

Delivering the Vote: The Political Effect of Free Mail Delivery in Early Twentieth Century America*

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Abstract

The rollout of Rural Free Delivery (RFD) in the early twentieth century dramatically increased the frequency with which rural voters received information. This paper examines the effect of RFD on voters' and Representatives' behavior using a panel dataset and instrumental variables. Communities receiving more routes spread their votes to more parties, especially smaller parties. However, we fail to find a significant change in voter turnout. RFD shifted positions taken by Representatives to ones in line with rural communities, including increasing support for pro-temperance and anti-immigration policies. Our results are much stronger in counties with newspapers, supporting the hypothesis that information flows play a crucial role in the political process.

JEL Codes: N41, L87, O18, H54

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As the whole world has been drawn closer together by the inventions and uses of steam and electricity, so farmers may be drawn closer together by the universal practice of free delivery.

– Matthew Williams of Verndale, Minnesota as quoted in the 1900 Yearbook of the United States Department of Agriculture

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1 Introduction

Changes to information flows affect the behavior of both the electorate and politicians. Almond and Verba wrote in their seminal 1963 book, “the man with limited education is a different political actor from the man who has achieved a higher level of education.” When deciding whether to vote and for whom to vote, coordinating with other voters, and interacting with their elected officials, potential voters rely on information from candidates, media sources and other potential voters. However, information networks and access to mass media are usually endogenous to political activity, limiting researchers’ ability to identify settings through which to measure the causal effects of information on political outcomes. Rural Free Delivery (RFD), which introduced daily mail to millions of rural homes at the turn of the twentieth century, provides us with a unique opportunity to explore this relationship.

The late nineteenth century and early twentieth century saw significant changes in how information was gathered and disseminated throughout the United States. The invention of the web rotary press made large-scale newspaper and magazine printing runs possible, and the introduction of radio dramatically reduced the marginal cost of disseminating information. The establishment of telegraph and telephone lines across the country increased the speed of interpersonal communication. These developments had great potential to affect the political process, as they changed the ability of individuals to acquire information, and of political candidates and parties to send messages to voters.

Advancements in information distribution were especially important for residents of rural areas, whose isolation was an acute concern for policy-makers.¹ This isolation was notably apparent in rural residents’ lack of access to daily mail. Since 1863, city dwellers enjoyed either at-home mail delivery or close proximity to post offices, while rural residents were

¹In his 1903 Annual Message to the Senate and House of Representatives, President Theodore Roosevelt said, “Rural free delivery, taken in connection with the telephone, the bicycle, and the trolley, accomplishes much toward lessening the isolation of farm life and making it brighter and more attractive.”

forced to travel several miles to the nearest post office. These concerns led to a push for the expansion of daily mail delivery to rural homes. Created on an experimental basis in 1896, and rolled out across the country during the first decade of the twentieth century, RFD changed the flow of information to rural communities and the information networks within them.

Any attempt to estimate the causal effect of voter information on political outcomes faces a severe endogeneity problem. People with more robust information networks will vote in different ways, elect representatives with different characteristics, and elicit different results from these representatives than will people with less robust information networks. This asymmetry is due to a number of variables and characteristics, many of which are unobserved. We address this problem in two ways. First, RFD caused an almost immediate change in the availability of information to individuals affected by the service, which allows us to use a panel dataset to control for time-invariant county characteristics. Second, any RFD route required approval by the United States Post Office, which required that routes be placed along roads that were passable year-round. We therefore use a set of instrumental variables that capture pre-existing road quality to estimate the causal effect of RFD on political activity. While these variables are related to levels in political activity, we show that they are not associated with trends in political activity, which, in the presence of time and place fixed effects, is our primary identifying assumption.

We find results consistent with the hypothesis that an increase in information to rural voters increases their political power. Though we can rule out a large effect of RFD on voter turnout in Congressional elections, we find that RFD routes increased the competitiveness of Congressional elections, measured by the number of parties receiving 5%, 10%, or 20% of the vote within a county. This increase in competition appears to have benefited small parties (which in this era tended to support Populist causes) as the share of the vote going to neither the Republican nor Democratic party increased with more RFD routes. The observed

effects are larger in communities with daily newspapers, providing support to the hypothesis that RFD changed voting behavior primarily by changing the level of information available to voters. We also find a change in the behavior of elected officials in response to RFD allocation. The policy positions of members of the House of Representatives shifted toward stances associated with rural communities. These shifts are measured in two ways: first, candidates' DW-Nominate scores; second, their voting record on issues of temperance and immigration restrictions. These results suggest that RFD increased the strength of Populist causes in the Progressive Era.

2 Motivation

According to contemporary reports, Rural Free Delivery led to significant changes in rural communities in several ways, primarily the amount of mail sent and received and total newspaper circulation. Increased mail affected the bidirectional flow of information, while higher newspaper circulation changed the dissemination of information. Each of these effects changed the structure of networks and information flows in rural communities, and could have changed the way in which voters reached their decisions and their relationships with their Congressional Representatives.

Gentzkow et al. (2011) showed that the entry of the first newspaper in a county led to a small but significant increase in voter turnout. Television, however, may have had the opposite effect. Gentzkow (2006) found that television has decreased turnout in Congressional elections by two percent per decade. Using data from a field experiment, Gerber et al. (2009) showed that people in Virginia who received a newspaper, regardless of its political slant, were eight percent more likely to vote for a Democratic for governor in the 2005 elections.²

The expansion of local newspaper circulation associated with RFD affected the ability

²Prat and Strömberg (2011) surveys a number of other studies.

of rural voters to coordinate their votes behind individual parties or candidates, and to advocate for specific policies. Small parties, including the Greenback and Populist parties, advocated farmer-friendly policies, while the Grange³ continued to be a strong unofficial political player.⁴ Lacking centralized political machines, the ability of many of these groups to reach rural voters may have been minimal, and therefore would have benefited the most from RFD.

Richer levels of information and connectivity translate to increased social capital, which research has shown leads to an increased ability of voters to elicit favorable policies from elected officials. Strömberg (2004) found that communities in the United States with increased access to radio broadcasts received greater relief funds from the federal government during the New Deal. In Strömberg's model, this increase in political power is driven by an increased likelihood that voters learn about the behavior of their elected officials. When one group becomes better informed, politicians change their behavior by choosing policies favored by the better informed group. Within the context of RFD, this translates to a prediction that Representatives in Congressional districts that receive more routes would shift their positions towards policies favored by rural communities.

Further supporting the idea that information about elected officials changes outcomes, Gentzkow et al. (2006) found the conversion of newspapers from being politically-affiliated to independent, which occurred rapidly in the period before 1920, to be correlated with a decrease in political corruption. Using data from the late 20th and early 21st century, Strömberg and Synder (2010) showed that in areas where newspaper markets and Congressional districts poorly overlap, voters are less able to recognize their elected officials, and

³The National Grange of the Order of Patrons of Husbandry was founded in 1867, becoming a powerful force in the 1870s when falling prices for agricultural goods provided incentive for farmers to organize. The Grange was a farmers organization run by local farm families, providing education, social events, and political advocacy on all manner of issues about which farmers cared.

⁴The temperance movement was of specific interest to many of these smaller parties. The Grange was involved in the temperance movement since at least 1874 (Buck, 1913), and noted temperance advocate Mary Elizabeth Lease was an early Populist candidate.

those officials appear to be less responsive to constituent needs (e.g., less likely to deviate from party lines, acquire less spending for their districts). Similarly, Nicholson (2003) found media exposure to be associated with an increased knowledge about ballot propositions.

Studies conducted in both industrialized and developing countries find similar results. Ferraz and Finan (2008) showed that when audits reported two instances of corruption of mayoral incumbents in Brazil, the likelihood of incumbent re-election decreased by seven percent. Drago et al. (2013) showed that newspaper exit in Italy corresponded to increases in political corruption. Campante et al. (2013) examined a slightly later period in Italy, testing the effect of the rollout of broadband Internet access on voter turnout. They found a nuanced effect, as voter turnout initially decreased but later rebounded as people engaged with political organizations on the Internet; these later effects were particularly influential at helping voters on the fringes of the political spectrum voice their concerns and affect outcomes. Banerjee et al. (2010) conducted a field experiment in India, and found that when voters were provided with newspapers reporting on audits of incumbents, they rewarded high-performing incumbents.

The motivation for such empirical work lies in voting models of imperfect information and models outlining the social motivation for voting. The importance of well-informed voters goes back to Condorcet’s Jury Theorem from 1785, which assumes that voters are well informed. In describing what they call the “Swing Voter’s Curse,” Feddersen and Pesendorfer (1996) illustrate the role of information on the potential voter’s decision to participate in an election and his ability to influence the behavior of others. The “Bandwagon Effect” described by Simon (1954), Bowden (1987), and Mehrabian (1998), predicts that people will become more inclined to vote for a candidate as the candidate’s odds of winning increase. Given that a voter’s perception of a candidate’s popularity with other voters most likely comes from media sources and polls, this too is a story of information.

In the political science literature, the concept of electoral connection (Mayhew, 1974)

argues that office-motivated politicians use policies to increase their chance of re-election. This connection is of course dependent on potential voters being able to obtain information on their politicians' actions. While Mayhew's focus was post-WWII politics, Carson and Jenkins (2011) provide evidence that politicians throughout the period studied in our paper were responsive to the will of voters.

This paper contributes to two literatures: the relationship between information and political development, and historical studies of the effects of RFD. The literature on Rural Free Delivery is less rich than that on the complex relationship between voter information and politics. While Fuller (1955, 1959, 1964) provides valuable historical context on the establishment of Rural Free Delivery, few papers have used RFD to test economic or political science hypotheses. Carpenter (2000) investigated models of state building through several large-scale postal initiatives (including RFD), while Kernell (2001) considered the effect of the individual political gains that members of Congress believed they would receive with the implementation of RFD during the Post Office's transition from a system of patronage to a service.

Research on the political economy effect of information and mass media includes the effect of newspapers (Gentzkow et al., 2011; Chiang and Knight, 2011), radio (Strömberg, 2004), television (Enikolopov et al., 2009; DellaVigna and Kaplan, 2007), and Internet (Falck et al., 2014). This work contributes to this body of work because, although RFD rapidly changed millions of individuals' access to information,⁵ we are unaware of any research that uses RFD to explore causal effects of information acquisition on political outcomes, nor any literature that looks at how RFD affected the policy positions taken by elected representatives.

⁵Feigenbaum and Rotemberg are studying the effect of this expansion of information on investment choices.

3 Rural Free Delivery

While daily mail delivery is now taken for granted, the disparity in the quality of service between rural and urban households in the United States in the late nineteenth century is difficult to overstate. Though people living in cities enjoyed close proximity to post offices or direct home delivery, the only way for rural homes to receive or send mail was to travel to the nearest post office. This was likely a fourth class office, often merely a counter in a local general store. Even in the best conditions, a trip to the post office for someone who lived five miles away would likely entail three and a half hours of travel.⁶ Conditions were seldom ideal,⁷ making travel times much longer, and the mail itself was often delayed (Fuller, 1964, pg. 15). In periods of bad weather, families living on farms would sometimes go weeks at a time without mail.

RFD was promoted as a way to address this disparity in postal service by bringing free daily mail to rural residents.⁸ Under the system, rural routes emanating from existing post offices were established and served daily by rural carriers. Any family wishing to be served by the system needed only to erect a weatherproof box meeting certain standards along the route to receive mail. Early advocates of RFD highlighted the program's potential to alleviate the monotony of rural life. In 1900, Indiana State Senator Thomas J. Lindley wrote of RFD, "[the farmer] no longer feels the isolation of country life. I think the system will contribute largely to prevent the threatened congestion of population in our cities and towns" (Greathouse, 1901).

The first high profile call for RFD came in 1891, from Postmaster General John Wana-

⁶Taking walking speed to be 3.18 miles an hour, the preferred human walking speed found by Browning et al. (2006) and slightly faster than the speed used in Google maps.

⁷American rural roads in the time before the automobile were poor. Fuller (1955) notes that "only about seven per cent of the nation's roadways had been improved with gravel, shell, oil, or some other substance by 1906," and even by "1912, according to one estimate, transport cost the American farmer 23 cents a ton mile... while in England it cost only 11 cents a ton mile, 10 cents in Germany, and in France 7 cents" (Fuller, 1964, pg. 180).

⁸The service was 'free' in the sense that in that there was no cost above postage.

maker. Wanamaker was the founder of a successful department store, and a staunch Republican who was important to President Harrison's campaign.⁹ As Postmaster General he proposed a number of radical changes to the Post Office Department—government ownership of the telegraph and telephone lines, parcel post,¹⁰ and a postal savings bank¹¹—many of which angered established business interests (Fuller, 1964, pgs. 21, 24). Newspapers also saw the particular benefit to their business of RFD,¹² and newspaper owners became strong promoters of the program (Fuller, 1964, pg. 21).

Wanamaker proposed that RFD's feasibility be tested by the implementation of limited delivery in a few rural towns (Fuller, 1964, pg. 18). Wanamaker's successor, Wilson Bissell,¹³ opposed RFD in any form, and never used the fund allocated for Wanamaker's plan (Fuller, 1964, pg. 33). In 1896, under Postmaster William Wilson, the first experimental routes (82 in all) were established (Fuller, 1964, pg. 39).

In Congress, RFD had broader support from Republicans than from Democrats. Kernell and McDonald (1999) argue that political competition from the Populist Party drove Republican lawmakers to support RFD in the 1890s. When President McKinley's administration took over in 1897, several RFD supporters were appointed to positions in the Post Office (Fuller, 1964, pg. 40). Assistant Postmaster Perry Heath and Superintendent of Free Delivery August W. Machen were politically savvy bureaucrats, and likely anticipated the pressure requests for routes would put on House members if they were sent to Representatives directly. Thus, in 1898 the Post Office formalized the mechanism for route allocation: communities wishing to receive a route were to petition their Representative, and route

⁹Wanamaker's, the Philadelphia based department store, was notable for its use of fixed prices, so that employees on the floor need not be deputized to set prices, its introduction of refunds, and, after 1910, the presence of a large pipe organ. It had conducted a mail order business since the late 1870s (John Wanamaker (Firm) et al., 1911, pg. 48).

¹⁰Implemented in 1913.

¹¹Implemented in 1911.

¹²At the time in-county newspapers had the privilege of being delivered for free.

¹³The position of Postmaster General was an appointed member of the President's Cabinet until 1971, and the position was often used as part of the system of patronage politics.

establishment required approval from both the Representative and Postmaster. Due to several well-publicized successes in county-wide RFD networks, Representatives were inundated with petitions from farm communities (Fuller, 1964, pg. 41). In the face of widespread constituent support for the program, even Representatives initially opposed to RFD were forced to support it (Carpenter, 2000).

The 1903 Yearbook of the United States Department of Agriculture described the process of obtaining a route thus:

The delivery of mails by rural carriers is extended in response to petitions presented by the people desiring the service upon forms prepared by the Department, which include a diagram of the proposed route. It is required that the route shall be from 20 to 25 miles in length, so laid out that the carrier will not have to traverse the same road on his return as on his outward trip, and so adjusted that at least 100 domiciles shall be included in the service. Such a petition, when presented to the Department with the approval of the Congressional Representative of the district or of one of the Senators from the State in which the service is asked for, is investigated by one of the special agents in the field, who transmits the papers, with a map of the route or routes to be followed, to the Superintendent in Washington for his adjudication.

These guidelines were determined by the feasibility and cost effectiveness of mail delivery and were the same as those outlined by the Post Office in 1898. One hundred families was deemed to be the minimum number of households necessary to justify a route, while 25 miles was viewed as the longest route mail carriers could reliably serve. Additionally, a route could not be established where roads were not passable year-round (Fuller, 1964, pg. 182). These regulations applied equally to all communities; even if a town had the misfortune of featuring rough terrain or impassable roads, the Post Office did not exercise leniency in its decision to approve or reject a route. Additionally, these official guidelines were largely unchanged during the duration of the rollout of RFD.¹⁴ Between 1900 and 1908, the number of RFD

¹⁴In later years of the rollout (post-1904), the Post Office loosened the requirements to allow for routes serving as few as sixty families. However, this change appeared to be the results of increased Congressional funding and decreases in transportation costs. It is important for our identification strategy that these guidelines were not determined by Representatives, whose motivations may have been political. A map of a rural route can be seen in Figure 1; the local post office can be seen in the northwest corner of the map, with

routes increased from 1,259 to 39,277. Though many communities were left unserved¹⁶ and some are unserved to this day,¹⁷ additional route allocation all but halted by 1908. By that year, more than 88 percent of routes that would ever be extant had been established (Kernell, 2001). During the 1910 Postal Appropriations hearing in front of Congress, Fourth Assistant Postmaster General P.V. De Graw claimed that all communities qualifying for RFD under the 1898 guidelines had received routes, and that only a liberalization of the rules regarding the number of houses served would allow for further route allocation (Post Office Appropriation Bill, 1912, pg. 462). In 1909, facing a deficit in the Treasury, President Taft ordered a dramatic cut in the Post Office budget, which made route creation significantly more difficult (Fuller, 1964, pg. 78). We do not use timing variation of RFD, as we believe the early choice of locations to be practically politically motivated. Therefore, we omit the period of rollout for RFD (1901-1907), and only use the years before 1901 and after 1907 in our analysis.¹⁸

In 1916 Congress passed legislation stating the goal of the postal service to “be extended so as to serve, as nearly as practicable, the entire rural population of the United States.”¹⁹ To move towards this goal, the post office codified the use of automobiles for RFD routes, and expanded the length of routes considerably.

While every congressperson with a rural constituency desired RFD, it was the contemporary belief that some were better able to secure new routes than others. Route allocation was correlated with a number of factors that were likely associated with different levels of political activity. Communities had to apply for routes; therefore, more motivated communities

the route leaving from and terminating at that location. Maps such as these were included with petitions for routes.

Facing mounting pressure from rural communities, Congress made RFD a permanent program in 1902.¹⁵ Rapid expansion of RFD followed quickly, as seen in Figure 2.

¹⁶The Post Office estimated in its 1916 report that 83 percent of the rural population was served in that year.

¹⁷Burlington, IL is one such rural community.

¹⁸Though this period is of considerable interest, it awaits future research.

¹⁹Act of July 28, 1916, 39 Stat. 412, 423

would have received routes more quickly. Additionally, because routes required sponsorship by a Representative, the speed at which a community received a route was in part a function of Representative characteristics, specifically party membership and experience. RFD was seen as a Republican project, and many believed that the Federal Post Office was more responsive to Republican requests, particularly Representatives faced competitive elections (Carpenter, 2000).

To address this endogeneity problem, we use both place and time fixed effects and a set of instrumental variables. By using county (and later in our analysis, Congressional district) fixed effects, we control for time-invariant, unobserved location characteristics. However, as we will show, the inclusion of fixed effects will not provide unbiased estimates. Therefore, we use a set of instruments correlated with route allocation. In the presence of place fixed effects, our identifying assumption is that the instruments are uncorrelated with trends in our outcome variables.

4 Effect on Voters

The estimation of the effect of RFD rollout on voter behavior proceeds in two parts: a fixed effects estimation (section 4.1) and an instrumental variables estimation (section 4.2).

4.1 Fixed Effects Estimation

To understand how counties that received more RFD routes changed compared to those that received fewer, we use a fixed effects model with year and place fixed effects to control for time and place-invariant characteristics. The basic specification for each of our county-level political outcomes is:

$$Y_{ct} = \beta Routes_{ct} + \gamma_c + \delta_t + \mu \mathbf{X}_{ct} + u_{ct} \quad (1)$$

where Y_{ct} are our political outcomes, such as voter turnout; γ_c and δ_t are a set of county and year dummies; \mathbf{X}_{ct} is a vector of county characteristics: percent of the county’s population living in communities of more than 2,500 people and the square of that value, the percent of farmland that was “improved,” the percent of non-white residents, the percent of white, foreign-born residents,²⁰ the natural log of the population, and dummies for the presence of Jim Crow voting laws, whether women had the right to vote, direct election in party primaries, and secret (Australian) ballots; $Routes_{ct}$ is the number of routes in county c in year t . Therefore, β , the coefficient on the number of routes, is the estimate of the causal effect of RFD routes.

Our focus in this paper is the effect of the complete allocation of routes, as opposed to the timing of route allocation. We therefore eliminate the years 1901 to 1907 from our analysis. Additionally, we hold the number of routes in all years 1908 and later constant at their 1908 values,²¹ and all years 1900 and earlier fixed at their 1900 values. Due to the changes in the structure of the rural postal system after the 1916 legislation, we focus only on the five elections immediately following the rollout of RFD (1908-1916) and the five elections immediately before (1892-1900). Given the possibility of state-level shocks (such as Gubernatorial elections), we cluster standard errors at the state level.

4.1.1 Data

We compiled the county-level RFD route allocations using the 1908 United States Official Postal Guide, which listed the number of RFD routes emanating from each post office. This gives a measure of the intensity of RFD service within a county. This is, to our knowledge, the first attempt to compile statistics on the full allocation of routes. We also compiled the number of routes in 1900 for each county using the 1900 Report of the Postmaster General.

²⁰All percents are expressed as a number between 0 and 100.

²¹While some routes were created or expanded from 1908-1916, we argue that this was due largely to population changes, which created new communities that satisfied the Post Office’s requirements for route allocation.

Since the official establishment of the RFD came in 1902, very few routes existed in 1900.

Our voting data are from Clubb et al. (2006), which provides data on county-level voting in each year, including total number of votes, turnout, and vote share for most major and minor parties in elections for the House of Representatives.²² County characteristics data are from Haines (2010). We used the method described in Hornbeck (2010) to harmonize the county boundaries to their 1890 boundaries. In considering the behavior of elected officials, we use the DW-Nominate scores of Representatives (Poole and Rosenthal, 2001), as well as their specific votes on temperance and immigration, two of the most decisive issues of the time. Biographical data on elected officials are from McKibbin (1997).

We constructed our newspaper dataset by supplementing an existing dataset by Gentzkow et al. (2012), which provides circulation data on all English-language daily newspapers printed within a county, excluding professional or social publications. We added data on semi-weekly and three times weekly papers, using the N.W. Ayer and Son’s American Newspaper Annual. This variable does not provide perfect data on newspaper readership, as newspapers consumed in different counties than where they are printed are incorrectly attributed to the printing county. However, Gentzkow et al. (2012) estimated that more than 80% of current newspapers are read in the counties in which they were printed, and argue that this number is likely larger for our period of study (newspapers sent in-county were postage free).

Table 1 shows the trends in most of our outcome and explanatory variables.²³ Voter turnout decreased and newspaper circulation increased significantly over our sample period. By comparing the change in daily newspaper circulation to that of biweekly and three-times weekly newspapers, we can see that the increase in circulation was driven entirely by the

²²Senate seats were assigned by state legislatures until 1914, and are therefore omitted from this analysis. All Congressional election outcomes refer only to elections for the House of Representatives.

²³Although the table does not show statistics on mid-term election years, these years are included in our sample.

expansion of daily papers (as expected from the work of Fuller (1964)). Table 2 shows the allocation of RFD routes in 1908; the average number of routes was about 14, while 81% of all counties received at least one route.

This period featured a number of changes to voting procedures. As Engstrom (2012) has shown, many of these changes affected the turnout of voters, and changes in electoral laws explain much of the decline in voter turnout in the late 19th and early 20th century. Therefore, we include in all our regressions dummy variables for the presence of Jim Crow laws, secret (Australian) ballots, direct election in party primaries, and women’s suffrage. Additionally, in Appendix A.1, we include laws for office bloc ballots,²⁴ party column ballots,²⁵ and off-November elections. This data comes from Engstrom (2012). We omit these variables from our primary regressions, as data on state laws are not available for all years. However, our findings are robust to their inclusion.

4.1.2 Fixed Effects Results

First, we consider voter turnout in congressional elections, using as our dependent variable the percentage of eligible, voting-age adults who cast a vote in elections. Table 3 shows the OLS regression results; an additional route is correlated with a 0.0935% decrease in voter turnout in Congressional elections. However, this result is not precisely estimated. We also convert our route variable into a dummy variable equal to one if a county has a route, and zero otherwise. Receiving RFD at all is associated with a 2.679%, statistically significant, drop in voter turnout.

Next, we consider election competition. We constructed a set of variables that measure the number of candidates who receive vote shares above certain thresholds. Since any threshold is arbitrary, we use several (5, 10, and 20 percent).²⁶ These thresholds allow us to

²⁴Ballots in which candidates are grouped by the office they are seeking, making split-ticket voting easier.

²⁵Ballots that groups candidates by parties.

²⁶For a small number of observations (136) zero candidates are reported as receiving at least 5% of votes.

measure the number of parties that achieve a level of political support within a county. We use this instead of the margin of victory, a more obvious measure of competitiveness. We do this because treatment (RFD routes) varies at the county level, while margins of victory vary only at the Congressional district level. This allows us to use within-district variation in RFD routes and political competitiveness.

The OLS regressions of RFD routes on the number of parties show that more routes are associated with broader support for parties, as seen in columns 3-5 of Table 3. Counties that received more routes changed their voting behavior by voting for a wider variety of parties. Regardless of the threshold, the coefficient on RFD routes is precisely estimated, with an additional route being associated with an increase in the number of competitive parties within a county of between 0.0035 and 0.0055.

To better understand these findings, we consider the cumulative vote share of small parties, which we identify as any party other than Republican and Democratic. Using this vote share as the dependent variable, we use the same specification as before. Lower information transmission costs may be more beneficial to small parties, whose low visibility may have made it difficult to attract votes before the introduction of RFD. Additionally, voters' ability to coordinate behind less visible candidates may have increased with the introduction of RFD.

The results are presented in column 6 of Table 3. The coefficient of 0.113 is statistically significant and means that a one standard deviation change in the number of routes is associated with a 0.12 standard deviation change in the vote share of small parties within a county. Taken along with the results from columns 3-5, we can see that counties that received more routes changed their voting behavior by voting for a wider range of parties, to the benefit of smaller political parties.

However, these represent uncontested elections. We impute values of 1 for the number of competitive parties, but our results are robust to dropping these observations completely.

Figure 3 shows the results of running a local polynomial smoothing on a number of voter outcomes (turnout, number of parties receiving at least 5% or 20% of votes,²⁷ and the share of votes received by a party that is not Republican or Democratic) by the number of RFD routes a county has in 1908. We consider the pre-rollout (1892-1900) and post-rollout (1908-1916) periods separately. Counties do not appear to differ in turnout between the pre- and post-rollout groups. However, for each of the other three outcome variables, counties with more routes show positive shifts in the values of these variables. Figure 4 also examines these outcomes. It plots the difference between the pre- and post-period averages of the residuals from the regression specified in Equation 1. For all outcomes but turnout this figure shows a pattern in the differences between the pre- and post-period averages that starts at zero for counties that received very few routes and that increases with number of routes. This suggests that the number of routes received is related to increases in the number of competitive parties, but not to levels of voter turnout.

Given the endogenous nature of route allocation, we cannot interpret the OLS estimates as unbiased, and previous research suggests a downward bias to all of our estimates. Kernell and McDonald (1999) provide evidence that Representatives facing competitive elections prior to the establishment of RFD were more motivated to acquire routes for their districts. This echoes claims by Fuller (1964), who argued that motivated Representatives (especially Republicans) were able to obtain more routes leading up to contested elections. Voter turnout is typically higher in competitive elections, as is the number of competitive parties. This means that we should expect to see above average voter turnout and competitiveness in the years before RFD associated with high levels of route allocation. If these variables drop in the period after RFD, either because politicians have bought votes and reduced competition or because of regressions to the mean, OLS estimates will suffer from a downward bias.

²⁷The pattern for number of parties receiving at least 10% of votes is very similar, and is omitted out of space concerns.

Using a cross-section of our data (1908 values) we regressed the number of routes allocated to a county as a function of county characteristics and the level of election competition. We constructed a set of dummy variables, indicating whether a district had an election with a margin of victory of 20 percentage points or less or 10 points or less, in any of the three elections prior to the establishment of RFD (1896, 1898, 1900). Table 4 presents the results. Counties in competitive districts enjoyed between 0.84 and 1.27 more RFD routes, a 6%-9% increase. These results support the claim of a downward bias in our OLS estimates.

Kernell and McDonald (1999) point out that RFD routes eliminated thousands of fourth class post office positions. These were important patronage jobs, and postmasters were well-connected advocates for the Representative. To the extent that postmasters were able to mobilize voters for the incumbent, the introduction of RFD could lead to a decrease in the turnout of voters and an increase in the level of electoral competitiveness in counties. However, instead of being a source of bias in our fixed-effect estimates, this is a potential mechanism through which RFD could change our outcome variables.

Importantly, RFD did not appear to be associated with observable economic agricultural variables. Regressing the number of routes on either the percent of farmland that is improved, or the acreage of farmland within a county, using the fixed-effects specification above, fails to find either economically or statistically significant results. For example, one more RFD route is associated with a 0.006% decrease in the percent of farmland labeled improved, with a P-value of 0.81. If the bias of our OLS estimates were due to omitted economic variables, we would expect RFD routes to be associated with observable economic variables as well.²⁸

²⁸We also looked for changes in the number of banks, using county-level numbers of banks in 1900 and 1910. We also fail to observe a relationship between RFD and bank growth.

4.2 Instrumental Variables Estimation

To address the bias of the fixed effects coefficients, we use two sets of instruments for the number of routes a county receives. In choosing suitable instruments, we focus on the requirement that routes be along passable roads. The ability for communities to successfully petition for an RFD route was a function of the quality of roads over that time period. With the existence of place fixed effects, our goal is to find variables that are uncorrelated with trends in our outcome variables. Therefore, even if the instrumental variable is correlated with levels of political activity, it will fall into the place fixed effect, and will be uncorrelated with the error term in our second stage regression.

We use two instruments, the first is the county-level spending of roads and bridges in 1890. At that time, counties and townships bore the brunt of road funding (Fuller, 1955). Because 1890 is well before the establishment of even the experimental RFD routes, and before the creation of the Office of Road Inquiry in 1893,²⁹ which would later become the National Highway Administration, it would have been impossible for county officials to have built roads in anticipation of preferential rural route allocation. Additionally, with the establishment of the Office of Road Inquiry, government responsibility for roads no longer fell on counties, so concerns of auto-correlation of county spending in years during our sample are minimized.

Our other instrument is a set of laws that outline the statutory environment in each state at the onset of RFD route allocation. Between 1888 and 1895, almost every state passed numerous laws related to roads.³⁰ The nature of these laws had lasting impacts on the ability of rural communities to establish roads. Therefore, these laws can be used as instruments for route allocation. We use these state-level laws in combination with the county-level instruments.

²⁹Good roads were commonly demanded by urban bicyclists who would tour rural areas.

³⁰According to the Office of Road Inquiry, most state laws concerning the establishment of roads before 1885 were largely ineffectual.

The dataset on county-level spending on roads and bridges was constructed using the “Report on Wealth, Debt, and Taxation at the Eleventh Census, 1890: Valuation and Taxation.” To determine the state laws passed with regards to local road construction, we used a unique set of documents that provide data on laws passed by state legislatures in the period immediately before the establishment of the first RFD routes: “State Laws Relating to the Management of Roads: Enacted in 1888-1893,” and “State Laws Relating to the Management of Roads: Enacted in 1894-1895,” both published by the U.S. Department of Agriculture, Office of Road Inquiry. These documents provide a thorough account of the legislative actions taken on the state level. We found that relevant legislation fell into one of the following categories:

1. Establishment of road commissioners, or empowering county commissioners to govern roads; in smaller states this took the form of the establishment of state road offices.
2. Outlining road quality rules, or establishing an office of overseer.
3. Use of convict labor for road construction.
4. Allocation of state money for road construction.

We constructed a dataset with four dummy variables, each equal to one if a state passed a law concerning each aspect of road construction, and zero otherwise. Southern states, where poor road quality was continually noted as an impediment to the approval of petitions for RFD routes, had few laws governing the construction of roads, and most of those laws were for convict labor, which appeared to decrease the construction of rural roads (in favor of highways). Most Midwestern states passed at least one law, while Western states were particularly proactive in passing legislation.

Thus, the first stage of our two stage least squares estimation is:

$$Routes_{ct} = \phi Spending_c * Post_t + \eta \mathbf{Laws}_c * Post_t + \delta_t + \gamma_c + \beta \mathbf{X}_{ct} + e_{ct} \quad (2)$$

where $Routes_{ct}$ is the number of routes in county c and year t ; \mathbf{Laws}_c is the set of law dummies; $Spending_c$ is log of spending on roads in 1890; δ_t and γ_c are time and county fixed effects; \mathbf{X}_{ct} is the set of covariates used in our second stage. We interact each of our instruments with a $Post_t$ dummy variable, equal to one if the year is 1908 or after, and zero otherwise. Due to the existence of place fixed effects, we are essentially estimating the change in routes between the pre- and post-rollout years.

Table 5 shows the results for this regression, performed separately for the county and state-level variables. Increased spending on roads and bridges in 1890 is associated with increased RFD route allocation a decade later. The coefficients on the set of law dummy variables reveal a complex relationship between the statutory environment and the allocation of routes. While laws providing mechanisms for oversight and governance over the roads appears to increase the number of routes a county receives, laws allocating state funds, or the use of convict labor led to a decrease in the number of routes. These laws may have been aimed at the construction of highways, and diverted resources away from rural roads. The cliché of prisoners breaking rocks stems from the use of convict labor to make gravel, which was used for highways, not for rural roads. As the F-statistics show, while each of our county-level instruments is sufficiently strong, the set of state laws is too weak to be used as an instrument by itself.³¹ We use both the county level and state-level instruments together in all IV regressions.

Clearly, improved roads can affect rural life in several ways, including access to markets and travel times to urban centers, which may in turn affect political behavior completely independently of RFD. However, our instruments were chosen because they would have affected the quality of roads in both the pre- and post-rollout periods. Because only the number of RFD routes changes between those two periods, the non-RFD affect of roads on voting will fall into the place fixed effect. However, this assumes that the variables used as

³¹We will present the Kleibergen-Paap Wald statistic with our IV regressions.

instruments do not place communities on different paths. Fortunately, this assumption can be evaluated, by looking for parallel trends in our outcome variables across different values of our instrumental variables.

If the instruments are valid, time shocks should be similar across different values of the instrument. To test this, we separate our sample into counties that spend positive amounts on roads and bridges in 1890, and counties that spent nothing. If road construction put counties on different paths through any mechanism, we would expect to see different paths in our outcome variables. Figure 5 shows that the behavior of counties that spent positive amounts of money on roads and bridges appears to follow the same trends as counties that spent nothing.

We can directly test the hypothesis that our instruments led to significant changes in urbanization. We see from the fixed effects results that urbanization had an impact on voting behavior, and it is possible that the instrumental variables changed the density of rural communities. Using the 1900 and 1910 censuses, we regressed the increase in the percent of population living in urban areas in a county on our instruments. We find that none of our instruments have a significant effect in the rate of urbanization, with p-values ranging from 0.214 to 0.893. Therefore, there is little evidence that our instruments are leading to different rates of urbanization.

One well-documented drawback to using IV involves the “intent-to-treat,” which may limit the generalization of our findings. The effect that each of our instrumental variables may have on the allocation of routes depends on the region, climate, and a host of other factors. For example, the point estimate on spending on roads is positive in all regions of the country, but has a coefficient of 0.0000675 in Midwestern states and one that is more than 5.5 times higher (0.000372) in the Deep South, though both point estimates are statistically significant. This may have been due to the flat land in the Midwest, which required less grading to be passable. In the Deep South, an area where the Postal Service repeatedly

denied many petitions for routes due to poor roads, government action may have had more of an impact in determining where routes were allocated.

As Angrist et al. (1996) show, in order for IV regressions to provide an estimate of the local average treatment effect, the instrument cannot affect two different groups in opposite ways. In the context of road spending, this means that increased road spending should only affect the number of routes a community receives by increasing that number (monotonicity). However, if county road spending leads to increased urbanization, it could conceivably *decrease* the number of routes. Fortunately, as shown above, road spending increases the number of routes in all regions, minimizing concerns of a violation of the monotonicity assumption.

4.2.1 IV Results

The results from the IV regression are presented in Table 6.³² Column 1 shows the results using voter turnout as the dependent variable. The negative correlation seen in the OLS results disappears, and we now observe a positive causal effect. An additional route leads to a 0.13 percentage point increase in turnout, though this estimate is not precisely estimated.

The IV results for the number of parties receiving vote share above thresholds, shown in Columns 2-4 match the OLS finding of a positive causal effect, and point estimates that are larger than those found in the OLS regressions. The point estimates range from 0.0132 to 0.0247, depending on the threshold used, meaning that a one standard deviation increase in the number of routes leads to an increase of between 0.29 and 0.55 in the number of parties competitive in an election. As before, we find a shift towards small parties with the rollout

³²Regressions for the instrumental variable modes were calculated using STATA's `xtivreg2` command (Schaffer, 2010). Residual sum of squares is calculated using the structural equation, instead of the residuals for second-stage regression. Therefore, the residual sum of squares could be greater than the total sum of squares, resulting in a negative model sum of squares, and therefore a negative r-squared. Wooldridge (2006) warns against making statistical judgments from r-squared in IV regressions, since its value does not have the standard interpretation of the squared correlation coefficient, and the negative values do not mean that the model in fact performs badly.

of RFD. The IV point estimate, 0.831, is very precisely estimated, and about 7.5 times larger than the OLS estimates. Given the potential downward bias in the OLS estimates, this increase in the point estimate is expected. Taken together, these results indicate that RFD had a significant impact on the political landscape. For all regressions, the Kleibergen-Paap Wald statistic is 10.4, indicating that weak instruments are not a concern with this specification.

To summarize, we fail to find a statistically significant effect of the number of routes on the turnout of Congressional elections, but an increase in competition. For each of our measures of the distribution of votes across a county, the IV regressions are roughly consistent with the OLS findings, the point estimates are larger: RFD routes lead to a wider distribution of votes across parties, with increased vote shares for small parties.

Because our treatment variable does not vary within the pre- and post-rollout time periods, an alternative specification to the fixed effects analysis described above is first-differences. One concern with the fixed effects analysis is that the accuracy of our estimates could derive from the numerous pre- and post-election observations for the same county, instead of from variation in the instrument or the number of routes. Though we choose to cluster our standard errors at the state level to address this concern, we also present here the results from a first-difference specification of our instrumental variable regressions.

We calculate each variable by taking the average within a county over all elections held in 1908 and later, and subtracting from this value the average of all elections held in 1900 and before. As laws concerning voting and ballot procedures, such as women’s suffrage or secret ballots, vary within the pre- and post-rollout periods, they cannot be coded as binary and we drop them for the first-difference analysis. Results of the IV regressions are presented in Table 7. The previous findings for the effect of RFD are similar to the estimates here. Though the point estimates are slightly smaller here, and are less precisely estimated, the results are similar to those found in Table 6. While this is not our preferred specification, it

is included here as a robustness check.

4.3 Potential Mechanisms

The results presented up to this point have not made any attempt to disentangle the mechanisms through which RFD affected political behavior. Therefore, it is difficult to determine if RFD changed political behavior because of increases in the mail, a decrease in the number of fourth class postmasters, or some other reason.³³ Anecdotal evidence suggests that the introduction of rural routes increased the circulation of newspapers. One of the first reports from local postal carriers on the effect of RFD included the following statement by a postal worker in Oregon (Yearbook, 1903):

Before free delivery was started there were 13 [subscriptions to] daily papers taken at Turner (OR) post office. Today there are 113. This shows that the farmers are getting in touch with the world and are quick to avail themselves of all educational facilities.

Using a dataset on newspapers, we can estimate the effect of RFD on newspaper readership. We find that one additional route is associated with a 1.77 percent increase in total newspaper readership. This means that the average county experienced a 25 percent increase in newspaper circulation because of RFD. The potential for newspapers to impact political behavior follows directly from their role as a conveyor of information about policy debates, news of social or political importance, and even candidate's behavior. Newspapers provided a wealth of information about political activity. For example, over a five-day period in 1904, the Bemidji (MN) Daily Pioneer included stories about the Wisconsin Secretary of State completing the state's ballot, an Indiana Senator speaking at Indiana University, and an

³³Parcel Post was introduced in 1913. To see if its introduction drove the observed effect, we restricted our sample to just the post-rollout years (1908-1916), and ran the IV regression using 1908-1912 as the pre-treatment sample and 1914-1916 as the post-treatment sample. If RFD had a stronger effect after parcel post, we would expect a positive coefficient on routes. We fail to observe a positive effect.

illness contracted by a Minnesota gubernatorial candidate. Similarly, Kernell and Jacobson (1987) show that late 19th century newspapers provided extensive coverage of the daily behavior of Congress.

To test the hypothesis that newspapers were an important mechanism through which RFD routes affected political behavior, we compared the causal effect of RFD in counties with and without newspapers.³⁴ We then ran the IV regressions outlined above.³⁵

Our results, shown in Table 8, demonstrate that across all of our outcome variables the causal effect of RFD is more positive in counties with daily newspapers. The effect of routes on turnout is positive in counties with newspapers, but mildly negative in counties without newspapers, though neither point estimate is statistically different from zero. For measures of the number of competitive parties, the causal effect in counties with newspapers is at least four times as large as counties without newspapers, and though the point estimates for the vote share of small parties is similar in counties with and without newspapers (columns 9 and 10), it is only precisely estimated in counties with newspapers. If RFD only affected political behavior only through the impact of better roads (or any other mechanism that was independent of newspapers), we would expect the coefficient on the number of routes would be identical for both groups. The fact that a causal effect is observed in counties without daily newspapers does not mean that newspapers could not have affected voters in these areas. As we only observe where papers were printed, not where they were consumed, we cannot claim that counties without newspapers had no newspaper readers. These results are suggestive, not conclusive, evidence that newspapers played a critical role in the political changes that occurred because of RFD.

We find no evidence that RFD led to changes in observable economic variables for rural

³⁴To ensure that our sub-samples do not change over time, we defined a county as having a newspaper only if it had a newspaper by 1900.

³⁵We do this instead of interacting our Route variable, because doing so would have required using both our Route variable and the interaction term as instrumented variables, significantly decreasing the power of our instruments.

areas. Specifically, using both (i) the amount of farmland in a county (both as a level, and as a percentage of total area), and (ii) the percent of improved farmland on farms, as our outcome variables in the IV regressions, we find that the number of routes has no effect on these outcomes. The P-value for routes using farmland as the outcome variable is 0.19, and the sign is negative, while the P-value for routes using improved farmland as the outcome is 0.95. RFD routes did not appear to have an effect on observable agricultural outcomes, providing further evidence that it was information, instead of some other mechanism, that is driving our results.

5 Congressional Representatives

With richer information networks, voters may select different attributes for their Representatives, or they may elicit different actions from elected officials. Taking our motivation from Strömberg (2004), we consider the potential effect that better informed voters may have on Representatives. Voters may punish Representatives who act against the voters' wishes, but will only do so if they are aware of the Representative's actions. Therefore, if one subset of voters receives a positive shock in their access to information, we would expect to observe a shift in the policy positions of elected officials towards positions favorable to this better-informed subset. By using DW-Nominate scores, which measure the voting behavior of officials along a 2-dimensional policy space, and the voting behavior on two contentious issues, temperance and immigration, we estimate the effect of rural routes on the policy decisions of Representatives.

5.1 Policy Position Scores

Developed by Poole & Rosenthal, DW-Nominate assigns each member of the House of Representatives a score based on roll-call votes over two separate dimensions. The first dimension

represents the traditional liberal-conservative stances and will be the focus of our analysis. We use this score as our dependent variable in both the OLS and IV specifications above, along with a political party dummy variables, equal to one if the Representative is a member of the Republican party, and zero otherwise. Because the DW-Nominate score only varies at the congressional district level, we aggregate each of our county-level variables up to the district level.³⁶

We first consider what stances were typically associated with rural communities over our sample period. Figure 6 shows the correlation between the percentage of urban residents in a district, and the policy stances of elected officials. Even when controlling for party membership, Representatives of rural districts feature more negative DW-Nominate scores. Therefore, we would expect RFD routes to result in a negative shift in the policy scores of elected officials.

Table 9 shows the effect of routes on the policy decisions of Representatives. No strong correlation is observed in the OLS results. Our instrumental variable results, however, show strong causal effects. Districts with more RFD routes see negative shifts in the DW-Nominate scores of their elected officials. Because we included dummies for party affiliation, this result cannot be the result of shifts from one party to another. The point estimate for the IV regression of -0.00103, which is significant at the 5% level, indicates that a one standard deviation change in the number of routes leads to a change of 0.68 standard deviations in the DW-Nominate score. This shift can be seen in Figure 6, which shows both the within-party means of DW-Nominate scores and the shift a one standard deviation change in the number of routes would cause from this mean. As a negative shift in DW-Nominate scores indicates more rural-friendly stances, an increased number of routes caused the elected officials adopt policies more in line with rural voters. These results support the findings of Strömberg

³⁶For counties that straddle more than one congressional district, we divided each variable into the number of districts into which the county was split, and distributed those values evenly across the districts.

(2004), who found that radio access was linked to more generous Congressional support.

5.2 Temperance and Immigration

In order to illustrate shifts in Representatives' positions, we examine two issues that were particularly contentious in this period: pro-temperance policies and immigration restrictions. A number of issues saw differential support in rural and urban areas, including RFD itself, and thus could potentially be used to examine Representatives' responsiveness to increased voter awareness. Pushes for immigration restrictions and the prohibition of alcohol were tied to the Nativist movement, which sought to restrict the spread of foreign in-migration and culture in America. Nativists, who were frequently rural Protestants, often took aim at Irish Roman Catholics and Jewish Americans, for whom alcohol was part of their culture. Both pro-temperance policies and immigration restrictions are policies that voters had strong preferences about but were somewhat remote from rural voters' lives. Although support for both policies came from a variety of groups, support was systematically greater in rural areas (Engs, 2003, pg. 263). Thus, they may have been likely points of compromise for rural representatives, absent strong monitoring.

We chose these two issues for a number of reasons. First, they were salient through the whole period of 1892-1916. Monetary policy was hotly debated during the early part of our period (e.g. William Jennings Bryan's "Cross of Gold" speech). However, after the U.S. formally adopted the gold standard in 1900, Congress only called a few votes on these issues, and by 1913, the establishment of the Federal Reserve had foreclosed debate on the subject of American currency. Second, immigration restrictions and temperance are also plausibly exogenous to the issue of RFD. One would not expect a person's positions on either issue to be directly affected by either receiving or not receiving RFD, unlike policies dealing with infrastructure or agricultural subsidies.

During our sample period, Congress voted many times on these two issues. For exam-

ple, the 62nd and 63rd Congresses voted on temperance-related issues three times in each Congress, while the 64th Congress voted six times. Not counting procedural votes, we observe 28 votes on immigration restrictions and 27 votes on temperance. The list of House floor votes and issue codes was taken from Poole and Rosenthal (2001). For each vote pertaining to temperance policies or immigration restriction, we used the Congressional Record to determine if a “yea” (or a “nay”) vote is a vote explicitly for or against, or if the voter was not clearly taking a position (i.e., a “present” vote).

Table 10 examines the relationship between RFD routes and votes supporting temperance; the “for” columns estimate the effect of RFD on the number of times a Representative voted explicitly for a temperance-related policy, whereas the “against” columns estimate the effect of RFD on the number of times a Representative explicitly voted against a temperance-related policy.³⁷ Columns 1 and 3 use the basic fixed effects framework discussed above, while columns 2 and 4 are IV estimates. These estimates imply that a one standard deviation increase in the number of RFD routes leads to 0.92 more votes for temperance and a decrease of 0.84 votes against it in a given district.³⁸ The within-Representative increase in likelihood to vote for temperance explains about 40% of this within district change, with changes in the identity of the Representative explaining the rest. Similarly, Table 11 examines the relationship between RFD routes and votes supporting immigration restriction. An increase of one standard deviation in the number of RFD routes leads to 0.63 more votes for immigration restrictions, and a decrease of 0.61 votes against immigration restrictions in a given district.

³⁷In each of these, absence from the vote or a “present” vote are coded as a zero.

³⁸The coefficient on the dummy for the presence of women’s suffrage is shown here. As one might expect given the strong support many feminist groups gave to temperance policies (as increased alcohol consumption is strongly related to increased domestic violence), the presence of women in the electorate is correlated with Representatives supporting temperance.

6 Concluding Remarks

Timely and affordable access to information is a major driver of both economic and political activity. In the late nineteenth and early twentieth century public information was largely conveyed through newspapers, making access to the public discourse contingent on timely and convenient access to the daily paper. In pre-WWI America, newspapers were delivered to non-urban readers via the Post Office, meaning that access was contingent on access to mail. The implementation of Rural Free Delivery dramatically increased rural America's connection to the outside world, making it feasible to get daily news, and reducing the cost of private communication. Rural residents no longer need made a weekly trip into town to receive mail from the local fourth class postmaster, but instead had it delivered to a box near their home. Using data on the number of RFD routes in a county, we estimate the impact of access to information on voters' and elected Representatives' behavior. In doing so, we shed light on how increased information flows changed political outcomes by increasing political participation and voice for rural areas.

RFD significantly increased the consumption of daily newspapers. We estimate that there was a 25% increase in the circulation of newspapers in areas which received the service. The rural resident became better-informed of the political goings on far from his farm gate, increasing their effective voice as citizens. It made rural voters better informed about political issues, and about the range of available parties, allowing them to better select their preferred candidates. It increased the constituency for parties and candidates willing to tailor their message more precisely to rural needs, and pushed the political positions of representatives towards the preferences of rural voters, as seen in the issues of temperance and immigration.

Our results suggest that RFD had a substantial effect on the political behavior of rural citizens. While rural mail routes did not lead to an increase in voter turnout, it broadened the number of political parties able to appeal to rural voters, as a standard deviation change

in routes led to 0.4 additional parties receiving a competitive percentage of the votes. RFD routes also increased the vote share for smaller political parties, many of which were advocating for policies in line with rural tastes. These results are driven largely by counties which had newspapers by 1900.

RFD allowed farmers to more effectively monitor their elected Representatives, leading to a more effective political voice for rural residences. An increase of one standard deviation in routes led to a negative shift of 0.67 standard deviations in their Representative's DW-Nominate score, moving it towards positions popular in rural areas. In terms of specific policies, a one standard deviation in RFD routes led to 0.9 more votes for temperance and 0.6 more votes for immigration restrictions. These changes in elected officials stances came through two channels: roughly one half is from incumbents shifting their positions, and the other half is from changes from electing Representatives who held different positions. This suggests that support for several Populist causes that were taken up in the Progressive Era were strengthened by the existence of RFD.

Our results provide support to theories of political empowerment, as voters with increased access to mail and news behave differently, and elicit more favorable political outcomes from their elected officials. RFD, in increasing individuals' access to information and newspapers, in turn increased their social capital. The importance of social capital on the development and evolution of democracies has been well established (Lipset, 1959; Woolcock, 2001), as has the role of information networks and access to mass media (Blair, 2000). Through our study of RFD, we have been able to more fully explore the mechanisms through which this development occurs, and show the importance of information networks on the democratic process.

References

Almond, G. and Verba, S. (1963). *The Civic Culture: Political Attitudes and Democracy in Five Nations*. Sage Publication.

- Angrist, J. D., Imbens, G. W., and Rubin, D. B. (1996). Identification of Causal Effects Using Instrumental Variables. *Journal of the American Statistical Association*, 91(434):444–455.
- Banerjee, A., Green, D., Green, J., and Pande, R. (2010). Can Voters Be Primed to Choose Better Legislators? Experimental Evidence from Rural India. (Working Paper).
- Bemidji Daily Pioneer (1904). The Bemidji Daily Pioneer. Chronicling America: Historic American Newspapers. Bemidji, Minn.
- Blair, H. (2000). Participation and Accountability at the Periphery: Democratic Local Governance in Six Countries . *World Development*, 28(1):21 – 39.
- Bowden, R. (1987). Repeated Sampling in the Presence of Publication Effects. *Journal of the American Staistical Association*, 82:476–491.
- Browning, R. C., Baker, E. A., Herron, J. A., and Kram, R. (2006). Effects of obesity and sex on the energetic cost and preferred speed of walking. *Journal of Applied Physiology*, 100(2):390–398.
- Buck, S. J. (1913). *The Granger Movement: A Study of Agricultural Organization and Its Political, Economic, and Social Manifestations, 1870-1880*. University of Nebraska Press, Lincoln, Nebraska.
- Campante, F. R., Durante, R., and Sobbrío, F. (2013). Politics 2.0: The Multifaceted Effect of Broadband Internet on Political Participation. (Working Paper).
- Carpenter, D. P. (2000). State Building through Reputation Building: Coalitions of Esteem and Program Innovation in the National Postal System, 1883–1913. *Studies in American Political Development*, 14(Fall):121–155.
- Carson, J. and Jenkins, J. (2011). Examining the Electoral Connection across Time. *Annual Review of Political Science*, 14:25–46.
- Chiang, C.-F. and Knight, B. (2011). Media Bias and Influence: Evidence from Newspaper Endorsements. *Review of Economic Studies*, 78:795–820.
- Clubb, J. M., Flanigan, W. H., and Zingale, N. H. (2006). Electoral Data for Counties in the United States: Presidential and Congressional Races, 1840-1972 [Computer File].
- Condorcet, M. (1785). *Essay on the Application of Analysis to the Probability of Majority Decisions*.
- DellaVigna, S. and Kaplan, E. (2007). The Fox News Effect: Media Bias and Voting. *The Quarterly Journal of Economics*, 122(3):1187–1234.
- Drago, F., Nannicini, T., and Sobbrío, F. (2013). Meet the Press : How Voters and Politicians Respond to Newspaper Entry and Exit. (Working Paper).

- Engs, R. C. (2003). *The Progressive Era's Health Reform Movement: A Historical Dictionary*. Praeger Publishers, Westport, CT.
- Engstrom, E. J. (2012). The Rise and Decline of Turnout in Congressional Elections: Electoral Institutions, Competition, and Strategic Mobilization. *American Journal of Political Science*, 56:373–386.
- Enikolopov, R., Petrova, M., and Zhuravskaya, E. V. (2009). Media and Political Persuasion: Evidence from Russia. *The American Economic Review*, 101(7):3253–3285.
- Falck, O., Gold, R., and Heblich, S. (2014). E-lections: Voting Behavior and the Internet. *The American Economic Review*, 104(7):2238–2265.
- Feddersen, T. and Pesendorfer, W. (1996). The Swing Voter's Curse. *The American Economic Review*, 86:404–424.
- Feigenbaum, J. J. and Rotemberg, M. Information and Investment: Impacts of the Introduction of Rural Free Delivery. (In Progress).
- Ferraz, C. and Finan, F. (2008). Exposing Corrupt Politicians: The Effects of Brazil's Publicly Released Audits on Electoral Outcomes. *The Quarterly Journal of Economics*, 123(2):703–745.
- Fuller, W. E. (1955). Good Roads and Rural Free Delivery of Mail. *The Mississippi Valley Historical Review*, 42(1):67–83.
- Fuller, W. E. (1959). The South and Rural Free Delivery of Mail. *The Journal of Southern History*, 25(4):499–521.
- Fuller, W. E. (1964). *RFD: The Changing Face of Rural America*. Indiana University Press, Bloomington, Indiana.
- Gentzkow, M. (2006). Television and Voter Turnout. *The Quarterly Journal of Economics*, 121(3):931–972.
- Gentzkow, M., Glaeser, E. L., and Goldin, C. D. (2006). The Rise of the Fourth Estate: How Newspapers Became Informative and Why It Mattered. In *Corruption and Reform: Lessons from America's Economic History*, number March, pages 187–230.
- Gentzkow, M., Shapiro, J. M., and Sinkinson, M. (2011). The Effect of Newspaper Entry and Exit on Electoral Politics. *The American Economic Review*, 101(December):2980–3018.
- Gentzkow, M., Shapiro, J. M., and Sinkinson, M. (2012). Number and Circulation of US Daily Newspapers by City and Political Affiliation, 1869-2004 [Computer File].
- Gerber, A. S., Karlan, D., and Bergan, D. (2009). Does the Media Matter? A Field Experiment Measuring the Effect of Newspapers on Voting Behavior and Political Opinions. *American Economic Journal: Applied Economics*, 1(2):35–52.

- Greathouse, C. H. (1901). Free Delivery of Rural Mails. In *Yearbook of the Department of Agriculture (1900)*, pages 513–528.
- Haines, M. R. (2010). Historical, Demographic, Economic, and Social Data: The United States, 1790-2002 [Computer File].
- Hornbeck, R. (2010). Barbed Wire: Property Rights and Agricultural Development. *The Quarterly Journal of Economics*, 125(2):767–810.
- John Wanamaker (Firm), Hodges, L. M., and Appel, J. H. (1911). *Golden Book of the Wanamaker Stores: Jubilee Year, 1861-1911*. John Wanamaker (Firm), Philadelphia, PA.
- Kernell, S. (2001). Rural Free Delivery as a Critical Test of Alternative Models of American Political Development. *Studies in American Political Development*, 15(Spring):103–112.
- Kernell, S. and Jacobson, G. C. (1987). Congress and the Presidency as News in the Nineteenth Century”. *Journal of Politics*, 49:1016–1035.
- Kernell, S. and McDonald, M. P. (1999). Congress and America’s Political Development: The Transformation of the Post Office from Patronage to Service. *American Journal of Political Science*, 43(3):792–811.
- Lipset, S. M. (1959). Some Social Requisites of Democracy: Economic Development and Political Legitimacy. *The American Political Science Review*, 53(1):69–105.
- Mayhew, D. (1974). *The Electoral Connection*. Yale University Press, New Haven, CT.
- McGerr, M. E. (1986). *The Decline of Popular Politics: The American North, 1865-1928*. Oxford University Press, New York.
- McKibbin, C. (1997). Roster of United States Congressional Officeholders and Biographical Characteristics of Members of the United States Congress, 1789-1996: Merged Data [Computer File].
- Mehrabian, L. (1998). Effects of Poll Reports on Voter Preferences. *Journal of Applied Social Psychology*, 28(23):2119–2130.
- N. W. Ayer & Son (1900). *N. W. Ayer & Son’s American Newspaper Annual: containing a Catalogue of American Newspapers, a List of All Newspapers of the United States and Canada, 1900, Volume 1*. Philadelphia, Pennsylvania.
- Nicholson, J. (2003). The political environment and ballot proposition awareness. *American Journal of Political Science*, 47(3):403–410.
- Poole, K. T. and Rosenthal, H. (2001). D-Nominate after 10 Years: A Comparative Update to Congress: A Political-Economic History of Roll-Call Voting. *Legislative Studies Quarterly*, 26(1):5–29.

- Post Office Appropriation Bill (1912). *Post Office Appropriation Bill, 1912: Hearings Before The Committee On The Post Office And Post Roads, House Of Representatives. December, 1910.* U.S. Government Printing Office, Washington D.C.
- Post Office Department (1899). *Rural Free Delivery; Its History and Development. Extracts from the Annual Report of First Assistant Postmaster-General Perry S. Heath for the Fiscal Year Ended June 30, 1899.* Government Printing Office, Washington, DC.
- Post Office Department (1908). *United States Official Postal Guide.* J. B. Lyon Company, Printers, Albany, NY.
- Post Office Department (1921). *Annual Report of the Postmaster General.* Government Printing Office, Washington, DC.
- Prat, A. and Strömberg, D. (2011). The Political Economy of Mass Media. (8246). (Working Paper).
- Schaffer, M. (2010). xtivreg2: Stata Module to Perform Extended IV/2SLS, GMM and AC/HAC, LIML and k-class Regression for Panel Data Models. (Stata .ado).
- Simon, H. (1954). Bandwagon and Underdog Effects and the Possibility of Election Predictions. *The Public Opinion Quarterly*, 18(3):5–29.
- Stone, R. (1894). State Laws Relating to the Management of Roads Enacted in 1888-1893. Technical report, U.S. Department of Agriculture, Washington, DC.
- Stone, R. (1896). State Laws Relating to the Management of Roads Enacted in 1894-1895. Technical report, U.S. Department of Agriculture, Washington, DC.
- Strömberg, D. (2004). Radio’s Impact on Public Spending. *The Quarterly Journal of Economics*, 119(1):189–221.
- Strömberg, D. and Synder, J. (2010). Press Coverage and Political Accountability. *Journal of Political Economy*, 118(2):355–408.
- Upton, J.K. (1895). *Report on Wealth, Debt and Taxation at the Eleventh Census, 1890. Part II Valuation and Taxation.* Government Printing Office, Washington, DC.
- Woolcock, M. (2001). The Place of Social Capital in Understanding Social and Economic Outcomes. *Canadian Journal of Policy Research*, 2(1):11–17.
- Wooldridge, J. M. (2006). *Econometric Analysis of Cross Section and Panel Data.* MIT Press, Cambridge, MA.
- Yearbook (1903). Appendix: Free Delivery of Rural Mails. In *Yearbook of the Department of Agriculture*, pages 746–747.

A Appendices

A.1 Appendix A: State Election Laws

Tables 12 and 13 replicate the results from Tables 6 and 8, with the inclusion of three state law variables: office block ballots, party column ballots, and off-November elections. These variables were omitted from the primary regressions because data was not available for all years. The point estimates are similar to those shown in Tables 6 and 8, though the estimates are not as precisely estimated.

A.2 Appendix B: Effects by Region

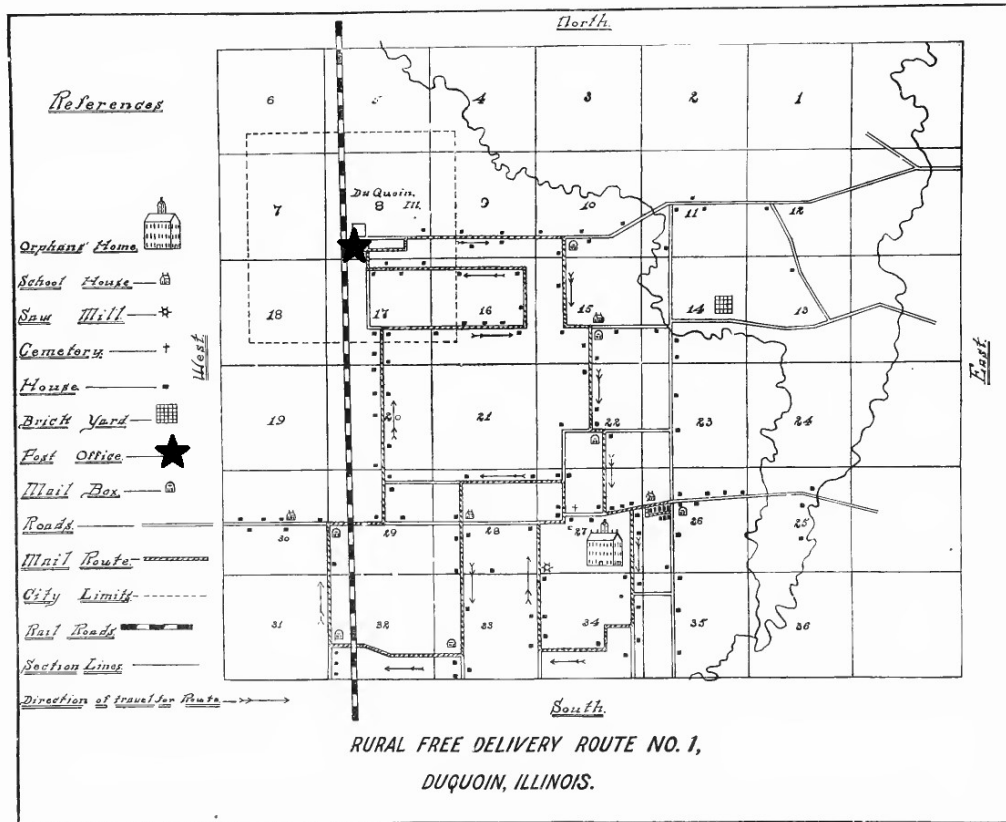
Tables 14 and 15 show summary statistics by region for two years, 1900 and 1910. Note that as the most densely populated area of the United States, the North East received the most routes. Turnout was by far the highest in the Midwest, and whites in the South were much less likely to be literate than whites in the rest of the country. Table 16 shows our primary results split by region, presence of a paper and, in the South, race composition of a county. At this level of disaggregation the instrument is often weak.

The variables measuring competition are positive in the North East and Midwest in counties with papers. There is no statistically significant effect of RFD on these outcomes in the South Central region and the West, though the point estimates are large in counties with papers in the West. In the South there is a negative effect in counties with papers. RFD helped rural voters coordinate, through papers. In the South there is a negative effect of RFD for both turnout and competition, primarily in counties with papers and with higher white populations. We also observe (not shown in the table) a drop in the vote share for the Republican party (and an increase in the vote share for the Democrats) in these largely white counties with newspapers. It appears that in the South, where the Democratic party is dominant (the average number of parties receiving 5% of the vote is less than 1.25), RFD

lead to an increase in that dominance. Again, however, the low Wald statistics suggest that we should be cautious about claims.

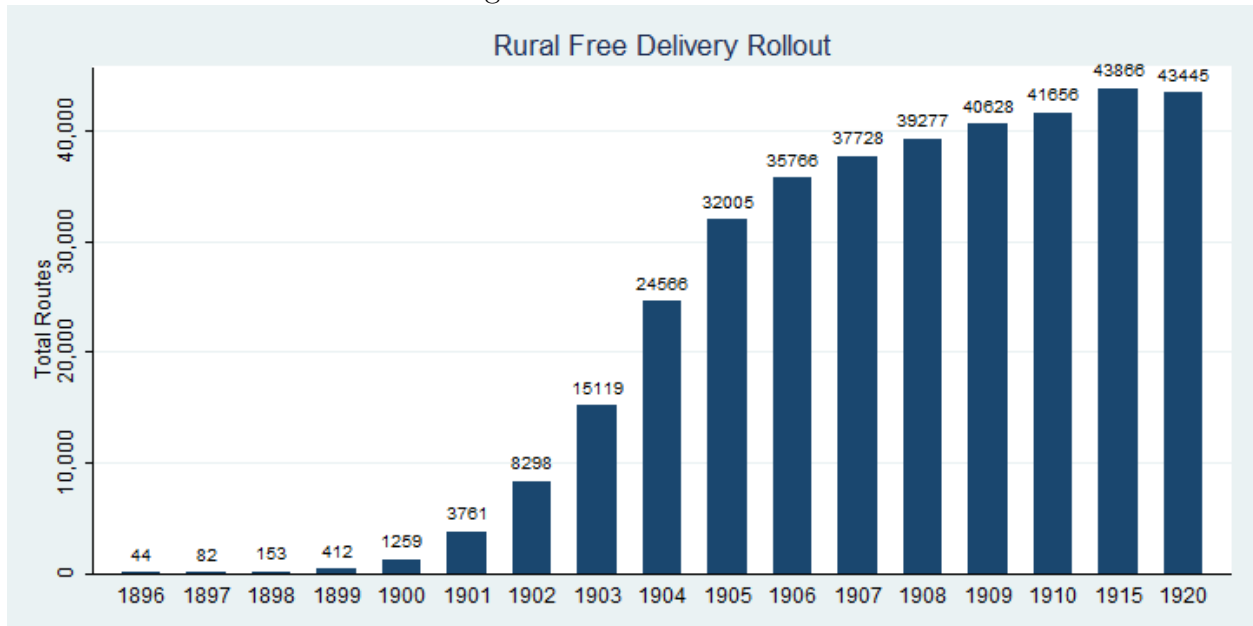
B Figures

Figure 1: RFD Route Map



Source: "Rural free delivery; its history and development. Extracts from the annual report of first Assistant postmaster-general Perry S. Heath for the fiscal year ended June 30, 1899" (Post Office Department, 1899).

Figure 2: Rollout of RFD



Source: "Annual Report of the Postmaster General. 1921" (Post Office Department, 1921).

Figure 3: Voter Outcomes vs. Number of RFD Routes in 1908

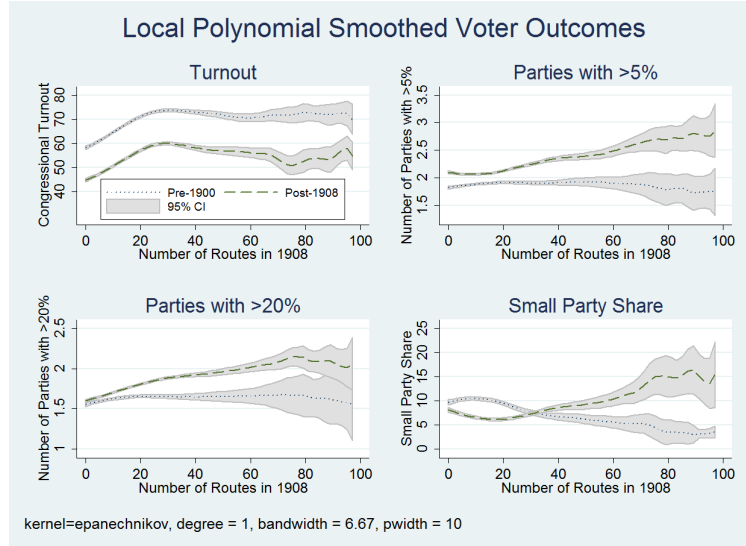
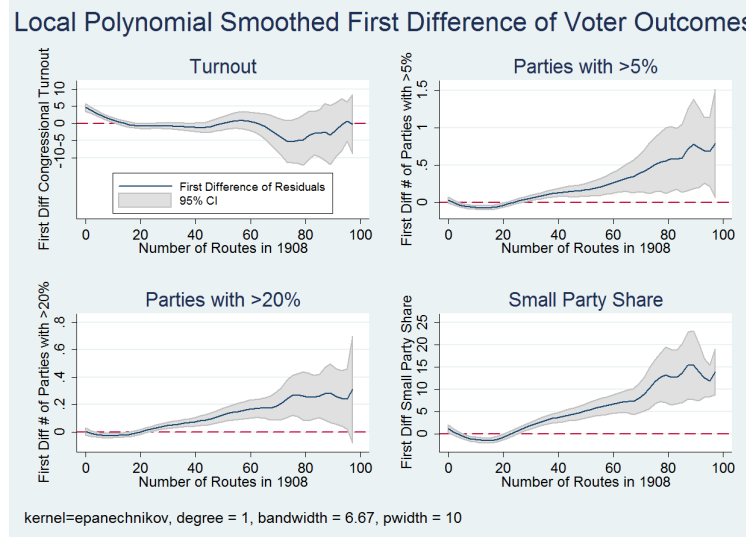


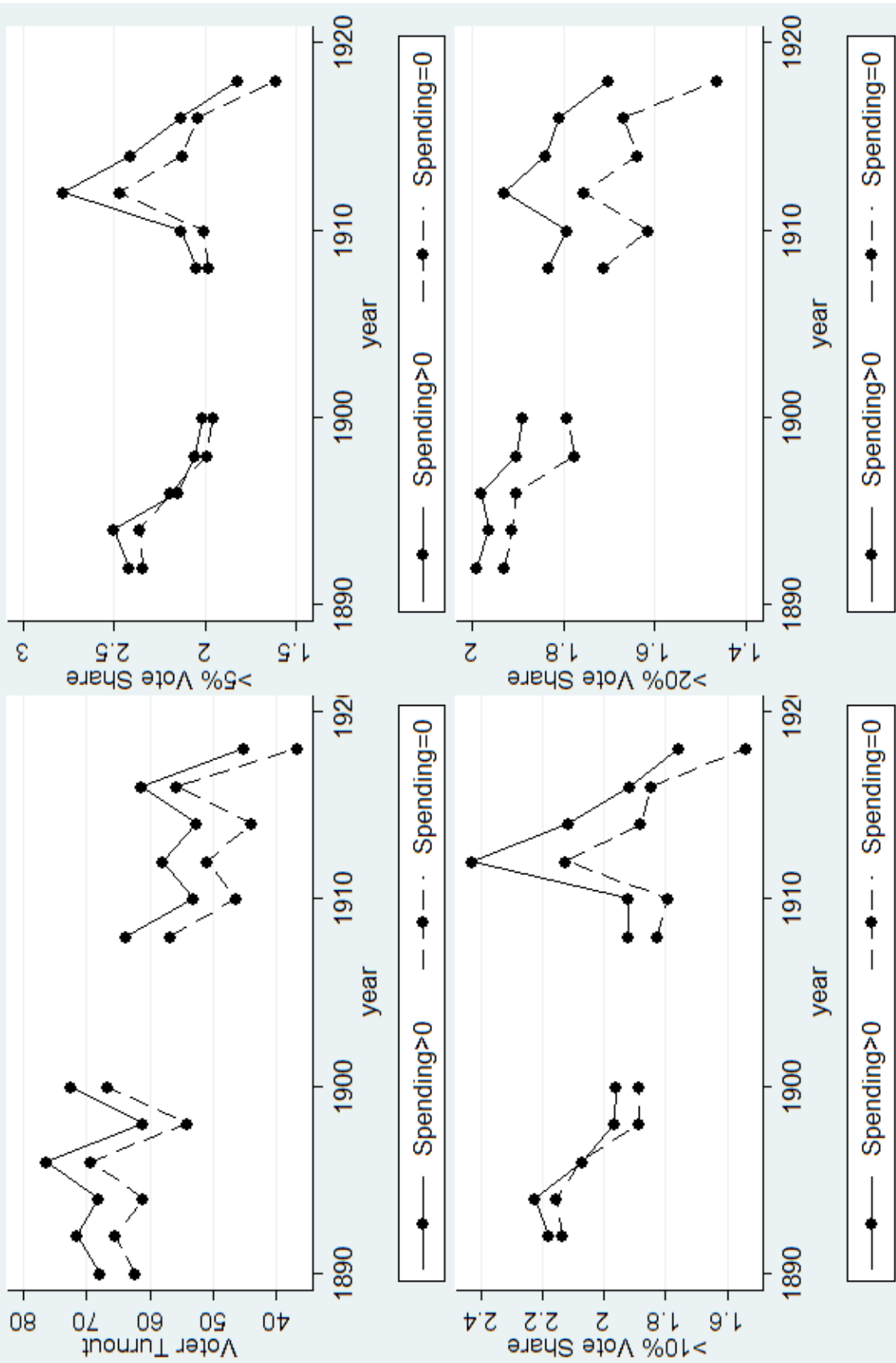
Figure 4: First Differences of Voter Outcomes vs. Number of RFD Routes in 1908



Sources: RFD routes from the 1908 United States Official Postal Guide; voting data are from Clubb et al. (2006); county characteristics are from Haines (2010) (county boundaries fixed at 1890 values as in Hornbeck (2010)).

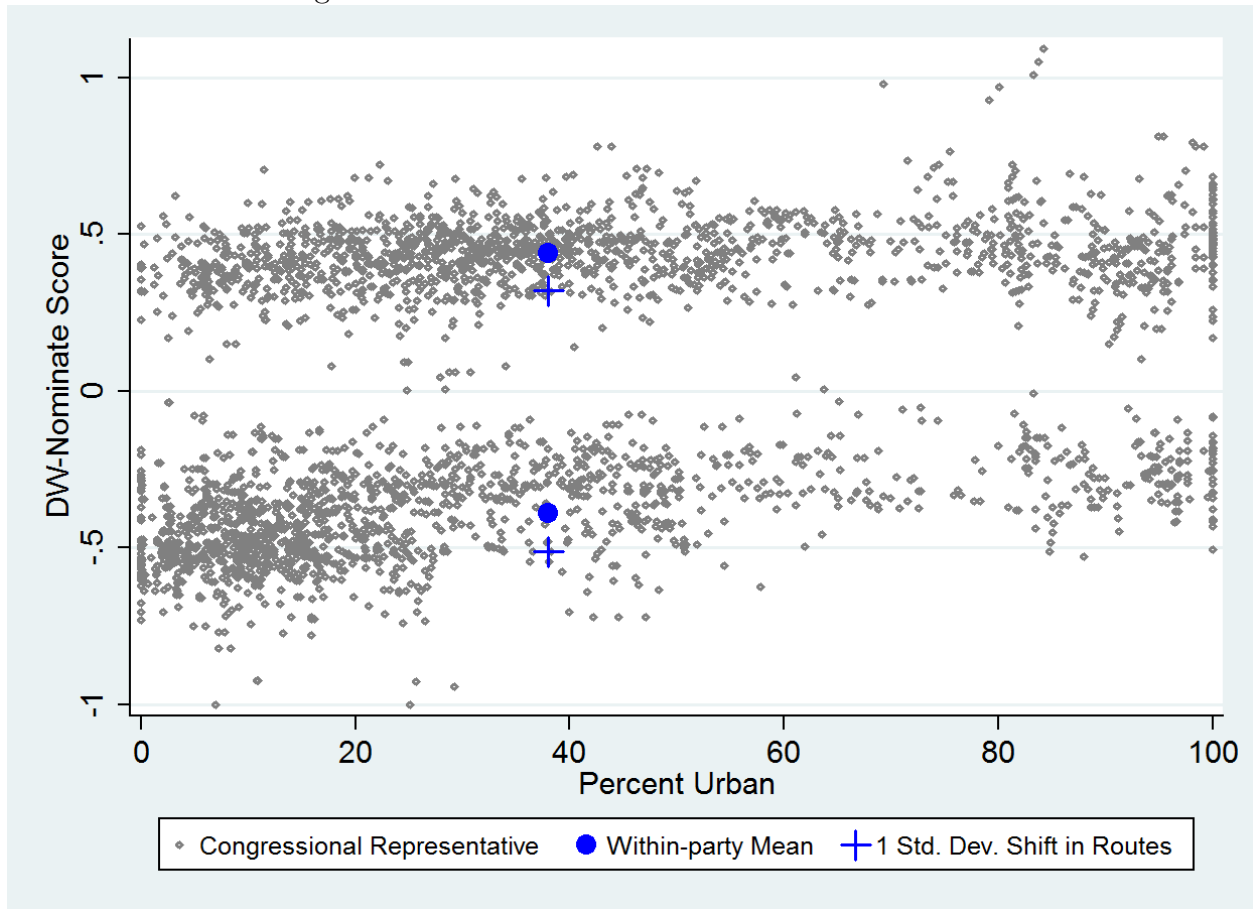
Figure 5: Trends, Spending

Voting Outcomes For Various Counties: Spending Variable



Sources: Voting data are from Clubb et al. (2006); spending are collected from the "Report on Wealth, Debt, and Taxation" (Upton, J.K., 1895).

Figure 6: DW-Nominate Scores vs. Percent Urban



Sources: Data about elected officials from the DW-Nominate project; county characteristics are from Haines (2010).

C Tables

Table 1: Summary Statistics: Means of County Level Variables by Year

YEAR	1892	1896	1900	1908	1912	1916
Congressional Turnout	68.02 (22.21)	72.15 (21.59)	68.96 (22.97)	60.55 (24.17)	54.56 (21.93)	58.87 (21.38)
Candidates	2.39 (0.58)	2.19 (0.47)	1.98 (0.37)	2.02 (0.53)	2.62 (0.92)	2.07 (0.62)
Parties >5	2.39 (0.58)	2.19 (0.47)	1.99 (0.36)	2.03 (0.52)	2.63 (0.89)	2.08 (0.59)
Small Party Share	12.59 (16.13)	10.03 (17.20)	2.14 (5.56)	3.15 (5.40)	14.86 (14.77)	5.20 (12.44)
Total Newspaper Circulation	1,774 (9,869)	2,207 (12,097)	4,356 (42,102)	7,391 (72,529)	9,039 (88,091)	10,988 (102,439)
Daily Newspaper Circulation	1,746 (9,848)	2,176 (12,083)	4,312 (42,098)	7,350 (72,529)	9,001 (88,077)	10,968 (102,440)
% Urban	12.46 (20.92)	12.69 (21.21)	14.22 (21.44)	15.98 (22.77)	18.35 (23.62)	19.13 (24.25)
% Improved Farmland	55.64 (22.59)	52.90 (23.56)	52.82 (24.80)	56.14 (24.21)	56.51 (24.41)	57.35 (23.82)
% Non-white	9.92 (17.52)	11.97 (19.93)	11.06 (18.92)	10.67 (18.66)	9.26 (17.30)	8.75 (16.32)
% Foreign-born	11.59 (12.41)	10.77 (11.52)	9.63 (10.47)	9.21 (9.78)	9.38 (9.40)	8.73 (8.73)
Ln(Population)	9.55 (1.12)	9.58 (1.13)	9.62 (1.13)	9.78 (1.00)	9.81 (1.03)	9.84 (1.04)
Observations	2,162	2,249	2,308	2,342	2,191	2,148

Note: Because there are some missing counties in the election data, the number of observations is not identical for each year.

Table 2: Summary of Rural Free Delivery Allocation in 1908

RFD Routes	14.36 (14.09)
Percent of Counties with Routes	81 (39)
Observations	2,422

Sources: RFD routes from the 1908 United States Official Postal Guide; voting data are from Clubb et al. (2006); newspaper data are from the N.W. Ayer and Son's American Newspaper Annual, and Gentzkow et al. (2012); county characteristics are from Haines (2010) (county boundaries fixed at 1890 values as in Hornbeck (2010)).

Table 3: Fixed Effects Results for Voter Outcomes

VARIABLES	(1) Turnout	(2) Turnout	(3) >5 %	(4) >10 %	(5) >20 %	(6) Small Party Share
RFD Routes	-0.0935 (0.0600)		0.00429* (0.00232)	0.00552*** (0.00156)	0.00351*** (0.00107)	0.113** (0.0441)
RFD Dummy	-	-2.679* (1.378)	-	-	-	-
% Urban	-0.166** (0.0698)	-0.143** (0.0675)	-0.00686** (0.00275)	-0.00358** (0.00149)	-0.00229 (0.00161)	-0.0674 (0.0555)
% Urban Squared	0.00157 (0.00143)	0.000651 (0.00150)	0.000212*** (5.33e-05)	0.000125*** (3.28e-05)	7.29e-05** (3.30e-05)	0.00383*** (0.000992)
% Improved Farmland	0.0380 (0.0972)	0.0560 (0.0975)	-0.00636* (0.00375)	-0.00606** (0.00286)	-0.00429* (0.00215)	-0.140* (0.0768)
% Non-white	-0.0274 (0.212)	-0.0662 (0.220)	0.00426 (0.00759)	0.00182 (0.00657)	0.000947 (0.00558)	-0.194 (0.170)
% Foreign-born	-0.339 (0.269)	-0.328 (0.272)	-0.00197 (0.00988)	-0.00754 (0.00720)	-0.00854* (0.00502)	-0.0675 (0.243)
Ln(Population)	-0.203 (2.876)	0.293 (2.766)	0.226*** (0.0658)	0.123* (0.0639)	0.0715 (0.0698)	1.550 (1.372)
Observations	22,433	22,433	22,433	22,433	22,433	22,433
R-squared	0.807	0.807	0.435	0.439	0.527	0.371

Additional controls include county and year fixed effects, and dummy variables indicating the presence of Jim Crow laws, women's suffrage, secret ballots, and direct primaries. Standard errors, clustered at state level, in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

Sources: RFD routes from the 1908 United States Official Postal Guide; voting data are from Clubb et al. (2006); county characteristics are from Haines (2010) (county boundaries fixed at 1890 values as in Hornbeck (2010))

Table 4: Determinants of Route Allocation

VARIABLES	(1) 20 %	(2) 10 %
Close Election	1.270** (0.561)	0.843* (0.479)
% Urban	0.224*** (0.0224)	0.226*** (0.0224)
% Urban Squared	-0.00408*** (0.000324)	-0.00412*** (0.000307)
% Nonwhite	-0.136*** (0.0142)	-0.137*** (0.0142)
% Improved Farmland	0.189*** (0.0121)	0.191*** (0.012)
% Foreign-born	-0.169*** (0.0325)	-0.175*** (0.0323)
Ln(Population)	6.24*** (0.287)	6.26** (0.287)
Observations	2,549	2,549
R-squared	0.634	0.616

Additional controls include state fixed effects. Standard errors, clustered the Congressional District level, in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

Sources: RFD routes from the 1908 United States Official Postal Guide; voting data are from Clubb et al. (2006); county characteristics are from Haines (2010) (county boundaries fixed at 1890 values as in Hornbeck (2010))

Table 5: First Stage Regression

VARIABLES	(1)	(2)
	Instrument: Spending	Instrument: State Laws
Road Spending	0.000121*** (0.0000385)	-
Oversight	-	2.713 (2.35)
Governance	-	5.198* (2.949)
Convict Labor	-	-7.001*** (2.497)
State Money	-	-6.865* (3.98)
% Urban	-0.0350 (0.0431)	-0.102** (0.0448)
% Urban Squared	0.00595*** (0.00131)	0.00708*** (0.00122)
% Improved Farmland	-0.0140 (0.0492)	-0.0340 (0.0450)
% Nonwhite	0.341*** (0.157)	0.335** (0.157)
% Foreign-born	-0.0107 (0.172)	0.266 (0.183)
Ln(Population)	-10.00*** (1.62)	-10.34*** (1.602)
Observations	22,212	22,212
Counties/States	2403	43
F-Stat (excluded instruments)	9.93	3.56
R-squared	0.768	0.775

Additional controls include county and year fixed effects, and dummy variables indicating the presence of Jim Crow laws, women's suffrage, and secret ballots. Standard errors, clustered at the state level, in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

Sources: RFD routes from the 1908 United States Official Postal Guide; county characteristics are from Haines (2010) (county boundaries fixed at 1890 values as in Hornbeck (2010)); spending are collected from the "Report on Wealth, Debt, and Taxation" (Upton, J.K., 1895); state laws information are from Stone (1894, 1896).

Table 6: IV Regression for Voter Outcomes

VARIABLES	(1) Turnout	(2) > 5%	(3) > 10%	(4) > 20%	(5) Small Party
RFD Routes	0.130 (0.321)	0.0238** (0.0115)	0.0247*** (0.00782)	0.0132** (0.00585)	0.831** (0.355)
% Urban	-0.153** (0.0631)	-0.00501* (0.00286)	-0.00174 (0.00174)	-0.00107 (0.00155)	-0.0153 (0.0632)
% Urban Squared	0.000116 (0.00203)	6.87e-05 (8.72e-05)	-1.71e-05 (5.92e-05)	-3.73e-06 (4.68e-05)	-0.00103 (0.00258)
% Improved Farmland	0.0407 (0.0961)	-0.00590* (0.00345)	-0.00564** (0.00255)	-0.00384** (0.00190)	-0.137* (0.0830)
% Non-white	-0.100 (0.225)	-0.00181 (0.00882)	-0.00437 (0.00815)	-0.00179 (0.00564)	-0.453* (0.248)
% Foreign-born	-0.298 (0.275)	9.20e-05 (0.00895)	-0.00573 (0.00643)	-0.00688 (0.00488)	-0.0257 (0.241)
Ln(Population)	1.993 (3.612)	0.425*** (0.127)	0.319*** (0.0913)	0.170** (0.0740)	8.781** (3.823)
Observations	22,212	22,212	22,212	22,212	22,212
Counties	2,403	2,403	2,403	2,403	2,403
F Stat.	10.4	10.4	10.4	10.4	10.4
R-squared	0.147	-0.019	-0.033	0.018	-0.107

Additional controls include county and year fixed effects, and dummy variables indicating the presence of Jim Crow laws, women's suffrage, and secret ballots. Standard errors, clustered at state level, in parentheses. The cluster-robust Kleibergen-Paap Wald rk F statistic is reported.

*** p<0.01, ** p<0.05, * p<0.1

Sources: RFD routes from the 1908 United States Official Postal Guide; county characteristics are from Haines (2010) (county boundaries fixed at 1890 values as in Hornbeck (2010)); spending are collected from the "Report on Wealth, Debt, and Taxation" (Upton, J.K., 1895); state laws information are from Stone (1894, 1896).

Table 7: IV Regressions with First Differences for Voter Outcomes

VARIABLES	(1) Turnout	(2) > 5 %	(3) > 10 %	(4) > 20 %	(5) Small Party Share
Routes	0.491 (0.482)	0.0128 (0.0121)	0.0184* (0.00982)	0.0123 (0.00791)	0.719** (0.348)
% Urban	-0.166* (0.0918)	-0.00906** (0.00394)	-0.00544* (0.00279)	-0.00498** (0.00234)	-0.0407 (0.0648)
% Urban Squared	-0.00236 (0.00258)	0.000238** (0.000107)	9.20e-05 (8.08e-05)	7.17e-05 (5.77e-05)	-0.00148 (0.00287)
% Improved Farmland	0.0891 (0.121)	-0.0119** (0.00562)	-0.0103** (0.00459)	-0.00730** (0.00342)	-0.244** (0.0951)
% Nonwhite	-0.403 (0.486)	0.0165 (0.0159)	0.0110 (0.0149)	0.00917 (0.0124)	-0.345 (0.281)
% Foreign-born	-0.525 (0.418)	-0.00803 (0.0109)	-0.0134 (0.00833)	-0.0142** (0.00681)	-0.156 (0.267)
Ln(Population)	1.519 (5.024)	0.360** (0.147)	0.288*** (0.112)	0.186* (0.0984)	9.160** (3.892)
Observations	2,380	2,380	2,380	2,380	2,380
Wald Stat.	11.98	11.98	11.98	11.98	11.98
States	42	42	42	42	42
R-squared		0.112	0.078	0.081	

Standard errors, clustered at the state level, in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Sources: RFD routes from the 1908 United States Official Postal Guide; county characteristics are from Haines (2010) (county boundaries fixed at 1890 values as in Hornbeck (2010)); spending are collected from the “Report on Wealth, Debt, and Taxation” (Upton, J.K., 1895); state laws information are from Stone (1894, 1896).

Table 8: Effects By Newspaper Presence for Voter Outcomes

Newspaper	(1) Turnout NO	(2) Turnout YES	(3) > 5% NO	(4) > 5% YES	(5) > 10% NO	(6) > 10% YES	(7) > 20% NO	(8) > 20% YES	(9) Small Party NO	(10) Small Party YES
RFD Routes	-0.181 (0.385)	0.0725 (0.249)	-0.00179 (0.0135)	0.0324*** (0.0101)	0.00692 (0.00941)	0.0287*** (0.00754)	0.00377 (0.00725)	0.0163*** (0.00568)	0.563 (0.381)	0.577** (0.288)
% Urban	-0.118 (0.0871)	-0.222* (0.129)	0.00136 (0.00375)	-0.00933* (0.00535)	1.03e-05 (0.00247)	-0.00233 (0.00358)	-0.000733 (0.00249)	-0.00225 (0.00263)	-0.0223 (0.119)	-0.168* (0.0874)
% Urban Squared	0.00119 (0.00137)	0.00299 (0.00196)	6.46e-05 (7.36e-05)	2.94e-05 (8.96e-05)	2.47e-05 (5.48e-05)	-2.53e-05 (6.47e-05)	3.79e-05 (3.75e-05)	6.73e-06 (5.65e-05)	0.00163 (0.00129)	0.00148 (0.00212)
% Imp. Farmland	0.0450 (0.0996)	0.00615 (0.0690)	-0.00490 (0.00360)	-0.0113*** (0.00296)	-0.00527* (0.00284)	-0.00953*** (0.00276)	-0.00421* (0.00217)	-0.00422*** (0.00164)	-0.129 (0.0808)	-0.165** (0.0702)
% Non-white	-0.0817 (0.196)	0.00163 (0.341)	-0.00191 (0.00666)	0.00509 (0.0222)	-0.00449 (0.00563)	0.00219 (0.0236)	-0.00316 (0.00545)	0.00549 (0.0150)	-0.362* (0.202)	-0.282 (0.528)
% Foreign-born	-0.314 (0.253)	-0.289 (0.282)	-0.00887 (0.00857)	0.00264 (0.0114)	-0.0121* (0.00647)	-0.00394 (0.00820)	-0.00982** (0.00481)	-0.00866 (0.00716)	-0.113 (0.244)	0.0682 (0.289)
Ln(Population)	1.001 (3.857)	-9.918** (4.079)	0.180 (0.114)	0.709*** (0.226)	0.154* (0.0841)	0.401** (0.194)	0.103 (0.0779)	0.131 (0.128)	5.781* (3.447)	7.062 (4.614)
Observations	15,214	6,998	15,214	6,998	6,998	6,998	15,214	6,998	15,214	6,998
R-squared d	0.181	0.138	0.029	-0.110	0.035	-0.121	0.044	-0.050	-0.015	-0.067
F Stat.	14.28	10.1	14.28	10.1	14.28	10.1	14.28	10.1	14.28	10.1

Additional controls include county and year fixed effects, and dummy variables indicating the presence of Jim Crow laws, women's suffrage, and secret ballots. Standard errors, clustered at state level, in parentheses. The cluster-robust Kleibergen-Paap Wald rk F statistic is reported.

*** p<0.01, ** p<0.05, * p<0.1

Sources: RFD routes from the 1908 United States Official Postal Guide; county characteristics are from Haines (2010) (county boundaries fixed at 1890 values as in Hornbeck (2010)); spending are collected from the "Report on Wealth, Debt, and Taxation" (Upton, J.K., 1895); state laws information are from Stone (1894, 1896).

Table 9: Policy Decisions and Route Allocation

VARIABLES	(1) OLS	(2) IV
Routes	0.000065 (0.000306)	-0.00103** (0.000505)
% Urban	0.00122 (0.00271)	0.00298 (0.0000262)
% Urban Squared	1.38e-07 (0.00003)	-0.0000175 (0.000029)
% Improved Farmland	-0.00217* (0.00124)	-0.00158 (0.00117)
% Nonwhite	-0.00276 (0.00466)	-0.00591 (0.00498)
% Foreign-born	-0.00616* (0.0034)	-0.00901** (0.00381)
Ln(Population)	0.0105 (0.0254)	-0.00164 (0.0243)
Observations	2,795	2,785
Districts	368	359
States	38	37
F Stat.	-	6.81 ⁺
R-squared	0.703	0.153

⁺ When standard errors are clustered at the district level the corresponding F statistic is 16.7.

Additional controls include county and year fixed effects, and dummy variables indicating the presence of Jim Crow laws, women's suffrage, or secret ballots. Standard errors, clustered at the state level, in parentheses. The cluster-robust Kleibergen-Paap Wald rk F statistic is reported.

*** p<0.01, ** p<0.05, * p<0.1

Sources: RFD routes from the 1908 United States Official Postal Guide; county characteristics are from Haines (2010) (county boundaries fixed at 1890 values as in Hornbeck (2010)); spending are collected from the "Report on Wealth, Debt, and Taxation" (Upton, J.K., 1895); state laws information are from Stone (1894, 1896).

Table 10: Policy Decisions and Route Allocation: Temperance
Dependent Variable: Number of Votes For or Against Temperance Related Policies

VARIABLES	(1) For OLS	(2) For IV	(3) Against OLS	(4) Against IV
Routes	0.00567*** (0.00107)	0.0135*** (0.00313)	-0.00568*** (0.000974)	-0.0123*** (0.00284)
% Urban	0.00761 (0.0106)	-0.00834 (0.0105)	0.00262 (0.00967)	0.0161** (0.00799)
% Urban Squared	-0.000306*** (0.000109)	-0.000156 (0.000106)	4.53e-05 (9.88e-05)	-8.16e-05 (8.30e-05)
% Improved Farmland	0.0281*** (0.00757)	0.0252*** (0.00684)	-0.0178** (0.00760)	-0.0155** (0.00686)
% Non-white	0.0436 (0.0309)	0.0696** (0.0310)	-0.0269 (0.0272)	-0.0490** (0.0238)
% Foreign-born	0.0755** (0.0300)	0.0994*** (0.0294)	-0.0613** (0.0272)	-0.0815*** (0.0256)
Ln(Population)	-0.202 (0.178)	-0.109 (0.165)	0.515*** (0.131)	0.436*** (0.110)
Women's Suffrage	0.123 (0.165)	-0.0186 (0.241)	-0.299* (0.172)	-0.179* (0.103)
Observations	2,062	2,053	2,062	2,053
Districts	368	359	368	359
States	38	38	38	38
F Stat.		3.908 ⁺		3.908 ⁺
R-squared	0.577	0.047	0.456	0.031

⁺ When standard errors are clustered at the district level the corresponding F statistic is 10.124.

Additional controls include county and year fixed effects, and dummy variables indicating the presence of Jim Crow laws and secret ballots. Standard errors, clustered at state level, in parentheses. The cluster-robust Kleibergen-Paap Wald rk F statistic is reported.

*** p<0.01, ** p<0.05, * p<0.1

Sources: RFD routes from the 1908 United States Official Postal Guide; county characteristics are from Haines (2010) (county boundaries fixed at 1890 values as in Hornbeck (2010)); spending are collected from the "Report on Wealth, Debt, and Taxation" (Upton, J.K., 1895); state laws information are from Stone (1894, 1896).

Table 11: Policy Decisions and Route Allocation: Immigration Restrictions
Dependent Variable: Number of Votes For or Against Immigration Restrictions

VARIABLES	(1) For OLS	(2) For IV	(3) Against OLS	(4) Against IV
Routes	0.00169 (0.00131)	0.00916** (0.00398)	-0.00132 (0.000899)	-0.00891* (0.00461)
% Urban	0.0225** (0.0109)	0.0101 (0.0115)	-0.0251** (0.0106)	-0.0126 (0.0113)
% Urban Squared	-0.000314** (0.000119)	-0.000186 (0.000119)	0.000302*** (9.64e-05)	0.000172 (0.000109)
% Improved Farmland	0.0183** (0.00684)	0.0130** (0.00659)	-0.0183** (0.00710)	-0.0129* (0.00661)
% Non-white	0.00785 (0.0181)	0.0307 (0.0234)	-0.0248 (0.0177)	-0.0480* (0.0257)
% Foreign-born	0.0296** (0.0141)	0.0498*** (0.0185)	-0.0377*** (0.0136)	-0.0583*** (0.0216)
Ln(Population)	-0.317** (0.143)	-0.256* (0.146)	0.387*** (0.107)	0.325*** (0.106)
Women's Suffrage	0.406* (0.215)	0.343 (0.280)	-0.467*** (0.144)	-0.403** (0.204)
Observations	2,373	2,364	2,373	2,364
Districts	368	359	368	359
States	38	38	38	38
F Stat.		5.029 ⁺		5.029 ⁺
R-squared	0.618	0.206	0.466	-0.023

⁺ When standard errors are clustered at the district level the corresponding F statistic is 13.415.

Additional controls include county and year fixed effects, and dummy variables indicating the presence of Jim Crow laws and secret ballots. Standard errors, clustered at state level, in parentheses. The cluster-robust Kleibergen-Paap Wald rk F statistic is reported.

Sources: RFD routes from the 1908 United States Official Postal Guide; county characteristics are from Haines (2010) (county boundaries fixed at 1890 values as in Hornbeck (2010)); spending are collected from the "Report on Wealth, Debt, and Taxation" (Upton, J.K., 1895); state laws information are from Stone (1894, 1896).

C.1 Appendix Tables

Table 12: IV Regression for Voter Outcomes: All Election Laws

VARIABLES	(1) Turnout	(2) > 5%	(3) > 10%	(4) > 20%	(5) Small Party
RFD Routes	0.0943 (0.333)	0.0256** (0.0126)	0.0206** (0.00820)	0.0114* (0.00619)	0.719* (0.371)
% Urban	-0.146** (0.0658)	-0.00591* (0.00306)	-0.00307* (0.00164)	-0.00150 (0.00156)	-0.0274 (0.0615)
% Urban Squared	0.000318 (0.00204)	7.05e-05 (9.31e-05)	2.76e-05 (5.95e-05)	2.02e-05 (4.85e-05)	-0.000131 (0.00261)
% Improved Farmland	0.0674 (0.101)	-0.00515 (0.00369)	-0.00630** (0.00285)	-0.00373** (0.00190)	-0.107 (0.0837)
% Non-white	-0.0509 (0.247)	-0.00186 (0.0103)	-0.00280 (0.00820)	-0.000375 (0.00639)	-0.378* (0.225)
% Foreign	-0.322 (0.283)	-0.000927 (0.00996)	-0.00809 (0.00678)	-0.00805 (0.00520)	-0.136 (0.232)
Ln(Population)	0.877 (3.583)	0.425*** (0.132)	0.262*** (0.0871)	0.121 (0.0818)	8.194** (3.995)
Observations	21,663	21,663	21,663	21,663	21,663
Counties	2,403	2,403	2,403	2,403	2,403
Wald Stat	10.7	10.7	10.7	10.7	10.7
R-squared	0.154	-0.018	0.002	0.029	-0.069

Additional controls include county and year fixed effects, and dummy variables indicating the presence of Jim Crow laws, women's suffrage, and secret ballots. Standard errors, clustered at state level, in parentheses. The cluster-robust Kleibergen-Paap Wald rk F statistic is reported.

*** p<0.01, ** p<0.05, * p<0.1

Sources: RFD routes from the 1908 United States Official Postal Guide; county characteristics are from Haines (2010) (county boundaries fixed at 1890 values as in Hornbeck (2010)); spending are collected from the "Report on Wealth, Debt, and Taxation" (Upton, J.K., 1895); state laws information are from Stone (1894, 1896).

Table 13: Effects By Newspaper Presence for Voter Outcomes: All Election Laws

Newspaper	(1) Turnout NO	(2) Turnout YES	(3) > 5% NO	(4) > 5% YES	(5) > 10% NO	(6) > 10% YES	(7) > 20% NO	(8) > 20% YES	(9) Small Party NO	(10) Small Party YES
RFD Routes	-0.240 (0.362)	0.0921 (0.258)	-0.00191 (0.0132)	0.0262*** (0.00949)	0.00730 (0.00903)	0.0219*** (0.00688)	0.00442 (0.00691)	0.0130** (0.00554)	0.448 (0.381)	0.491 (0.301)
% Urban	-0.0968 (0.0882)	-0.238 (0.147)	0.000843 (0.00366)	-0.0110** (0.00555)	-0.000735 (0.00226)	-0.00435 (0.00337)	-0.000722 (0.00246)	-0.00295 (0.00288)	-0.0199 (0.111)	-0.146* (0.0838)
% Urban Sq.	0.00112 (0.00146)	0.00289 (0.00219)	6.86e-05 (7.19e-05)	8.99e-05 (8.44e-05)	3.51e-05 (5.37e-05)	3.71e-05 (5.64e-05)	4.33e-05 (3.81e-05)	3.13e-05 (5.67e-05)	0.00166 (0.00120)	0.00193 (0.00213)
% Imp. Farmland	0.0865 (0.106)	-0.00743 (0.0716)	-0.00516 (0.00398)	-0.0107*** (0.00296)	-0.00547* (0.00307)	-0.00917*** (0.00251)	-0.00337* (0.00195)	-0.00448*** (0.00170)	-0.102 (0.0828)	-0.110* (0.0655)
% Non-white	-0.0479 (0.218)	0.0674 (0.353)	-0.00127 (0.00723)	0.0121 (0.0196)	-0.00381 (0.00607)	0.0120 (0.0200)	-0.00197 (0.00619)	0.0121 (0.0122)	-0.309* (0.184)	-0.112 (0.465)
% Foreign	-0.358 (0.260)	-0.228 (0.250)	-0.00956 (0.00871)	0.00455 (0.0108)	-0.0131** (0.00656)	-0.00256 (0.00724)	-0.00975* (0.00508)	-0.00653 (0.00658)	-0.220 (0.231)	-0.0490 (0.256)
Ln(Population)	-0.394 (3.794)	-10.52*** (3.794)	0.163 (0.112)	0.539*** (0.188)	0.145* (0.0833)	0.210 (0.146)	0.0768 (0.0793)	0.0221 (0.111)	5.263 (3.441)	6.511 (4.784)
Observations	14,795	6,868	14,795	6,868	14,795	6,868	14,795	6,868	14,795	6,868
R-squared	0.187	0.147	0.028	-0.044	0.034	-0.027	0.041	0.003	0.005	-0.033
F Stat.	13.78	9.05.	13.78	9.05.	13.78	9.05.	13.78	9.05.	13.78	9.05

Additional controls include county and year fixed effects, and dummy variables indicating the presence of Jim Crow laws, women's suffrage, secret ballots, office bloc ballots, party column ballots, and November elections. Standard errors, clustered at state level, in parentheses. The cluster-robust Kleibergen-Paap Wald rk F statistic is reported.

*** p<0.01, ** p<0.05, * p<0.1

Sources: RFD routes from the 1908 United States Official Postal Guide; county characteristics are from Haines (2010) (county boundaries fixed at 1890 values as in Hornbeck (2010)); spending are collected from the "Report on Wealth, Debt, and Taxation" (Upton, J.K., 1895); state laws information are from Stone (1894, 1896).

Table 14: Summary Statistics: Means by Region in 1900

	(1)	(2)	(3)	(4)	(5)
	North East	Midwest	South	South Central	West
RFD Routes	1.199 (3.109)	0.973 (1.896)	0.307 (1.078)	0.113 (0.792)	0.200 (0.815)
Congressional Turnout	68.58 (13.45)	80.87 (13.67)	61.49 (28.46)	56.91 (26.32)	63.39 (12.80)
Small Party Share	3.064 (3.739)	1.544 (1.688)	3.162 (9.862)	2.103 (7.448)	3.273 (4.738)
Percent illiterate (of white (voting-age native males))	0.0301 (0.0263)	0.0312 (0.0327)	0.138 (0.0686)	0.121 (0.0885)	0.0152 (0.0295)
Total Newspaper Circ	24,004 (111,454)	3,748 (35,695)	893.8 (5,440)	738.0 (5,497)	2,620 (19,439)
Daily Newspaper Circ	23,838 (111,463)	3,704 (35,694)	861.2 (5,426)	724.2 (5,497)	2,596 (19,440)
Dem Newspaper Circ	6,520 (31,713)	1,134 (14,476)	508.8 (2,713)	660.0 (4,998)	618.9 (5,091)
Rep Newspaper Circ	14,409 (69,651)	1,719 (12,144)	241.5 (1,782)	60.09 (826.8)	1,798 (12,809)
Ind Newspaper Circ	2,528 (12,997)	774.7 (9,759)	108.5 (1,408)	3.651 (54.69)	173.5 (1,766)
Improved Farmland	59.53 (18.64)	66.96 (21.91)	42.41 (17.41)	41.37 (23.04)	30.89 (15.36)
Percent Urban	36.40 (27.74)	15.74 (20.66)	9.307 (17.48)	6.512 (14.60)	14.25 (23.53)
Ln(Population)	10.84 (0.972)	9.642 (1.016)	9.781 (0.703)	9.461 (1.030)	8.858 (1.099)
Non-white	1.463 (2.158)	1.746 (4.186)	29.84 (22.48)	23.60 (24.22)	5.121 (7.269)
Percent Foreign	13.75 (8.699)	14.03 (11.26)	1.286 (2.778)	2.752 (6.266)	16.25 (7.378)
Observations	211	1,004	254	630	235

Table 15: Summary Statistics: Means by Region in 1910

	(1)	(2)	(3)	(4)	(5)
	North East	Midwest	South	South Central	West
RFD Routes	26.57 (20.01)	19.31 (13.33)	10.64 (10.30)	9.384 (10.30)	3.611 (6.767)
Congressional Turnout	53.60 (12.32)	61.84 (16.12)	44.09 (24.23)	24.68 (16.72)	51.83 (15.41)
Small Party Share	8.678 (10.60)	4.024 (4.842)	3.802 (6.299)	3.160 (6.468)	10.03 (12.20)
Percent illiterate (of white voting-age native males)	0.0204 (0.0201)	0.0220 (0.0242)	0.102 (0.0540)	0.0844 (0.0758)	0.00865 (0.0173)
Total Newspaper Circ	39,680 (222,751)	6,861 (55,608)	1,198 (4,464)	1,770 (10,326)	5,770 (31,728)
Daily Newspaper Circ	39,649 (222,755)	6,845 (55,609)	1,183 (4,465)	1,764 (10,327)	5,759 (31,725)
Dem Newspaper Circ	16,649 (133,216)	2,257 (31,990)	863.2 (3,183)	1,579 (9,103)	1,327 (8,742)
Rep Newspaper Circ	19,091 (85,355)	3,278 (17,150)	299.3 (2,019)	98.06 (1,372)	3,832 (20,022)
Ind Newspaper Circ	3,598 (18,014)	1,186 (12,221)	20.80 (231.9)	73.89 (1,631)	585.9 (4,298)
Improved Farmland	57.95 (19.34)	71.71 (19.94)	44.35 (16.94)	40.51 (20.36)	36.30 (17.06)
Percent Urban	41.58 (28.10)	18.93 (22.52)	12.15 (18.27)	9.485 (17.15)	19.26 (24.43)
Ln(Population)	10.96 (1.080)	9.785 (0.853)	9.934 (0.666)	9.611 (0.989)	9.300 (1.107)
Non-white	1.402 (2.109)	1.511 (3.420)	29.27 (22.03)	25.48 (24.90)	3.785 (5.504)
Percent Foreign	15.74 (9.300)	11.99 (9.504)	1.562 (3.254)	3.140 (6.363)	16.52 (7.577)
Observations	214	1,009	253	526	239

Table 16: IV Regression for Voter Outcomes Split by Region

	(1) Paper NE	(2) No Paper NE	(3) Paper MW	(4) No Paper MW	(5) Paper South Central	(6) No Paper South Central
Turnout						
RFD Routes	-0.289 (0.201)	0.527 (0.725)	0.108 (0.394)	-0.0997 (0.462)	-1.081*** (0.257)	-1.802** (0.754)
Number of Parties with > 5%						
RFD Routes	0.0389*** (0.00268)	-0.0164 (0.0188)	0.0242* (0.0124)	-0.00441 (0.0145)	0.00937 (0.00812)	0.0153 (0.0219)
Number of Parties with > 10%						
RFD Routes	0.0193*** (0.00209)	-0.00801 (0.00759)	0.0256** (0.0104)	0.00923 (0.00777)	0.00559 (0.00426)	0.0110 (0.0116)
Number of Parties with > 20%						
RFD Routes	0.00590*** (0.00146)	-0.0141** (0.00571)	0.0179** (0.00737)	0.00217 (0.00930)	-0.00115 (0.00186)	0.00308 (0.00496)
Small Party Share						
RFD Routes	0.429*** (0.0541)	-0.271 (0.232)	1.224** (0.525)	1.454*** (0.446)	0.469*** (0.133)	0.438 (0.538)
Counties	138	76	372	647	97	591
Wald Stat.	50.97	3.738	5.343	7.581	54.75	11906

	(7) <13% Nonwhite No Paper South	(8) Paper South	(9) >13% Nonwhite No Paper South	(10) Paper South	(11) Paper West	(12) No Paper West
Turnout						
RFD Routes	-0.467*** (0.152)	-0.634*** (0.243)	3.015 (2.676)	0.773 (1.226)	-0.642** (0.266)	-3.327*** (0.479)
Number of Parties with > 5%						
RFD Routes	0.00611 (0.00416)	-0.0266*** (0.00460)	-0.0331 (0.0251)	-0.0441 (0.0270)	0.00231 (0.00893)	0.121 (0.0907)
Number of Parties with > 10%						
RFD Routes	0.00476 (0.00301)	-0.0130*** (0.00456)	0.0181 (0.0280)	-0.0258* (0.0138)	-0.00289 (0.0144)	0.0568 (0.104)
Number of Parties with > 20%						
RFD Routes	-0.00251 (0.00164)	-0.00476*** (0.00129)	0.0513* (0.0312)	-0.0137 (0.0191)	-0.0172 (0.0170)	-0.00620 (0.0567)
Small Party Share						
RFD Routes	0.214 (0.150)	-0.350*** (0.0726)	2.946 (2.187)	0.365 (0.846)	-0.00193 (0.474)	-1.987** (0.956)
Counties	68	15	147	32	64	156
Wald Stat.	33.91	-	2.141	7.350	101	11.46