The Public Agglomeration Effect: Urban-Rural Divisions in Government Efficiency and Political Preferences

Theo Serlin*

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Abstract

Why and when do cities vote for the left? The emergence of the urban-rural divide in the US in the 1930s is inconsistent with canonical theories of cleavages. This paper introduces an explanation: agglomeration effects. The provision of government services is 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 support more spending. When redistribution is salient, one should observe an urban-rural electoral divide. 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.

The emergence of the urban-rural divide in 1936 is inconsistent with prominent theories of political cleavages. Lipset and Rokkan (1967) viewed the urban-rural cleavage as one of a series of longstanding social divisions created by nation-building and the industrial revolution. In Europe, these divisions provided the basis for political parties which structured politics through the 20th century. This foundational account would not predict the emergence of an urban-rural cleavage in the 1930s, long after the industrial revolution. Nor would Rogowski's (1989) derivation of cleavages from the distributional effects of trade, which predicts a 19th-century rural-urban cleavage between protectionist manufacturing and exporting agriculture. The 1936 divergence also predates the postwar racial realignment and politicization of abortion which play a prominent role in analyses of more recent urban-rural divisions (Rodden, 2019;

[1] In all 17 democracies for which Gethin, Martínez-Toledano and Piketty (2022) collect data on urban status and voting, rural voters are more likely to vote for right-wing parties.

[2] This 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-9).

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

Gimpel et al., 2020; Nelsen and Petsko, 2021; McKee, 2008).

This article draws on economic geography to explain why and when urban-rural cleavages exist. 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). 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. Research in public administration finds that the provision of basic public services is more expensive in sprawling suburbs than compact cities (Carruthers and Ulfarsson, 2003). The point is not just that the size of jurisdictions affects efficiency, as argued by the fiscal federalism literature (Oates, 1972; Alesina and Spolaore, 2003). The need for government

services to reach citizens means that transportation costs constrain economies of scale in low-density areas, regardless of the structure of government.

If government provision is less efficient in rural areas, 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 incomes to support economically-conservative politicians.

That the urban-rural divide emerged in US politics when redistribution became important for national elections lends suggestive support for this thesis. Between 1932, when there was no urban-rural division in voting, and 1936, when the divide emerged, the Roosevelt administration expanded the size and reach of the Federal Government. Wallis (1984) documents that the federal share of government expenditure radically increased after 1932 (see Figure A-11). Public welfare and education, which had been funded almost entirely at the local level, began to be funded by the Federal Government, in part through grants to state and local governments (Wallis, 1984, 2000).[3]

The size of government became relevant to national elections between 1932 and 1936. In 1932, the Hoover campaign's polling identified the key issues dividing voters as prohibition and the tariff (Norpoth, 2019). While voters rejected the incumbent, Hoover, 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's (1966, 33) 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."

[3]Figure A-10 shows the growth of intergovernmental grants.

As the parties polarized on redistribution, preferences for redistribution began to influence vote choice. Survey data shows economically-liberal voters shifting into the Democratic coalition in 1936 and subsequent elections (Key, 1966; Caughey, Dougal and Schickler, 2020). Only after 1932 did areas that had supported left-wing third parties begin to support the Democrats (Hirano and Snyder, 2007). The emergence of the urban-rural divide was contemporaneous with the divergence of the parties over the size of government.

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 does so more efficiently in areas with larger populations. This agglomeration effect means that the marginal dollar of spending benefits urban voters more than their rural compatriots. Urban voters should, all else equal, support higher levels of taxation and spending. A probabilistic voting framework produces the prediction that if the parties diverge on redistributive policy, urban voters shift towards the more redistributive party.

I test that prediction in three stages. First, I show that urbanization is associated with the shift towards the Democrats between 1932 and 1936. 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 estimate that specification using county-level data and a theoretically-motivated measure of agglomeration calculated using sub-county population data. My most restrictive specifications indicate a 4.4 percentage point difference in vote choice between the average urban and rural voter. This measure is more predictive of changes in voting than manufacturing activity, racial mix, immigrant populations, or union-intensive industries.

Second, I use data on pre-New Deal government spending to develop a measure of efficiency based on the share of spending allocated to voter-facing services like schools and libraries, relative to government overhead, and show that this variable is associated with the 1932–1936

realignment. Local government efficiency ought to affect vote choice in national elections because many New Deal programs were partly implemented through local governments (Wallis, 1984, 2000; Fetter, 2017). This measure is positively correlated with the urban population share. Counties with more efficient governments shifted towards the Democrats between 1932 and 1936. This result holds when controlling for the urban 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.

The 1932–1936 divergence provides an opportunity to test the theory, and the self-reinforcing nature of the urban-rural divide makes it important to understand its origin. This period saw a substantial divergence on redistributive policy between the two parties over a very short period, in an environment without a pre-existing rural-urban cleavage. Rodden (2019) traces how the initial sorting of urban and rural voters in the 1930s drove subsequent urban-rural polarization. The movement of urban voters into the Democratic Party made that party's coalition more liberal on racial and cultural issues, which eventually pushed the party to take a more liberal stance on those issues (see also Schickler 2016), helping to further divide socially-liberal urban voters from socially-conservative rural voters. This foundational analysis of how urban-rural cleavages reinforce themselves over time makes it all the more important to understand the origin of this divide; it also implies that it is harder to analyze factors contributing to an urban-rural divide when the divide is already established.

The paper's theoretical model and claim is not, however, limited to the New Deal realignment or the US. Changing voting alignments in British elections are also consistent with the model. 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 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 introduces an explanation of the rural-urban electoral divide and its emergence. An influential perspective most associated with Frank (2004) argues that rural voters in the United States are more likely to be white, Christian, and non-college educated, and vote Republican because of the parties' stances on cultural issues, especially around abortion and race. Much scholarship validates this observation (Scala and Johnson, 2017; Rodden, 2019; Nelsen and Petsko, 2021; Brown and Mettler, 2023), but also finds rural voters have different policy preferences attributable to traditional values (Gimpel et al., 2020), a culture of individualism (Gimpel and Karnes, 2006), place-based identity and resentment (Cramer, 2016; Munis, 2022), and economic decline (Brown and Mettler, 2023; Rodríguez-Pose, Terrero-Dávila and Lee, 2023). This paper's focus on government efficiency is clearly compatible with these factors also being important in the present. However, this scholarship does not attempt to explain the emergence of the urban-rural divide in the 1930s, in a different economic and political environment, before the Republican Party was more popular with white, Christian, or less-educated voters. As discussed above, this timing also rules out classic comparative politics explanations of the urban rural divide (Lipset and Rokkan, 1967; Rogowski, 1989).

There is little evidence that urban-rural differences in values and individualism drove the 1932–1936 realignment. 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. The Republican Party's rhetorical commitment to "rugged individualism," most associated with Herbert Hoover, predated the emergence of the urban-rural divide in 1936. Bazzi, Fiszbein

and Gebresilasse (2020) examine how exposure to the frontier developed a culture of rugged individualism; they find that this variable only predicts voting Republican from the early 2000s. In addition, this paper documents the effect of measured government efficiency on voting holding urbanization fixed. It thus provides evidence for efficiency influencing the divide that cannot be attributed to unobserved factors bundled with urbanization like differences in values.

Two studies that do examine the historical emergence of the urban-rural divide are Rodden (2019) and Dasgupta and Ramirez (2024). In Rodden's account, the emergence of the urban-rural divide in the US in the 1930s—as distinct from its growth in the 1990s—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 and union-intensive industries, 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. Dasgupta and Ramirez (2024) offer an explanation of rural conservatism on the Great Plains in which postwar technological developments magnified the local influence of the wealthiest industrialized farmers. This study examines a slightly earlier period, before the rise of agribusiness, and uses a different theory to explain different variation in voting. Its focus on the shift of urban voters into the Democratic coalition also complements Ogorzalek (2018)'s analysis of coordination by mayors and members of congress to lobby for urban-focused policies in the New Deal era. 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 study is closely related to Cramer's (2016) analysis of rural consciousness. Cramer

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

argues that rural conservatism is rooted in the belief that rural areas do not receive their fair share of resources. This belief interacts with a sense of cultural distance to urban residents to produce a rural identity that is defined in part by resentment against cities. 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?" (240). This paper argues that differences in government efficiency may influence that perception and drive place-based resentment.

Second, this study introduces a new variable that explains attitudes to the size of government. The extensive literature on this topic has considered the importance of income (Romer, 1975; Meltzer and Richard, 1981), social mobility (Piketty, 1995; Benabou and Ok, 2001), labor market risks (Moene and Wallerstein, 2001; Alt and Iversen, 2017), racial and ethnic divisions (Alesina, Baqir and Easterly, 1999; 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 government provision across space, and relates to Rueda and Stegmueller (2016) and Sands (2017)—which argue respectively that local experiences of crime and inequality influence support for redistribution—in emphasizing the importance of place-based factors for individual preferences over the size of government. This study also relates to Lizzeri and Persico (2004)'s theory of franchise extension, which shifts electioneering from clientelism to programmatic competition. They argue that 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 in a broader range of spending categories that affect attitudes to national redistributive programs.

The paper's findings of greater government efficiency and support for redistribution in urban areas contrast with the intuitions from an earlier public choice literature. Niskanen

(1971, 1975) argued that bureaucracies have monopoly power which they use to maximize their budgets or budgets minus costs. Niskanen (1975) claims that larger bureaucracies are harder to monitor and are less constrained by citizen exit, and so are less efficient. The expectation is that bigger cities will have less efficient bureaucracies, which should lead urban residents to be more skeptical of government spending. This paper finds the opposite, perhaps because economies of scale and nonrivalries decrease the cost to the bureaucracy of service provision in larger cities. Niskanen (1971, chapter 6) outlines how bureaucracies that are constrained by budgets have incentives to use resources efficiently.

This study views the urban-rural divide as a consequence of partisan divergence on redistributive policy; it thus builds on a literature on policy feedback that argues that policy is not just the outcome of politics, but also shapes political activity (Pierson, 1993; Béland, Campbell and Weaver, 2022). In addition to highlighting the importance of economic geography, this study differs from much of that literature in viewing partisan divergence over a policy, not the implementation of the policy itself, as driving political divides. Much research examines how policies, once implemented, create new interest groups, alter state capacity, increase the efficacy of voters, and help voters discover their preferences (see for instance Skocpol, 1992; Mettler, 2002; Campbell, 2003). The implementation of New Deal policies may have helped voters learn about government efficiency and informed their vote choices. In the UK, however, the emergence of the urban-rural divide coincided with the growth of the Labour Party in the interwar period, which increased the salience of redistribution, long before the party managed to set up the welfare state after 1945.

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 the long-run evolution of the urban-rural divide.

2 A MODEL OF REDISTRIBUTION AND POLITICAL CLEAVAGES WITH AGGLOMERATION EFFECTS

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 spending. This reduced-form approach to modeling agglomeration effects follows the economic geography literature (Allen and Donaldson, 2020). Below I show how economies of scale can generate this assumption and functional form. Appendix A shows how nonrivalries and spatial frictions to access can generate the same expression.

ECONOMIES OF SCALE One way in which place size should affect the efficiency of government is through economies of scale in administrative costs. 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: $c_l = \bar{c} n_l^{-\beta}$. The parameter β can be thought of as capturing the relative

importance of fixed and variable costs: if $\beta = 1$, administrative costs are entirely fixed, if $\beta = 0$, they are entirely variable. If a locality receives g income per capita to spend, it can provide $g' = \frac{gn_l^\beta}{\bar{c}}$ in service spending per capita. The actual provision of services is subject to the production function $G_l = Z\,(g')^\varphi$, as in (1), where Z is productivity. Substituting in the identity for g' gives the following identity:

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

which is isomorphic to $G_l = \bar{A}n_l^\alpha g^\varphi$ if $\alpha = \beta\varphi$ and $\bar{A} = Z\bar{c}^{-\varphi}$.

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:

$$u_{il} = \underbrace{\bar{A}n_l^\alpha\,(t\bar{y})^\varphi}_{\text{public good}} + \underbrace{(1-t)y_i}_{\text{post-tax income}}$$

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 public and private 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:

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

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).

This analysis embeds an implicit assumption that urbanization affects the cost of public services relative to private services. Appendix D makes that explicit by modeling private consumption: The key assumption is that the price of private goods decreases with population at a lower rate than public sector productivity increases. This might hold because much private consumption consists of housing, which is inelastically supplied and so is more expensive in big cities. Data from cost of living surveys during this era validates the assumption: private consumption was somewhat more expensive in big cities, largely due to housing costs.

2.2 *Urban-Rural Electoral Divisions*

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 depending on whether the parties are divided over spending policy.

There are two parties, L and R, which propose tax rates, $t^L \geq t^R$. Voters choose which to vote for based on both the proposed tax rates and place- and individual-level preference shocks. Individual i in location l votes for party L if the following inequality is satisfied:

$$\underbrace{\bar{A}n_l^{\alpha}\left(t^L\bar{y}\right)^{\varphi} + \left(1-t^L\right)y_i}_{\text{welfare under } t^L} + \underbrace{\psi_l - \varepsilon_i}_{\text{bias}} > \underbrace{\bar{A}n_l^{\alpha}\left(t^R\bar{y}\right)^{\varphi} + \left(1-t^R\right)y_i}_{\text{welfare under } t^R}$$

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 uniform distribution over the interval $\left[-\frac{1}{2\theta}, \frac{1}{2\theta}\right]$. The parameter θ governs how responsive vote choices are to differences in economic policy. The probability of i in l voting for L is

$$\begin{aligned} s_{il} &= P\left(\varepsilon_i < \bar{A}n_l^{\alpha}\left(\left(t^L\bar{y}\right)^{\varphi} - \left(t^R\bar{y}\right)^{\varphi}\right) - \left(t^L - t^R\right)y_i + \psi_l\right) \\ &= \theta\left(\bar{A}n_l^{\alpha}\left(\left(t^L\bar{y}\right)^{\varphi} - \left(t^R\bar{y}\right)^{\varphi}\right) - \left(t^L - t^R\right)y_i + \psi_l\right) + \frac{1}{2} \end{aligned} \tag{3}$$

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.[5] This pair of results echoes Gelman et al.'s (2010) finding that while poorer, more rural states tend to vote Republican, within states richer voters are more likely to vote Republican. Furthermore, increasing $t^L - t^R$ will increase the divergence in voting between urban and rural locations, as well as between high- and low-income individuals.

The precise mechanism that causes the parties to diverge on policy is unimportant for the paper's focus on how policy divergence generates an urban-rural cleavage. A model of policy choice in this context would need to generate both platform convergence and divergence as equilibrium outcomes. Appendix B sets out one model that generates that prediction. The key assumption is that a party chooses the policy preferred by the median voter within that party. If the parties converge on policy, they both win similar numbers of votes from rural and urban voters, but if they diverge, the party choosing the higher tax rate wins more votes from urban voters.

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 key difference between urban and rural areas is government efficiency: the inverse cost of providing a certain level of service. Efficiency does not directly enter the utility function: voters care about the services provided and the tax required to pay for them, which reduces consumption. Efficiency influences the amount of consumption a voter would have to give up to receive a given increase in public services. It thus factors into a voter's preferred level of public spending,

[5] I assume that parties allocate spending to locations equally. This assumption is motivated by the fact that New Deal spending per capita was uncorrelated with urbanization (Figure A-16). Allowing parties to target spending to locations to maximize votes as in Lindbeck and Weibull (1987) would generate the additional prediction that parties would direct spending towards urban voters, heightening the urban-rural divide.

and into the electoral choice between the high-tax high-spend bundle of policies offered by the Democrats and the low-tax low-spend bundle offered by the Republicans.

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). Aggregating Equation (3) at the county level gives the following expression for the county-level vote for the higher-tax party:

$$s_c = \underbrace{\theta\left(\left(t^L\bar{y}\right)^{\varphi} - \left(t^R\bar{y}\right)^{\varphi}\right)}_{\text{Weakly-positive scalar}} \underbrace{A_c}_{\text{Efficiency}} - \underbrace{\theta\left(t^L - t^R\right)y_c}_{\text{Effect of income}} + \underbrace{\theta\psi_c + \frac{1}{2}}_{\text{County-specific bias}} \tag{4}$$

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:

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

The term in front of A_c in (4) is a weakly-positive scalar for $t^L \geq t^R$, strictly positive if $t^L > t^R$. (4) implies a linear relationship between efficiency and voting Democrat. Estimating this relationship by OLS is complicated by the concern that county-specific biases ψ_c might be correlated with efficiency A_c.

The sharp divergence on policy between 1932 and 1936 provides a way to address that concern. If the parties converge on spending, that is, if $t^R = t^L$, then (4) reduces to $\theta\psi_c + \frac{1}{2}$; electoral outcomes are determined by issues other than spending. As discussed above, in 1932 that appeared to be the case, but by 1936 the parties had diverged. Adding time subscripts to (4) and differencing between these two periods gives the following expression for the change

in Democratic vote share:

$$s_{c,36} - s_{c,32} = \underbrace{\theta\left(\left(t^L_{36}\bar{y}_{36}\right)^{\varphi} - \left(t^R_{36}\bar{y}_{36}\right)^{\varphi}\right)}_{\text{Strictly-positive scalar}} \underbrace{A_{c,36}}_{\text{Efficiency}} - \underbrace{\theta\left(t^L_{36} - t^R_{36}\right) y_{c,36}}_{\text{Effect of income}} + \underbrace{\theta\left(\psi_{c,36} - \psi_{c,32}\right)}_{\text{Change in bias}}. \quad (6)$$

Holding income and changes in non-economic preferences for the parties constant, counties with more productive governments should have shifted towards the Democrats between 1932 and 1936. Differencing relaxes the identification concern by requiring only that changes in non-economic preferences for the Democrats between 1932 and 1936 are uncorrelated with levels of efficiency.

While this prediction follows from a formal model, it does not rely on an assumption that voters are hyper-rational or understand that urbanization influences government efficiency. In the 1936 election, the Democratic platform took credit for a host of new programs, while the Republican platform claimed "The New Deal Administration has been characterized by shameful waste."[6] This paper's claim is that which of those arguments resonated more with voters depended on voters' own experiences of those programs, and on the experiences of their friends and neighbors. In urban areas, where voters benefitted from and observed New Deal programs, the Democratic argument resonated. In rural areas, where government programs were hard to access, or absent, the Republican argument resonated. Because voters care about government services and private consumption, I would expect rural voters who stood to gain from government spending to be more supportive of such spending. If enough spending were targeted at rural voters to overwhelm the effects of inefficient provision, it would neutralize the urban-rural political gap. In the context of the New Deal, however, that did not happen. There was no correlation between urbanization and spending per capita (Figure A-16).

While the paper focuses largely on measurable, material forms of agglomeration, its framework can also include non-material channels that make it cheaper for the government

[6]See `https://www.presidency.ucsb.edu/documents/republican-party-platform-1936`.

to provide utility to voters in urban areas. For instance, voters might care about seeing the government active in their area, in addition to the material benefits such programs provide. Voters in small towns, which might not receive big visible programs due to the minimal feasible size for such projects, would receive less utility from spending on average (see the middle panel of Figure A-1). Policy feedback scholarship argues that voters are more responsive to more visible policies (Arnold, 1990; Hamel, 2024). Other research finds that interaction with the welfare state increases support for it (e.g. Appleby and Robertson, 2010).

3.1 *Estimating Equation and Data*

Equation (6) 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, also discussed below. 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 C. 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.[7] 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 income, an additional robustness check controls for levels and changes in retail sales per capita and bank deposits per capita using data from Fishback, Horrace and Kantor (2005) and Manson et al. (2020). In another robustness check related to unionization I control for Industrial Workers of the World activity. Other robustness checks control for farms and farm output per capita from the Census of Agriculture, and the population share 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

[7] My results are not sensitive to this decision (Table A-8).

the change in votes. A 1 percentage point increase in the urban share of a county corresponds to a 0.11 percentage point increase in the Democratic vote. Model (2) adds baseline controls, giving a coefficient on urbanization around a third of (1), but still positive and significant. These estimates imply an effect of urbanization on voting after 1932 distinct from the effects of agriculture, manufacturing, immigration, or race. Models (3) and (4) show estimates using the theoretically-consistent agglomeration metric. In the Census Place Project data, the average value of agglomeration for a rural resident is 1.72, as compared to 2.4 for an urban resident. (3) and (4) thus predict urban-rural differences in voting of 12.5 and 4.4 percentage points respectively. It makes sense that magnitudes using agglomeration are larger because that variable more precisely captures variation in government efficiency that should affect the realignment.

The emergent urban-rural divide was quantitatively meaningful, though not the largest cleavage active in this period. To measure different cleavages I aggregate all Gallup surveys 1936–1938 that ask about vote-choice in the 1936 election. In this data, the urban-rural gap in voting is 10 percentage points (Table A-14), close to the county-level estimate in Table 1. Using a cutoff of 25,000 residents rather than the Census Bureau's choice of 2,500 gives a gap of 14 percentage points. The difference in vote-choice between businessmen and professionals, and laborers—the clearest measure of a class divide—is 16 percentage points. Note that a difference in voting based on income levels is also a prediction of the model. Including these variables in the same regressions, and controlling for race and gender, gives an estimate of the urban rural divide that corresponds to 44% of the class gap using the 2,500 resident cutoff and 82% using the 25,000 resident cutoff. These descriptive estimates help to place the estimates from Table 1 in perspective. The predicted change in voting between urban and rural areas from (4) corresponds to 28% of the descriptive class gap in voting.

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

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

3.3 *Including the South*

The main analyses exclude counties from the former Confederacy. In this period the South, due to disenfranchisement, repression, and the legacy of the civil war, did not have meaningful two-party competition. Key (1949, 507) noted "The prevailing theory among southerners is that the South can be Democratic nationally, but can fight out issues on state affairs within the Democratic party in about the same manner as two parties would contest for power." One would not expect political divides in the South to manifest in differences in county-level voteshare for the Democratic Party.[8] In South Carolina, Roosevelt won 99% of the presidential vote in 1936. That the main Democratic Party machine in many states was opposed to the New Deal further complicates the interpretation of general election voting.

Southern political cleavages manifested in the Democratic Party's all-white primaries. Key (1949) argued that in Georgia, North Carolina, Tennessee, and Virginia, Democratic Party politics took the form of conflict between two factions. The existence of clear factions makes

[8]Including the South does not change the results in Table 1 (Table A-15).

it possible to infer political divides from primary voting data. If agglomeration mattered for politics in the South, one would expect pro-New Deal factions to win more votes in more urban and higher-agglomeration areas. Table A-16 provides evidence of that pattern. In Georgia, North Carolina, and Virginia, the dominant faction opposed the New Deal and won fewer votes in urban areas in gubernatorial primaries. In Tennessee, the dominant Crump faction supported the New Deal and was more popular in cities. These patterns echo Caughey's (2018, 54) finding that rural Southerners had more conservative policy preferences.

3.4 *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 before 1932, in Figure A-13.

Second, other variables correlated with efficiency might influence the change in voting between 1932 and 1936. These factors could either relate to modeled levels of income (the second term in Equation 6) or to un-modeled changes in voters' non-economic preference for the Democratic Party (the third term). 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 joined the Democratic coalition precisely because, due to their location, they stood to benefit most from redistribution. Yet it is still a concern that factors unrelated to agglomeration—for

instance the changing positions of the parties on civil or labor rights—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 became disproportionately supportive of the Democrats in the 1940s. Analyses of the entry of various 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-12). 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-14). The control variables are all correlated with differential trends in voting prior to 1932, and do not show an obvious 1932–1936 divergence.

[9]Table A-6 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.

These controls provide an alternative way to benchmark the estimates in Table 1. After standardizing all variables to place them on a common scale, in Table A-13, the only variable with a larger standardized coefficient than agglomeration is the share employed in agriculture, which may also pick up forms of population concentration that affect government efficiency. The coefficient on agglomeration is 83% of the magnitude of that on agricultural employment, and 180% of that on manufacturing employment.

3.5 *A Measure of Government 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. One might also still be concerned that correlates of urbanization not accounted for by the controls 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.[10] Using data on pre-New Deal local government efficiency is especially appropriate given that many New Deal programs were in part implemented through local governments (Fetter, 2017). Referring back to the derivation of economies of scale in Section 2, 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. I add general government expenses and miscellaneous expenses to compute total government spending $c_l g$.[11] Taking the ratio of these two gives a measure of government efficiency $1/c_l$, the share of spending going

[10]The data source reports towns with more than 8,000 residents separately from towns with 2,500–8,000 residents.

[11]The one other category is highway maintenance, which I use in Appendix C.

on services that directly benefit voters. I winsorize this variable and refer to it as *overhead 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 log overhead efficiency, as predicted by the expression $\frac{1}{c_l} = \frac{n_l^\beta}{\bar{c}}$. Estimating this relationship by OLS suggests $\beta = 0.05$ (Table A-1).

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

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. It is however correlated with higher rates of school attendance and lower infant mortality (Table A-2), variables considered by public policy scholars in this period to be outputs of good government (Walker, 1930). It is negatively correlated with government overhead spending per capita, but orthogonal to non-overhead spending (Figure A-3), suggesting that the measure picks up economies of scale in overhead costs, not more expansive government in general. Overhead efficiency was also negatively correlated with the cost of administering unemployment relief, suggesting the variable plausibly captures variation in government

efficiency that affected redistributive programs. In Michigan, the ratio of administrative costs to total disbursements from the state's emergency relief programs, which I digitize from Haber (1935), was negatively correlated with overhead efficiency (Table A-3).

Observers in the 1930s recommended the use of general government expenses to gauge efficiency. Galbraith (1934, 56) noted that "expenditures for general government are expenditures for the *overhead* costs of the county," which only indirectly facilitated "direct services" like education and poor relief. Their relative share of spending indicated the extent to which administration displaced service provision: "general government expenditure ... in relation to other expenditures [can] be recognized as one of the valuable indicators of the efficiency of county operation." Voters shared Galbraith's skepticism of the value of general government expenses. In one 1937 poll, government running expenses were the least popular category of public spending. 67% of non-Southern respondents stated they wanted the government to decrease running expenses.[12]

Observers also recognized the role of agglomeration in public service provision. Public administration scholars criticized the "backwardness" of rural local government on the grounds that its small scale prevented specialization and the adoption of "modern scientific administration" (Lancaster, 1937, 121, 115). Urban density was essential for efficient public services: "any city whose population spreads thinly over a large area will either have to deny some of its inhabitants some of the normal municipal services, or else it will have higher per capita expense" Anderson (1936, 32).

3.6 *Effects of Efficiency on Voting*

I study the effects of overhead efficiency on the 1932–1936 change in the Democratic 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.

[12]Gallup Poll # 1937-0101, October 20-25 1937.

Figure 3 shows estimates from regressions of outcome variables against overhead efficiency, 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, overhead efficiency is orthogonal to these variables, and so one would expect it to be orthogonal to other unobserved variables bundled with urbanization. This exercise raises confidence that a regression of changes in voting on overhead efficiency, controlling for the urban share, should not pick up the effects of such unobservables. Controlling for the urban share, overhead efficiency 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-15 shows the spatial distribution of overhead efficiency, with and without controls for urbanization.

Table 2 shows the effects of overhead efficiency on voting. Model (1) does not include controls, and suggests that a percentage point increase in overhead efficiency 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.[13] Put on the same scale as other variables, in Table A-13, the coefficient on overhead efficiency is around half that for agglomeration, and similar in magnitude to that on manufacturing employment. This smaller magnitude makes sense because overhead efficiency captures only one facet of efficiency—economies of scale in overhead costs—and urbanization should affect total efficiency through other channels such

[13]These results are also robust to controlling for a range of other covariates (Table A-7), and to not winsorizing overhead efficiency (Table A-8). County-level overhead efficiency is not driven by a taste for higher spending: it is uncorrelated with pre-New Deal spending after adjusting for population (Table A-10).

Figure 3: Controlling for % urban, overhead efficiency is uncorrelated with factors associated with urbanization and the New Deal realignment

This figure shows standardized coefficients and 95% confidence intervals from regressions on overhead efficiency. Red circles are from models controlling for state fixed effects, blue triangles also control for % urbanl.

as nonrivalries. For the same reason, it is expected that in Models (3) and (4), the coefficient on % urban is positive and similar to the estimated coefficients in Table 1.

Figure 4 shows the relationship between overhead efficiency and voting over time. The effect of this measure of efficiency in 1932 persists into the 1950s, and there is not evidence of high-efficiency locations following differential trends prior to the 1932–1936 realignment.

Appendix C provides evidence for a number of other ways in which agglomeration was

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

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 overhead efficiency, 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: Overhead efficiency 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 overhead efficiency interacted with year indicators, controlling for county and state-by-year fixed effects and controls from Table 2 model (4) interacted with year indicators.

associated with more efficient government. Larger towns spent a smaller share of their pre-New Deal budgets on highway maintenance, a semi-rivalrous public good subject to clear economies

of scale (Table A-1). Such places 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-9). The implementation of the New Deal was also more efficient in more urban environments. 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-2).

3.7 *Alternative Explanations*

It is unlikely that the estimated relationships between urbanization, agglomeration, overhead efficiency, and the shift towards the Democrats are attributable to New Deal spending being targeted towards such locations or short-run economic fluctuations. One might be concerned that Democratic strategists targeted funds towards urban voters in order to create an urban political coalition. Figure A-16 provides evidence against this claim, showing coefficients from regressions of New Deal spending against the three independent variables, using data from Fishback, Kantor and Wallis (2003). While programs focused on urban issues such as the Home Owners Loan Corporation spent more per capita in urban areas, other programs, such as the Agricultural Adjustment Administration, were targeted towards rural areas. There is no relationship between urbanization or agglomeration and total New Deal spending per capita, and a slight negative relationship between overhead efficiency and total spending. This null result is consistent with scholarship which emphasizes the importance of both economic hardship related to the Depression and political considerations—which included the influence of rural Southern Democrats in Congress—for the allocation of New Deal funds (Fishback, Kantor and Wallis, 2003). Ternullo and Shachter (2024) find neither that the Roosevelt administration targeted New Deal spending towards Democratic machines, nor that such machines were particularly effective in using New Deal spending to produce votes for Roosevelt.

Achen and Bartels (2016) attribute the shifts of the 1936 election to retrospective voting due to economic growth. Using data on changes in bank deposits and retail sales as county-level proxies for economic growth in Table A-11, I find that conditional on controls, more urban or higher efficiency counties did not experience faster short-run growth. It is therefore unlikely that faster growth explains the results in Tables 1 and 2.

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.[14] An advantage of 1930s surveys—relative to current surveys which struggle to obtain representative samples of rural voters (Jacobs and Shea, 2024)—is that they contain broad coverage of rural voters. Across the questions examined, at least 33% of the sample is rural (Table A-4). Appendix E provides further details on the sampling and representativeness of these surveys.

The direct prediction from Equation (2) is that voters in more rural locations should prefer less government spending and a lower tax rate. The first three rows of Figure 5 show that relationship, reporting coefficients and confidence intervals from regressions of survey questions about support for government spending and preferred tax rates against urban status, controlling for race, gender, and occupation.

Urban support for higher taxes and spending was accompanied by closer political alignment with the New Deal and Roosevelt's policies. This pattern is illustrated by questions that ask about support for the New Deal elements of the Democratic Party and liberal policies. Establishing that urban voters did not just shift towards the Democrats, but also supported

[14] Re-estimating the various models without these weights does not affect the magnitudes or significance of the estimates (see Figure A-17).

Roosevelt's policies helps link the theoretical model to the results on agglomeration and voting.

Patterns of support for specific policies are also consistent with the model. 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. Urban support for spending programs did not extend to programs like old age pensions, which did not need to be implemented locally, nor to programs targeted at rural areas like the Agricultural Adjustment Act.

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-1), suggesting that rural people faced barriers to accessing the program. According to the Social Security Board, the decision to exclude agricultural workers was due to "administrative difficulties" as "a large number of individual workers are employed in small establishments scattered over a wide area, frequently at some distance from any city or town" (Committee on Economic Security, 1937, 208).[15]

5 BRITAIN

Thus far the paper has focused on the US, but the theory is not specific to that case. In other countries, an urban-rural divide accompanied the growing salience of redistribution for electoral politics.

In the UK, redistribution emerged more gradually than in the US, over the course of the

[15]On the debate about exclusions from social security, see DeWitt (2010).

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.

early 20th century. 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. In the 1920s, the Labour Party, which was explicitly committed to redistribution, replaced the Liberals as the dominant left-of-center party. 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.

If redistribution influenced the urban-rural divide, one would expect urban areas to shift left on these two occasions, 1900–1906 and 1918–1922. I examine that hypothesis using

electoral data from Eggers and Spirling (2014) and microdata from the 1911 Census of England and Wales (Schürer and Higgs, 2014), which I spatially merge to constituencies. The removal of property qualifications for the franchise in 1918 could also have contributed to an urban-rural divide. It enfranchised many urban working class men who would likely have voted Labour. While franchise extension would not have affected voting in 1906, the gradual incorporation of such voters could affect outcomes in 1922. To address this concern I control for the difference between the parliamentary and local government electorates in 1918, which I digitize from House of Commons (1919).[16] This follows Bromhead, Fernihough and Hargaden (2020), who study the effects of the same franchise extension on the 1918 election in Ireland: Local government elections maintained property restrictions similar to those in parliamentary elections before 1918 (Tanner, 2003).

Table 3 examines the emergence of the urban-rural divide in the UK. 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, 1900–1906, in (3)–(5) the change 1918–1922. In both cases, a widening division between the parties on redistribution was associated with a shift towards the Conservatives by geographically-larger constituencies. As constituencies were apportioned to have similar populations, log constituency area essentially captures the 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, not factors that happened to be correlated with urbanization. (5) controls for newly-enfranchised male voters and gives a similar coefficient, suggesting franchise extension does not account for this pattern. Figure 6 shows coefficients from year-specific regression of the Conservative vote against log area. The association between density and left-wing voting only emerged in the 1920s with the rise of Labour; in the 1890s the Conservatives performed

[16]Constituency boundaries changed in 1918, which prevents me from comparing pre- and post-extension franchises, or using this control for pre-1918 elections.

	1900–1906		1918–1922		
	(1)	(2)	(3)	(4)	(5)
log area	1.073***	1.027**	1.502***	1.813*	1.695*
	(0.220)	(0.438)	(0.480)	(0.989)	(0.996)
% new male voters 1918					0.557***
					(0.198)
Controls		x		x	x
DV mean	-11.66	-11.66	0.248	0.248	0.248
N	292	292	414	414	414
R^2	0.054	0.096	0.024	0.054	0.069

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), (4), and (5) also control for the share employed in agriculture, the share employed in manufacturing and mining, and the share in working class occupations. (5) controls for the percentage of male voters who were recently enfranchised, calculated as the difference between the 1918 male parliamentary and local electorates, divided by the 1918 male parliamentary electorate. 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

better in denser areas.

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, green squares also control for the share of new male voters in 1918, interacted with election indicators.

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

The US, UK, and Canada are cases where one can track the urban-rural divide over long periods, but the urban-rural divide and this paper's theory are not specific to plurality systems. Figure A-18 presents cross-country evidence from surveys aggregated by Gethin, Martínez-Toledano and Piketty (2021). Urban-rural left-right divides are pervasive in high-income democracies, but not elsewhere. Consistent with the theory, the urban-rural divide is largely present in countries with large states and programmatic competition, where redistribution is important for electoral politics.

6 CONCLUSION

This paper introduces a new mechanism influencing preferences over the size of government and a new explanation for the urban-rural divide. Greater efficiency in government provision in cities due to economies of scale, nonrivalries, and access makes urban dwellers 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 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 survey data, which suggests that urban voters in this period were more supportive of government expansion and the New Deal. The emergence of urban-rural electoral divides in other cases is consistent with this mechanism.

Figure 1 shows the urban-rural divide in the US emerged in the 1930s, but has grown considerably since the 1990s. Scholarship has already identified many factors contributing to

this growth. Rodden (2019) highlights the politicization of racial and cultural issues during this period. Brown and Mettler (2023) add educational polarization and manufacturing decline to this account. The politicization of cultural issues is, in Rodden's account, downstream of the initial 1930s urban-rural divergence over economic policy.

Much this paper's focus has been on analyzing that 1930s divergence, but the subsequent growth of the divide is consistent with the model. Beginning in the 1990s, the relationship between voters' redistributive preferences and their vote choice—θ in the model—has steepened. Figure A-19 illustrates this pattern (see also Abramowitz and Saunders 1998, 2008). If urban voters are more supportive of redistribution, and the importance of redistribution for their vote choice increases, the urban-rural difference in vote choices should also increase. Rural voters today are less satisfied with the quality of government services they receive, despite higher spending on rural areas (Figure A-20).

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A alternative foundations of agglomeration effects in public provision

Here I set out two alternative microfoundations for the agglomeration effect in the government production function in Section 2: nonrivalries and access costs.

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 $q_{lj} = Z g_{lj}^{\varphi}$, and spends $\bar{g}_l$ on the nonrivalrous good and the remainder on the other good, then citizen utility from government provision is

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

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

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

Thus for $\alpha = \beta + \varphi - 1$, and $\bar{A} = Z\left(\beta^{\beta}(1-\beta)^{1-\beta}\right)^{\varphi}$ this setup is isomorphic to $G_l = \bar{A} n_l^{\alpha} g^{\varphi}$.

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:

$$q_l = Z\left(n_l g\right)^{\varphi}$$

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

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

If $\alpha = \varphi + \nu - 1$ and $\bar{A} = \gamma k^{\nu} Z$, this setup is also isomorphic to $G_l = \bar{A} n_l^{\alpha} g^{\varphi}$.

B A MODEL OF URBAN-RURAL PLATFORM DIVERGENCE AND CONVERGENCE WITH ENDOGENOUS COALITIONS

In the model in the main body of the paper, the convergence and divergence of the parties on policy is taken as given. The paper's core contribution does not rely on a particular reason for why the parties had converged on redistribution and subsequently diverged. The extension below sets out one way in which this pattern can be rationalized.

B.1 *Setup*

I impose a number of additional assumptions on the model developed in the main body of the paper to make the analysis of coalition formation tractable. There are only two types of locations, urban and rural. I normalize government productivity $\bar{A}n_l^\alpha = 1$ if l is rural, and $\bar{A}n_l^\alpha = A > 1$ if l is urban. I denote the share of the population living in urban locations by λ. The average value of ψ in rural areas is ψ_r and the average in urban areas is ψ_u. I assume all agents in a given location have the same income: urban agents have income $\bar{y}_u$, rural agents $\bar{y}_r$. Total average income is $\bar{y} = \lambda\bar{y}_u + (1-\lambda)\bar{y}_r$. I make the following assumptions on the relative magnitudes of these parameters:

1. The ratio of urban to rural public-sector productivity exceeds the ratio of urban to rural average income: $A > \frac{\bar{y}_u}{\bar{y}_r}$. This assumption ensures that urban voters benefit more than rural voters from higher taxes.

2. The average bias for party L is weakly higher among urban than rural voters: $\psi_u \geq \psi_r$. This assumption is the only exogenous difference between the parties—the parties' policy preferences are determined in equilibrium—and so is without loss of generality.

As in the main body of the paper, voters receive an individual uniform preference shock in addition to a place-specific preference shock. Vote share for party L in rural areas is

$$s_r(t^L, t^R) = \theta\bar{y}^\varphi\left((t^L)^\varphi - (t^R)^\varphi\right) - \theta(t^L - t^R)\bar{y}_r + \theta\psi_r + \frac{1}{2}$$

Vote share for party L in urban areas is

$$s_u(t^L, t^R) = \theta A\bar{y}^\varphi\left((t^L)^\varphi - (t^R)^\varphi\right) - \theta(t^L - t^R)\bar{y}_u + \theta\psi_u + \frac{1}{2}$$

Parties choose the policy that, if implemented, maximizes the utility of their median voter. In the language of Roemer (2006), both parties are run by "militants." A party that wins more votes from urban areas will choose a policy that maximizes the utility of urban voters; one that wins more votes from rural areas will choose a policy that maximizes the utility of rural voters. This assumption can be justified on the grounds that parties cannot credibly commit before an election to implement policies, but once in office are accountable to their memberships.

The policy that maximizes utility for urban voters is

$$t_u^* = \arg\max_t A\,(t\bar{y})^\varphi + (1-t)\bar{y}_u = \left(\frac{\varphi A\bar{y}^\varphi}{\bar{y}_u}\right)^{\frac{1}{1-\varphi}}$$

The policy that maximizes utility for rural voters is

$$t_r^* = \left(\frac{\varphi \bar{y}^{\varphi}}{\bar{y}_r}\right)^{\frac{1}{1-\varphi}}$$

We can write

$$t_u^* = t_r^* \left(\frac{A\bar{y}_r}{\bar{y}_u}\right)^{\frac{1}{1-\varphi}}$$

The ratio of the preferred urban tax rate relative to the preferred rural tax rate is increasing in A, the relative productivity of public goods provision in urban settings, and decreasing in $\frac{\bar{y}_u}{\bar{y}_r}$, the ratio of urban to rural average income. Because by assumption $A > \frac{\bar{y}_u}{\bar{y}_r}$, we see $t_u^* > t_r^*$. If the efficiency of providing the public good in urban areas exceeds the difference in wealth between urban and rural areas, urban voters will demand higher tax rates than rural voters.

B.2 *Equilibrium*

A political equilibrium is a pair of policies $\{t^L, t^R\}$ and accompanying vote shares $\{s_u(t^L, t^R), s_r(t^L, t^R)\}$ such that each party's policy maximizes the utility of the median voter within its coalition, and each voter chooses the party that maximizes her payoff subject to preference shocks.

In equilibrium, the parties can converge on the policies preferred by rural or urban voters, or diverge. For intuition for why convergence can occur in equilibrium, suppose that voters' have no non-economic place-specific preference for either party, that is, $\psi_r = \psi_u = 0$. Under that assumption, if the parties choose the same policy, their coalitions will be identical. Divergence can be an equilibrium if the party that proposes the higher tax rate wins most of its votes from urban voters, and the party that proposes the lower tax rate wins most of its votes from rural voters.

Proposition 1. *If* $\lambda \leq \bar{\lambda}_r := \frac{1+2\theta\psi_r}{2(1+\theta(\psi r+\psi_u))}$, $\{t_r^*, t_r^*\}$ *is a political equilibrium.*

For there to be a political equilibrium in which both parties maximize the welfare of rural voters, the median voter in both parties must be rural. From the assumption that $\psi_r \leq \psi_u$, if both parties choose the same policy, party R will win more votes from rural voters relative to urban voters than party L. If L's median voter is rural, so is R's. The fraction of the total vote L wins from rural voters is given by $(1-\lambda)s_r(t_r^*, t_r^*)$, and the fraction of the total vote L wins from urban voters is given by $\lambda s_u(t_r^*, t_r^*)$. Combining these two expressions into an inequality and rearranging gives

$$\frac{\lambda}{1-\lambda} \leq \frac{s_r(t_r^*, t_r^*)}{s_u(t_r^*, t_r^*)}$$

Substituting in $s_u(t_r^*, t_r^*) = \theta\psi_u + \frac{1}{2}$ and $s_r(t_r^*, t_r^*) = \theta\psi_r + \frac{1}{2}$ gives

$$\lambda \leq \frac{1+2\theta\psi_r}{2(1+\theta(\psi r+\psi_u))}$$

Proposition 2. *If* $\lambda \geq \underline{\lambda}_u := \frac{1-2\theta\psi_r}{2(1-\theta(\psi r+\psi_u))}$, $\{t_u^*, t_u^*\}$ *is a political equilibrium.*

The logic is similar to the previous proposition. The median voter in both parties must be urban. The relevant inequality that ensures that R wins more votes from urban than rural voters is

$$\frac{\lambda}{1-\lambda} \geq \frac{1 - s_r(t_u^*, t_u^*)}{1 - s_u(t_u^*, t_u^*)}$$

As $1 - s_r(t_u^*, t_u^*) = -\theta\psi_r + \frac{1}{2}$ and $1 - s_u(t_u^*, t_u^*) = -\theta\psi_u + \frac{1}{2}$, the relevant bound on λ is

$$\lambda \geq \frac{1 - 2\theta\psi_r}{2(1 - \theta(\psi r + \psi_u))}$$

Remark 1. *$\underline{\lambda}_u \geq \bar{\lambda}_r$, and if $\psi_u > \psi_r$ the inequality is strict.*

This remark follows directly from comparing the expressions for $\underline{\lambda}_u$ and $\bar{\lambda}_r$. Substantively, this result means that, except in the knife-edge case with no place-specific differences in bias between the parties, there cannot be multiple equilibria for a given value of λ in which both parties coordinate on either policy platform. If the bias terms differ between the parties, then there is a range of values of λ under which policy convergence is not an equilibrium. Under policy convergence, the difference in vote shares between the two parties are entirely due to the bias terms ψ, and so whether the parties converge on the policy preferred by rural or urban voters does not change vote shares. Thus, if the parties are converged and we increase λ slightly above the highest value for which both parties' majorities are rural, the party with the more positive bias among urban voters begins to win a majority of its votes from urban voters before the party with the less positive bias does.

Proposition 3. *$\exists \underline{\lambda}_d, \bar{\lambda}_d$ such that if $\lambda \in [\underline{\lambda}_d, \bar{\lambda}_d]$, $\{t_u^*, t_r^*\}$ is an equilibrium.*

For an equilibrium in which the parties diverge on policy, a majority of votes for L must come from urban voters and a majority of votes for R must come from rural voters. The first condition implies the inequality $\lambda s_u(t_u^*, t_r^*) \geq (1-\lambda) s_r(t_u^*, t_r^*)$, the second, $\lambda(1 - s_u(t_u^*, t_r^*)) \leq (1-\lambda)(1 - s_r(t_u^*, t_r^*))$. Define $\underline{\lambda}_d$ (d for divergence) as the lowest value of λ that satisfies the first inequality, and $\bar{\lambda}_d$ as the largest value of λ that satisfies the second. Rearranging and combining gives the following chain of inequalities:

$$\frac{s_r(t_u^*, t_r^*)}{s_u(t_u^*, t_r^*)} = \frac{\underline{\lambda}_d}{1 - \underline{\lambda}_d} \leq \frac{\lambda}{1-\lambda} \leq \frac{\bar{\lambda}_d}{1 - \bar{\lambda}_d} = \frac{1 - s_r(t_u^*, t_r^*)}{1 - s_u(t_u^*, t_r^*)}$$

To show that there are values of λ for which the divergent equilibrium exists, we must show that $\underline{\lambda}_d \leq \bar{\lambda}_d$.

Note that $s_r(t_u^*, t_r^*) < s_r(t_r^*, t_r^*)$ and $s_u(t_u^*, t_r^*) > s_u(t_r^*, t_r^*)$. t_u^* is the policy that maximizes the welfare of urban voters, t_r^* is the policy that maximizes the welfare of rural voters, and the vote share for a given party with a given group of voters is increasing in the welfare of those voters under the policy the party proposes. If R chooses the policy t_r^*, and L switches from proposing t_r^* to t_u^*, L must increase its share of the vote among urban voters and decrease its share of the vote among rural voters. By the same logic, $1 - s_r(t_u^*, t_r^*) > 1 - s_r(t_u^*, t_u^*)$ and $1 - s_u(t_u^*, t_r^*) < 1 - s_u(t_u^*, t_u^*)$. Combining these inequalities with the identities of $\bar{\lambda}_r$ and $\underline{\lambda}_u$

gives the following:

$$\frac{s_r(t_u^*, t_r^*)}{s_u(t_u^*, t_r^*)} < \frac{s_r(t_r^*, t_r^*)}{s_u(t_r^*, t_r^*)} = \frac{\bar{\lambda}_r}{1 - \bar{\lambda}_r} \text{ and } \frac{1 - s_r(t_u^*, t_r^*)}{1 - s_u(t_u^*, t_r^*)} > \frac{1 - s_r(t_u^*, t_u^*)}{1 - s_u(t_u^*, t_u^*)} = \frac{\underline{\lambda}_u}{1 - \underline{\lambda}_u}$$

The left-hand side expression implies that $\underline{\lambda}_d < \bar{\lambda}_r$, the right-hand side that $\bar{\lambda}_d > \underline{\lambda}_u$. From Remark 1, it follows that $\underline{\lambda}_d < \bar{\lambda}_d$.

Remark 2. *For $\lambda \in [\underline{\lambda}_d, \bar{\lambda}_r]$ and $\lambda \in [\underline{\lambda}_u, \bar{\lambda}_d]$, both policy divergence and convergence are equilibria.*

This result follows immediately from the three propositions. Substantively this result means that at intermediate levels of urbanization one could observe polarization without any fundamental change in urbanization or other model parameters. The logic for why both divergent and convergent equilibria are possible at certain levels of urbanization is that policy divergence accentuates urban-rural divides. If a large enough majority of voters are rural, when both parties choose policies that benefit rural voters both win most of their votes from rural voters, creating an internal majority in favor of pro-rural policies in both parties. However, if the parties polarize, the party choosing policies that benefit urban voters more will bring more urban voters into its coalition, and lose rural voters, and so, if the rural population share is not too large, can create an internal majority in favor of pro-urban policies. A shock to a party's vote share among urban voters, for instance from implementing a policy that benefits urban voters more, can lead to durable policy divergence.

C 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. 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. Columns (3) and (4) of Table A-1 show that larger towns spent a smaller share of their budgets on highway maintenance.

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:

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

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

This table shows the results of regressions of government effciency 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 overhead efficiency, 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

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, which I measure at the town level using the 1930 Census microdata and the Census Place Project. Model (6) suggests an agglomeration elasticity of $\alpha = 0.078$.

Residents of smaller towns and villages had more difficulty in accessing New Deal programs. The theoretical microfoundation for access costs in Appendix A 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-1 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 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.

Figure A-1: Relationship between place size and New Deal participation

Economies of scale in administrative costs also appear to have applied to the administration of Social Security. Figure A-2 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.

In Michigan, for which Haber (1935) reports county level statistics on the administrative cost and total disbursements of the state's emergency relief program, administrative costs relative to disbursements were lower in counties with greater agglomeration (Table A-3).

Figure A-2: Lower Social Security administrative costs relative to disbursements in more urban states

	log infant mortality			log school attendance		
	(1)	(2)	(3)	(4)	(5)	(6)
overhead efficiency	-1.133^{***}	-0.868^{***}	-0.805^{***}	0.155^{***}	0.096^{***}	0.124^{***}
	(0.323)	(0.256)	(0.222)	(0.040)	(0.032)	(0.032)
log spending / pop			0.080			0.036^{***}
			(0.070)			(0.009)
Controls		x	x		x	x
DV mean	-2.866	-2.866	-2.866	-0.509	-0.509	-0.509
N	1760	1758	1758	1758	1758	1758
R^2	0.216	0.278	0.280	0.449	0.573	0.588

This table shows the results of county-level regressions of log infant mortality and the log share of children attending school against overhead efficiency. All models include state fixed effects, models (2), (3), (5), and (6) control for the shares in agriculture and manufacturing, the immigrant and white population shares, and union potential, (3) and (6) also control for log spending per capita. Standard errors clustered by state in parentheses. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A-2: Relationship between overhead efficiency, infant mortality and school attendance, for non-Southern counties in 1932

	Administrative costs / total relief spending					
	(1)	(2)	(3)	(4)	(5)	(6)
agglomeration	-0.047^{***}	-0.043^{*}				
	(0.015)	(0.022)				
overhead efficiency			-0.184^{***}	-0.171^{***}	-0.155^{***}	-0.166^{***}
			(0.055)	(0.051)	(0.055)	(0.052)
% urban					-0.023^{**}	-0.014
					(0.009)	(0.012)
Controls		x		x		x
DV mean	0.081	0.081	0.081	0.081	0.081	0.081
N	82	82	82	82	82	82
R^2	0.141	0.241	0.142	0.312	0.203	0.321

This table shows the results of regressions of the county-level ratio of emergency relief administrative costs to total emergency relief spending, in Michigan, December 1934–February 1935, against agglomeration, overhead efficiency and urbanization. All models include an intercept. Even-numbered models also control for the shares employed in agriculture and manufacturing, the white and immigrant shares of the population, and union potential. Robust standard errors in parentheses. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A-3: Relationship between agglomeration, overhead efficiency, and the cost of emergency relief administration in Michigan

Figure A-3: Overhead efficiency correlates with lower government overhead spending per capita, not with higher spending in other policy areas

This figure shows binned scatterplots of the relationship between overhead efficiency at the county level and log general government overhead spending per capita (left) and log government spending per capita over other categories (right).

D INCORPORATING CONSUMPTION PRICE DIFFERENCES

The model in the main section treats private consumption as a numeraire and so implicitly assumes that agglomeration decreases the cost of providing public services relative to private services. This appendix extends the model to include consumption. Doing so makes this assumption explicit, and suggests ways to validate it empirically. The appendix then takes two different approaches to measuring the relationship between town size and private consumption prices. Consumption prices tended to be higher in larger cities, especially the largest cities, which is consistent with the assumption that the cost of providing public services decreased relative to private services with city size.

D.1 *Adding Private Consumption to the Model*

Suppose that instead of individual utility being linear and additive in government services and post-tax income, it is instead linear and additive in government services and the consumption of private goods:

$$u_{il} = G_l + q_{il}$$

where q_{il} is the quantity of private goods consumed by i. The price of private goods in l is P_l. An individual with posttax income $(1-t)y_i$ can buy $\frac{(1-t)y_i}{P_l}$ units of the private good and so, inserting this identity and the public good production function from Section 2, has indirect utility of $v_{il} = \bar{A}n_l^{\alpha}(t\bar{y})^{\varphi} + \frac{(1-t)y_i}{P_l}$.

Private goods are produced under perfect competition using a numeraire freely traded input. With 1 input, a firm can produce Z_l units of the private good. I allow the production of private goods to vary with population:

$$Z_l = n_l^{-\gamma}.$$

$\gamma > 0$ would indicate congestion effects that make the private sector less productive in larger cities, while $\gamma < 0$ would indicate agglomeration effects in the private sector.

Perfect competition insures that the price of the private good equals its cost: $P_l = \frac{1}{Z_l} = n_l^{\gamma}$. Note that γ is the elasticity of prices to city population.

Substituting this identity into the expression for indirect utility and solving for the preferred tax rate gives:

$$t_{il}^* = \left(\frac{\bar{A}n_l^{\alpha}P_l\bar{y}^{\varphi}}{y_i}\right)^{\frac{1}{1-\varphi}} = \left(\frac{\bar{A}n_l^{\alpha+\gamma}\bar{y}^{\varphi}}{y_i}\right)^{\frac{1}{1-\varphi}}.$$

This expression differs from that in the main text in that individuals in places with higher private good prices will also prefer higher taxes, the logic being that they get more value from government spending when the private sector is less efficient.

Whether t_{il}^* increases or decreases with population, n_l, depends on whether public sector agglomeration dominates private sector agglomeration, that is whether $\alpha > -\gamma$. Note that while this setup makes additional assumptions on how the private sector market operates, the necessary assumption simply concerns the elasticity of private-sector prices to population.

While one can treat this as a purely empirical question—and I present empirical evidence

below—there are theoretical reasons to expect $-\gamma < \alpha$. One reason is that much private consumption consists of housing, which is inelastically supplied, discussed below.

D.2 *Microfounding Congestion in the Housing Market*

Consider the following alternative microfoundation for the private market. Individual i in l privately consumes a Cobb-Douglas bundle of housing h_{il} and a tradable numeraire f_{il} (e.g. food) in addition to government services. The utility function is:

$$u_{il} = G_l + \left(\frac{h_{il}}{\gamma}\right)^{\gamma} \left(\frac{f_{il}}{1-\gamma}\right)^{1-\gamma}.$$

Standard derivations give that individuals spend fraction γ of their post-tax budgets on housing, and that indirect utility can be expressed as

$$v_{il} = G_l + \frac{(1-t)y_i}{r_l^{\gamma}},$$

where r_l (rent) is the price of housing (and the price of the other good is normalized to 1). H_l units of housing are inelastically supplied. The total amount spent on housing is then $(1-t)\gamma\bar{y}_l n_l$, and so the market clearing rental price is

$$r_l = \frac{(1-t)\gamma\bar{y}_l n_l}{H_l}.$$

Substituting this and the public goods production function into the expression for indirect utility gives

$$v_{il} = \bar{A} n_l^{\alpha} (t\bar{y})^{\varphi} + (1-t)^{1-\gamma} y_i \left(\frac{H_l}{\gamma\bar{y}_l n_l}\right)^{\gamma}.$$

Note that—with the exception of the fact that taxes now also affect the demand for housing and thus housing prices—this expression almost directly matches the one above. Here the agglomeration/congestion parameter γ is the share of the private budget spent on housing; in a denser city housing is more expensive and so voters get relatively more for their money from the public sector.

Taking first order conditions gives the following expression relating preferred tax rates t_{il}^* to exogenous variables:

$$\frac{(t_{il}^*)^{1-\varphi}}{(1-t_{il}^*)^{\gamma}} = \frac{\varphi\gamma^{\gamma}\bar{A} n_l^{\alpha+\gamma}\bar{y}^{\varphi+\gamma}}{(1-\gamma)y_i H_l^{\gamma}}.$$

For $\varphi \in (0,1)$ and $\gamma \in (0,1)$, the term on the left-hand side is increasing in t_{il}^*, and the term on the right-hand side is increasing in n_l, and so and individual's preferred tax rate t_{il}^* is also increasing in population.

In sum, this exercise shows two things. First, the model result linking urbanization to support for higher taxes relies on the assumption that the elasticity of private sector consumption prices to city population is less than the elasticity of public sector productivity to city population. Second, a plausible reason for congestion effects to dominate agglomeration

effects in the private sector, ensuring that assumption, is that much private consumption goes towards housing, which is inelastically supplied and thus more expensive in denser areas.

D.3 *Empirical Evidence*

I use two types of data to investigate urban-rural differences in the price of private consumption. First, I digitize the results of contemporary studies of the cost of living in different locations. Stecker (1937) compiled the cost of a family of four's budget in 57 different cities for the WPA in 1935. Harry (1928) compiled an estimate of the cost of living for female teachers in different towns of New York state in 1928. Both sources directly measured the costs of different goods—rent for an apartment, specific food products and so forth—in different locations. These sources provide a measure of the price of a specific consumption basket in different locations. These map fairly closely onto the price index P_l referenced above: if these prices increase with city population, that would indicate congesion effects, $\gamma > 0$, validating the assumption, while prices decreasing with city population would be consistent with agglomeration effects.

Total cost of living in both studies increases with town size (Figure A-4). The elasticities linking consumption prices to town size are $\gamma = 0.019$ in the WPA study and $\gamma = 0.032$ in the New York study. These are positive, satisfying $\alpha > -\gamma$. They are also smaller in magnitude than the elasticities linking public sector efficiency to town size (see Table A-1), suggesting that private consumption prices are of secondary important relative to public sector efficiency in understanding urban-rural differences in relative government efficiency.

Living costs are higher in larger cities because of housing. Housing was the second-largest budget item in both studies (after food), accounting for 18% of budgets on average in Stecker (1937) and 20% of the index constructed by Harry (1928) (the next-largest item in both was clothing). Figure A-5 shows the stronger relationship between city size and housing costs in both studies. Housing is a rivalrous good and a major part of the consumption basket. Other costs, such as food, did not vary clearly with town size. Figure A-6 shows that food costs were uncorrelated with city size in the WPA study and positively correlated, but with a shallower relationship, with city size in the New York study.

The second approach relies on Engel's Law, the well-documented phenomenon that the food share of the budget declines with real income. Research in development economics uses this fact to de-bias purchasing price parity measures (Almås, 2012), and construct price indices across locations (Almås, Kjelsrud and Somanathan, 2019). The key idea is that if one observes two similar individuals in different locations, with the same nominal income but different food budget shares, then the real income of the two individuals must differ, implying different prices in the two locations. Because food prices do not appear to vary much with city size, such variation in prices will be due to variation in the price of the total consumption bundle. The advantage of the Engel Curve approach relative to the consumption basket approach is that it accounts for differences in the quality or variety of goods available in different locations. One might be concerned that larger cities offered consumers a broader variety of consumption opportunities, which would manifest in lower quality- and variety-adjusted prices.

I use data on household consumption budgets from United States Department of Labor, Bureau of Labor Statistics, Cost of Living Division et al. (2009). This is a large survey of

Figure A-4: Cities Had Higher Costs of Living

This figure plots the relationship between measured cost of living and town size. The left panel presents data from Stecker (1937), a study of the cost of living for a family of four in various cities, conducted for the WPA in 1935. The right panel presents data from Harry (1928), a study of the cost of living for female teachers in New York state in 1928. The slopes of the regression lines—corresponding to agglomeration elasticities—are 0.019(0.004) and 0.032(0.005) in the left and right figures respectively.

Figure A-5: Cities Had Higher Housing Costs

This figure plots the relationship between measured cost of rent and town size. The left panel presents data from Stecker (1937), the right panel from Harry (1928).

consumers conducted by the Bureau of Labor Statistics in 1935–1936 as a forerunner of CPI. The survey was conducted to have broad geographic and urban-rural coverage. The ICPSR digitized a sample of the data.

The left panel of Figure A-7 shows the relationship between town size in this data and the non-food consumption share. The red circles are from regressions with no covariates, and show that in larger towns, consumers spent less of their budgets on food, indicating higher real incomes. The blue triangles control for (log) total spending, so that the coefficients capture the local price component of real incomes. They show no clear relationship between city size and prices: midsize cities appear to have lower prices than villages, but metropolises have higher prices. The green squares add controls for family size, state and race and produce

Figure A-6: Cities Did Not Have Higher Food Costs

This figure plots the relationship between measured cost of the food consumption basket and town size. The left panel presents data from Stecker (1937), the right from Harry (1928).

the same nonlinear pattern. This exercise suggests that increasing city size did not on the whole lead to lower consumption prices which would invalidate the model.

Figure A-7: Food Engel Curves Imply No Clear Relationship Between City Size and Price Levels

The left panel plots coefficients from regressing the non-food share of the consumption budget against indicators for the size of the individual's town, using individual-level consumption data from the 1935-1936 Study of Consumer Purchases in the United States (United States Department of Labor, Bureau of Labor Statistics, Cost of Living Division et al., 2009). Confidence intervals are 95% calculated using standard errors clustered by town. The base category is village. Red circles are from a specification without any controls: they show that residents of cities spent a smaller share of their budget on food. Because food spending as a share of consumption decline with income, this indicates greater real incomes in cities. Blue triangles add controls for log total spending and show no clear relationship between city size and food budget shares: residents of midsize cities spent less on food—indicating lower prices—but residents of metropolises (New York City and Chicago) spent more, indicating higher prices. Green squares add controls for family size, state, and race, and confirm this pattern. The right panel shows this relationship nonparametrically, plotting non-food budget shares against total spending, broken down by city size. The thick lines are Loess curves. In all city sizes, the non-food share increases with total spending: residents of large and midsize cities spent a larger share on non-food items relative to villagers, residents of metropolises spent a smaller share.

E URBAN-RURAL COVERAGE OF GALLUP SURVEYS

This appendix discusses coverage of rural voters in Gallup surveys. Much current survey research struggles to obtain adequate samples of rural voters, as discussed by Jacobs and Shea (2024). An advantage of using surveys from the 1930s, is that, in a period when around 40% of voters were rural, polling firms had a strong incentive to adequately survey rural voters.

Gallup's sampling strategy, described in the codebook for Gallup Poll # 1937–0072 began by "draw[ing] a national sample of places (cities, towns and rural areas). These were distributed by six regions and five or six city size, urban rural groups or strata in proportion to the distribution of the population of voting age by these regional-city size strata." Within these places, enumerators were then sent to obtain respondents according to age, sex and socioeconomic quotas.

Note that the definition of urban and rural used in these surveys derives from the individual's place of residence, not self-identified urban or rural status. Nemerever and Rogers (2021) recommend the use self-identified status in studies of rural identity. In this context, the use of place of residence is more appropriate given that the theoretical mechanism being examined does not relate to rural identity but to the influence of economic geography on policy preferences via its influence on government efficiency.

While there are clear limitations to quota-controlled surveys, building geography into the sampling method should help to obtain geographically representative samples. In the survey questions I examine, the share of rural respondents ranges from 33% to 39%. Table A-4 reports the urban share for the regressions I estimate using this survey data, along with the coefficients. To further evaluate the representativeness of the data, I calculate the share of rural residents in all Gallup surveys 1936–1938 by state, which I plot against the share of urban residents in that state in the 1940 census. Figure A-8 shows this relationship. The urban share of each state's Gallup sample corresponds closely to the share in the census: the slope of the regression line linking the two is 1.04. There are two exceptions to note. First, the Gallup sample does slightly under-represent rural residents across the board (the intercept in that regression is 0.02 rather than 0). Second, this close correspondence with the Census is limited to the North. In the former Confederacy—which I exclude from the analysis—the relationship between the Census's share of urban residents and the Gallup sample's share of urban respondents is much weaker. This weaker relationship reflects the fact that Gallup deliberately undersampled Southern Black residents because it aimed to sample voters.

Table A-4: Effect of urban status on Gallup survey responses

	Base		Controls				
	Coef	S.E.	Coef	S.E.	Mean	N	Urban share
Government Spending and Taxation							
Support increased government spending	0.123***	(0.017)	0.0755***	(0.0208)	0.388	3,665	0.655
Government spending too little on relief	0.116***	(0.0259)	0.0771***	(0.0249)	0.336	2,276	0.656
Preferred income tax rate (%)	0.0435*	(0.0232)	0.0842***	(0.0308)	0.237	1,884	0.657
Support for New Deal Democrats							
Prefer New Dealer to conservative Democrat	0.102***	(0.0221)	0.0745***	(0.0264)	0.578	3,173	0.67
Want more liberal policies from Roosevelt	0.113***	(0.0141)	0.0973***	(0.0146)	0.335	6,106	0.649
Prefer a Liberal to a Conservative party	0.0886***	(0.0155)	0.0565***	(0.0175)	0.487	7,712	0.667
Support for Specific Programs							
Support increased spending on unemployment relief	0.178***	(0.0207)	0.128***	(0.0214)	0.385	2,412	0.652
Support revival of AAA	−0.0733***	(0.0257)	−0.0575*	(0.032)	0.384	3,605	0.608
Support old age pensions	0.0531*	(0.0322)	0.0316	(0.0388)	0.705	3,484	0.666
Approve of Social Security	0.0882***	(0.0166)	0.0478**	(0.0195)	0.748	2,590	0.656
Approve of tax for Social Security	0.0909***	(0.024)	0.0508*	(0.0263)	0.733	2,348	0.655

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-8: Gallup Surveys Broadly Cover the Urban and Rural Populations

This figure plots the share of urban respondents in Gallup surveys, 1936–1938, against the share of urban residents in each state in the 1940 census. Southern states are colored blue, Non-Southern red. The black line has a slope of 1 and intercept of 0, the red and blue lines are the OLS fits for the two groups. The size of the dots corresponds to the number of respondents, weighted with Berinsky and Schickler's weights.

F ADDITIONAL TABLES AND FIGURES

Figure A-9: 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-10: Federal intergovernmental transfers for education and public welfare increased after 1932

Table A-5: 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
overhead efficiency, 1932	1,760	0.830	0.065	0.731	0.902
overhead efficiency (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
log agglomeration, 1930	1,758	0.601	0.106	0.460	0.803
log overhead efficiency, 1932	1,759	-0.190	0.084	-0.312	-0.103
log share of spending on highways, 1932	1,748	-2.055	0.679	-3.294	-1.147
log police and fire spending per capita, 1932	1,673	-7.151	1.192	-9.035	-5.175
log 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

	Δ% 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				x
Union controls		x			x		x			x
Additional controls			x		x			x		x
Δ% 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
N	1729	1761	1761	1761	1729	1723	1754	1754	1754	1723
R^2	0.600	0.582	0.597	0.583	0.615	0.600	0.582	0.596	0.583	0.615

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-6: Effects of urbanization on voting, controlling for income changes, unionization, development, and trends in voting

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

This table shows the results of regressions of the change in the Democrat share of the two-party vote against the overhead efficiency. 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-7: Robustness of effects of overhead efficiency on voting, controlling for income changes, unionization, development, and trends in voting

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

This table shows the results of regressions of the change in the Democrat share of the two-party vote against agglomeration and the overhead efficiency, 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-8: Robustness of effects of agglomeration and overhead efficiency on voting, not winsorizing

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

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-9: Effects of alternative measures of productivity on realignment towards Democrats

	log spending					
	(1)	(2)	(3)	(4)	(5)	(6)
overhead efficiency	6.906^{***}	4.606^{***}	3.673^{***}	-0.140	-0.053	-0.051
	(0.770)	(0.669)	(0.535)	(0.285)	(0.316)	(0.314)
% urban			2.061^{***}			0.066
			(0.217)			(0.055)
log population				0.970^{***}	0.918^{***}	0.911^{***}
				(0.021)	(0.020)	(0.020)
Controls		x	x		x	x
DV mean	6.224	6.224	6.224	6.224	6.224	6.224
N	1760	1758	1758	1760	1758	1758
R^2	0.473	0.713	0.770	0.963	0.968	0.968

This table shows the results of county-level regressions of log spending against overhead efficiency. The dependent variable is log of government spending exclusive of highway maintenance in 1932. All models include state fixed effects, models (2), (3), (5), 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-10: Relationship between overhead efficiency and 1932 spending, for non-Southern counties

Figure A-11: The federal share of US government spending radically increased after 1932

This figure shows the share of government spending net of national defense and international relations attributed to the Federal Government, from US Department of Commerce (1969). Transfers between levels of government are subtracted from the recipient level.

Figure A-12: The large increase in union membership took place after 1936

Figure A-13: 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.

Figure A-14: 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-13 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-15: Spatial distribution of overhead efficiency

The left panel maps overhead efficiency, the right maps the residuals from regressing overhead efficiency against 1930 % urban and state fixed effects

Figure A-16: Relationship between urbanization, agglomeration, overhead efficiency, and New Deal spending across categories

This figure shows estimated coefficients and 95% confidence intervals from regressing log spending per capita across different New Deal programs against urbanization, agglomeration, and overhead efficiency. Each point is the coefficient on the independent variable from a separate regression. Red dots are from specifications using only state fixed effects, blue triangles include controls for the shares in agriculture and manufacturing, the white and immigrant shares, and union potential. Standard errors are clustered by state.

	Δ ln deposits, 35–36			Δ ln deposits, 32–36			Δ ln sales, 33–35		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
% urban	0.064			0.061			−0.021		
	(0.043)			(0.081)			(0.029)		
agglomeration		0.144*			0.051			−0.010	
		(0.078)			(0.107)			(0.037)	
overhead efficiency			0.140			−0.357			0.117
			(0.094)			(0.223)			(0.100)
DV mean	0.112	0.112	0.112	0.29	0.29	0.289	0.265	0.265	0.265
N	1634	1633	1629	1631	1630	1626	1755	1749	1753
R^2	0.142	0.146	0.140	0.167	0.166	0.170	0.216	0.218	0.216

This table shows the results of regressions of short-run economic growth against urbanization, agglomeration and overhead efficiency. In (1)–(3) the dependent variable is the change in the log value of bank deposits between 1935 and 1936, in (4)–(6), the change in the log value of bank deposits between 1932 and 1936, in (7)–(9) the change in log retail sales per capita between 1933 and 1935. All models include state fixed effects and controls 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 A-11: Conditional on controls, urbanization, agglomeration and overhead efficiency, efficiency were uncorrelated with short term economic growth

Table A-12: Gallup Poll Questions and Sources

Question	Full Question or Questions	Source
Support increased government spending	Do you think government spending should be increased to help get business out of its present slump? (1 = YES!, 0 = NO!)	Gallup Poll # 1938-0120, April 21–26, 1938; # 1938-0123, May 22–27, 1938
Government spending too little on relief	In your opinion, is the government spending too little, too much, or the right amount for relief and recovery? (1 = Too Little, 0 = Too Much)	Gallup Poll # 1937-0077, April 7–12 1937
Preferred income tax rate (%)	How much do you think a married man earning \$3,000/\$5,000/\$10,000 a year should pay in the form of income taxes (answer as % of income)	Gallup Poll # 1937-0077, April 7–12, 1937
Prefer New Dealer to conservative Democrat	If Roosevelt is not a candidate for reelection in 1940 would you prefer a conservative type of candidate, or a New Dealer (88, 109); Asked of Democrats, If Roosevelt is not a candidate in 1940, would you prefer a conservative or a New Dealer for President? (126) (1 = New Dealer, 0 = Conservative)	Gallup Poll # 1937-0088, June 23–28, 1937; # 1938-0109, January 20–25, 1938; # 1938-0126, June 23–28, 1938

Want more liberal policies from Roosevelt	Should President Roosevelt's second administration be more liberal, more conservative, or about the same as his first? (56) (1 = More Liberal, 0 = More Conservative); Do you think the policies of the Roosevelt administration are too liberal, too conservative, or about right? (103, 104) (1 = Too Conservative, 0 = Too Liberal), During the next two years would you like to see the Roosevelt Administration be more liberal or more conservative (125) (1 = More Liberal, 0 = More conservative)	Gallup Poll # 1936-0056, November 6–11, 1936; # 1937-0103, November 14–19, 1937; # 1937-0104, November 21–26, 1937; # 1938-0125, June 11–16, 1938
Prefer a Liberal to a Conservative party	If there were only two political parties in this country—one for conservatives and one for liberals—which would you join? (69), If these two new parties were formed [Liberals and Conservatives], which one do you think you would join? (94); Which party [Liberals and Conservatives] do you think you would like to join? (118); If there were only two political parties in this country—one for conservatives and the other for liberals—which do you think you would join? (127); If the Democratic and Republican parties went out of existence would you join the Conservative or the Liberal party? (132) (1 = Liberal, 0 = Conservative)	Gallup Poll # 1937-0069, February 17–22, 1937; # 1937-0094, August 4–9, 1937; # 1938-0118, April 8–13, 1938; # 1938-0127, July 4–9, 1938; # 1938-0132, September 15–20, 1938
Support increased spending on unemployment relief	Do you think government expenditures should be increased or decreased on the following: Unemployment relief? (1 = Increased, 0 = Decreased)	Gallup Poll # 1937-0101, October 20–25, 1937
Support revival of AAA	Would you like to see the AAA (crop control act) revived? (1 = Yes, 0 = No)	Gallup Poll # 1937-0068, February 10–15 1937; # 1937-0069, February 17–22, 1937
Support old age pensions	Do you favor the compulsory old age insurance plan, starting in January, which requires employers and workers to contribute equally towards workers' pensions? (56); Do you favor the present compulsory old age insurance plan which requires employers and workers to contribute equally toward workers' pensions? (65) (1 = Yes, 0 = No)	Gallup Poll # 1936-0056, November 6–11, 1936; # 1937-0065, January 20–25, 1937
Approve of Social Security	Do you approve of the present Social Security laws which provide old age pensions and unemployment insurance? (1 = YES!, 0 = NO!)	Gallup Poll # 1938-0127, July 4–9, 1938
Approve of tax for Social Security	Do you approve of this tax? [to fund social security] (1 = Yes, 0 = No)	Gallup Poll # 1938-0107, December 30, 1937–January 4, 1938

Figure A-17: Results showing urban survey respondents were more supportive of the New Deal are not sensitive to weighting

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. Unlike in the main figure, this figure does not reweight observations.

	Δ% Democrat 1932–1936			
	(1)	(2)	(3)	(4)
% urban	0.119***			0.112***
	(0.036)			(0.035)
agglomeration		0.169***		
		(0.050)		
overhead efficiency			0.094***	0.082**
			(0.032)	(0.031)
% agricultural	−0.223**	−0.203*	−0.359***	−0.210**
	(0.099)	(0.115)	(0.096)	(0.095)
% manufacturing	0.088	0.094*	0.076	0.083*
	(0.052)	(0.053)	(0.053)	(0.049)
% white	−0.049	−0.045	−0.060*	−0.059*
	(0.033)	(0.040)	(0.031)	(0.032)
% foreign born	0.166**	0.153**	0.182**	0.178**
	(0.067)	(0.071)	(0.067)	(0.069)
union potential	0.066	0.079	0.020	0.077
	(0.100)	(0.104)	(0.101)	(0.098)
Urban/efficiency coefficient				
relative to agriculture	0.532	0.832	0.262	0.391
relative to manufacturing	1.343	1.804	1.237	0.984
N	1761	1754	1754	1754
R^2	0.582	0.581	0.581	0.585

This table reproduces models (2) and (4) of Table 1, and models (2) and (4) of Table 2, standardizing both the independent and dependent variables, so that each coefficient can be interpreted as the effect of a standard deviation increase in the variable in question in terms of standard deviations of the outcome—the change in voteshare for the Democrats 1932–1936—holding the other variables fixed. Rows above the number of observations report the value of the coefficients on % urban (1), agglomeration (2), and overhead efficiency scaled by the coefficient son % agricultural and % manufacturing. All models include state fixed effects. Standard errors clustered by state in parentheses. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A-13: Effects of urbanization and efficiency on realignment towards the Democrats after 1932, standardized estimates for benchmarking

	Voted for FDR in 1936								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Urban (2,500 cutoff)	0.103***					0.070***		0.058***	
	(0.004)					(0.004)		(0.004)	
City (25,000 cutoff)		0.141***					0.117***		0.107***
		(0.005)					(0.005)		(0.005)
Occupation:									
Business/Professional			−0.159***			−0.160***	−0.143***	−0.140***	−0.126***
			(0.004)			(0.004)	(0.006)	(0.004)	(0.006)
Occupation:									
Unemployed			0.145***			0.136***	0.152***	0.122***	0.135***
			(0.005)			(0.005)	(0.007)	(0.006)	(0.008)
Black				0.117***		0.035***	−0.010	−0.028**	−0.094***
				(0.010)		(0.010)	(0.016)	(0.011)	(0.018)
Female					−0.042***	−0.032***	−0.030***	−0.022***	−0.015***
					(0.003)	(0.003)	(0.005)	(0.003)	(0.004)
South								0.218***	0.245***
								(0.004)	(0.005)
Excluding South	x	x	x	x	x	x	x		
N	155284	83406	153056	155284	155284	153056	82659	178310	99372
R^2	0.013	0.021	0.041	0.007	0.004	0.046	0.051	0.062	0.079

This table shows the results of regressions of whether the individual voted for Roosevelt (1) or the Republican candidate, Landon (0), in the 1936 presidential election, using all Gallup surveys with available data from the period 1936–1938. In model (1) the independent variable is whether the respondent is living in an urban area, defined as having more than 2,500 residents, in (2), whether the respondent lives in a town of more than 25,000 residents, in (3) the respondent's occupation—the base category is labor, in (4) whether the respondent is classified as Black, in (5), female. (6)–(9) include all these predictors. (1)–(7) exclude respondents from the South, (8) and (9) include them, and include the South as an additional predictor. Observations are weighted following Berinsky and Schickler's to approximate the total population. Robust standard errors in parentheses. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A-14: Urban-rural gaps in voting for Democrats in 1936 as measured in Gallup survey data

	Δ% Democrat 1932–1936			
	(1)	(2)	(3)	(4)
% urban	0.097***	0.042***		
	(0.007)	(0.008)		
agglomeration			0.168***	0.073***
			(0.013)	(0.012)
Controls		x		x
DV mean	-0.017	-0.017	-0.017	-0.017
N	3085	3085	3033	3033
R^2	0.450	0.503	0.458	0.509

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 $\alpha = 0.078$. Unlike Table 1, these models include counties in the former Confederacy. 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 A-15: Effects of urbanization on realignment towards the Democrats after 1932, including the South

	Georgia		North Carolina		Virginia		Tennessee	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
% urban	−0.256***	−0.211***	−0.108**	−0.181**	−0.082***	−0.017	0.161***	0.088
	(0.026)	(0.038)	(0.053)	(0.087)	(0.022)	(0.027)	(0.052)	(0.060)
Machine New Deal stance	Anti	Anti	Anti	Anti	Anti	Anti	Pro	Pro
Controls		x		x		x		x
DV mean	0.519	0.519	0.496	0.496	0.79	0.79	0.604	0.604
N	958	958	600	600	496	496	661	661
R^2	0.669	0.677	0.247	0.426	0.409	0.531	0.603	0.609

This table shows the results of county-level regressions of the share of the vote won by the dominant Democratic Party faction in Democratic Party gubernatorial primaries in four southern states, over the period 1932–1945. The main independent variable is the urban share of the population. In Models (1)–(2) the dependent variable is the share of the vote won by the Talmadge faction candidate in Georgia, in (3)–(4) voteshare for the Shelby machine candidate in North Carolina, in (5)–(6) voteshare for the Byrd organization candidate in Virginia, (7)–(8) voteshare for the Crump machine candidate in Tennessee. In Georgia, North Carolina, and Virginia, the dominant machine opposed the New Deal, in Tennessee it supported it. All models include election fixed effects. Even-numbered models control for the shares employed in agriculture and manufacturing, the white and immigrant shares of the population, and union potential. Standard errors clustered by county in parentheses. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A-16: Urban-Rural Divides in Voting For the Dominant Faction in Southern Democratic Party Primaries

Figure A-18: The urban-rural divide in cross-country context

This figure plots data on the urban-rural divide in different countries from the World Political Cleavages and Inequality Database (Gethin, Martínez-Toledano and Piketty, 2021) against log GDP per capita, government revenue as a percentage of GDP, and clientelism. The y axis is the difference between the share of the vote won by left-wing parties and right-wing parties among urban voters, minus the equivalent among rural voters, over the period 2010–2020. The x axises in the three panels are log GDP per capita in 2010 from the World Bank, government revenue as a percentage of GDP in 2010 from the IMF, and the average score weighted by party sizes for expert's judgement of "In general, how much effort do politicians and parties in this country make to induce voters with preferential benefits to cast their votes for them?" from Kitschelt (2013).

Figure A-19: The steepening relationship between policy preferences and vote choice

This figure plots coefficients from year-specific regressions of presidential vote-choice (1 = Democrat, 0 = Republican), against reported ideology, support for higher government spending, and support for federal welfare spending, all coded so that 1 equals the most liberal or pro-spending answer and 0 equals the least. The data is from the ANES. Confidence intervals are 95% calculated from robust standard errors.

Figure A-20: Urbanization and satisfaction with government in 2016 Cooperative Election Survey

This figure shows binned scatterplots of the relationship between zipcode level urbanization (x axis) and satisfaction with various aspects of local government (y axis). The data is at the individual level, as measured in the 2016 Cooperative Election Survey. Individuals are asked "Thinking now about your local community, how would you grade the following:" for each aspect of government, and rate it on a 5 point scale, here 0 corresponds to "Poor" and 4 corresponds to "Excellent." These models adjust for all combinations of gender, education, race, party identification, and union membership.