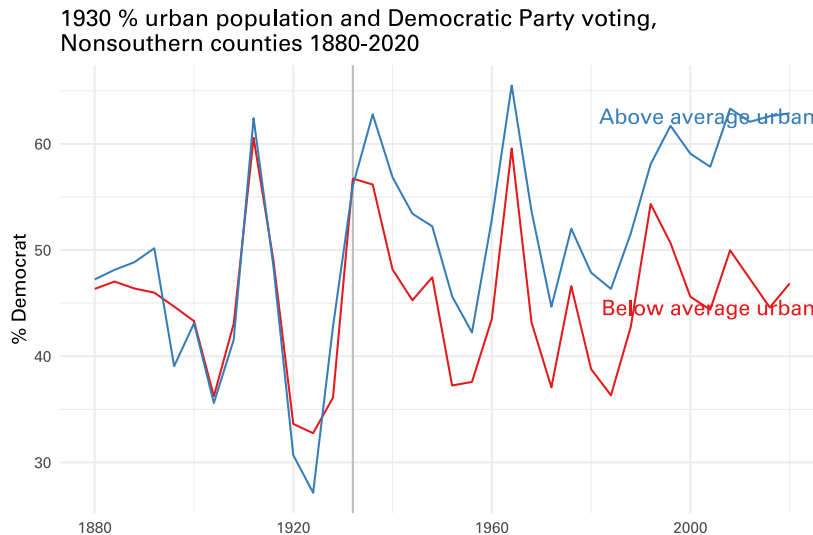


Figure 1: Emergence of the urban-rural divide after 1932

¹Rodden (2019) documents this divide in the US, Canada, Britain, and Australia, Gimpel et al. (2020) show this discrepancy in the US cannot be attributed solely to compositional differences.

²This divergence was not due to inter-regional realignments: regressing the county-level Democratic vote on the 1930 urban share interacted with year indicators, with state-by-year fixed effects uncovers a similar pattern (see Figure A-4).

An extensive literature in urban and spatial economics documents the existence of agglomeration economies, whereby productivity in a given area increases with population size and density (see for instance Ciccone and Hall 1996; Bleakley and Lin 2012 and Ahlfeldt et al. 2015). This literature argues that private-sector production is more efficient in cities because of firm-level economies of scale, better matches between firms and heterogeneous workers, inputs, and consumers, and knowledge spillovers (Duranton and Puga, 2004).

These phenomena should apply all the more so to public sector provision. Public goods that are not completely rivalrous are subject to economies of scale. Geographical remoteness makes it difficult for rural residents to access public services. Fixed costs of administration make the provision of programs more costly—on a per-person rate—in lower-population areas. In larger jurisdictions, citizens benefit from a much broader range of government-provided goods, whether in the form of medical specialists or library books. In addition, productivity-enhancing practices from the private sector may spill over not just to other firms but also to the public sector. Research in public administration finds that the provision of basic public services is more expensive in sprawling suburbs than in compact cities (Carruthers and Ulfarsson, 2003). Research in development economics finds that rural residents receive less from redistributive government programs, even when accounting for the amount disbursed to them (Olken, 2006).

If government provision is less efficient in rural areas, then the tradeoffs between taxation and spending faced by rural and urban voters are different. If the value of the marginal dollar of government spending is lower in rural areas than urban areas, rural voters should, all else equal, prefer less government spending and lower taxes. If the size of government is a major issue for electoral competition, voters in rural areas should be more likely than urban voters with similar income to support economically-conservative politicians.

The timing of the emergence of the urban-rural divide in US politics lends suggestive support for this thesis. Between 1932, when there was no urban-rural division in voting, and 1936, when the cleavage emerged, the Roosevelt administration expanded the size and reach

of the Federal Government. In the 1932 election, the Hoover campaign’s internal polling identified the key issues dividing voters as prohibition and the tariff (Norpoth, 2019). While voters rejected the incumbent Hoover administration, the election was not a referendum on the Roosevelt administration’s subsequent policies. On the campaign trail, Roosevelt prevaricated, at some points speaking of the federal government’s responsibility for the unemployed, at others calling for fiscal retrenchment (Schlesinger, 1957, 435). Elite observers found few fundamental distinctions between the parties on economic policy (Schlesinger, 1957, 434). In contrast, Roosevelt’s 1936 election victory was, in Key (1966, 33)’s judgement, “a resounding ratification of the new thrust of governmental policy” in the face of Republican promises to “return to the pre-1932 status quo.” Survey data from the era shows that economically-liberal voters shifted into the Democratic coalition in 1936 and subsequent elections (Key, 1966; Caughey, Dougal and Schickler, 2020). The emergence of the urban-rural divide was contemporaneous with the divergence of the parties on economic policy.

This article develops and tests these intuitions about agglomeration, government efficiency, preferences over government spending, and urban-rural political divisions. I analyze a simple formal model that embeds agglomeration effects into a Romer-Meltzer-Richard model of redistribution. Unlike in Meltzer and Richard (1981), the government provides valuable services, and provides these services more efficiently in areas with larger populations. This agglomeration effect causes urban voters to place more weight on government spending relative to their rural compatriots. The model thus predicts that urban voters should, all else equal, support higher levels of taxation and spending. Introducing a probabilistic voting framework produces the prediction that if the parties diverge on redistributive policy, urban voters should shift towards the more redistributive party, and rural voters towards the less redistributive one.

I test that prediction in three stages. First, the formal model suggests a difference-in-differences specification, interacting time-invariant urbanization and efficiency with the post-1932 divergence between the parties on economic policy. I use county-level data on

voting, census microdata and sub-county data on population concentration from the Census Place Project (Berkes, Karger and Nencka, 2022) to analyze the relationship between different measures of urbanization and the 1932–1936 shift in voting. I focus on the urban share of the population and a measure of population agglomeration suggested by the model. Going from the 25th to the 75th percentile of the urban share is associated with a 5 percentage point increase in the Democratic vote between 1932 and 1936 in the least restrictive specification, and a 1.5 percentage point change in the most. These results are robust to controlling for the presence of manufacturing, agriculture, ethnic minorities, and union-intensive industries. One might, however, be concerned that unobservables correlated with urbanization, or features of urbanization unrelated to government efficiency account for the post-1932 shift.

Second, I use data on pre-New Deal government spending to develop a measure of efficiency based on share of spending allocated to voter-facing services like schools, libraries, and police, relative to government overhead. I digitize records of government spending across categories in 1932 for non-Southern towns with more than 8,000 residents. This measure is positively correlated with the urban population share.³ Controlling for the urban population share, this efficiency measure is orthogonal to the economic and social variables bundled with urbanization, but correlated with the theoretically-consistent measure of agglomeration. Counties with more efficient governments shifted towards the Democrats between 1932 and 1936. This result holds when controlling for the urban population share, which provides evidence of a shift due to efficiency not attributable to other factors correlated with urbanization.

Third, I use individual-level survey data from the period to show that urban voters were more supportive of higher taxes, more government spending, and New Deal programs. This evidence supports the direct predictions of the model about an urban rural divide in policy preferences, and makes it more plausible that the voting results are due to the New Deal and preferences over the size of government.

³I also document a number of other margins on which government provision was more efficient in urban areas.

While the primary case study in this paper is the New Deal, the theory should not just apply to the Democratic-Republican divide in US elections. I examine changing voting alignments in British elections. At the turn of the twentieth century, the area and sparsity of a constituency was uncorrelated with its support for the Conservative party. The emergence of redistribution as an issue in British politics, first due to the Liberal Party's championing of a nascent welfare state in the 1900s, and then more strongly with the rise of the explicitly socialist Labour Party, precipitated an urban-rural divide. This relationship also applies to the emergence of the urban-rural divide in Canada in the 1960s.

This study makes two contributions. First it offers an explanation of the rural-urban divide in voting that is distinct from, though not incompatible with, existing explanations. In Rodden (2019)'s account, the emergence of the urban-rural divide in the US was a byproduct of concentrations of union labor in cities, itself a byproduct of the clustering of manufacturing in urban cores in this era.⁴ My empirical results are robust to controlling for manufacturing, suggesting that there were reasons for cities to shift towards the Democrats distinct from industrial unions. Furthermore, agglomeration effects explain why often-poorer voters in rural areas did not join the Democratic coalition with the same fervor as urban workers. The success of earlier rural radicals, such as the populists, suggests that rural voters were capable of mobilizing in support of government intervention in the economy. Those earlier causes were not focused around redistribution, but around monetary policy and the regulation of banks and railroads, issues not affected by local government provision.⁵

In Dasgupta and Ramirez (2020)'s account, postwar technological developments magnified the local influence of the wealthiest industrialized farmers. This study examines a slightly

⁴Ogorzalek (2018) also notes that cities may have been more supportive of the New Deal because of unemployment related to manufacturing.

⁵A related literature on rural support for the far-right in interwar Europe, especially in Germany, highlights a different set of mechanisms which are unlikely to apply to the US case. Moore (1966) argues the ability of powerful landowners to manipulate peasants accounts for this phenomenon. In Luebbert (1991)'s account, wealthier peasants sided with the far-right because socialists threatened rural hierarchies. The US lacked powerful landowning elites outside the South, and, thanks to the influence of Southern Democrats, the New-Deal era Democratic Party if anything reinforced rural hierarchies, for instance with farm policies like the Agricultural Adjustment Act that benefitted landowners over tenants.

earlier period, before the rise of agribusiness, and uses a different theory to explain different variation in voting.

This study is closely related to Cramer (2016)’s analysis of rural consciousness. Cramer argues that rural conservatism is rooted in the belief that rural areas do not receive their fair share of resources. Cramer’s interviewees argue “the government must be mishandling my hard-earned dollars, because my taxes keep going up and clearly they are not coming back to benefit people like me. So why would I want an expansion of government?” (Cramer, 2016, 240). This paper examines the theoretical and empirical foundations of that perception, and argues that, in addition to the social identity mechanism Cramer explores, a simpler mechanism based around government efficiency also accounts for the rural-urban divide. More broadly, this study contributes to scholarship in comparative politics on the formation and existence of cleavage structures (Lipset and Rokkan, 1967; Rogowski, 1989).

Second, this study introduces a new variable that explains attitudes to redistribution and the size of government. The extensive literature on this topic has considered the importance of income (Romer, 1975; Meltzer and Richard, 1981), racial divisions (Lee and Roemer, 2006), religion (Scheve and Stasavage, 2006; Huber and Stanig, 2011), and social identity (Shayo, 2009). Much of this scholarship considers how the inefficiency of redistribution—in the case of Meltzer and Richard (1981), due to labor market distortions—affects preferences for government spending. This study focuses on variation in the efficiency of public goods provision across space, and relates to Rueda and Stegmueller (2016)—which argues that local concerns about crime influence support for redistribution—in emphasizing the importance of place-based factors for individual preferences over the size of government.

This article supports Ogorzalek (2018), which analyzes coordination by mayors and members of congress to lobby for urban-focused policies in the New Deal era. This article focuses on the shift of urban voters into the Democratic coalition, and complements that book’s focus on elites. It also presents evidence of greater efficiency of government provision in cities that provides a rationale for urban support of redistributive government spending

beyond specifically urban-focused policies like slum clearance.

This article also relates to Lizzeri and Persico (2004), which offers an explanation for franchise extension. Expanding the franchise shifts electioneering from clientelism to programmatic competition. Lizzeri and Persico argue that in 19th century Britain, urbanization created new demands for public goods, especially public health infrastructure. This article focuses on a different mechanism, in which urbanization increases the efficiency of government provision. This efficiency mechanism is relevant to a broader range of government spending categories and thus can explain attitudes to redistributive government programs administered at the national level.

The rest of the paper proceeds as follows. The next section sets out the model and derives predictions about individual preferences over government spending and electoral realignments. Section 3 tests the main prediction about realignment. Section 4 presents individual-level survey evidence on the link between urbanization and support for redistribution in this period. Section 5 examines the British case. Section 6 concludes with implications for scholarship on the politics of inequality and trade.

2 MODEL

The government taxes voters at a linear rate t and allocates public spending to localities proportional to population. The pre-tax income of individual i is given by y_i , and average income is given by \bar{y} . In each locality l , the government provides public goods and services subject to the following locality-specific production function:

$$G_l = A_l g^\varphi \tag{1}$$

where g is per-capita spending, $\varphi \in (0, 1)$ is a technology parameter that captures the concavity of the production function, and A_l is location-specific productivity. Public sector

productivity is subject to an agglomeration effect:

$$A_l = \bar{A} n_l^\alpha, \alpha > 0$$

where n_l is the population of location l . I thus assume that in more populous locations, the government can provide more services per dollar of government spending. This reduced-form approach to modeling agglomeration effects follows the economic geography literature (Allen and Donaldson, 2020). There are many different theoretical and empirical microfoundations—economies of scale, nonrivalries, and spatial frictions to access—for this assumption and this functional form.

ECONOMIES OF SCALE One way in which place size should affect the efficiency of government is through economies of scale in administrative costs. More formally, suppose that in order to spend g dollars per capita on service provision, locality l must spend $c_l g$ dollars, where $c_l > 1$ includes per-unit administrative costs. The per-capita administrative cost c_l is decreasing in population: $c_l = \bar{c} n_l^{-\beta}$. If a locality receives g income per capita to spend, it can provide $g' = \frac{g n_l^\beta}{\bar{c}}$ in service spending per capita.⁶ The actual provision of services is subject to the production function $G_l = Z_l (g')^\varphi$, as in (1), where Z_l is productivity. Substituting in the identity for g' gives the following identity:

$$G_l = Z_l \left(\frac{g n_l^\beta}{\bar{c}} \right)^\varphi = Z_l (\bar{c})^{-\varphi} n_l^{\beta\varphi} g^\varphi$$

If $\alpha = \beta\varphi$ and $\bar{A} = Z_l \bar{c}^{-\varphi}$, this setup is isomorphic to the agglomerative production function above.

⁶An alternative formulation that would generate the same prediction of more efficient provision in denser areas would be if $c_l = \left(\frac{f}{n_l} + k \right)$, where f is a fixed cost that is distributed equally among population and k a variable cost. Note that for $\bar{c} = f$ and $\beta = 1$, the two cost functions are identical.

NONRIVALRIES The inherent nonrivalry of public goods may also create economies of scale. Suppose that a locality receives $n_l g$ dollars to spend on public provision, which it can spend on providing a rivalrous good and a non-rivalrous good. Citizens' preferences over the two public goods are Cobb-Douglas, $G_l = q_{l1}^\beta q_{l2}^{1-\beta}$, where q_{l1} is the number of units of the nonrivalrous good provided to a citizen, for which total production is all that matters, q_{l2} is the number of units of the rivalrous good, of which each citizen in l receives an equal share of the total produced, and β is the weight attached to nonrivalrous goods. If the municipality produces each service with the production function $q_{lj} = Z_l g_{lj}^\varphi$, and spends \bar{g}_l on the nonrivalrous good and the remainder on the other good, then citizen utility from government provision is

$$G_l = Z_l (\bar{g}_l)^\varphi \left(\frac{(n_l g - \bar{g})^\varphi}{n_l} \right)^{1-\beta}$$

Maximizing this function implies that the government spends fraction β on the nonrivalrous good, giving utility of:

$$G_l = Z_l n_l^{\beta+\varphi-1} (g^\beta (1-\beta)^{1-\beta})^\varphi$$

Thus for $\alpha = \beta + \varphi - 1$, and $\bar{A} = Z_l (\beta^\beta (1-\beta)^{1-\beta})^\varphi$ this setup is isomorphic to the agglomerative production function.

ACCESS COSTS Geographic barriers to accessing government services may also make provision more efficient in more populous areas. Suppose that a government program can only be accessed in-person, and government in a locality has amount $n_l g$ to spend to provide q_l service locations, which are produced with the following technology:

$$q_l = Z_l (n_l g)^\varphi$$

The number of service locations is an increasing function of total spending ($n_l g$). In the locality, population is uniformly distributed on the $[0, 1]$ interval, and so population density at any point is n_l . Only citizens within $\frac{k}{2}$ distance from a service location access the good,

but access is subject to congestion costs, such that if m people are close enough to access a service station, only m^ν will receive the service, where $\nu < 1$ determines how sharply these congestion costs increase with density. Accessing the service gives utility γ . The ex-ante probability of a citizen accessing the good is thus $k^\nu n_l^{\nu-1} q_l$, and the ex-ante expected utility of a citizen from government spending is

$$G_l = \gamma k^\nu Z_l (n_l)^{\varphi+\nu-1} g^\varphi$$

If $\alpha = \varphi + \nu - 1$ and $\bar{A} = \gamma k^\nu Z_l$, this setup is also isomorphic to the agglomerative production function above.

2.1 *Preferences over the Size of Government*

Individual utility is linear and additive in government services and post-tax income: $u_{il} = G_l + (1-t)y_i$. As spending is proportional to population, per-capita spending in each location is average income \bar{y} multiplied by the tax rate t . Substituting in these various identities gives the following expression for utility as a function of pre-tax income, taxation, and agglomeration:

$$u_{il} = \bar{A} n_l^\alpha (t\bar{y})^\varphi + (1-t)y_i$$

The term on the left is increasing in t —a higher tax rate means more government revenue and more public services—and the term on the right is decreasing in t , as a higher tax rate means less post-tax income. A voter's preferred tax rate depends on this tradeoff between private and public benefits. As this expression is concave in t , taking first order conditions gives individual i 's optimal tax rate (if less than one) and level of government spending:

$$t_{il}^* = \left(\frac{\bar{A} n_l^\alpha \bar{y}^\varphi}{y_i} \right)^{\frac{1}{1-\varphi}}, \quad g_{il}^* = \left(\frac{\bar{A} n_l^\alpha \bar{y}}{y_i} \right)^{\frac{1}{1-\varphi}} \quad (2)$$

Individuals favor more government when they are poorer relative to the average ($\frac{\bar{y}}{y_i}$ is large), and when they are in more populous locations (n_l is large).

These results suggest an urban-rural division in preferences over taxation policy. I embed these preferences in a probabilistic voting framework (Lindbeck and Weibull, 1987), to derive predictions about rural-urban voting patterns as a function of whether the parties are divided over redistributive policy.

There are two parties, L and R , which propose tax rates, with $t^L \geq t^R$. Individual i in location l chooses which party to vote for based in part on the difference in her utility under the two parties' policies, and in part on a preferences shock for party L of the form $\psi_l - \varepsilon_i$. The term ψ_l captures place-specific factors that influence her preference for one party, and ε_i captures idiosyncratic deviations from the location mean, which are drawn identically and independently across individuals from a distribution with CDF F . As i votes for party L if her utility inclusive of the preference shock is larger under t^L than t^R , the probability of her voting for L is

$$\begin{aligned} s_{il} &= P(\varepsilon_i < \bar{A}n_l^\alpha ((t^L \bar{y})^\varphi - (t^R \bar{y})^\varphi) - (t^L - t^R) y_i + \psi_l) \\ &= F(\bar{A}n_l^\alpha ((t^L \bar{y})^\varphi - (t^R \bar{y})^\varphi) - (t^L - t^R) y_i + \psi_l) \end{aligned} \quad (3)$$

This expression implies that, if $t^L > t^R$, holding all else constant, residents of more populous locations are more likely to vote for the high-tax party, and that higher-income individuals are less likely to vote for the high-tax party.⁷ This pair of results echoes Gelman et al. (2010)'s finding that while poorer, more rural states tend to vote Republican and richer states Democratic, within both types richer voters are more likely than poorer voters to vote Republican.⁸ Furthermore, increasing $t^L - t^R$ will increase the divergence in voting between

⁷While I simply assume that parties allocate spending to locations equally, it is clear that, all else equal, voters in more populous locations will be more likely to support the party that promises to spend more in that location.

⁸That wealthier residents of Blue states tend to live in more urban environments, like Manhattan, than their peers in Red states rationalizes Gelman et al. (2010)'s other result of a steeper gradient between income and voting Republican in Red states.

urban and rural locations, as well as between high- and low-income individuals.

The model predicts that when the parties are divided on issues of redistribution, urban voters should, all else equal, support the pro-redistribution party. The reason for this divergence is that government provision is more efficient in cities. Because government provision is more efficient there, urban voters support higher rates of taxation and government spending. The remainder of the paper tests these predictions.

3 EXAMINING THE EFFECTS OF AGGLOMERATION ON THE 1932–1936 REALIGNMENT

I use the divergence of the parties on redistributive policy between 1932 and 1936 to test the prediction of Equation (3). Assuming that ε_i follows a Uniform distribution over the interval $[-\frac{1}{2\theta}, \frac{1}{2\theta}]$, and aggregating Equation (3) at the county level gives the following expression for the county-level vote for the higher-tax party:

$$s_c = \underbrace{\theta \left((t^L \bar{y})^\varphi - (t^R \bar{y})^\varphi \right)}_{\text{Effect of efficiency}} A_c - \underbrace{\theta (t^L - t^R)}_{\text{Effect of income}} y_c + \underbrace{\theta \psi_c + \frac{1}{2}}_{\text{County Effect}} \quad (4)$$

where s_c is vote-share for the left-wing party in county c , y_c is average income in county c , ψ_c is the population-weighted average of place-specific biases ψ_l , and A_c is population-weighted average productivity:

$$A_c = \frac{\sum_{l \in c} n_l (\bar{A} n_l^\alpha)}{\sum_{l \in c} n_l} = \bar{A} (n^\alpha)_c \quad (5)$$

Estimating (4) is complicated by the concern that county-specific biases ψ_c might be correlated with factors influencing efficiency A_c .

The sharp divergence on redistributive policy between 1932 and 1936 provides a way to address that concern. While the positions of the parties shifted substantially, one would expect non-economic biases in favor of a given party to change little over short periods. If productivity A_c is stable in the short-run, then differencing (4) over two periods gives the

following expression:

$$\Delta s_c = \underbrace{\theta \Delta \Phi}_{\text{Agglomeration}} A_c - \underbrace{\theta (\Delta t^L - \Delta t^R)}_{\text{Initial income}} y_{c1} - \underbrace{\theta (t_2^L - t_2^R)}_{\text{Changes in income}} \Delta y_c + \underbrace{\theta \Delta \psi_c}_{\text{Changes in bias}} \quad (6)$$

where Δ is a differencing operator: $\Delta x = x_2 - x_1$, and $\Delta \Phi$ represents the divergence in government provision:

$$\Delta \Phi = ((t_2^L \bar{y}_2)^\varphi - (t_1^L \bar{y}_1)^\varphi) - ((t_2^R \bar{y}_2)^\varphi - (t_1^R \bar{y}_1)^\varphi)$$

One would expect $\Delta \Phi$ to be positive when comparing 1932 to 1936, as in 1932 t^R and t^L were close to one another, and by 1936 t^L was considerably larger than t^R .

3.1 Estimating Equation and Data

If efficiency in government provision affects voting then places subject to greater efficiency should shift towards the Democrats between 1932 and 1936, which suggests the following estimating equation:

$$\Delta \% Democrat_c = \beta Efficiency_c + \mathbf{x}'_c \gamma + \delta_{s(c)} + \varepsilon_c$$

where $\Delta \% Democrat_c$ is the change in the Democrats' share of the two-party vote in county c between 1932 and 1936, \mathbf{x}_c is a vector of controls, $\delta_{s(c)}$ is a state fixed effect, which given the differenced specification is equivalent to a state-by-year fixed effect, ε_c is an error term, and $Efficiency_c$ is a measure of agglomeration-related efficiency, discussed below. I restrict the analysis, except where specified, to counties outside the former Confederacy, because I would not expect to observe much variation in voting in the South given the extremely restrictive franchise and lack of partisan competition in this period. I estimate these models by OLS with standard errors clustered at the state level to account for spatial autocorrelation. I use data on voting from Clubb, Flanigan and Zingale (2006).

I focus initially on two measures of agglomeration-related efficiency. First, I use the urban share of the population, measured using the 1930 census microdata (Ruggles et al., 2021). The census classified those living in places with more than 2,500 residents as urban. This metric should not capture all the effects of place size and population density on public sector efficiency and thus on voter preferences. It is however important to establish that the divergence shown in Figure 1 was an urban-rural realignment.

Second, I calculate the empirical analogue of Equation (5), the population-weighted average of sub-county place populations raised to the agglomeration elasticity α , which I set at 0.078 using an estimate based on the cost of police and fire services from Appendix A. I use place-specific populations in 1930 from the Census Place Project (Berkes, Karger and Nencka, 2022), which uses the information on locations recorded in the census microdata to estimate sub-county geography. I refer to this variable as agglomeration and winsorize it at the 2.5th and 97.5th percentiles to ensure that my results are not driven by outliers. Note that regressions of the change in voting between 1932 and 1936 on this measure are almost exact empirical analogues of Equation (6).

My baseline set of controls are the shares employed in agriculture and in manufacturing, the white and foreign-born shares of the population, measured in the 1930 census microdata, and union potential, which I calculate following Collins and Niemesh (2019) by interacting unionization rates at the industry level in 1939 from Troy (1957) with industry shares in the 1930 census microdata. While there is no county-level data on union membership, union potential should capture exposure to unionization based on the industry mix. To address the concern that voters in high-efficiency counties differed in levels or changes of income, in an additional robustness check I also control for levels and changes in retail sales per capita and bank deposits per capita using data from Fishback, Horrace and Kantor (2005) and the FDIC (Manson et al., 2020), respectively. In another robustness check related to unionization I control for the number of locals of and strikes by the Industrial Workers of the World relative to population. In other robustness checks I control for farms and farm output per capita from

the Census of Agriculture, and share of the population unemployed in 1930 and the illiteracy rate among those over the age of 10, from the Census of Population (Manson et al., 2020).

3.2 Results for Voting

Table 1 shows the results of regressions of the change in voting Democrat after 1932 on these measures of urbanization. Model (1) shows the relationship between the 1930 urban share and the change in votes, and suggests that a 1 percentage point increase in the urbanized share was associated with around a 0.1 percentage point increase in the Democrats’ share of the two-party vote. Model (2) adds baseline controls for the economic and ethnic composition of counties. With these controls the coefficient on urbanization is around a quarter of the size, but still positive and significant, suggesting that there was an effect of urbanization on voting after 1932 distinct from the effects of agriculture, manufacturing, immigration, or race. The interquartile range of urbanization is around 44 percentage points, the effect on the 1932–1936 realignment of going from the 25th to the 75th percentile is thus around 5 percentage points in the base specification and 1.5 percentage points with controls. Models (3) and (4) show similar effects for the theoretically-consistent agglomeration metric.

3.3 Threats to Identification

The differenced specification should account for time-invariant non-economic factors that might influence voting. There are two key threats to identification. First, as in a standard difference-in-differences design, there is a concern that locations with higher rates of efficiency would have followed different trajectories to low-efficiency locations even in the absence of the parties’ divergence. I address this concern with standard difference-in-differences checks, verifying that high-efficiency locations were not following differential trends up until 1932, in Figure A-6.

Second, other variables correlated with efficiency might influence the change in voting between 1932 and 1936. These factors could either relate to modeled levels or changes in

	$\Delta\%$ Democrat 1932–1936			
	(1)	(2)	(3)	(4)
% urban	0.112*** (0.008)	0.035*** (0.011)		
agglomeration			0.183*** (0.014)	0.064*** (0.019)
Controls		x		x
DV mean	-0.011	-0.011	-0.011	-0.011
R^2	0.529	0.582	0.531	0.581
N	1761	1761	1754	1754

This table shows the results of regressions of the county-level change in the Democrats' share of the two-party vote between 1932 and 1936 against the urban share of the population in 1930, and agglomeration, calculated as the population-weighted average of place size raised to the power $\alpha = 0.078$. All models include state fixed effects. Even-numbered models also control for the shares employed in agriculture and manufacturing, the white and immigrant shares of the population, and union potential. Standard errors clustered by state in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table 1: Effects of urbanization on realignment towards the Democrats after 1932

income (the second and third terms in Equation 6) or to un-modeled changes in voters' noneconomic preference for the Democratic party (the fourth term in 6). The most pressing concern is that other factors correlated with urbanization interacted with the New Deal policy divergence to influence voting for the Democrats. The main alternative explanations are the realignments of urban Black and immigrant voters into the Democratic party, and the embrace of the Democrats by labor unions, the membership of which tended to be urban. These explanations are broadly consistent with the theoretical model. Urban minority voters and unionists may have shifted Democrat precisely because, due to their location, they stood to benefit most from the redistributive state. Yet it is still a concern that factors unrelated to agglomeration accounted for these specific realignments.

The timing of the rural-urban split between 1932 and 1936 is somewhat inconsistent with explanations based around race, immigrants, or unions. Schickler (2016) argues that it was only in the late 1930s that racial equality became a goal of the New Deal and that African Americans only became disproportionately supportive of the Democrats with the party's

embrace of civil rights in the late 1940s. Furthermore, the 1932–1936 realignment predates the second Great Migration; the northern Black population was at the time relatively small and unlikely to totally account for the emerging urban-rural divide. Analyses of the entry of various “white ethnic” immigrant groups into the Democratic party generally focus on the critical election of 1928, when the party nominated the Irish Catholic Al Smith, instead of 1936 (Key, 1955). Thus even if immigrants continued to shift into the Democratic party between 1932 and 1936, the absence of differential trends in voting by high-agglomeration locations would constitute evidence against an immigrant realignment driving the result. The 1936 election occurred just as the mid-20th century surge in union membership was beginning (see Figure A-5). An alternative mechanism in which unions mobilized urban workers into the Democratic Party would predict a much more gradual emergence of the urban-rural divide over the 1940s and 1950s than that shown in Figure 1.

Controlling for the shares employed in manufacturing and agriculture, the white and immigrant shares of the population, and union potential provides evidence against simple explanations for Figure 1 in which, for instance, the presence of manufacturing entirely explains the emergent urban-rural divide.⁹ Examining the dynamic effects of these controls on voting, in the same event-study specification used to study the dynamic effects of the urban share, provides further evidence against that idea. Figure A-7 shows the coefficients from all these variables interacted with year indicators, controlling for the other variables interacted with year indicators and for county and state-by-year fixed effects. The control variables are all correlated with differential trends in voting prior to 1932, and do not show an obvious 1932–1936 divergence. Indeed, these differential trends fit with what one would expect given the literature, for instance, the relationship between the immigrant share of the population and voting shifts noticeably in 1928. It seems these factors influenced voting through long-run shifts and not through specific alternative mechanisms interacting with the

⁹Table A-5 shows these results are also robust to controlling for various proxies for income in 1932, the change in income between 1932 and 1936, and union density, as well as for other measures of agriculture and economic development, and for the change in voting between 1928 and 1932.

policies implemented by the first FDR administration.

3.4 *Direct Effects of Efficiency*

While these results show that more urban areas shifted towards the Democrats after 1932, they do not necessarily show that government efficiency was a driver of this shift. In addition, though the addition of controls suggests that residual variation in urbanization not due to industry or ethnic mix accounts for some of the shift, one might still be concerned that other correlates of urbanization account for that result. I address both concerns by developing a measure of efficiency from government spending across categories, and studying its effects on voting.

The *Financial Statistics of State and Local Government: 1932* provide information on county and sub-county spending on a host of different categories. Derenoncourt (2022) digitized the county records for non-Southern states. I digitize the records for non-Southern towns with more than 8,000 residents, and the county records for West Virginia. I classify spending on policing and firefighting, public health, charity and poor relief, education, libraries, recreation, and development as spending on goods received by citizens, g , and add general government expenses and miscellaneous expenses to compute total government spending $c_t g$.¹⁰ Taking the ratio of these two gives a measure of government efficiency $1/c_t$, the share of spending going on services that directly benefit voters. I winsorize this variable and refer to it as the government provision share. This is a narrow measure of government efficiency, specifically relating to administrative costs in local government, and should not capture all forms of government efficiency.

The town-level data shows clear evidence of agglomeration economies. Figure 2 documents a positive linear relationship between the log of town population and the log government provision share, as predicted by the expression $\frac{1}{c_t} = \frac{n_t^\beta}{\epsilon}$. Estimating this relationship by OLS suggests $\beta = 0.05$ (Table A-1). The positive association between population and administrative

¹⁰The one other category is highway maintenance, which I use in Appendix A.

costs is robust to the addition of state fixed effects.

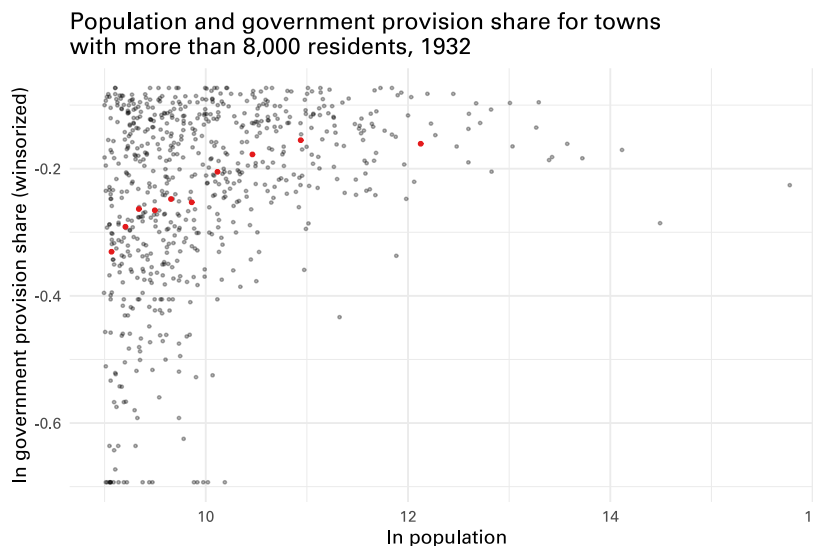


Figure 2: In larger towns, a larger share of government spending went on voter-facing services relative to administrative expenses

This figure shows the relationship between town population and government provision share, for non-Southern towns with more than 8,000 residents in 1932 reporting government spending by category

I study the effects of the government provision share on the 1932–1936 change in the Democrat vote, with and without controls for urbanization. These models both directly test the effects of one measure of efficiency on the realignment, and—in the models controlling for urbanization—make it more plausible that this effect is not simply due to factors bundled with urbanization. The logic of the latter approach is that the residual from regressing the government provision share on the urban share should be correlated with more theoretically-motivated forms of agglomeration and should still affect changes in voting over the 1932–1936 period through the efficiency mechanism. It should not however be correlated with variables that are bundled with urbanization. Figure 3 shows point estimates and 95% confidence intervals from regressions of outcome variables against the government provision share, with and without controls for the urban share. This efficiency metric is strongly correlated with the urban share and with variables correlated with urbanization in this period, such as manufacturing, agriculture, and immigrants. However, controlling for the urban share, the government provision share is orthogonal to these variables. This exercise raises confidence

that a regression of changes in voting on the government provision share, controlling for the urban share, should not pick up the effects of unobservables correlated with urbanization. Controlling for the urban share, the government provision share is still correlated with the agglomeration metric and log population density, suggesting that the residual variation is due in part to more theoretically-consistent forms of agglomeration than the urban population share. Figure A-9 shows the spatial distribution of the government provision share, with and without controls for urbanization.

Table 2 shows the effects of the government provision share on voting. Model (1) does not include controls, and suggests that a percentage point increase in the government provision share is associated with a 0.2 percentage point increase in the Democratic vote. Including the standard controls from Table 1 results in a somewhat smaller but statistically significant coefficient in (2). These results suggest that this metric of efficiency, which is correlated with urbanization, was also correlated with voting. Models (3) and (4) also control for urbanization. Doing so results in very similar point estimates.¹¹ In Models (3) and (4), the coefficient on % urban is positive and similar to the estimated coefficients in Table 1. This result is to be expected given that the government provision metric only picks up a specific form of efficiency correlated with urbanization, and one would expect there to be many other ways that urbanization affects efficiency and thus voting.

Figure 4 shows the relationship between the government provision share and voting over time, given county and state-by-year fixed effects and the controls from model (4) interacted with year indicators. The effect of this measure of efficiency in 1932 persists into the 1950s, and there is not clear evidence of high-efficiency locations following differential trends prior to the 1932–1936 realignment. The one exception is the 1912 election, for which the dependent variable excludes support for Theodore Roosevelt’s Progressive candidacy, and compares the economically-conservative Republican Taft against the more progressive Wilson. This particular comparison arguably captures the starkest left-right division on economic issues

¹¹These results are also robust to controlling for a range of other covariates (Table A-6), and to not winsorizing the government provision share (Table A-7).

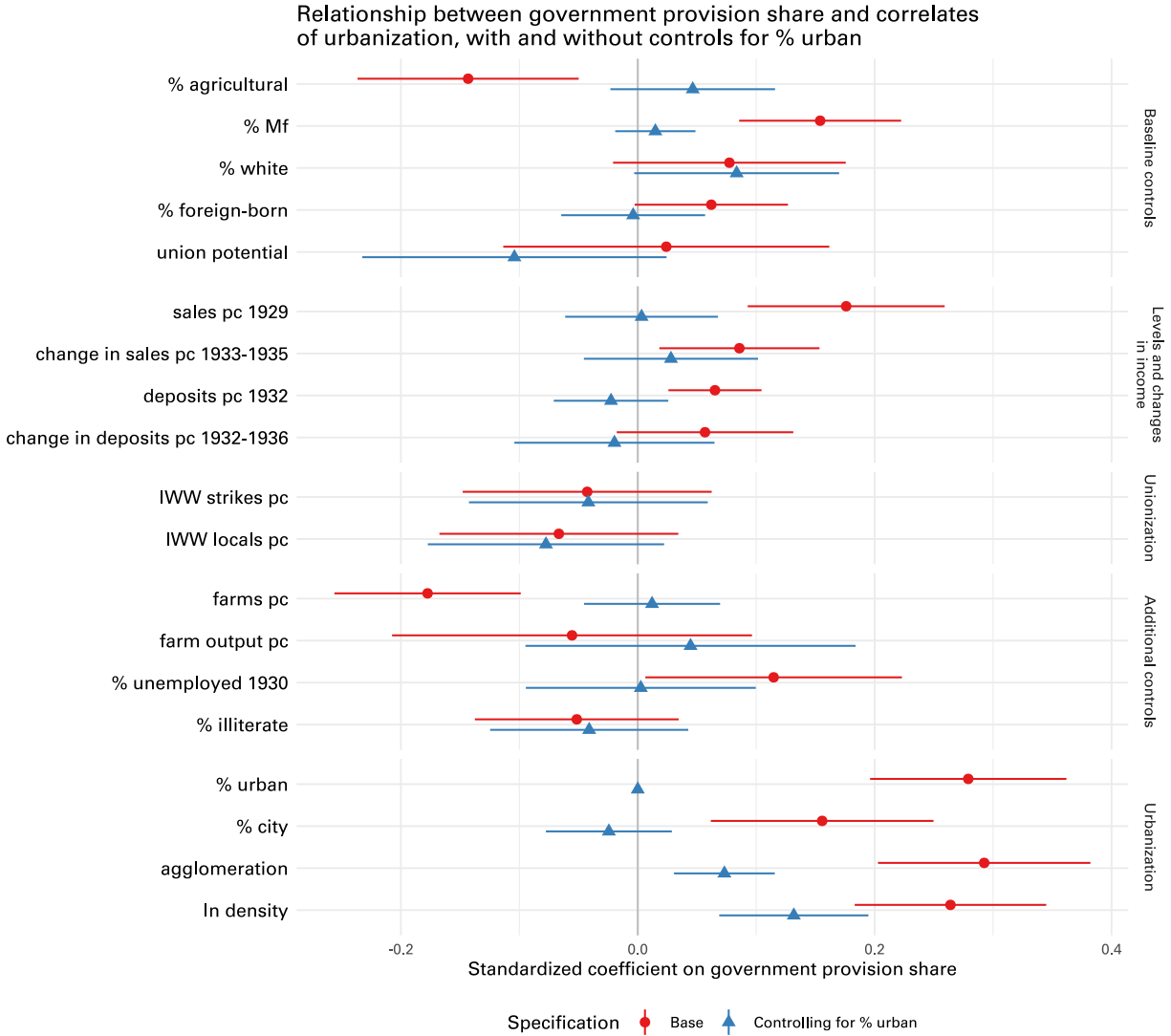


Figure 3: Controlling for % urban, the government provision share is uncorrelated with factors associated with urbanization and the New Deal realignment, but correlated with model-suggested measures of agglomeration

This figure shows coefficients and 95% confidence intervals from regressions on the government provision share. The independent and dependent variables are standardized. Red circles are from models controlling for state fixed effects, blue triangles control for % urban as well.

prior to the New Deal.

Appendix A provides evidence for a number of other ways in which agglomeration was associated with more efficient government. Larger towns and more urban counties spent a smaller share of their pre-New Deal budgets on highway maintenance, a semi-rivalrous public good subject to clear economies of scale (Tables A-1 and A-2, Figure A-1). Such places

	$\Delta\%$ Democrat 1932–1936			
	(1)	(2)	(3)	(4)
government provision share	0.199*** (0.036)	0.119*** (0.040)	0.076** (0.032)	0.104** (0.039)
% urban			0.110*** (0.008)	0.033*** (0.010)
Controls		x		x
DV mean	-0.011	-0.011	-0.011	-0.011
R^2	0.426	0.581	0.531	0.585
N	1756	1754	1754	1754

This table shows the results of regressions of the county-level change in the Democrats' share of the two-party vote between 1932 and 1936 against the government provision share, calculated as total spending on government provision exclusive of central administrative costs divided by total spending inclusive of administrative costs. All models include state fixed effects. Even-numbered models also control for the shares employed in agriculture and manufacturing, the white and immigrant shares of the population, and union potential. Standard errors clustered by state in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table 2: Effects of public sector efficiency on realignment towards the Democrats after 1932

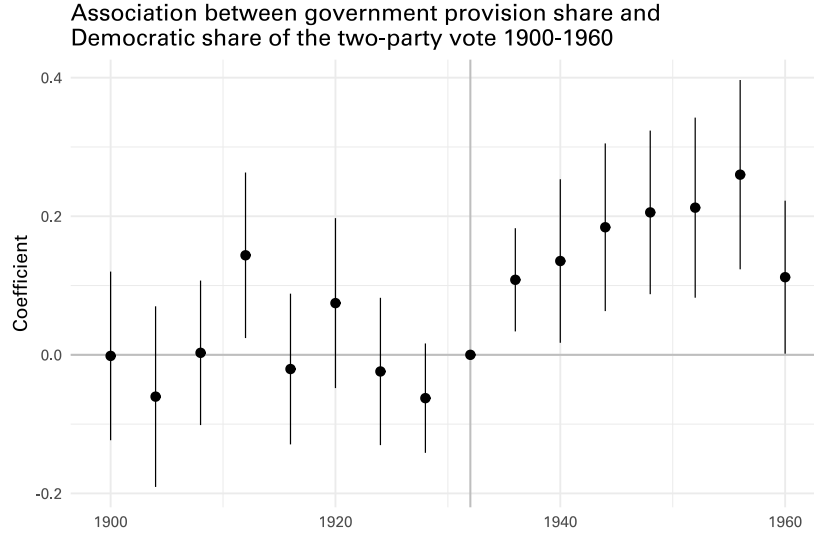


Figure 4: The government provision share is associated with shifts towards the Democrats after 1932, but not before

This figure shows point estimates and 95% confidence intervals from a regression of the Democrats' share of the two-party vote on the government provision share interacted with year indicators, controlling for county and state-by-year fixed effects and controls from Table 2 model (4) interacted with year indicators.

experienced greater provision, as measured by police and firefighting employment per capita, relative to spending on those services. These two efficiency measures were also associated

with the shift towards the Democrats post-1932 (Table A-8). The implementation of the New Deal was also more efficient in more urban environments. The share of those eligible enrolled in Social Security in 1940, and the probability that a town contained non-zero employment in New Deal Emergency Work schemes, increased sharply with town size (Figure A-2). The relationship between town size and the rate of participation in Emergency Work schemes followed an inverse u-shaped relationship, consistent with the presence of spatial barriers to access and local congestion costs. The cost of administering the Social Security Employment Service, as measured by the ratio of administrative expenses to unemployment compensation actually paid, was lower in more urban states (Figure A-3).

4 INDIVIDUAL-LEVEL EVIDENCE FOR THE NEW DEAL REALIGNMENT

I use polling data from 1936 to 1938 to test the individual-level predictions of the model, and probe whether that model can explain the 1932–1936 realignment. These polls were conducted by George Gallup’s American Institute of Public Opinion through a quota-controlled sampling method that explicitly underweighted non-voters. I use the survey weights developed by Berinsky et al. (2011) to approximate the overall US population average.

The direct prediction from Equation (2) is that voters in more rural locations should prefer less government spending and a lower tax rate. I therefore examine questions about whether voters want the government to increase or decrease spending, and make use of a question from a 1937 survey which asked respondents to specify how much income tax a hypothetical man with a given income ought to pay. Figure 5 shows coefficients and confidence intervals from regressions of agreement with survey questions on urban status, with and without controls for race, gender, occupation, and region (Table A-9 presents the same results). Consistent with the theory, urban voters were more supportive of government spending and preferred higher tax rates.

Urban support for higher taxes and spending was accompanied by closer political alignment with the New Deal and Roosevelt’s policies. Establishing that urban voters did not just shift

towards the Democrats, but also supported Roosevelt's policies helps link the theoretical model to the results on agglomeration and voting. The most informative question on this topic is one that asked respondents whether they would prefer a New Dealer or Conservative Democrat if Roosevelt did not run for President in 1940. A vote for Roosevelt in 1936 was not necessarily an endorsement of the New Deal, but the result that urban respondents identified more with the New Deal wing of the Democrats suggests the 1932–1936 shift in urban-rural voting was at least in part related to these policies. Questions on liberal and conservative policies give a similar impression. It is important to note that despite the apparent urban-rural division in support for liberal policies and a proposed liberal party, there is no relationship between rural and urban status and identification as a liberal or conservative, suggesting that policy preferences and not perhaps slower-changing political identity accounts for the emerging urban-rural divide.

Last, I examine support for specific New Deal policies. The theory suggests that urban respondents' support for spending should be concentrated on policies that have to be implemented on the ground, for which the greater efficiency of government in higher-agglomeration locations is important. Consistent with that intuition, rural respondents were less supportive of unemployment relief, which mainly took the form of job creation on public works projects, and the Tennessee Valley Authority. One would not expect to observe differences between urban and rural voters' attitudes to policies without a place-based component. I find no difference between urban and rural respondents in support for old age pensions and farm benefits, and find that rural respondents, perhaps unsurprisingly, were more supportive of the Agricultural Adjustment Act, which paid farmers to reduce crop production. These results suggest that it was not differences in attitudes to government spending and redistribution in some abstract sense that account for the realignment. An interesting exception concerns support for Social Security, which was more concentrated among urban respondents, even when controlling for occupation. The 1935 Social Security Act included provisions for the unemployed, dependent children, the blind, and public health, as well as for the elderly.

Enrollment in Social Security was considerably higher in more urban areas, even accounting for the program's exclusion of agricultural workers (Figure A-2), suggesting that rural people faced barriers to accessing the program.

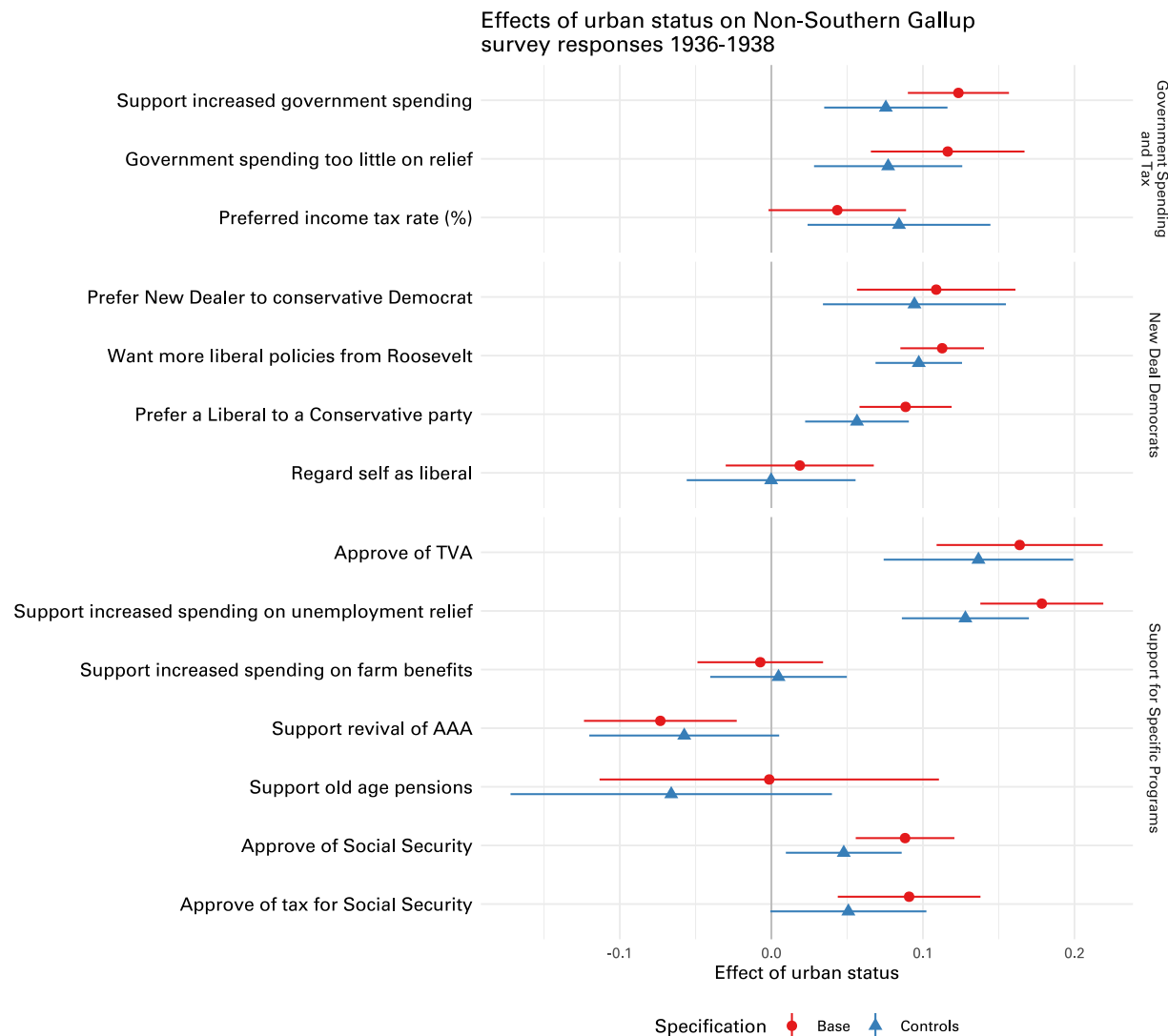


Figure 5: Urban survey respondents were more supportive of the New Deal
 This figure shows coefficients and 95% confidence intervals from individual-level regressions of agreement with the survey question (coded 0–1) against urban status. Blue triangles control for race, gender, and occupation.

While the analysis thus far has focused entirely on the US, the theory is not specific to that case. I examine the evolution of the rural-urban divide in voting in the UK over the late-19th and early-20th centuries. I assemble a constituency-level dataset using electoral data from Eggers and Spirling (2014) and microdata from the 1911 Census of England and Wales (Schürer and Higgs, 2014), which I link to a parish-level GIS from the Great Britain Historical GIS and then spatially merge to 1885–1910 and 1918–1935 constituencies. I use the census data to calculate the shares of the population employed in agriculture, working class occupations, and mining and manufacturing, which had high rates of unionization.

The emergence of redistribution as the dominant issue in politics was more gradual in the UK than in the US. In 1906, the Liberal Party—which had previously been committed to classical liberalism—won a landslide election and formed a government that implemented a series of social welfare programs such as old age pensions and workers’ compensation. If redistribution influenced the urban-rural divide, one would expect urban areas to shift towards the Liberals and away from the Conservatives in 1906. In the 1920s, the Labour Party, which was explicitly committed to redistribution, replaced the Liberals as the dominant party of the left. In 1918, the Conservative and Liberal parties, though internally-divided, campaigned to maintain the First World War coalition headed by the Liberal leader Lloyd George. This coalition was relatively centrist on economic issues and argued for welfarist reforms. In 1922 the Conservative Party withdrew from the coalition and won the resulting election on a manifesto promising fiscal retrenchment.

Table 3 examines the emergence of the urban-rural divide in the UK in these two instances. In models (1) and (2) the dependent variable is the change in the Conservative vote in constituencies in England and Wales, which picks up the main left-right divide, between 1900 and 1906, in (3) and (4) the change between 1918 and 1922. In both cases, a widening division between the parties on redistribution was associated with a shift towards the

	1900–1906		1918–1922	
	(1)	(2)	(3)	(4)
ln area	1.073*** (0.220)	1.027** (0.438)	1.502*** (0.480)	1.813* (0.989)
Controls		x		x
DV mean	-11.66	-11.66	0.248	0.248
R^2	0.054	0.096	0.024	0.054
N	292	292	414	414

This table shows the results of constituency-level regressions of the change in the Conservative vote share between 1900 and 1906 and between 1918 and 1922 on the log of constituency area. Models (2) and (4) also control for the share employed in agriculture, the share employed in manufacturing and mining, and the share in working class occupations. Robust standard errors in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table 3: Effects of constituency area on shifts in Conservative voting in the UK

Conservatives by geographically-larger constituencies. As constituencies were apportioned to have similar populations, log constituency area essentially captures the log inverse of density, comparing compact urban constituencies to sparse rural ones. These associations hold up to controlling for agriculture, working class occupations, and sectors of the economy with high rates of union activity, suggesting that part of the contribution was by urbanization and not factors that simply happened to be correlated with urbanization. Figure 6 shows coefficients from a regression the Conservative vote against log area interacted with year indicators, with and without the other controls interacted with year indicators. The association between density and left-wing voting only emerged in the 1920s with the rise of Labour; if anything, in the 1890s the Conservatives performed better in denser areas.

Canada offers another case of the urban-rural divide accompanying welfare state expansion. Armstrong, Lucas and Taylor (2022) document that the familiar urban-rural divide, in which rural areas vote conservative, emerged in Canada in the 1960s. This was a period in which the center-left Liberal Party moved left in response to electoral threat from the New Democratic Party, and set up a number of new welfare programs, including a single-payer health system (Johnston, 2013).

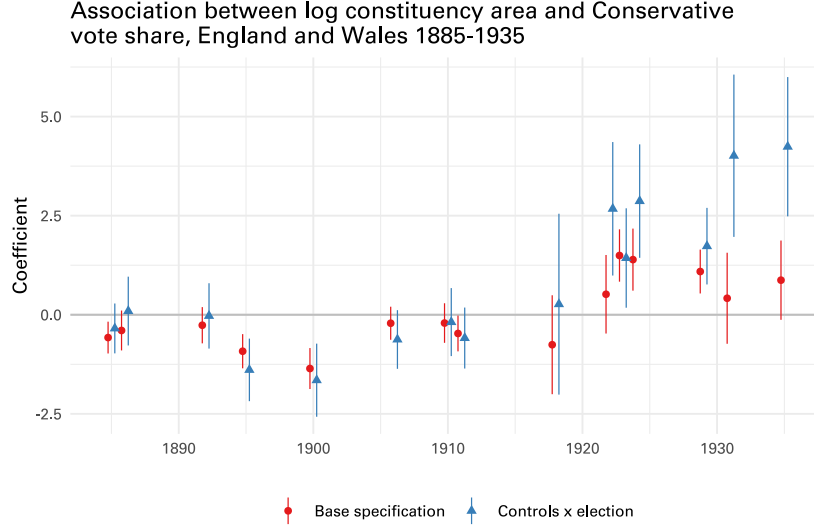


Figure 6: Negative association between log constituency area and voting for the Conservative Party in the UK with the rise of the welfare state and Labour

This figure shows coefficients and 95% confidence intervals from a regression of Conservative vote share on log constituency area interacted with election indicators. Red circles include election fixed effects, blue triangles add controls for employment in agriculture, manufacturing and mining, and working class occupations interacted with election indicators.

6 CONCLUSION

This paper introduces a new mechanism for preferences over redistribution and a new explanation for the urban-rural divide. Greater efficiency in government provision in more populous towns makes residents of those towns willing to accept higher taxes in return for more government spending. When redistribution became a salient issue dividing Republicans and Democrats between 1932 and 1936, more urban areas, and areas with more efficient local governments, shifted towards the Democrats, even when adjusting for the effects of other factors such as the presence of agriculture, manufacturing, union-intensive industries, and ethnic minorities. This result is corroborated by individual-level survey data, which suggests that urban voters in this period were more supportive of government expansion and the New Deal. There is also suggestive evidence that a similar mechanism can explain the emergence of urban-rural divides in voting in other cases.

These results suggest a model of cleavage formation. As in Rogowski (1989)'s account,

political alignments emerge from the sharp distributional consequences of government policies.¹² Once it became possible for states to tax and redistribute, the extent to which states did redistribute had large consequences for all voters that influenced how they voted. This article draws attention to the importance of spatial variation in government efficiency for voters' preferences with respect to redistribution. It thus provides an explanation for why political conflict plays out not just between classes, industries, ethnicities, and other interest groups, but also across space (Gimpel et al., 2020). The spatial distribution of the efficiency of different policy instruments, as well as that of interest groups, should influence the kinds of spatial divisions that emerge.

This analysis has implications for the literatures on redistribution and trade. Public agglomeration effects suggest an explanation for rising economic inequality. Whether local population change increases or decreases support for redistribution depends on whether it affects voters' incomes more than the efficiency of government provision. The spatial economics literature has tended to find weaker agglomeration effects in predominantly rural sectors like agriculture than in urban sectors like services (Kline and Moretti, 2014; Glaeser and Gottlieb, 2009). Thus as rural areas depopulate, one would expect them to shift right as public agglomeration effects dominate private ones. With respect to the politics of trade, scholarship following Ruggie (1982) links support for openness to the commitment of states to compensate those harmed by globalization. That it is harder for states to compensate rural voters suggests a reason why states tend to protect the agricultural sector (Davis, 2004), and why the response of areas harmed economically by trade with China has been to support protectionist rather than welfarist policies (Autor et al., 2020). It may be more efficient for governments to help rural voters with protectionism rather than compensation. This paper introduces the idea that agglomeration effects in public service provision matter for politics. Enumerating the ways they matter, and exploring the other interactions between policy instruments and space, will require many more papers.

¹²It thus differs from scholarship following Lipset and Rokkan (1967) that views political cleavages as emerging out of pre-existing social divisions.

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A ADDITIONAL EVIDENCE OF AGGLOMERATION EFFECTS IN GOVERNMENT PROVISION

This section presents additional evidence of the relationship between agglomeration and the efficiency of government provision before and during the New Deal. Counties with higher levels of agglomeration had more efficient local governments prior to the New Deal, a factor that is important given that many New Deal programs were in part implemented through

local governments (Fetter, 2017). The provision of the New Deal was also less efficient in smaller localities.

In addition to the central administrative cost metric used in Section 3, I use the *Financial Statistics of State and Local Government* to study two other ways agglomeration affects government efficiency. First, I examine the share of the government budget going on highway maintenance. This outcome should pick up agglomeration effects related to access costs and nonrivalry. One would expect that in all locations the government spent money to provide the basic service of connecting residents to one another. Population sparsity should make doing so costly, in part because the number of people using each stretch of road would be fairly low. Figure A-1 shows the strong negative relationship at the town-level between population and the share of the operations budget going on highway maintenance. Columns (3) and (4) of Table A-1 show that larger towns spent a smaller share of their budgets on highway maintenance.

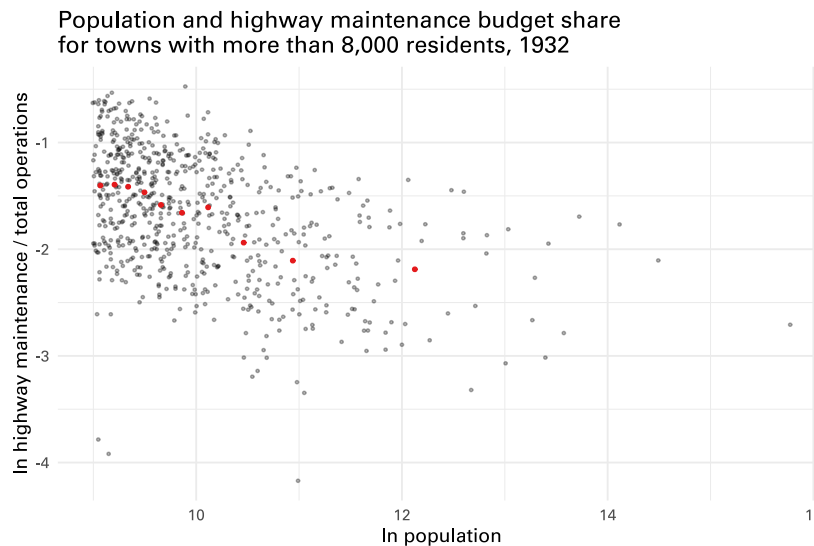


Figure A-1: Relationship between town population and the share of the government operations budget allocated to highway maintenance, non-southern towns with more than 8,000 residents in 1932 reporting government spending by category

Second, I examine the relationship between agglomeration and service provision conditional on spending. Substituting the agglomerative productivity expression into (1) and taking logarithms gives the following equation:

$$\ln G_l = \bar{A} + \alpha \ln n_l + \varphi \ln g_l$$

Conditional on log spending per capita (g_l), the log of town population (n_l) should be positively correlated with log provision per capita (G_l), and the coefficient on log population can be interpreted as α , the agglomeration elasticity. Models (5) and (6) of Table A-1 estimate this equation for the case of police and fire protection spending. This is a case in which service provision can arguably be measured by the number of police officers and firemen,

	provision share		highways		police & fire / pop	
	(1)	(2)	(3)	(4)	(5)	(6)
ln pop	0.050*** (0.006)	0.044*** (0.005)	-0.283*** (0.024)	-0.267*** (0.018)	0.086*** (0.017)	0.078*** (0.020)
ln police & fire spend / pop					0.469*** (0.033)	0.512*** (0.048)
State FE		x		x		x
DV mean	-0.235	-0.235	-1.676	-1.676	-6.706	-6.706
R^2	0.106	0.475	0.205	0.593	0.453	0.553
N	677	677	677	677	583	583

This table shows the results of regressions of government efficiency against log town population, for non-Southern cities with more than 8,000 residents in 1932, for which spending by category is reported. In models (1) and (2) the dependent variable is log government provision share, calculated as spending on government provision exclusive of central administrative costs and highway maintenance divided by total government operating spending net of highway maintenance, winsorized. In (3) and (4) the log ratio of highway maintenance spending to total government operating spending, in (5) and (6) the log number of police and firefighters divided by population. Even-numbered models add state fixed effects. Robust standard errors in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Table A-1: Effects of town size on public sector efficiency, 1932

which I measure at the town level using the 1930 Census microdata and the Census Place Project. Model (6) suggests an agglomeration elasticity of $\alpha = 0.078$. Table A-2 shows that this relationship holds at the county level, regressing the log of police and firemen per capita on the log of the agglomeration metric.¹³ Table A-3 reports the results of a number of similar regressions linking various measures of service provision, such as school attendance, to agglomeration and spending. With the exceptions of the number of teachers and sanitation workers per capita, agglomeration is positively associated with better service provision across the board, controlling for category-specific spending. These results, especially as they pertain to outcomes like the employment of police, firefighters, and librarians, are somewhat surprising, in that higher nominal wages in cities should make hiring government employees more expensive. They suggest that economies of scale in administrative costs matter for how spending within a given category actually benefits citizens, as well as for the allocation of spending across categories. Counties with higher levels of agglomeration received more services for a given level of spending.

Residents of smaller towns and villages had more difficulty in accessing New Deal programs. The theoretical microfoundation for access costs in Section 2 suggests that as population density increases, the share of the population close enough to access government services increases, though access to that service might become more congested. Figure A-2 shows binned scatterplots at the place level in 1940 of the share of the unemployed population employed on emergency works programs, the probability that the place has at least one person employed in such a program, and the share of eligible residents enrolled in Social Security. There is a clear positive relationship between place size and Social Security enrollment (note that this variable excludes agricultural and domestic workers who were ineligible from

¹³It also shows that the other results in Table A-1 hold at the county level.

	provision share		highways		police & fire / pop	
	(1)	(2)	(3)	(4)	(5)	(6)
ln agglomeration	0.179*** (0.047)	0.214*** (0.058)	-1.773*** (0.232)	-2.087*** (0.288)	4.678*** (0.438)	2.151*** (0.371)
ln police & fire spend / pop					0.215*** (0.060)	0.195*** (0.055)
Controls		x		x		x
DV mean	-0.189	-0.189	-2.057	-2.057	-7.374	-7.374
R^2	0.293	0.315	0.545	0.548	0.518	0.562
N	1751	1751	1742	1742	1579	1579

This table shows the results of county-level regressions of the government spending and performance against log agglomeration. In models (1) and (2) the dependent variable is the log government provision share, calculated as government provision exclusive of central administrative costs and highway maintenance divided by total government operating spending net of highway maintenance, in (3) and (4), the log share of government operating spending allocated to highways, and in (5) and (6) the log number of police and firefighters divided by population. All models include state fixed effects, models (2), (4), and (6) control for the shares in agriculture and manufacturing, the immigrant and white population shares, and union potential. Standard errors clustered by state in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table A-2: Relationship between agglomeration and government efficiency, for non-southern counties in 1932

the denominator). Employment in emergency works programs follows an inverse u-shaped relationship with place size, consistent with the predicted tradeoff between geographic access and congestion. At low levels of density, a large share of the population is not close enough to access geographically-limited services at all. At intermediate levels, the share of the population that is close enough to access is higher, though provision is relatively inefficient because there are relatively few people using each service location. At higher levels, the share accessing the service might decrease because of increased congestion. The share of locations with at least one person employed in emergency work is strongly increasing with place size. Thus in the smallest places many people may have been unaware of emergency works programs actually helping people like them, which would not have been the case in larger cities.

Economies of scale in administrative costs also appear to have applied to the administration of Social Security. Figure A-3 plots the ratio of administrative expenses of the Social Security Employment Service relative to unemployment compensation actually paid by the service against state-level urbanization, using data digitized from the 1940 Social Security Board annual report. In more urban states the administrative cost per dollar disbursed was lower.

B ADDITIONAL TABLES AND FIGURES

	teachers	school enrol.	police	firemen	sanitation	inf. mortality	utilities	librarians	paved roads
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ln agglomeration	-0.915*** (0.074)	0.126*** (0.020)	2.677*** (0.412)	5.578*** (0.501)	-0.799 (0.754)	-0.340** (0.128)	3.320*** (0.411)	1.194*** (0.274)	5.947*** (0.986)
ln ed spend / pop	0.051 (0.037)								
ln ed spend / child		0.019* (0.011)							
ln police & fire spend / pop			0.147** (0.060)	0.353*** (0.089)					
ln pub. health spend / pop					0.157 (0.102)				
ln pub. health spend / births						0.034** (0.017)			
ln utilities spend / pop						0.072*** (0.018)		0.217*** (0.039)	
ln library spend / pop									
ln highway spend / farms									0.146** (0.065)
DV mean	-4.512	-0.508	-7.463	-8.698	-9.195	-2.871	-6.351	-8.452	-3.655
R ²	0.600	0.492	0.393	0.476	0.245	0.214	0.416	0.402	0.731
N	1756	1756	1756	1756	1756	1756	1756	1756	1754

This table shows the results of county-level regressions of various logged measures of service provision on the logarithm of agglomeration, controlling for sector-specific spending in 1932. In model (1) the dependent variable is the log number of teachers in 1930 per capita, in (2), the log share of children in school, in (3) the log number of police officers per capita, in (4) the log number of fire-fighters per capita, in (5) the log number of sanitation workers per capita, in (6) the log number of infant deaths over births in 1932, in (7) the log number of workers in public utilities per capita, in (8) the log number of librarians per capita, in (9) the log share of farms accessible by paved road. All models include state fixed effects. Standard errors clustered by state in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table A-3: Relationship between agglomeration and service provision, controlling for spending, for counties in 1932

Table A-4: County-level summary statistics

Variable	N	Mean	SD	q5	q95
% urban, 1930	1,761	0.253	0.266	0.000	0.763
agglomeration, 1930	1,758	1.834	0.211	1.584	2.232
agglomeration (winsorized), 1930	1,758	1.828	0.183	1.584	2.232
government provision share, 1932	1,760	0.830	0.065	0.731	0.902
government provision share (winsorized), 1932	1,760	0.832	0.052	0.731	0.902
Δ Democrat share of two-party vote, 1932–1936	1,763	-0.011	0.078	-0.129	0.119
% employed in agriculture, 1930	1,766	0.411	0.204	0.067	0.692
% employed in manufacturing, 1930	1,766	0.126	0.118	0.016	0.372
% white, 1930	1,766	0.973	0.066	0.888	1.000
% foreign-born, 1930	1,766	0.085	0.066	0.006	0.215
union potential, 1930	1,766	0.144	0.072	0.054	0.276
retail sales per capita, 1929	1,757	654.408	238.798	298.375	1,062.728
Δ retail sales per capita, 1933–1935	1,757	126.585	92.468	6.827	290.665
bank deposits per capita, 1932	1,743	0.142	0.160	0.013	0.344
Δ bank deposits per capita, 1932–1936	1,743	0.042	0.091	-0.036	0.130
IWW strikes per capita \times 10,000	1,777	0.134	3.122	0.000	0.105
IWW locals per capita \times 10,000	1,777	0.074	0.619	0.000	0.300
farms per capita, 1930	1,774	0.093	0.048	0.013	0.167
agricultural output per capita, 1930	1,767	155.323	132.464	11.463	387.508
unemployment rate, 1930	1,769	0.044	0.028	0.008	0.098
illiteracy rate, 1930	1,777	0.024	0.034	0.004	0.068
Δ Democrat share of two-party vote, 1928–1932	1,763	0.222	0.083	0.073	0.349
ln agglomeration, 1930	1,758	0.601	0.106	0.460	0.803
ln government provision share, 1932	1,759	-0.190	0.084	-0.312	-0.103
ln share of spending on highways, 1932	1,748	-2.055	0.679	-3.294	-1.147
ln police and fire spending per capita, 1932	1,673	-7.151	1.192	-9.035	-5.175
ln police and firemen per capita, 1932	1,659	-7.382	0.830	-8.842	-6.058
share of spending on highways, 1932	1,760	0.154	0.088	0.036	0.317
police and fire productivity, 1932	1,579	1.296	0.967	0.252	3.103

	$\Delta\%$ Democrat 1932–1936									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
% urban	0.029**	0.034***	0.031***	0.034***	0.029**					
	(0.013)	(0.011)	(0.010)	(0.011)	(0.012)					
agglomeration						0.055**	0.063***	0.055***	0.062***	0.055***
						(0.020)	(0.019)	(0.019)	(0.018)	(0.017)
Income controls	x				x					x
Union controls		x			x		x			x
Additional controls			x		x			x		x
$\Delta\%$ Democrat, 1928–1932				x	x				x	x
DV mean	-0.011	-0.011	-0.011	-0.011	-0.011	-0.011	-0.011	-0.011	-0.011	-0.011
R^2	0.600	0.582	0.597	0.583	0.615	0.600	0.582	0.596	0.583	0.615
N	1729	1761	1761	1761	1729	1723	1754	1754	1754	1723

This table shows the results of regressions of the change in the Democrat share of the two-party vote against urbanization and agglomeration. All models include state fixed effects and controls for the shares in agriculture and manufacturing, the white and immigrant shares, and union potential. Income controls are retail sales per capita in 1929, the change in retail sales per capita between 1933 to 1935, bank deposits per capita in 1932, and the change in deposits per capita between 1932 and 1936. Union controls are the number of recorded IWW locals and strikes divided by population. Additional controls are farms and agricultural output per capita in 1930, and the unemployment and illiteracy rates in 1930. Models (4), (5), (9) and (10) control also for the change in the Democrats' change of the two-party vote between 1928 and 1932. Standard errors clustered by state in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table A-5: Effects of urbanization on voting, controlling for income changes, unionization, development, and trends in voting

	$\Delta\%$ Democrat 1932–1936				
	(1)	(2)	(3)	(4)	(5)
government provision share	0.111** (0.041)	0.103** (0.039)	0.106*** (0.038)	0.108** (0.040)	0.120*** (0.039)
Income controls	x				x
Union controls		x			x
Additional controls			x		x
$\Delta\%$ Democrat, 1928–1932				x	x
DV mean	-0.011	-0.011	-0.011	-0.011	-0.011
R^2	0.603	0.585	0.600	0.587	0.618
N	1727	1754	1754	1754	1727

This table shows the results of regressions of the change in the Democrat share of the two-party vote against the government provision share. All models include state fixed effects and controls for the shares in agriculture and manufacturing, the white and immigrant shares, union potential, and the urban share. Income controls are retail sales per capita in 1929, the change in retail sales per capita between 1933 to 1935, bank deposits per capita in 1932, and the change in deposits per capita between 1932 and 1936. Union controls are the number of recorded IWW locals and strikes divided by population. Additional controls are farms and agricultural output per capita in 1930, and the unemployment and illiteracy rates in 1930. Models (4) and (5) control also for the change in the Democrats' change of the two-party vote between 1928 and 1932. Standard errors clustered by state in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table A-6: Robustness of effects of government provision share on voting, controlling for income changes, unionization, development, and trends in voting

	$\Delta\%$ Democrat 1932–1936					
	(1)	(2)	(3)	(4)	(5)	(6)
agglomeration	0.146*** (0.014)	0.039** (0.018)				
government provision share			0.153*** (0.029)	0.091*** (0.033)	0.058** (0.023)	0.080** (0.032)
% urban					0.110*** (0.008)	0.034*** (0.010)
Controls		x		x		x
DV mean	-0.011	-0.011	-0.011	-0.011	-0.011	-0.011
R^2	0.517	0.579	0.424	0.581	0.530	0.584
N	1754	1754	1756	1754	1754	1754

This table shows the results of regressions of the change in the Democrat share of the two-party vote against agglomeration and the government provision share, not winsorized. All models include state fixed effects, even models include controls for the shares in agriculture and manufacturing, the white and immigrant shares, and union potential. Models (5) and (6) also control for the 1930 urban share. Standard errors clustered by state in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table A-7: Robustness of effects of agglomeration and government provision share on voting, not winsorizing



Figure A-2: Relationship between place size and New Deal participation

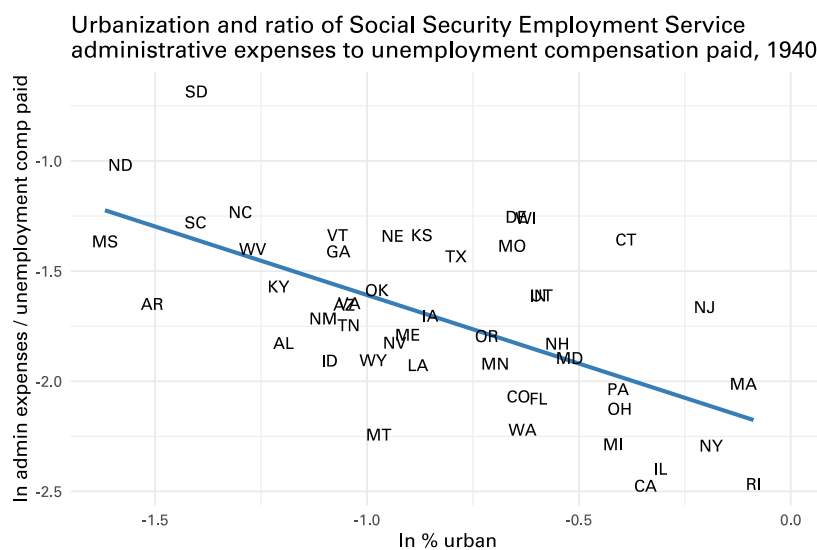


Figure A-3: Lower Social Security administrative costs relative to disbursements in more urban states

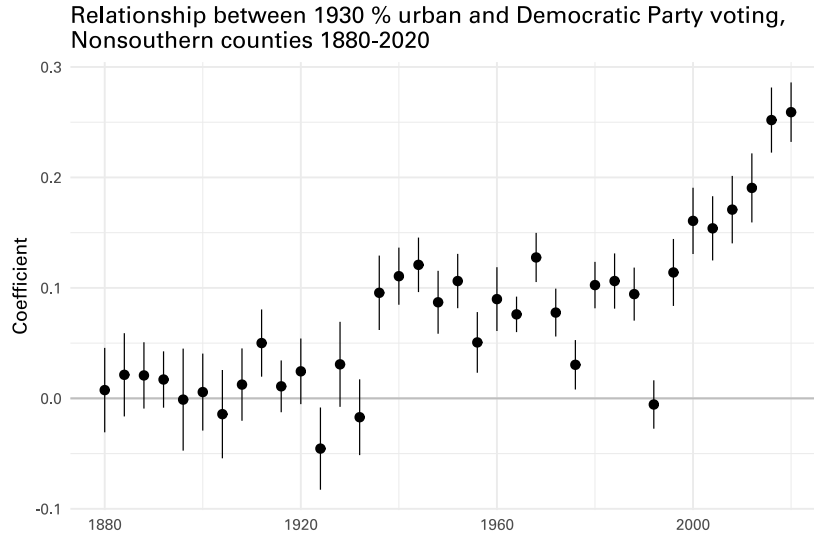


Figure A-4: Regression evidence for the emergence of the urban-rural divide in 1936, with county and state-by-year fixed effects

This figure shows coefficients and 95% confidence intervals from a regression of the Democratic share of the two-party vote against 1930 % urban, for non-Southern counties, controlling for county and state-by-year fixed effects

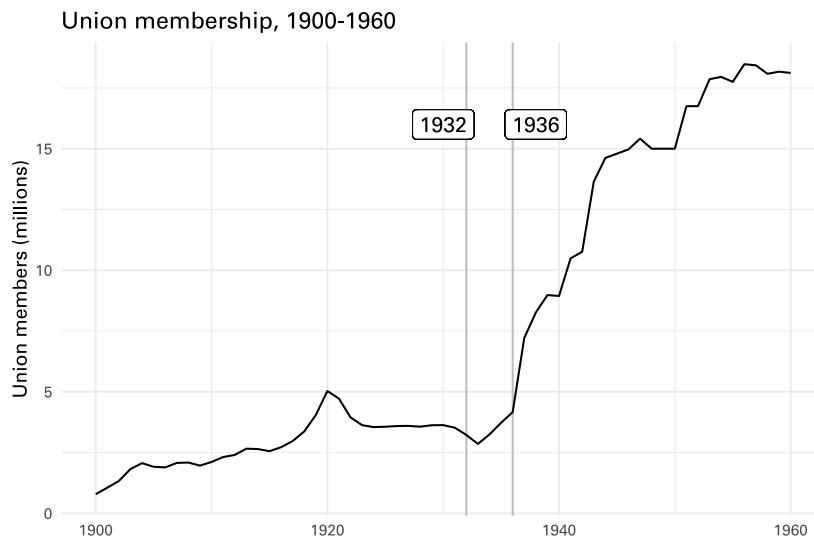


Figure A-5: The large increase in union membership took place after 1936

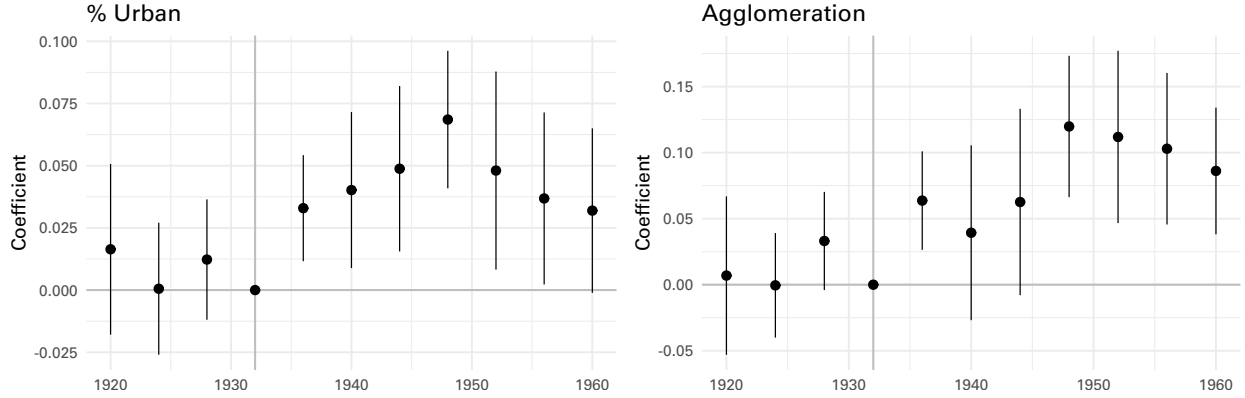


Figure A-6: Dynamic effects of urbanization on voting, with controls
 These figures show coefficients and 95% confidence intervals from regressions of the Democratic share of the two-party vote against 1930 % urban and agglomeration interacted with year indicators, with county and state-by-year fixed effects and controls for employment in agriculture and manufacturing, the white and foreign-born shares of the population, and union potential, all interacted with year indicators.

	$\Delta\%$ Democrat 1932–1936			
	(1)	(2)	(3)	(4)
highway budget share	-0.224*** (0.047)	-0.115*** (0.030)		
police & fire productivity			0.022*** (0.002)	0.004** (0.002)
Controls		x		x
DV mean	-0.011	-0.011	-0.009	-0.009
R^2	0.446	0.585	0.485	0.585
N	1756	1754	1579	1579

This table shows the results of regressions of the change in the Democrat share of the two-party vote against alternative measures of productivity. The highway budget share is the share of government spending allocated to highway maintenance. Police and fire productivity is the exponential of the residual from a regression of log police and fire employment per capita against log spending per capita on police and fire protection. All models include state fixed effects, even models include controls for the shares in agriculture and manufacturing, the white and immigrant shares, and union potential. Standard errors clustered by state in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$

Table A-8: Effects of alternative measures of productivity on realignment towards Democrats

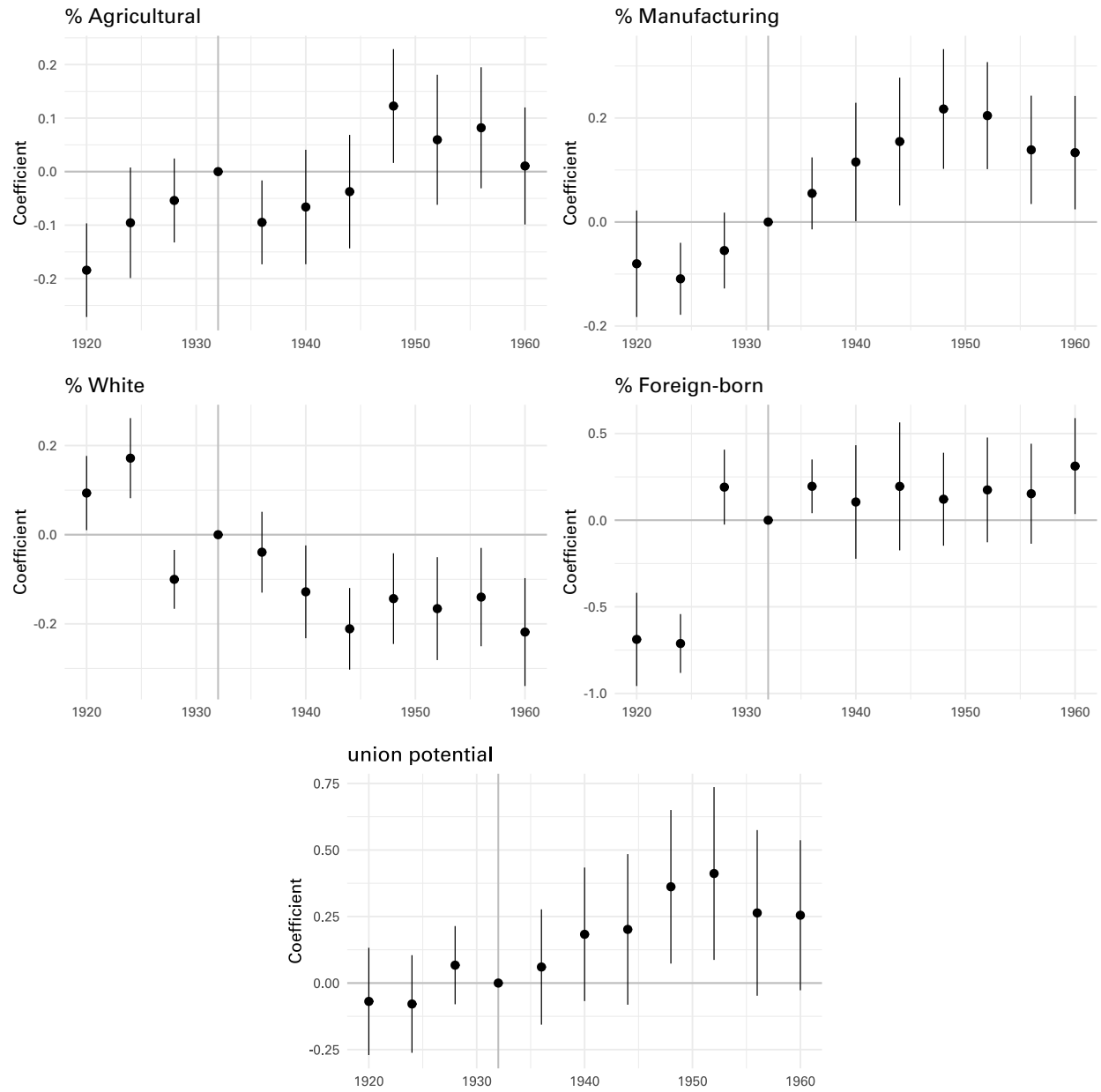


Figure A-7: Effects of control variables on the realignment, controlling for all others

This panel shows results of regressing the county-level Democrat share of the two party vote against different economic variables measured in the 1930 census interacted with year indicators, with county and state-by-year fixed effects. Each plot shows the coefficients on a given variable, from the same model used in the left panel of Figure A-6 controlling for the other four variables and 1930 % urban interacted with year indicators, with 95% confidence intervals calculated using standard errors clustered by state.

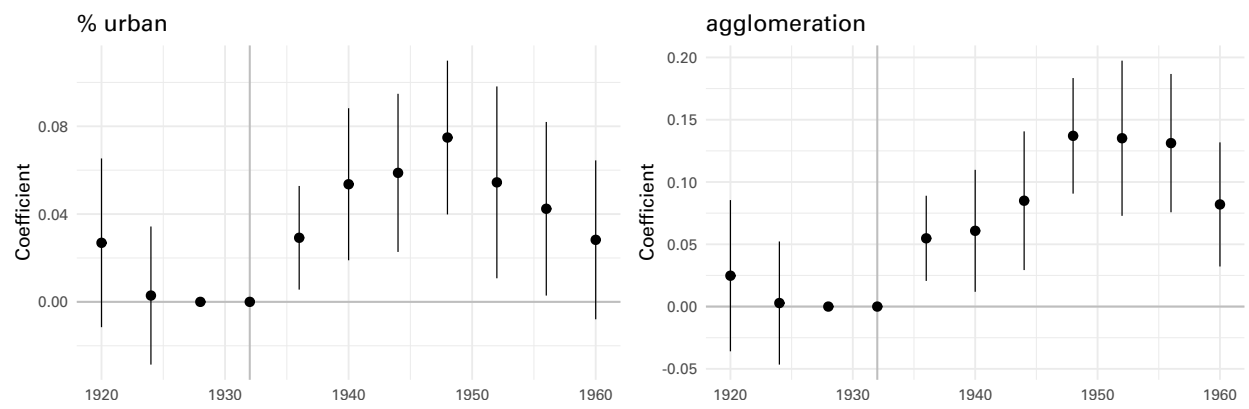


Figure A-8: Dynamic effects of agglomeration on voting, with full set of controls from Table A-5

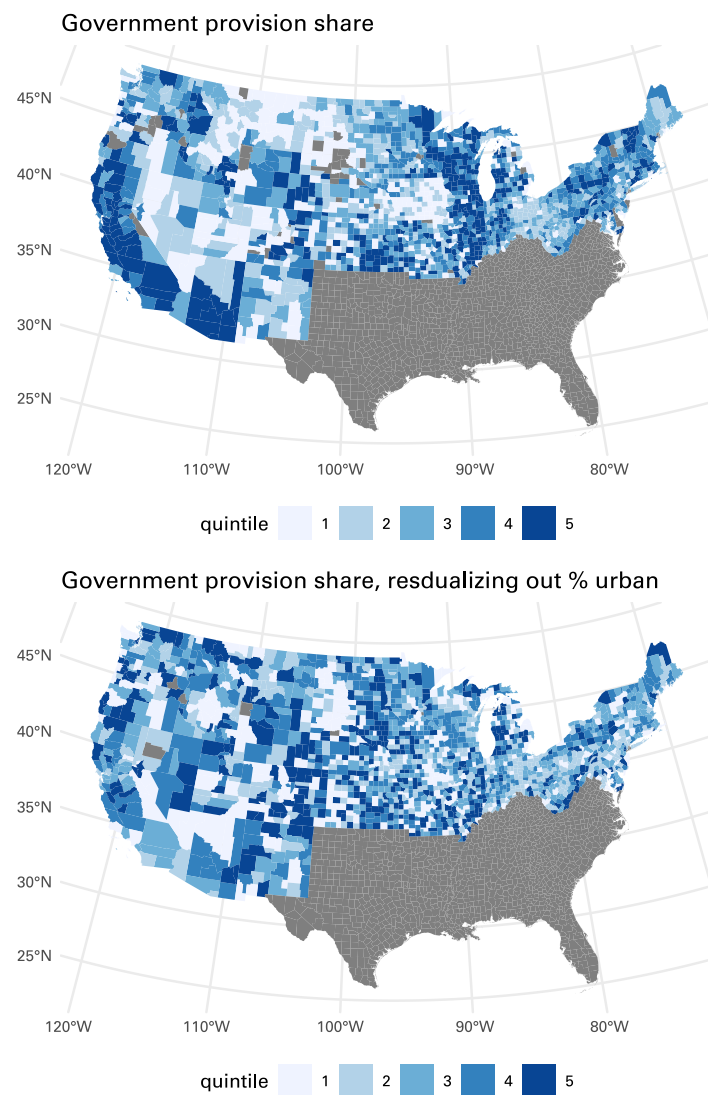


Figure A-9: Spatial distribution of the government provision share
The top panel maps the government provision share, the bottom maps the residuals from regressing the government provision share against 1930 % urban and state fixed effects

Table A-9: Effect of urban status on Gallup survey responses

	Base		Controls		Mean	N
	Coef	S.E.	Coef	S.E.		
Government Spending and Taxation						
Support increased government spending	0.123***	(0.017)	0.0755***	(0.0208)	0.388	3,665
Government spending too little on relief	0.116***	(0.0259)	0.0771***	(0.0249)	0.336	2,276
Preferred income tax rate (%)	0.0435*	(0.0232)	0.0842***	(0.0308)	0.237	1,884
Support for New Deal Democrats						
Prefer New Dealer to conservative Democrat	0.109***	(0.0267)	0.0944***	(0.0308)	0.536	2,152
Want more liberal policies from Roosevelt	0.113***	(0.0141)	0.0973***	(0.0146)	0.335	6,106
Prefer a Liberal to a Conservative party	0.0886***	(0.0155)	0.0565***	(0.0175)	0.487	7,712
Regard self as liberal	0.0187	(0.0249)	−0.000152	(0.0284)	0.515	2,828
Support for Specific Programs						
Approve of TVA	0.164***	(0.028)	0.137***	(0.0319)	0.568	1,292
Support increased spending on unemployment relief	0.178***	(0.0207)	0.128***	(0.0214)	0.385	2,412
Support increased spending on farm benefits	−0.00732	(0.0211)	0.00472	(0.023)	0.514	2,294
Support revival of AAA	−0.0733***	(0.0257)	−0.0575*	(0.032)	0.384	3,605
Support old age pensions	−0.0014	(0.0571)	−0.0661	(0.0541)	0.624	1,279
Approve of Social Security	0.0882***	(0.0166)	0.0478**	(0.0195)	0.748	2,590
Approve of tax for Social Security	0.0909***	(0.024)	0.0508*	(0.0263)	0.733	2,348

This table shows the results of regressions of agreement with Gallup poll questions on urban status. Dependent variables are coded so that 1 indicates agreement with the statement and 0 indicates disagreement, with the exception of the tax question, which is in percentage points. The Base specification only includes survey-wave fixed effects. The Controls specification includes controls for region, race, occupation, gender, and survey-wave. All models are restricted to non-southern respondents and weighted using the population weights developed by Berinsky and Schickler. Robust standard errors in parentheses. *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$



Figure A-10: The rise of Labour in British politics