Fireside Chats: Communication and Consumers' Expectations in the Great Depression

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Abstract

This paper shows how policy announcements can be used to manage expectations. Using regional variation in radio exposure, I evaluate the impact of FDR's 1935 Fireside Chat, in which he showcased the introduction of important social policies, establishing a new expansionary cycle of the New Deal. I document that cities with higher exposure to the announcement exhibited a significant increase in spending on durable goods. The estimated effect is consistent with changes in expectations toward the policies announced. This paper shows the power of communication as a policy.

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1 Introduction

Monetary and fiscal authorities increasingly appreciate the significance of communicating their policies to the public. Indeed, in the current environment where central banks are greatly constrained in using conventional policy tools, management of expectations about future policies can help to stabilize the economy. While these unconventional, communication -based policies can have a large effect on the economy in theory, little evidence supports the use of such strategies in practice. This is not surprising given the numerous challenges related to identifying an exogenous communication treatment as well as measuring how the provided information is received by economic agents and how they act upon this information. This paper attempts to overcome those challenges using an important historical event with a clean identification strategy that allows measuring the causal effect of a relevant policy announcement on macroeconomic outcomes in a depressed economy.

Specifically, this paper advances the understanding of the matter by measuring how changes in the information set of consumers can affect economic outcomes. I show how communication from economic authorities can change consumers' behavior and have an expansionary effect in the context of a recession. To do this, I use the uneven introduction of the radio in the United States in the 1930s and President Franklin D. Roosevelt's (FDR) Fireside Chat of April 28, 1935, as a natural experiment. The speech marks the beginning of a new expansionary phase of the New Deal. In the radio speech, FDR introduced and explained the benefits of the work relief policies, passed with the Emergency Relief Appropriation Act (ERAA) and the Social Security Act (SSA), a new and permanent social policy.[1]

I find that exposure to that speech significantly impacted consumer choices. Us-

[1]This new stage of the New Deal is characterized by permanent social policies. This strategy differed from the previous programs that were by construction transitory. Roosevelt gained control over the work relief program with this reform. The ERAA included $4.8 billion in relief and was intended to serve as help until the SSA was implemented in 1937. The introduction of the SSA was accompanied by the introduction of a payroll tax to finance it. See Wallis et al. (2006) and Fishback and Wallis (2012) for a discussion.

ing weekly data on bank debits at the city level, which are highly correlated with expenditure on durable goods, I find an immediate expansionary effect of the speech. A one standard deviation increase in the exposure to the speech increased bank debits by 3.6 percent within two weeks after the speech, compared with two weeks before the speech. Using more aggregated data, I find that spending on cars increased, and savings (measured by total deposits) decreased in more exposed states. I also find that the effect is not driven by other characteristics that are correlated with the use of radio, such as wealth, age, or access to newspapers. I present various other robustness checks, such as a placebo test and instrumental variable estimations, which confirm the main results. These findings suggest that effective communication can accelerate the effects of fiscal policies.

Next, I explore how the announced policies can increase spending on durable goods as found. I show that the content of the speech can explain the direction and size of the effect.[2] The evidence suggests that people reacted in line with the announcement of the SSA and the mechanism to finance it. The result does not seem to come from a pure "noise" reaction. I show that other previous speeches that did not include policy announcements did not have a big and lasting effect as the speech of 1935. This confirms that the content in the policies announced are key to understanding the effect found. This result could be associated with a change of policy regime, moving toward a more permanent commitment over government spending, in line with Eggertsson (2008) and consistent with changes in narratives as discussed in Shiller (2017). In fact, this speech initiated what is called "The Second New Deal," which was characterized by the use of expansionary and permanent fiscal instruments.

This speech was part of a series of Fireside Chats, which were radio addresses that President Roosevelt used to communicate directly with the public. Aimed at the common American, the chats deliberately used informal language. FDR designed

[2]In Appendix A.5, I present a simple general equilibrium model where I show that announcing a policy with those characteristics increases spending on durable goods in more exposed regions.

the chats to be very important events, announced several weeks in advance, and aired in prime time (usually after a popular show). I focus on the speech of 1935 for several reasons. First, the announcement was associated with important fiscal policies and focused on economic confidence. Second, it was an isolated event (no other Fireside Chat happened that year). Third, because President Roosevelt had proven to be willing to increase government spending with the New Deal, the announcement was credible. Moreover, the bills for the ERAA and SSA had already been introduced in a Congress where FDR had a majority after the midterm elections of 1934.

This paper contributes to the literature that tries to see how announcing policies, in particular fiscal instruments, can have an expansionary effect. The results found are in line with what is called "unconventional fiscal policy" as in D'Acunto et al. (2016). It also contributes to a growing debate on how monetary authorities and governments should communicate their present and future policies to the public. The literature has taken some steps to examine the ways in which the US Federal Reserve communicates and whether the target audience should primarily be households or financial markets. For example, Hernández-Murillo and Shell (2014) show that communication from the Federal Reserve has become more complex over the years, such that only very sophisticated individuals can understand the documents the Fed releases. Coibion et al. (2018) discuss the importance of communicating effectively to the general public as a way to help increase the effect of policies that involve changing expectations. Coibion et al. (2020) show that households pay little attention to important monetary announcements. D'Acunto et al. (2018) discuss how announcing fiscal reforms, which are better understood by consumers, could have a stronger effect than monetary policy communication.

Communication from fiscal authorities can be desirable as the political process can delay the implementation of policies. However, measuring the effect of communication today is hard. As there are many and efficient sources of information, it is not obvious to obtain a control group. That does not means that communication is

not effective today. A few recent papers study the role that policy announcements may play in changing consumers' expectations. D'Acunto et al. (2016) find that an announcement of an increase in the value-added tax in Germany had a strong effect on consumers' inflation expectations and their spending decisions. Similarly, Kueng (2014) finds that the spending of high-income households in the United States increased strongly in response to announcements that raised their expected after-tax lifetime permanent income.

This paper contributes to this debate by showing the effect of the communication of policies, exploiting the cross sectional differences in access to the announcement of a policy that affected equally the treated and control groups. This setting allows to control for any other common shock that can affect the result. To the best of my knowledge, this paper is the first to use this identification strategy to study the effect of communication outcomes in a macroeconomic context.[3] Previous work in other fields has used a similar strategy to study the effect of communication on other outcomes, showing that media exposure has a substantial impact on people's behavior in terms of political participation and choice.[4] These results are not surprising; many politicians in the United States and other countries use the mass media and new social media to communicate policies. Roosevelt is well-known for his radio talks, and others have used similar tools. Ronald Reagan, for instance, used television to explain his tax plans, and, Barack Obama and Donald Trump used Facebook and Twitter to communicate.

Other works have also studied the role of expectations and communication in the

[3] A related work in the field of political economy is Strömberg (2004), who uses radio exposure in the same period studied in this paper. He finds that the resources of the Federal Emergency Relief Administration (FERA) were allocated to areas where a larger share of the population had radios between 1933 and 1935. In this paper I look at the differential effect after the event; by contrast he looks at the cross-sectional allocation of FERA. In any case, any systematic differences in government expenditure will be captured by zone fixed effects, as explained in the empirical section. Moreover, in the robustness section, I show that the results are similar after controlling by federal spending between 1933 and 1935.

[4] A similar identification strategy to estimate the effect on political outcomes has been used by Enikolopov et al. (2011) DellaVigna and Kaplan (2007), González and Prem (2018), DellaVigna et al. (2014), and Yanagizawa-Drott (2014), among others. In general, they find large effects.

Great Depression. Romer (1990) shows how the great crash of 1929 produced uncertainty about future income. According to that work, that uncertainty generated a reduction in consumers' spending on durable goods. This could be associated with the start of the Great Depression. Eggertsson (2008) discusses how the election of FDR shifted expectations about the fiscal policy that was being implemented. Using a general equilibrium model, he shows that a change in expectations about fiscal policies can produce an economic expansion such as the one that started in 1933. There have been discussions about how expansionary the first part of the New Deal was,[5], but the announcement studied in this paper talks about the policies after 1935, which focus on fiscal instruments, giving less importance to the regulatory policies.

The remainder of this paper is organized as follows: Section 2 discusses the historical context of the paper. Section 3 presents the data used in the empirical part. Section 4 presents the main empirical strategy results and robustness exercises. Section 5 discusses possible mechanisms. Section 6 concludes.

2 Context

In 1932, Franklin Delano Roosevelt was elected president of the United States. At the time of his inauguration, in March 1933, the country was reaching the deepest point of the Great Depression. On the morning of inauguration day, both the New York Stock Exchange and the Chicago Board of Trade suspended trading. The Roosevelt administration started with a bank holiday that lasted a full week. One of the first measures that he took was to cut $500 million from the federal government's spending budget because he considered that the country was "on the road to bankruptcy." Then, he signed the Economy Act and the Beer-Wine Revenue Act, which anticipated the end of Prohibition. These bills gave the government new sources of revenue, increasing fiscal revenues and maintaining fiscal deficits at a

[5]Cole and Ohanian (2004) focus on the contractionary part of the New Deal, related to market regulations. Eggertsson (2012) shows that those policies can actually be expansionary in the context of the Great Depression.

level similar to those of the Hoover administration in 1932 (Fishback (2010)).

With the objective of stabilizing the economy, Roosevelt sent several bills to Congress with policies that came to be known as the New Deal. These policies were rapidly implemented over a period known as the "Hundred Days." Policies included the creation of unemployment relief and the Civilian Conservation Corps, which sought to employ a quarter of a million young people to develop the National Park System, among other projects. He also created the Federal Emergency Relief Administration (FERA) to coordinate unemployment assistance and established the Tennessee Valley Authority (TVA). The government also launched the National Industrial Recovery Act (NIRA), which included labor regulation such as minimum wages and maximum hours. The Public Works Administration (PWA) oversaw public construction programs. Finally, the NIRA created the National Recovery Administration (NRA) to regulate competition and workers' bargaining power.

All of these new agencies and bills were the core of the First New Deal and sought to increase production in the context of a country facing the depths of the Great Depression. Roosevelt was able to do this thanks to the Democratic party's majority in Congress. However, as Kennedy (1999) and Chester (1969) point out, Roosevelt faced a communication problem since conservatives owned many of the nation's newspapers, Roosevelt's message was not able to reach his audience in the way he wanted.

To resolve this issue, Roosevelt used the radio, a relatively new technology at the time, to communicate with the public. In contrast to newspapers, radio gave Roosevelt the opportunity to speak directly to the American people. Even though the invention of the radio had happened decades before, and its presence in the United States dated back to the beginning of the 20th century, broadcasting was mainly an amateur undertaking that lacked widespread outreach.

According to the 1930 Census of Population, only 36 percent of households had at least one radio. This relatively small number did not prevent politicians from using this new communication instrument. In 1924, the Democratic National Con-

vention was broadcast; in 1928, both presidential candidates, Herbert Hoover and Al Smith, used the radio for campaigning. By 1932, many local candidates were also using the radio. Roosevelt himself communicated through the radio as governor of New York. Many historians (e.g., Chester (1969)) highlight the fact that President Roosevelt had great oratory skills; after the speech of April 28, 1935, the New York Times said: "He [the President] confirmed that no politician of his time equals him in the adroit use of this means of approach to his fellow-citizens all over the land." During his presidency, FDR used radio extensively. Just days after his inauguration, he launched the first in a series radio talks. This was a way of communicating directly with audience, bypassing the editors of newspapers that opposed his presidency.

According to Lenthall (2008), prior to Roosevelt, President Hoover also used radio to deliver speeches and communicate. Though his speaking skills were considered subpar, Hoover used the radio many times and that "overexposure" seems to have negatively affected Hoover's popularity. Armed with this knowledge, Roosevelt pursued a different strategy: he limited his exposure to a few well-announced appearances that commemorated important occasions. Lenthall (2008) describes how Roosevelt's press secretary, Stephen Early, worked to establish the Fireside Chats as major events. They were announced several weeks in advance and were scheduled after popular evening shows to ensure a large audience.

Roosevelt's communication style differed from the speeches of other politicians at the time. He used less formal language and aimed a common listener. With this unique approach, he used this platform to answer critiques of his policies and to explain how his government was working to solve issues, particularly through the New Deal. He used the radio as an educational news agency and shaped his style to explain and inform the public about his policies. Consequently, Roosevelt became a radio celebrity. After these speeches, he received as many letters and telegrams as President Wilson during World War I. According to Lenthall (2008), many people reported that by listening to the president's speech, they felt better about their "De-

pressions troubles," indicating how he shaped expectations about the economy. In a 1933 letter to the White House, for example, a citizen who had listened to a Fireside Chat wrote:

"[...] I feel that he walked into my home, sat down and in plain and forceful language explained to me how he was tackling the job I and my fellow citizens gave him."

Roosevelt delivered a total of 30 "Fireside Chats" on the radio between 1933 and 1944. In the first one, Roosevelt addressed the end of the bank holiday of 1933. That same year, he used radio on three more occasions. These speeches were, in general, between the hours of 8 p.m. and 10 p.m. Eastern Time, in order to reach the whole country. After that, he gave two more speeches in 1934, and one in April 1935.

On April 28, 1935, President Roosevelt gave a speech on the radio in which he discussed the general motivations of the policies that were being debated in Congress. He emphasized work relief after the approval of the ERAA, and the SSA, which was still being discussed. The speech also explained that those policies were part of a coherent plan, launching the beginning of a new era of permanent social policies in the US. Even if these policies had been discussed in Roosevelt's circle before, the summer of 1935 was characterized by the implementation of those policies (Leuchtenburg (1963)), and the speech marks publicly the start of that process.

In the speech[6], FDR explained the objective of policies that offered security about the future. The main message was that provisions of the SSA (unemployment insurance and aid for retirement) and the ERAA (jobs through public works programs) would give households more certainty about the future. Among the letters that President Roosevelt received, Thos. J. Vernia said that the speech "created a further feeling of confidence." In his speech, FDR said that the objective of the legislative agenda was to create "wise provisions for the protection of the weak."

The press reacted to the speech in the following days, focusing on the legislative program the president emphasized. The press also noticed that this speech was different in nature. While other Fireside Chats had focused on answering critiques, in

[6]The transcript of the full speech can be found in Appendix A.6.

this speech the president "ignored the critics," as the *Washington Post* put it on April 29, 1935. He used the chat to explain future projects and how they would bring permanent progress as a whole. On April 30, 1935, *the New York Times* reported that the speech contained "nothing new to any fairly close reader of the metropolitan press." However, the same newspaper later observed: "The metropolitan press is numerically small in proportion to the citizenship of the country. Many readers do not remember the news of the previous day, and he [Roosevelt] thought it both wise and necessary to tie everything together." The paper's analysis concluded that Roosevelt had employed a different strategy: to use radio to explain the objectives of his agenda at a time when Congress seemed poised to delay its progress. In that sense, the speech can be understood as increasing the probability that those policies would be implemented, emphasizing the general objectives his administration would pursue in the future. The bills were in Congress and probably many people had some idea of them. The fact that Roosevelt emphasized the approval of those policies, given the majority that Democrats had in Congress after the midterm election of 1934, increased the likelihood that those policies would actually be approved soon.

Congress had already approved the ERAA earlier in April. The objective of the ERAA was to create government jobs for 3.5 million Americans. Newspapers of the time said that President Roosevelt had $4 billion available to spend. Wallis et al. (2006) discuss that while this type of program already existed, the new bill gave FDR more power over them. The program eventually employed more than 8.5 million workers on 1.4 million public projects. Roosevelt himself had provided more detail about the ERAA on January 4, 1935, in the State of the Union address. He had also described details of the Social Security program in a message to the Congress that was read by some radio commentators. Nevertheless, his main audience on these previous occasions was not the general public, but the members of Congress. Furthermore, the State of the Union address took place on a Friday at 12:15 p.m. and the message to Congress was read at that same time on a Thursday – times that precluded many working people from listening to these speeches.

The ERAA created the Works Progress Administration (WPA), which was established on May 6, 1935. The SSA bill was signed into law on August 15, 1935. The SSA introduced unemployment insurance and old-age pensions. It also included help for the indigent elderly as well as child and health services. In the Fireside Chat of April 28, 1935, Roosevelt recognized that, even though reducing unemployment was important, the government "cannot continue to create government deficits for that purpose year after year." To finance the unemployment plan, the act relied on a 1 percent tax on employers' contributions (firms with eight or more workers), which was increased to 2 percent in 1937. The pension plan was financed by a 1 percent employee contribution. Finally, payroll taxes were instituted in a range from 4 percent for lower incomes to 79 percent for incomes larger than $5 million (a tax that was specifically used to target Rockefeller's own fortune). Because of the minimum taxable income, less than 5 percent of Americans paid this tax.

The SSA also provided an important source of income for retirees. Many of them stayed since the labor force, as they didn't have any other source of income for retirement. According to Costa (1998), even if some states had a pension system, retirees depended on their own savings and family support. Haber and Gratton (1993) estimate that by the 1920s, the median household had saved between $2,500 and $5,000 by retirement age. This means that 40 to 50 percent of households could finance a ten-year annuity of $616 in 1917 dollars. These numbers indicate that people close to retirement had significant savings that could be spent if the SSA gave them some income in the future. Additionally, since a part of that population could retire with this policy (they would not need to work if they had a SSA income), the SSA could open new opportunities to younger workers in the labor force. In Roosevelt's words, the SSA could "help those who have reached the age of retirement, to give up their jobs and thus give to the younger generation greater opportunities for work and to give to all a feeling of security, as they look toward old age."

The speech launched the beginning of the second wave of the New Deal. This period is characterized by more permanent social policy. The first wave was in part

characterized by regulations that could be considered contractionary, as explained in Cole and Ohanian (2004). In the second wave, policies included the SSA and the WPA, but also the National Labor Relations Act, and progressive tax reforms, among others. Those policies were approved in the summer of 1935. After the speech, and with the approval of these policies, the American economy started a period of robust growth. Figures A.1 in Appendix A.2 show that industrial production and the stock market, after relatively slow growth in the second half of 1933 and 1934, performed positively until the recession of 1937. The second half of Roosevelt's first administration marks the recovery from the Great Depression.

Amenta et al. (1994) discuss one reason why Roosevelt might have delivered this speech on that particular date. Leuchtenburg (1963) reveals that the motivations for the second New Deal policies had arisen long before, and they were preceded by strong negotiations within Roosevelt's circle. But, according to Amenta et al. (1994), the Democratic party also feared the rise of the popular southern politician Huey Long. This might have led to more political reasons to push this agenda, now that the Democrats had a big majority in Congress after the midterm election of 1934 and before the presidential election of 1936. In that paper, they reveal that a secret poll was developed by the Democratic Party to see how popular Long was. That poll was developed two days after the Fireside Chat of April 1935. This suggests that with this speech, Roosevelt also wanted to test how this new era of policies was perceived by the public and if these policies were popular enough to obtain an electoral win in 1936.

The benefits of these federal programs targeted a considerable proportion of the country's population. However, the communication effort did not necessarily reach the whole country evenly. In the next sections, I use the geographical heterogeneity of the introduction of the radio to evaluate the impact of Roosevelt's communication. This heterogeneity can be used to measure the effect of the speech. The next section explains the data used to estimate this effect.

3 Data

This paper tries to estimate the effect of a communication treatment on economic behavior. In order to estimate that effect a measure of how many people listened to the speech is needed. One of the challenges is that no exact measure of how many people listened to the speech is available nor is the geographical distribution of listeners. In addition, listening to the speech is not exogenous. That is why I use the share of households in a given area that had a radio before the event as a proxy for having listened to the speech.[7]

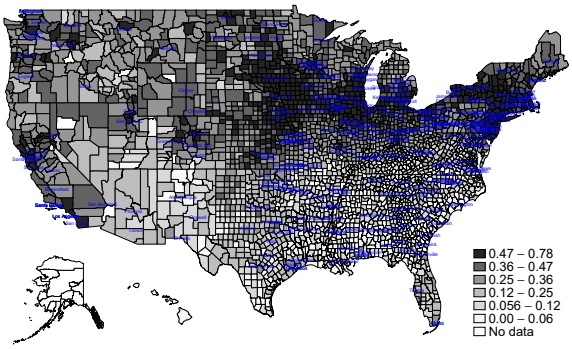
I use data from the 1930 Census of Population (Ruggles et al. (2019)) to determine the share of households with a radio in each region. Throughout this paper I will use different levels of aggregation. The share of households in a given area with a radio is used as a measure of exposure to the speech.[8] The radio usage data are from 1930: two years before the presidential election and five years before the speech analyzed. Therefore, the measure of radio usage is not related to the actual event that will be analyzed. Table A.1 shows the high degree of heterogeneity in radio adoption, ranging from 5.3 percent of households with a radio in Mississippi to 62.5 percent in New Jersey. In general, southern states had fewer radios compared with northern states.[9] Figure 1 shows the geographical heterogeneity by county.

[7]Social interaction can also play a role here. The geographical measure of exposure indicates the exposure of a region to the speech. This includes people directly listening but also the network effects. In a region with more radios both direct and indirect effect are more likely.

[8]I obtain the percentage of households that have a radio, using the 5 percent representative sample available online. I use households' expansion factors.

[9]The main results are robust to the exclusion of the South.

Figure 1: Share of Households with Radio by County in 1930



Note: The graph shows the share of households with radio at the county level, according to the 1930 Census of Population. The blue names indicate the counties for which there are data on Bank Debits.

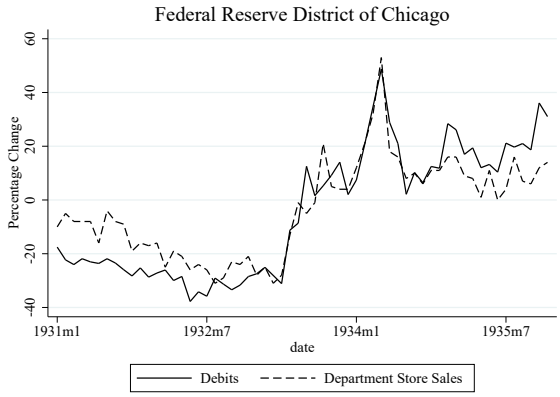
The differences in the distribution of radios might correlate with other economic variables such as income. To prevent contamination from systematic differences at the state or city level, I control by the geographic unit fixed effects. Throughout the paper, I use different sources of information and data. I estimate the effect of communication on spending on durable goods and savings. Table A.2 shows the different sources of the data, plus frequency and aggregation. The frequency of the data and aggregation depend on the availability. I use data from 1930 to 1939 at a state level. There are no data for Hawaii and Alaska, as they did not become states until 1959. Because of this, I will use yearly data for 48 states plus the District of Columbia. Table A.3 shows some summary statistics for the state-level data. The main estimation of the paper is produced with city-level data. For this level of aggregation, I obtain the radio usage variable from the 1930 Census of Population, as with the state-level data. I obtain weekly data on bank debits from the G.6. report, published weekly by the Federal Reserve Board. The radio share is obtained for the county where the city is located.[10] I also obtain CPI data from the BLS, but on a yearly basis. Data on Federal aid and local sales come from Fishback et al. (2005), also on a yearly basis. Table A.4 gives some descriptive statistics of those variables.

The main results look at the effect of the communication event on bank deb-

[10] In the case of independent cities, it only includes information for the city.

its. Bank debits represent the amount of money that exits a bank account (including check claims), so an increase in this variable is related to a decrease in deposits. Note that bank debits only represent one side of the equation, as I do not have the flow of income entering the bank accounts or the stock of deposits. Nonetheless, this variable is highly correlated with other variables that represent economic activity. For instance, using department store sales data, which represent mostly expenditure on durable and semi-durable goods, I compare it's yearly changes with bank debits aggregated monthly and at the Federal Reserve District level. Figure 2 shows the correlation for the Federal Reserve District of Chicago:

Figure 2: Yearly Percentage Change in Bank Debits and Department Store Sales



Note: The solid line represents monthly bank debits in the Federal Reserve District of Chicago. The dashed line shows the monthly department store sales in the Federal Reserve District of Chicago.

The figure displays a high correlation not only in levels but also in changes. In particular, the variables coincide in periods of big changes. This feature is present in all of the Federal Reserve Districts. To undertake a more systematic analysis, I run a regression with different fixed effects and lags. The results are presented in Table A.5 in Appendix A.1. Current and past values of the changes in debits correlate with the changes in department store sales. These results are robust to including many lags of debits. These results are also robust to the inclusion of time and zone fixed

effects.[11] Thus, bank debits provide a good proxy for department store spending. (i.e. spending on durable goods)

I use data from city-level bank debits, which were collected weekly by the Federal Reserve for 271 cities.[12] I then examine whether a reaction surfaces in this measure right after the speech. I aggregate these data bi-weekly to address cyclically noisy data for some cities.[13] The speech took place on a Sunday; the Federal Reserve reports weekly data from Thursday to Wednesday, meaning that incorporating a full week of time before the speech requires aggregating two weeks of data. Therefore, in all of the estimations, the first point estimate considers data collected from the Thursday before the speech to Wednesday a week after the speech (10 business days).

The high frequency of the data is particularly helpful because I can identify the effect the week after the speech, using a high-frequency identification argument. Bank debits are a good proxy for spending on durable goods. Nevertheless, I also show the effect of the speech at the state level using yearly data with more direct variables of consumption.

4 Estimation and City-level Results

4.1 Empirical Strategy and Main Results

To estimate the effect of being exposed to the speech on economic variables, I run a difference-in-difference regression. This specification includes a post-treatment dummy interacted with the regional ownership of radios in 1930. The dependent variable is the log of bank debits at the city level. In Section 3, I show that this variable is strongly correlated with spending on durable and semi-durable goods. The use of this variable is relevant, as this type of good should react strongly after changes in expectations. In Appendix A.5, I show that policy announcements simi-

[11] Also, I find similar results if I include lags of the retail sales variable.
[12] The number varies. Dropping cities with incomplete data reduces the total number to 268.
[13] Results hold with weekly data.

lar to the one analyzed in this paper should produce a strong cross-section reaction in durable spending. In the model, the effect is small in terms of non-durable goods, and probably will be hard to see empirically with small samples. This point is also raised in Mertens and Ravn (2012). Then, having a measure of durable goods should improve the measure of the effect. I run the following regression:

$$y_{ct} = \beta I(1\ if\ week > t_0) * RadioShare_{c,1930} + \gamma_c + \kappa(c)_{s,t} + \kappa(c)_{f,t} + \varepsilon_{ct} \quad (1)$$

Where c is the city, s the state, f the Federal Reserve District, and t the time that corresponds to two weeks. $y_{ct} = log(BankDebits)_{c,t}$ is the log of bank debits in a given city and time. $I(1\ if\ week > t_0)$ is a dummy that takes a value of zero before the speech and a value of one the week of the speech and after. As explained in the previous section, I use the sum of two weeks of bank debits. In this exercise, I compare the month before the speech with the month after, meaning that there are four time observations for every city. Two before ($I(1\ if\ week > t_0) = 0$) and two after, including the week during which the speech was broadcast ($I(1\ if\ week > t_0) = 1$). With the city fixed effect, I control for any systematic demographic and economic characteristics that might affect the results. State-time and Federal Reserve District-time fixed effects are important because the WPA and the Social Security Act targeted some demographic characteristics (the unemployed, children, pensioners, veterans), and as a result, those demographic characteristics could explain part of the results. These results are robust to controls for some characteristics of the population affected by the policy (see Section 4.2). Because the effect could interact with the expectation of the policy reaction from any economic authority at the state or Federal Reserve District level, is important to incorporate time-varying fixed effects at that level. As a result, findings should be interpreted as the within-state (state-Fed in the case where a state is spit by a Federal Reserve District) difference in expenditure. The relative magnitudes of the results should be interpreted at that level.

I take the share of households that own a radio for the county where the city is

located.[14] These data also come from the Census of Population of 1930. I run regressions, including state-time fixed effects, Federal Reserve District-time fixed effects and city fixed effects. I also control for the share of urban population-specific trends, the share of black population, and the share of population aged 55 or older. I have a total of 268 cities. After excluding cities that present changes in logs bigger than 1 or -1 at one point of the period in some specifications, 257 cities remain. The average debit by city is $58,415 with a standard deviation of $444,784. Big financial cities such as New York influence this number. Results are presented in Table 1.

Table 1: Difference-in-Difference Results at the City Level

	(1)	(2)	(3)	(4)	(5)
Radio Share ($t > t_0$)	0.185***	0.196***	0.224***	0.229***	0.208***
	(0.042)	(0.064)	(0.065)	(0.071)	(0.079)
City FE	Yes	Yes	Yes	Yes	Yes
State-Time FE	No	Yes	Yes	Yes	Yes
FRD-Time FE	No	No	Yes	Yes	Yes
Outliers	Yes	Yes	Yes	No	No
Controls	No	No	No	No	Yes
Observations	1,072	1,044	1,044	920	920

Note: The table shows the results for running specification 1. Column (1) shows the results for the specification without controls. Column (2) adds state week fixed effects. Column (3) is (2) plus Federal Reserve District fixed effects. Column (4) is (3) without outliers. Outliers are cities with weekly changes greater than $|1|$ in logs and drops 5 percent of the bigger and smaller cities. Column (5) is (4) plus controls. Controls are trends interacted with the share of urban population, black population, and share of population older than 55. Standard errors are clustered at the city level.

There is a positive and significant effect in more exposed cities. The month after the speech, more exposed cities increased their bank debits by between 18.1 percent and 22.9 percent. These results are significant at the 1 percent level for all specifications. Taking into consideration the relevant variation on the radio share, one standard variation in the measure of exposure is about 15.43 percent. This means that the effect is between 2.94 percent and 3.36 percent on one standard deviation of

[14] I use the county, because the rural population would use the city bank. In the case where there is more than one city in a county, I use the city-level radio share. I do the same in the case of cities that do not depend on counties.

the exposure. Taking into consideration the correlation between the change in debits and the change in department store sales, this means an increase in expenditure close to 2 percent depending on the specification.

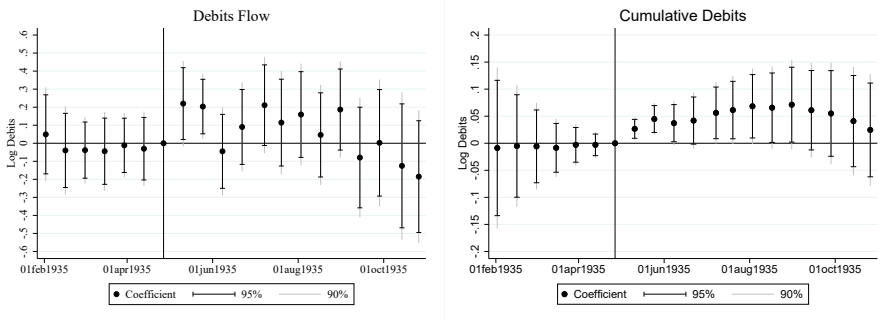
The identification assumption relies on the fact that nothing else relevant happened related to radio usage around the speech. In this sense, the previous results could be driven by some previous higher growth of bank debits in cities with more radios. Then, I have to test whether the point estimates of the bank debits are similar to the baseline period before the speech. To evaluate this, I run the following specification:

$$y_{ct} = \beta_t I(1\ if\ week = t) * RadioShare_{c,1930} + \gamma_c + \kappa(c)_{s,t} + \kappa(c)_{f,t} + \varepsilon_{ct} \tag{2}$$

Tables A.6 and A.7 in Appendix A.1 show the results for this and other specifications for the flows and cumulative bank debits over 1935 respectively.[15] The left panel of Figure 3 presents the results for column (6) in Table A.6, which includes controls and excludes outliers in changes and levels. The right panel presents the results for column (6) in Table A.7. Standard errors are clustered at the city level. In addition to that result, the right panel shows the results for the cumulative city debit over 1935:

[15]Results are consistent when controls are excluded. I also show results excluding big financial centers (defined as cities with a regional Federal Reserve) and excluding cities that are between the 5 percent with more and less debits on average during the period. I also present results excluding New York City.

Figure 3: Bi-weekly Debits



Note: Left panel of the figure represents results of column (6) of Table A.6. The dependent variable is the flow of bank debits in logs. Dots represent point estimates of a time dummy interacted with the county share of radios. The right panel shows results from column (6) of Table A.7 the dependent variable is the sum over 1935 of the city's debits. The vertical dark lines represent confidence intervals at the 90 percent level. The vertical gray lines confidence intervals at the 95 percent.

The vertical line represents the week of FDR's speech.[16] We can see an increase in bank debits after the first two weeks. This effect is positive and statistically significant at the 95 percent level. After that period, we still see a positive impact, but it is not statistically significant at the 95 percent level. Overall, there is a positive effect.

The estimated effect is large: The coefficient reports an increase of 23 percent in bank debits if the city has full exposure compared with a region with no exposure to the speech in the two weeks after the speech. This means that a city with one standard deviation more radio usage increased its bank debits by 3.4 percent. There is no evidence of a pre-trend. Three months before the event, the effect is approximately zero and not significantly different from the baseline period. This result can be interpreted as an increase in the flow of spending on durable goods, which is significantly higher in more exposed cities a month after the speech. This doesn't mean that there is convergence after two weeks. After a month, less exposed cities will have a lower stock of durable goods.

In order to evaluate when convergence occurs, the right panel shows the results

[16]The speech was given a Sunday, so the vertical line indicates the week before the speech.

for the annual sum of bank debits, in order to have a measure of the stock of spending on durable goods. We can see that the effect lasts for many more periods. After the initial post-speech increase, the stock of debits remains positive for 26 weeks, or six months. The effect is also statistically different from zero at the 90 percent level for 14 weeks. Then it slowly converges to zero. This convergence is at the state level, as the regression includes state-time fixed effects. As Figure 3 shows, there are no pre-trends in this specification.

4.2 Robustness

4.2.1 Controls

The radio was not the only way to obtain information about the content of the speech. As in any communication treatment, individuals can get information from other sources such as newspapers or talking with informed people. The information treatment in this case is the use of homogeneous speech using a new technology. This means that individuals exposed to the radio speech got the same information in a more efficient way. In that case, newspapers are also a relatively efficient way of getting information.

The cities in the sample are relatively big meaning that access to newspapers was high, but there might be some heterogeneity in the access. In order to see if newspapers played a role, I use a measure of newspaper circulation as a control. Newspaper circulation can also be problematic. For instance, if I have access to the newspaper circulation the next day, that measure can be contaminated by the treatment. Some people who listened to the speech might also decide to read about the speech the day after. This problem does not arise with the radio, because once the speech is delivered, there is no other opportunity to listen to it again. Because of that, an ex-post measure of newspaper circulation will measure interest in the speech, in particular in cities with high homogeneity in terms of access. In order to address that concern I will use a measure of newspaper circulation previous to the event.

I obtain data from Gentzkow et al. (2011), where they have information on newspaper circulation for elections in the US. I obtain the data from 1932. With this, I run specification 1, but controlling with a time dummy interacted by that level of newspaper circulation at the city level. Table 2 present the results:

Table 2: Difference-in-Difference with Newspapers

	(1)	(2)	(3)	(4)	(5)
Radio Share ($t > t_0$)	0.164***	0.175***	0.195***	0.208***	0.213***
	(0.043)	(0.043)	(0.066)	(0.075)	(0.082)
Newspaper ($t > t_0$)	0.048**	0.016	0.020	0.007	0.017
	(0.020)	(0.026)	(0.026)	(0.032)	(0.034)
City FE	Yes	Yes	Yes	Yes	Yes
State-Time FE	No	Yes	Yes	Yes	Yes
FRD-Time FE	No	No	Yes	Yes	Yes
Outliers	Yes	Yes	Yes	No	No
Controls	No	No	No	No	Yes
Observations	1,004	972	972	872	872

Note: The table shows the results for running specification 1. Column (1) shows the results for the specification without controls. Column (2) adds state week fixed effects. Column (3) is (2) plus Federal Reserve District fixed effects. Columns (4) is (3) without outliers. Outliers are cities with weekly changes greater than |1| in logs and drops 5 percent of the bigger and smaller cities. Column (5) is (4) plus controls. Controls are trends interacted with the share of urban population, black population, and share of population older than 55. Standard errors are clustered at the city level.

The results show similar effects, but slightly smaller, with similar standard errors. This means that most of the variation found is not coming from newspapers, and even controlling for that variable the results survive. This shows that the radio share affected people's behavior. This is not surprising, as some studies at the time showed that sentences that were heard were better understood when compared with sentences that were read.[17] The effect of the newspaper circulation is small and after controlling by common regional trends, the coefficient is not significant.

Another concern is that there is a potential correlation between wealth and radio ownership. Wealthy consumers could have a differential effect on outcomes after the policy announcement. Even if I control for zone characteristics with the city

[17]For a discussion and some evidence, see Cantril and Allport (1935).

fixed effect, richer groups could react more strongly to the announcement. The fact that richer groups possibly react more is not a threat to the identification strategy per se because they nonetheless react to the announcement. But the interpretation would be different if, for instance, only rich people reacted that day; in that case, the measure of exposure would capture the reaction of the wealthy, rather than the reaction of the wide range of people listening to the announcement. I address this potential issue by using another variable in the census that is related to wealth, but that is not related to exposure to the speech. This measure is the share of households that owned a house in 1930 in a given county. As we can see in the first column of Table 3, this variable is highly correlated with the use of radio.

Table 3: Relationship with Radio Share

	House Owners	Unemployed	Older	Black	Relief
Radio	0.793***	0.970***	2.331***	-0.711***	3.209***
	(0.078)	(0.327)	(0.251)	(0.036)	(0.766)
Obs	268	268	268	268	267

Note: *** p<0.01, ** p<0.05, * p<0.1. Column (1) shows the result of a regression where the dependent variable is the radio share by city, and the independent variable is the share of houses owned by households in 1930. In column (2) the independent variable is the unemployment rate in 1930. In column(3) it is the share of the population 55 and older. In column (4) it is the share of black population. In Column (5) it is the per capita relief between 1933 to 1935 from Fishback et al. (2003) in thousand of dollars. Robust standard errors are shown in parentheses.

In addition to this relationship, the policies announced in the speech benefited certain groups of people more. Thus, these groups could be reacting to the announcement. For example, the WPA offered benefits to counties with higher shares of unemployed people. Therefore, I also run a robustness check with the share of unemployed workers according to the Census of 1930. The SSA disproportionately benefited the older population. I use the share of population in the county aged 55 and older. The black population were disproportionately excluded from the SSA. Then, I use the share of black population in the county. Finally, I also look at the relationship with the FERA relief. Strömberg (2004) finds that FERA was allocated

to places with more radio. This result is confirmed with the positive correlation between radio ownership and per capita spending, using the measure of Fishback et al. (2003). Controlling by this variable is important as people that received more public spending could react positively to a policy announcement because they expect to be benefit by it.

The strong relationship that emerges suggests that the share of radio ownership is potentially correlated with wealth and with the populations that most benefited from the policies. We don't see a statistically significant relationship with newspaper circulation. To see if the effect is driven by one of these measures (and not from exposure to listening to the speech), I run specification 1, but instead of using the radio ownership share, I use each of these variables interacted with the post treatment dummy. The results are presented in the first row of Table 4.

Table 4: Other Variables as Placebo and Control

	(1) House Owners	(2) Unemployment	(3) Older	(4) Black	(5) Relief
Placebo	0.131	-0.149	-0.239	0.171	0.011
	(0.106)	(0.208)	(0.208)	(0.281)	(0.572)
Radio	0.218***	0.226***	0.241***	0.239***	0.234***
	(0.072)	(0.072)	(0.072)	(0.072)	(0.072)
Control	0.091	-0.107	0.332	0.191	-0.302
	(0.106)	(0.198)	(0.273)	(0.130)	(0.588)

Note: The table shows the results for running specification 1 in the version of column (4) in Table 1. In placebo the row, I run specification 1, but instead of using the radio share, I use the variable that is in the top of the column. In the radio row, I run specification 1, but controlling for the variable of the top of the column interacted with the treatment dummy. Standard errors are clustered at the city level.

The table shows that none of the controls have a significant effect after the communication treatment controlling or not by the radio share. Looking at the first row, the results indicate that the groups of people who were more likely to benefit from the policies have point estimates in the opposite direction than the expected sign. In

the case of house ownership, the reaction goes in a similar direction, but is smaller and not statistically significant. This means that these groups of the population did not react differently after the speech of April 28, 1935, independent of the share of radios. We can also see from the table that people receiving fiscal relief between 1933 and 1935 did not react either to this announcement. Next, I estimate whether these variables have an influence on the coefficient found in the previous section. In the second row of Table 4, I run specification 1, but controlling for the variables indicated at the top of the column, interacted by the treatment dummy variable.

The table shows that the results are not affected by those variables, even if they are highly correlated with the share of radio ownership. The point estimates are similar as well as standard errors, so the precision of the estimation doesn't change much. In all of these cases the results are significant at the 99 percent confidence level. These results confirm that the effect is coming from the share of radio ownership (i.e., from exposure to the speech). Even when controlling for variables that are correlated with the share of radios and of the population affected by the policies, the results do not change.[18]

4.2.2 Other Aggregates

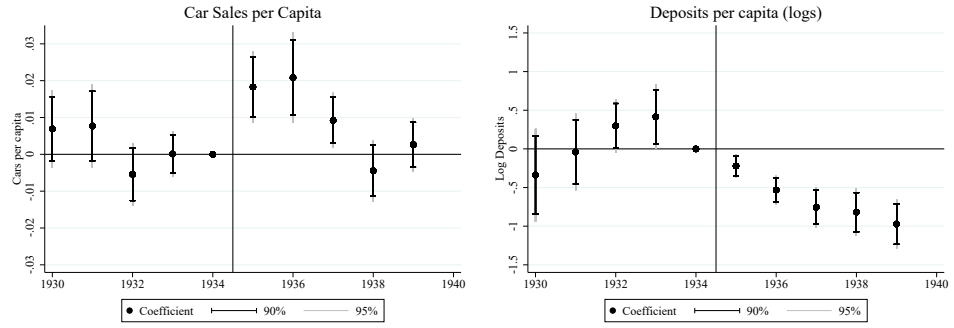
Previous results show a significant effect at the city level the week after the speech was made. The variable used is correlated with expenditure on durable goods, which means that it can be a good proxy. In this section I run a similar specification, but with more direct measures in order to see if these results are consistent. One of the problems is that the aggregation will be higher in the number of individuals and periods. This section looks for consistency, as the identification is weaker.

I run specification 2 for two variables. The first is the expenditure on cars per capita and the second is the log of deposits per capita. Instead of using state-time

[18] I performed exercises with the radio share and each of those characteristics interacted with the post-treatment dummy and included the triple interaction. Only for newspapers I found a consistently significant result. This could be because of the lack of statistical power given the amount of controls. For newspaper, the coefficient is negative, meaning that the effect of the radio is lower with higher newspaper circulation.

fixed effects, because of the variation of the data, I use the geographical zone in which the state is located. I use the eight Census zones: North East, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, Mountain, and Pacific. I use income per capita growth and the income per capita in $t-1$, and their interaction with trends as controls. All regressions have state fixed effects and standard errors clustered at the state level. The set of results is presented in Appendix A.1 in Table A.8 for cars per capita and Table A.9 for deposits in logs. The left panel of Figure 4 displays graphically the results of column (6) in Table A.8.

Figure 4: Results for Cars Sales Per Capita and Deposits (log)



Note: The left panel of this figure shows the results of column (6) in Table A.8. The dependent variable of the regression is the sales of cars per capita, and the dots represent the point estimate of a year dummy interacted with the state share of radio ownership. The right panel of this figure shows the results of column (6) in Table A.9. The dependent variable is the log of deposits and the dots represent the point estimate of a year dummy interacted with the state share of radio ownership. The vertical black lines and gray lines represent confidence intervals at the 90 percent and 95 percent level respectively, in both panels. Standard errors are clustered at the state level.

For all the specifications reported in Appendix A.1, there is a positive and significant effect at the 99 percent level in 1935 compared with 1934, the year before the policy and the speeches. In particular shifting from no exposure (no households with radios) to full exposure increases the number of car sales per capita by approximately two standard deviations (0.018 versus a standard deviation for cars of 0.009). However, considering the actual variation of radio ownership, one standard devia-

tion increase in radio usage increases per capita spending on cars by 0.37 standard deviations. This result is also persistent: the estimated impacts in 1936 are similar; impacts in 1937 are smaller, but significant.

In the following exercise, I run specification 2, but with y as log of deposits per capita. Data for deposits were obtained using Flood (1998) and consider all the deposits of the state, including those of commercial banks and national banks. I run the regression in logs to see the percentage change in the stock. I use the same controls as in the specification for cars. Table A.9 and the right panel of Figure 4 present the results.

I find that deposits per capita fall in exposed states for all the periods after the speech. This effect is small during the year of the event (28.7 percent of a standard deviation in 1935), but grows over time. By 1938 the coefficient is higher than one standard deviation. This result is consistent with the expected impact of the policy. If individuals expect social protection against a negative state of the economy, saving for precautionary reasons should decrease. For these results there is some evidence of pre-trends: I fail to reject the null hypothesis that the coefficients before the treatment are zero in some specifications. This finding changes depending on the controls added. The coefficients after the speech are big compared with the effects found before the event, and they are consistently significant.

One concern that might influence the result is that Roosevelt may have targeted public expenditure to cities with more radios. Strömberg (2004) shows that cities with more radios received more federal funds during the 1930s. The results presented above do not contradict his findings, as I am estimating the differential effect after 1935. So, if there is a systematic targeting of the regions with more radios, that should be captured by the city fixed effects. To see if the results are influenced by government expenditure, I run specification 2, but with federal aid as the independent variable. Table A.10 in Appendix A.1 presents the results. The results show that cities more exposed to the radio received lower federal aid after the event. This finding could be due to countercyclical expenditure from the federal government.

These results do not say that regions with more radio shares received less help, but that after the speech, they received relative to themselves less help compared to cities with lower radio share.

Another margin to analyze is presidential popularity. If President Roosevelt convinced people to consume more, the effect should also emerge in the subsequent election results. Of course, Roosevelt went on to win reelection in 1936. I can then show how the change in votes for Roosevelt between the 1932 and 1936 elections are correlated with exposure to the speech. Even though the election happened a year after the announcement and many politicians had access to the radio, this treatment should have affected other variables as well. Table A.11 in Appendix A.1 shows the results for the change in FDR electoral results between 1932 and 1936 related with the radio share.

The results at the state and city level are similar. Having full exposure to the speech increased the percentage of the vote won by Roosevelt in 1936 by more than 20 percent compared to the share of votes won in state or cities with no exposure. This evidence suggests that the use of radio speeches by President Roosevelt could have influenced voters.

In Appendix A.4 I show the results for other macroeconomics variables: growth, employment, and inflation with yearly data. They are in line with the results shown above. There in an increase in economic activity, non-manufacturing employment and inflation, consistent with an increase in expenditure. The identification of these effects is weaker than that of the main results because of the aggregation of the data, but these results show consistency with the main results and indicate how aggregate variables behaved in the radio dimension.

4.3 Instrumental Variables

One of the concerns about the results presented above is the potential correlation of the measure of exposure - the share of radio ownership - with some specific economic characteristic that makes individuals of those states or counties spend more

after the announcement of the reform. Because of this, I try to find a variable that is correlated with the usage of radio, but not with the variable of interest. I use as an instrument for radio usage the state percentage of woodland in 1930 as in Strömberg (2004). The reason for this choice is that transmission through the air is affected by physical obstacles. So, households in states or counties with many obstacles (such as forests) should have fewer incentives or opportunities to use radio because the signal, if available, will be distorted or of poor quality.

The data that I use to construct the woodland area and the total area for each state and county come from the Agricultural Census of 1930. I divide the total woodland area of the state or county by the total area. County variables are used in the city-level results. I obtain the share of woodland in the county where the city is located. For cities that are independent from a county (some in Virginia, for example), I only consider the city data. This measure is not perfect because the forests can be in places where there is no human population. However, it serves as a good approximation. Economic activity can affect the share of woodland in a state or city, but part of the heterogeneity in woodlands area and some patterns should not be affected by the economic characteristics of the state or city. In particular, there are more woods in the east compared with the west, as this area has drier weather. In addition, northern states and counties have more woods. States and counties along the Mississippi River also have in general a higher share of woodland.

I will run the change of the dependent variable in a cross-sectional regression, as in specification 1. I use the sum four weeks after the speech, compared with the previous four months in the case of bank debits. The results for the first stage, OLS, and IV regressions are presented in table 5. Standard errors are clustered at the city level.

Table 5: IV Regression

	First Stage	Bank Debits	
Woodland	-0.597***		
	(0.273)		
Radio		0.356***	0.523*
		(0.087)	(0.273)
F-Test	27.290		
		OLS	IV
Observations	266	266	266

Note: *** p<0.01, ** p<0.05, * p<0.1. This table shows the results of the instrumental variable regression at the city level. Share of radio ownership is instrumented by the share of woodlands. The first column displays the results for the first stage. The second column shows the OLS result and the third column shows the IV regression.

The first stage shows that the instrument is good at predicting the share of radio ownership. The coefficients in the previous table confirm the results found in the baseline specification. The IV results present a higher, but less significant result for the month after Roosevelt's speech. The effects are big. A city with complete exposure increases its change in debits nearly 50 percent more compared with a city with no exposure. This confirms the previous results.[19]

4.4 Other Speeches

The main results analyze the Fireside Chat of April 1935 mainly because of the content of the speech. Roosevelt announced important policies that were not yet implemented, meaning that the announcement was not informative about the current situation of the economy, but shaped expectations. It was also in a suitable context: it was an isolated event and in a context where the announcement was likely to occur. Not every speech is supposed to have an effect (positive or negative). However, there are other speeches that could be analyzed. These speeches have other characteristics and their evaluation can help to better understand the shock measured in

[19]In Table A.12 I also show another instrument for the city level: that is, the distance to the closest radio tower. In that case, the coefficient is significant at a 5 percent confidence level and the coefficient reaches a value of 0.758.

the main results. None of the measurable speeches announced a fiscal policy as the event of April 1935.

FDR gave four Fireside Chats in 1933 and two in 1934. The 1933 events took place in the middle of uncertainty about the currency, given the end of the gold standard, and also the bank holiday at the beginning of his presidency. In particular, the March 1933 bank holiday implies that there are no data on bank debits for those weeks. As a result, it is not possible to evaluate the Fireside Chat of March 12, 1933 with these data. Moreover, the suspension of activity did not stop at the same time everywhere. The sample is not stable until advanced 1933. The other Fireside Chats of 1933 can be used in principle, but they have important limitations.

Two other events in 1933 were related with defending the policies of the New Deal and were marked by the uncertainty on the value of the currency. The speech of May 7, 1933 was in the middle of the the end of the gold standard that finalized in June; and the speech of October 22, 1933, that was mainly used to defend the NRA, highlighted that the Treasury was ready to defend the value of the dollar, buying and selling dollars in the work market. In his speech of July 24, 1933, FDR talked about a code sent to employers to agree to reduce hours worked and increase employment. The rest of the speech focused on the Farm Act and the Industrial Act, both were approved and implemented at that time. The press didn't highlight any particular policy. Thus, the chat largely described policies that were already in place (i.e., the speech was backward-looking). During that speech, Roosevelt admitted that he didn't want to talk on the radio before seeing "the first fruits of our careful planning."

Not all speeches are relevant in terms of the policies announced. In 1934 FDR gave two Fireside Chats. During that year the economy was recovering and there are less important reforms related with to the New Deal and the banking system. But they focused on answering critics and defending the NRA, rather than announcing new policies. On June 28, 1934, the *Chicago Daily Tribune* headline said "President Hits at Critics," and the *Los Angeles Times* headline said "Roosevelt Raps Critics in

Defending New Deal." On September 30, 1934, he talked more about general ideas about the New Deal and continued defending the NRA. He illustrated with the case of England and how that country managed the Great Depression. He also called for a "truce," according to the *Chicago Daily Tribune* and the *New York Times*. The *Los Angeles Times* highlighted that Roosevelt's speech urged "harmony" between capital and labor.

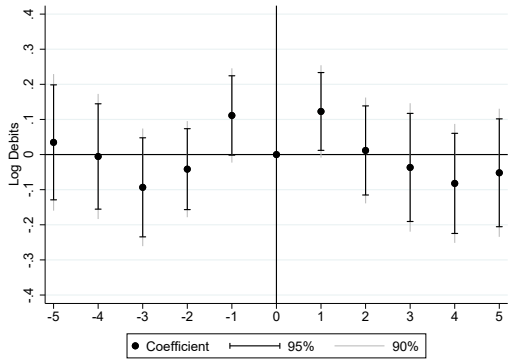
Another relevant event is the State of the Union of January 4 1935, where FDR talked about the ERAA. This event was broadcast at noon (ET) on a weekday. This message did not have the characteristics of the Fireside Chats. The main intended audience was the members of Congress. The broadcast of the message occurred on a business day during working hours, and thus was not scheduled to reach a big audience. As a result, the message was much less salient.

The results for each speech are presented in Appendix A.3. The effects are mixed and the events are characterized by happening in very noisy moments. In order to make my analysis of other speeches more comparable to the analysis of the 1935 Fireside Chat, I conduct an events study with speeches that focused on some type of announcement, meaning one that could affect economic confidence. These events are the State of the Union address of January 4, 1935, the speech of July 1933 and the intentions of currency measures in the Fireside Chat of October 22, 1933. The State of the Union was not salient. The Fireside Chat of 1933 did not include policy announcements, but the fact that FDR promoted the labor-employers code to increase wages and reduce working hours could have an expansionary effect. Finally, the currency policies could have mixed effects. From one side, it could instill confidence in the storage value of the currency and reduce withdrawals, preventing a bank run, but that confidence could also have increased spending and the use of financial instruments. Therefore, the expected effect and its interpretation are not clear. Despite all of these problems, I run the following events study pooling all these events:

$$y_{s,c,t} = \delta_{s,c} + \kappa_{s,t} + \sum_{i=-F}^{F} \beta_i \times 1(t = i) \times RadioShare_{c,1930} + \varepsilon_{s,c,t} \quad (3)$$

where s is a given speech, c is a city and t is the time around the speech. $\delta_{s,c}$ are city-event fixed effects, $\kappa_{s,t}$ is a week fixed effect and $RadioShare_c$ is the share od radio ownership in a city c. I pick $F = 5$. The results are presented in Figure 5.

Figure 5: Event Study Around Other FDR Speeches



Note: The graph shows the results of specification 3 with $F = 5$.

The figure shows a significant effect after the communication events. Effects are smaller than those following the speech of 1935, and they are less persistent. Two weeks after these events, bank debits increase by 10 percent. This finding confirms that the speeches in which Roosevelt announced policies had, in general, relatively expansionary effects in regions more exposed to the speeches. These events are, however, noisier: in the period before the speech bank debits are higher than the baseline, which could indicate other confounding factors. With all of these differences, the effect is smaller. This indicates the importance of the effect of the speech of 1935, which had a large and persistent effect. The irrelevance in terms of economic activity of the previous speeches can also be seen in Figure A.1. It is clear that the previous speeches were not accompanied by a significant change in the trends

of industrial production or the stock market.

5 Discussion

The Fireside Chat of April 28, 1935 provides a logical point for analysis of communication-based policies for a number of reasons. President Roosevelt used it to announce important future expansionary fiscal policies and the taxes to finance them. It was also an isolated event in a period during which other policies did not stress financial variables; this allows bank debits to be used as a proxy for consumer spending. The empirical results indicate that cities more exposed to the speech reacted by spending more on durable goods. Roosevelt's speech had several features that could have produced a similar effect. In this section I evaluate different mechanisms that may be behind the results found.

5.1 Confidence

Consumers' confidence could have been affected by the speech. Because of FDR's popularity, hearing him speak about economic policy could have created a sense of optimism about the future of the economy. The literature in macroeconomics has addressed theoretically how confidence shocks can have an expansionary effect. For instance, Barsky and Sims (2012) define animal spirit shocks as a noisy signal that the trend growth of productivity will be higher or lower than its actual trend. Part of the effect of this speech could have been due to a similar noise effect.

The analysis provided in Section 4.4 can help to evaluate the effect of an increase in confidence due to speeches. I show that consumers did not react significantly to speeches prior to 1935. The comparison between speeches tests whether the effect is purely a noise effect or if it is about the policy. The lack of results found in the previous speeches shows that the effect is not related to the fact of listening to Roosevelt, but to the details of the speech.

A boost in confidence can still be related to listening to the president announcing a fiscal instrument to boost aggregate demand in a recessive environment. Eggerts-

son (2008) shows that a shift in expectations in line with the elimination of the policy dogmas of the Hoover administration (fiscal austerity) can explain the recovery of 1933. The speech of April 1935 marks a change in narrative, toward a permanent increase in government spending, as explained in section 2. In line with Eggertsson (2008), the speech of April 1935 represents a change in paradigm toward a bigger state with high and permanent spending, a feature that was not present before. This could explain why a faster aggregate recovery started in the summer of 1935.

Another explanation is related to Narrative Economics. The speech focuses on social recovery and permanent economic protection. This could have changed the way consumers perceived the future of the economy. Shiller (2017) mentions the Great Depression as a case study for narrative economics. He mentions in particular the speech of March 1933. The other speeches did not seem to change the narrative of that time, but the speech of 1935 marks the beginning of a new expansionary fiscal policy era, with a focus on permanent benefits. That different narrative, accompanied by policies in that direction, could explain the positive effect found.

5.2 Policies Announced

The WPA and SSA were financed with a future permanent income tax. There are recent works that have study the effect of tax announcements . For example, D'Acunto et al. (2018) examine how announcements of future increases in consumption taxes stimulate spending through intertemporal substitution. D'Acunto et al. (2016) find that an increase in spending on durable goods accounts for one of the mechanism underpinning the increase in spending after a VAT announcement in Germany. Their measure in comparison to the measure used in this paper is less direct; it relies on a binary survey question about specific durable goods. Parker (1999) and Kueng (2014) find increases in non-durable spending after announcements of decreases in income taxes. Hence, my analysis of the 1935 Fireside Chat has the potential to inform us not only about a particular episode but also about recent experience.

In the appendix, in Section A.5, I introduce a model to explore the effect of an

announcement of a payroll tax on spending on durable goods.[20] This is a general equilibrium model, where consumers live in a multi-region monetary union and households consume non-durable and durable goods, as in Barsky et al. (2007) and Engel and Wang (2011). The only friction in the model is that households adjust their information set infrequently. Households' consumption decisions depend on the probability of adjusting information, as in Reis (2006), Coibion (2006) and Mankiw and Reis (2007). The model seeks to incorporate the cost of information acquisition and to show that more radios usage reduces that cost (by having the opportunity to listen to the speech).

The model shows that because of intertemporal substitution, the announcement of an increase in payroll tax increases spending on durable goods today. The model highlights the importance of durable goods in explaining the empirical results. With only non-durable goods, consumers react similarly to the announcement of the policy across regions. When the model incorporates durable goods, differences emerge as more attentive consumers can anticipate the shock sooner. They increase their purchases of durable goods to have a higher stock of durables at the moment of the shock, after which they decrease their spending on durable goods. This allows them to smooth their consumption of non-durable goods.

In this case, the contractionary part of the announcement should have an effect in line with the effect found in the empirical part. One way to test this mechanism is to show that at the moment of the implementation of the policy, we should see a reduction in durable spending, measured as bank debits. One of the problems is that there is not a good counterfactual, since at that point everybody had the information about the policy. But Figure A.2 in Appendix A.2 shows that there is a decline in bank debits in January 1937, exactly when the payroll tax was implemented.

In order to test whether the speech is related to that drop, I generate a variable equal to the log change in bank debits for the first two months of 1937 compared

[20] Roosevelt in his speech didn't mentioned explicitly the payroll tax, but he explained that "it is obvious that we cannot continue to create governmental deficits for that purpose year after year. We must begin now to make provision for the future."

with the last two months of 1936. I run specification 1, but including that variable interacted with the post-speech dummy and the triple interaction. Results are presented in Table A.13 in Appendix A.1. The results show some evidence of a bigger drop in cities that were more affected in 1937. This finding suggests that a reaction to an increase in the future cost of labor could be driving part of the effect.

Another alternative is that in a context of financially constrained consumers or non-Ricardian agents, the announcement could increase spending, as in Parker (1999). I find no heterogeneous effect that could indicate that the effect goes in that direction.[21] Overall, there is no clear test to disentangle the particular driver of the effect and probably it was a combination of confidence and information about the actual policy. But even the contractionary part of the policy announced should produce an effect in line with the empirical results.

These results underscore the importance of durable goods in the empirical analysis. The consumption of durable goods is key to anticipate the policy announcement and thus explains an early differential reaction in expenditure in the more attentive region. This shows that announcements of future policies that are well communicated can lead to changes in consumer behavior, and can lead to effects that take place more quickly largely through expenditures on durable goods. This result is in line with other papers that explore the role of expectations on spending in durable goods. Romer (1990), for example, shows that the great crash increased uncertainty, which led to a decline in spending on durable goods.

6 Conclusions

Blinder et al. (2008) observed that "it may be time to pay some attention to communication with the general public." This paper explores the effects that communication with the general public can have. Using a quasi-natural experiment and his-

[21] I run a regression where I interact the radio share with measures of financial constraint (house ownership and value) and non-Ricardian agents (population close to retirement). I find no statistically significant effect on those regressions.

torical data from the Great Depression, I show that regions more exposed to the information treatment increased their spending substantially compared with regions less exposed.

This result is relevant considering the increased interest in the use of "unconventional" policies by economic authorities: in a world with constrained fiscal and monetary instruments, the use of communication-based policies could be an effective alternative. In addition, we have seen lately that the political process can delay the implementation of fiscal instruments. Nevertheless, there is little evidence on the impact this type of policy communication, in particular exploring variation in individuals treated or not by the communication event. This paper shows that communication from economic authorities can produce a reaction in consumers behavior. This result shows the importance of expectations and how they can be influenced by economic authorities.

These results are in a context that it is worth analyzing. Roosevelt conducted Fireside Chats to reach large audiences, following popular programs, when most people would be at home, and with advance notice. He innovated by using very simple language, which was not common among authorities at that time, to explain complex policies. He also used a new technology, the radio, to get more attention. This strategy is different, for example, from the one that has been used by many central banks in the last decades.

Historians have described how listeners were impressed by the speeches. Having the president directly explaining important issues opened a new way of communication that got people's attention. The lessons from this particular event could help to develop effective communication strategies from economic authorities. This paper is not conclusive about the use of these particular strategies. Further studies could try to better understand how this type of innovation could help in terms of having a bigger reaction from economic agents. This paper shows that communication can be used as a policy tool.

Overall, this paper shows the importance of communication for consumer be-

havior. The empirical results show that it is possible to effectively communicate to consumers and expect a reaction from them. Finally, this paper highlights the role of the second part of the New Deal and how its narrative could have affected expectations, in line with studies of the first Roosevelt's administration.

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A Appendix For Online Publication

A.1 Additional Tables

Table A.1: Share of Households with Radio by State

State	% Radio	State	% Radio	State	% Radio
Alabama	9.3%	Maine	37.8%	Oklahoma	20.3%
Arizona	17.6%	Maryland	42.9%	Oregon	43.8%
Arkansas	9.0%	Massachusetts	56.8%	Pennsylvania	47.1%
California	50.5%	Michigan	49.9%	Rhode Island	55.9%
Colorado	36.9%	Minnesota	47.5%	South Carolina	8.0%
Connecticut	53.1%	Mississippi	5.3%	South Dakota	47.3%
Delaware	45.1%	Missouri	36.6%	Tennessee	13.5%
DC	52.3%	Montana	32.1%	Texas	17.7%
Florida	15.3%	Nebraska	48.0%	Utah	41.1%
Georgia	9.3%	Nevada	33.1%	Vermont	43.0%
Idaho	31.3%	New Hampshire	44.2%	Virginia	17.6%
Illinois	55.4%	New Jersey	62.5%	Washington	42.1%
Indiana	42.0%	New Mexico	11.3%	West Virginia	22.5%
Iowa	50.0%	New York	57.3%	Wisconsin	50.8%
Kansas	38.8%	North Carolina	10.4%	Wyoming	35.2%
Kentucky	17.2%	North Dakota	42.1%	Average	35.0%
Louisiana	10.9%	Ohio	47.4%		

Note: The table shows the share of households with a radio in 1930 at the state level, according to the 1930 Census of Population.

Table A.2: Variable Level, Frequency and Source

Variable	Level	Frequency	Source
Radio Share	State, County-City	1930	1930 Population Census
Demographics	State, County-City	1930	1930 Population Census
Share of Woodland	State, County-City	1930	1930 Agricultural Census
House Ownership	State, County-City	1930	1930 Population Census
Cars per capita	State	Annual	Hausman (2016)
State income per capita	State	Annual	BLS
State Income Growth	State	Annual	BLS
Deposits (logs)	State	Annual	Flood (1998)
Inflation	City	Annual	BLS
Public help per capita	City	Annual	Fishback et al. (2005)
Retail sales per capita	City	Bi-Annual	Fishback et al. (2005)
Bank Debits	City	Weekly	G.6. Federal Reserve Board

Note: This table presents the main data used in the paper. For each variable I present the level of aggregation, frequency at which the data are available and the source of the data.

Table A.3: State-Level Variables

Full Sample	Obs	Mean	Std. Dev.	Min	Max
Radio Share	49	35.00%	16.69%	5.29%	62.50%
Cars per capita	490	0.018	0.009	0.003	0.056
State income per capita	490	462.2	203.9	122.0	1314.0
State Income Growth	490	-0.61%	15.40%	-36.69%	70.61%
Deposits per capita (logs)	490	-1.42	0.73	-3.51	0.50
Variable in 1935	Obs	Mean	Std. Dev.	Min	Max
Cars per capita	49	0.022	0.008	0.009	0.051
State income per capita	49	443.8	169.7	174	1031
State Income Growth	49	15.53%	13.30%	1.29%	61.38%
Deposits per capita (logs)	49	-1.49	0.710	-2.83	0.30

Note: The table displays summary statistics for state-level variables. The variable cars per capita comes from Hausman (2016). State income per capita and income growth come from the BLS and deposits come from Flood (1998).

Table A.4: City-level Variables

Full sample	Obs	Mean	Std. Dev.	Min	Max
Radio Share	268	39.32%	15.40%	4.19%	71.91%
Bank Debits (logs)	6,700	9.066	1.460	5.723	15.97
Inflation	154	-1.56%	4.93%	-13.42%	7.14%
Public help per capita	1,130	33.38	26.27	0.00	125.90
Variable t=event	Obs	Mean	Std. Dev.	Min	Max
Bank Debits (logs)	268	9.073	1.480	5.927	15.969
Inflation	14	2.86%	1.79%	-0.80%	6.25%
Public help per capita	113	41.02	18.36	6.08	85.09

Note: The table displays summary statistics for city-level variables. The first part of the table shows the available statistics for each variable for the whole sample. In the case of radio share, the data are only available for 1930 and in the case of Bank Debits, I display statistics for 1935. Inflation and public help are available from 1930 to 1940 on a yearly basis. The second part shows the statistics at the time of the speech. For the yearly variables it is 1935 and for bank debits is the week ending April 24, 1935.

Table A.5: Percentage Change in Department Store Sales over Change in Debits

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Debits	0.627***	0.630***	0.495***	0.499***	0.246***	0.249***	0.158***	0.160***
	(0.057)	(0.056)	(0.067)	(0.069)	(0.033)	(0.033)	(0.038)	(0.040)
Debits (-1)					0.354***	0.354***	0.265***	0.264***
					(0.035)	(0.035)	(0.038)	(0.038)
Zone FE	No	Yes	No	Yes	No	Yes	No	Yes
Time FE	No	No	Yes	Yes	No	No	Yes	Yes
Observations	754	754	754	754	715	715	715	715
R-squared	0.628	0.634	0.705	0.710	0.659	0.666	0.727	0.732

Note:*** p<0.01, ** p<0.05, * p<0.1. This table shows the results of regressions with monthly annual change in department store sales over monthly annual changes in debits for Federal Reserve Districts. I include up to three lags, time fixed effects and District fixed effects depending on the specification. Standard errors are clustered at a Federal Reserve District level.

Table A.6: Bi-weekly City-Level Regression

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
17-Jan-35	-0.173	-0.212	-0.144	-0.197	-0.233*	-0.179	-0.202
	(0.129)	(0.129)	(0.128)	(0.127)	(0.135)	(0.145)	(0.128)
2-Feb-35	0.090	0.057	0.090	0.044	0.008	0.057	0.039
	(0.115)	(0.114)	(0.117)	(0.117)	(0.127)	(0.129)	(0.118)
16-Feb-35	-0.076	-0.104	-0.092	-0.130	-0.126	-0.036	-0.126
	(0.105)	(0.105)	(0.107)	(0.108)	(0.119)	(0.121)	(0.109)
2-Mar-35	-0.044	-0.066	-0.047	-0.077	-0.101	-0.039	-0.076
	(0.085)	(0.085)	(0.086)	(0.087)	(0.096)	(0.093)	(0.088)
16-Mar-35	-0.018	-0.035	-0.027	-0.050	-0.083	-0.021	-0.059
	(0.098)	(0.098)	(0.098)	(0.099)	(0.109)	(0.112)	(0.100)
30-Mar-35	0.056	0.045	0.063	0.047	0.002	0.006	0.038
	(0.080)	(0.080)	(0.078)	(0.079)	(0.081)	(0.089)	(0.079)
13-Apr-35	-0.078	-0.083	-0.050	-0.058	-0.074	-0.032	-0.065
	(0.094)	(0.094)	(0.091)	(0.091)	(0.097)	(0.102)	(0.091)
11-May-35	0.217**	0.223**	0.225**	0.232**	0.202*	0.229**	0.218**
	(0.105)	(0.106)	(0.106)	(0.106)	(0.108)	(0.115)	(0.105)
25-May-35	0.153*	0.164**	0.154*	0.170**	0.212**	0.217**	0.177**
	(0.083)	(0.083)	(0.084)	(0.084)	(0.087)	(0.091)	(0.084)
8-Jun-35	-0.076	-0.059	-0.075	-0.052	-0.069	-0.041	-0.051
	(0.118)	(0.119)	(0.118)	(0.119)	(0.122)	(0.122)	(0.119)
22-Jun-35	-0.002	0.020	-0.007	0.023	0.026	0.069	0.018
	(0.110)	(0.111)	(0.109)	(0.111)	(0.119)	(0.125)	(0.111)
8-Jul-35	0.158	0.185	0.161	0.199	0.129	0.191	0.195
	(0.124)	(0.127)	(0.124)	(0.127)	(0.139)	(0.134)	(0.128)
20-Jul-35	0.003	0.036	-0.008	0.038	0.045	0.097	0.031
	(0.123)	(0.125)	(0.124)	(0.127)	(0.138)	(0.145)	(0.128)
3-Aug-35	0.145	0.184	0.123	0.176	0.121	0.156	0.171
	(0.131)	(0.134)	(0.129)	(0.134)	(0.141)	(0.141)	(0.134)
17-Aug-35	-0.150	-0.106	-0.072	-0.011	-0.026	0.024	-0.013
	(0.142)	(0.144)	(0.120)	(0.124)	(0.134)	(0.140)	(0.125)
31-Aug-35	-0.022	0.028	0.036	0.104	0.062	0.178	0.103
	(0.135)	(0.138)	(0.119)	(0.125)	(0.135)	(0.134)	(0.126)
14-Sep-35	-0.209	-0.154	-0.188	-0.111	-0.122	-0.077	-0.108
	(0.149)	(0.149)	(0.146)	(0.148)	(0.158)	(0.164)	(0.149)
28-Sep-35	-0.085	-0.024	-0.095	-0.011	-0.088	0.016	-0.013
	(0.147)	(0.150)	(0.148)	(0.153)	(0.161)	(0.174)	(0.154)
14-Oct-35	-0.235	-0.169	-0.229	-0.137	-0.206	-0.130	-0.141
	(0.169)	(0.175)	(0.170)	(0.179)	(0.186)	(0.203)	(0.180)
26-Oct-35	-0.325**	-0.253	-0.336**	-0.237	-0.280*	-0.186	-0.238
	(0.154)	(0.162)	(0.153)	(0.164)	(0.169)	(0.185)	(0.165)
No Outliers	No	No	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	Yes	Yes	Yes
Cities	261	261	257	257	244	230	256

Week ending on April 28th is omitted. (1) unrestricted. (2) adds controls. (3) drops outliers. (4) drops outliers and includes controls. (5) drops cities with a Federal Reserve. (6) drops 10% of the cities with the highest and lowest average debits. (7) drops New York City. Controls are trends interacted with the share of urban population, African Americans, and population

older than 55. Outliers are cities with changes in log bigger than 1 in absolute value. Standard errors are clustered at the city level. *** p<0.01, ** p<0.05, * p<0.1

Table A.7: Cumulative Bi-weekly City-Level Regression

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
17-Jan-35	-0.051	-0.052	-0.022	-0.024	-0.062	-0.063	-0.024
	(0.091)	(0.090)	(0.090)	(0.088)	(0.092)	(0.099)	(0.089)
2-Feb-35	0.009	0.008	0.024	0.022	-0.003	-0.006	0.021
	(0.067)	(0.067)	(0.067)	(0.066)	(0.070)	(0.075)	(0.067)
16-Feb-35	-0.004	-0.005	-0.000	-0.002	-0.011	-0.003	-0.001
	(0.050)	(0.049)	(0.050)	(0.049)	(0.053)	(0.056)	(0.050)
2-Mar-35	-0.006	-0.006	-0.005	-0.006	-0.011	-0.004	-0.004
	(0.035)	(0.035)	(0.036)	(0.035)	(0.038)	(0.040)	(0.035)
16-Mar-35	-0.007	-0.008	-0.009	-0.011	-0.015	-0.007	-0.010
	(0.023)	(0.023)	(0.024)	(0.023)	(0.025)	(0.027)	(0.023)
30-Mar-35	0.005	0.005	0.003	0.002	-0.005	-0.002	0.002
	(0.017)	(0.016)	(0.017)	(0.017)	(0.018)	(0.019)	(0.017)
13-Apr-35	-0.001	-0.001	0.000	-0.000	-0.004	-0.003	-0.001
	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)	(0.012)	(0.010)
11-May-35	0.027***	0.027***	0.027***	0.027***	0.027***	0.026**	0.026***
	(0.009)	(0.009)	(0.010)	(0.009)	(0.010)	(0.010)	(0.009)
25-May-35	0.040***	0.040***	0.040***	0.041***	0.047***	0.044***	0.041***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.015)	(0.014)
8-Jun-35	0.031	0.032	0.031	0.032	0.038*	0.036*	0.032
	(0.019)	(0.020)	(0.020)	(0.020)	(0.020)	(0.021)	(0.020)
22-Jun-35	0.032	0.032	0.030	0.032	0.039	0.040	0.032
	(0.024)	(0.025)	(0.025)	(0.025)	(0.025)	(0.026)	(0.025)
8-Jul-35	0.045	0.045	0.043	0.045	0.049*	0.054*	0.045
	(0.027)	(0.028)	(0.028)	(0.028)	(0.029)	(0.029)	(0.028)
20-Jul-35	0.045	0.046	0.043	0.045	0.051	0.059*	0.045
	(0.030)	(0.032)	(0.031)	(0.032)	(0.032)	(0.033)	(0.032)
3-Aug-35	0.056*	0.056	0.051	0.054	0.057	0.065*	0.054
	(0.033)	(0.035)	(0.034)	(0.035)	(0.036)	(0.036)	(0.035)
17-Aug-35	0.041	0.042	0.047	0.050	0.054	0.062	0.050
	(0.037)	(0.038)	(0.036)	(0.038)	(0.039)	(0.040)	(0.038)
31-Aug-35	0.035	0.037	0.046	0.050	0.052	0.068	0.050
	(0.041)	(0.042)	(0.039)	(0.040)	(0.042)	(0.043)	(0.041)
14-Sep-35	0.022	0.023	0.033	0.037	0.040	0.057	0.038
	(0.043)	(0.044)	(0.040)	(0.042)	(0.044)	(0.045)	(0.042)
28-Sep-35	0.016	0.017	0.026	0.030	0.029	0.051	0.031
	(0.046)	(0.047)	(0.043)	(0.045)	(0.048)	(0.049)	(0.046)
14-Oct-35	0.003	0.004	0.012	0.017	0.014	0.036	0.018
	(0.048)	(0.050)	(0.046)	(0.048)	(0.051)	(0.052)	(0.048)
26-Oct-35	-0.013	-0.012	-0.005	0.000	-0.004	0.019	0.001
	(0.049)	(0.051)	(0.047)	(0.050)	(0.052)	(0.054)	(0.050)
No Outliers	No	No	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	Yes	Yes	Yes
Cities	261	261	257	257	244	230	256

Week ending on April 28th is omitted. (1) unrestricted. (2) adds controls. (3) drops outliers. (4) drops outliers and

includes controls. (5) drops cities with a Federal Reserve. (6) drops 10% of the cities with the highest and lowest average debits. (7) drops New York City. Controls are trends interacted with the share of urban population, African Americans, and population older than 55. Outliers are cities with changes in log bigger than 1 in absolute value. Standard errors are clustered at the city level. *** p<0.01, ** p<0.05, * p<0.1

Table A.8: Results for Cars Per Capita

	(1)	(2)	(3)	(4)	(5)	(6)
I(year=1930)	0.019***	0.022***	0.001	0.006	0.002	0.007
	(0.003)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
I(year=1931)	0.015***	0.019***	0.004	0.007	0.005	0.008
	(0.002)	(0.005)	(0.004)	(0.005)	(0.004)	(0.006)
I(year=1932)	0.002	0.000	-0.000	-0.006	0.000	-0.005
	(0.002)	(0.003)	(0.002)	(0.004)	(0.002)	(0.004)
I(year=1933)	0.002	-0.000	0.004**	-0.000	0.004***	0.000
	(0.001)	(0.003)	(0.002)	(0.003)	(0.002)	(0.003)
I(year=1935)	0.014***	0.023***	0.009***	0.019***	0.009***	0.018***
	(0.003)	(0.005)	(0.002)	(0.005)	(0.002)	(0.005)
I(year=1936)	0.023***	0.030***	0.016***	0.022***	0.015***	0.020***
	(0.004)	(0.007)	(0.003)	(0.006)	(0.003)	(0.006)
I(year=1937)	0.024***	0.022***	0.014***	0.011***	0.012***	0.009**
	(0.003)	(0.005)	(0.002)	(0.003)	(0.003)	(0.004)
I(year=1938)	0.005***	0.005	-0.000	-0.003	-0.003	-0.005
	(0.002)	(0.004)	(0.002)	(0.004)	(0.002)	(0.004)
Controls	No	No	Yes	Yes	Yes	Yes
Trend x Controls	No	No	No	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Zone-year FE	No	Yes	No	Yes	No	Yes
Observations	490	490	490	480	490	490

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.9: Results for Deposits (logs)

	(1)	(2)	(3)	(4)	(5)	(6)
I(year=1930)	-0.200	-0.229	-0.514**	-0.548*	-0.423*	-0.396
	(0.158)	(0.288)	(0.222)	(0.311)	(0.228)	(0.354)
I(year=1931)	0.066	0.057	-0.179	-0.182	-0.120	-0.078
	(0.135)	(0.241)	(0.179)	(0.257)	(0.184)	(0.282)
I(year=1932)	0.258**	0.362**	0.121	0.215	0.161	0.278
	(0.103)	(0.179)	(0.116)	(0.182)	(0.123)	(0.189)
I(year=1933)	0.234**	0.431**	0.198*	0.378*	0.221*	0.409*
	(0.095)	(0.188)	(0.108)	(0.203)	(0.112)	(0.212)
I(year=1935)	-0.086	-0.169*	-0.124**	-0.142*	-0.166***	-0.204**
	(0.055)	(0.094)	(0.057)	(0.071)	(0.059)	(0.085)
I(year=1936)	-0.263***	-0.395***	-0.357***	-0.345***	-0.450***	-0.489***
	(0.076)	(0.128)	(0.089)	(0.095)	(0.087)	(0.106)
I(year=1937)	-0.366***	-0.540***	-0.501***	-0.453***	-0.640***	-0.682***
	(0.090)	(0.197)	(0.110)	(0.143)	(0.108)	(0.142)
I(year=1938)	-0.380***	-0.574**	-0.515***	-0.410**	-0.701***	-0.712***
	(0.094)	(0.230)	(0.117)	(0.164)	(0.118)	(0.180)
Controls	No	No	Yes	Yes	Yes	Yes
Trend x Controls	No	No	No	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Zone-year FE	No	Yes	No	Yes	No	Yes
Observations	490	490	490	480	490	490

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.10: Federal Aid and Radio

	(1)	(2)	(3)	(4)	(5)
I(year=1930)*radio	-4.086	1.887	-7.807	-1.856	-6.006
	(13.060)	(13.164)	(13.335)	(13.098)	(14.013)
I(year=1931)*radio	-0.960	3.281	-4.680	-0.450	-3.506
	(12.075)	(12.219)	(12.268)	(12.147)	(12.600)
I(year=1932)*radio	-3.328	-0.085	-3.328	-0.107	-0.868
	(11.707)	(11.820)	(11.715)	(11.798)	(11.742)
I(year=1933)*radio	11.903	14.020	11.903	14.006	13.569
	(9.945)	(10.001)	(9.951)	(9.994)	(9.965)
I(year=1935)*radio	-16.996	-15.934	-16.996	-15.941	-15.869
	(10.751)	(10.532)	(10.758)	(10.538)	(10.635)
I(year=1936)*radio	-31.577**	-29.434**	-33.718**	-31.579**	-30.571**
	(12.728)	(12.693)	(12.876)	(12.838)	(12.726)
I(year=1937)*radio	-23.854	-20.291	-25.994*	-22.446	-21.003
	(15.208)	(15.423)	(15.527)	(15.713)	(15.691)
I(year=1938)*radio	-51.391**	-48.786**	-53.531**	-50.934**	-48.786**
	(20.721)	(20.901)	(20.508)	(20.679)	(20.842)
Lag sales per capita		-28.903		-28.709	-4.157
		(20.749)		(20.509)	(3,127.488)
Democrats' votes			-0.316*	-0.315*	-115.001
			(0.177)	(0.178)	(73.327)
City FE	Yes	Yes	Yes	Yes	Yes
State-year FE	Yes	Yes	Yes	Yes	Yes
Control trends	-	No	No	No	Yes
Observations	1000	1000	1000	1000	1000
R-squared	0.939	0.940	0.941	0.942	0.943

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.11: 1936 Election Results and Radio Share

	State		City	
Radio share	0.153**	0.214***	0.250***	0.218**
	(0.063)	(0.060)	(0.048)	(0.102)
State income per capita growth		0.636***		
		(0.120)		
Constant	-0.013	0.019	.000	
	(0.017)	(0.015)	(0.016)	
Observations	48	48	269	263
State Fixed Effect			No	Yes
R-squared	0.079	0.315	0.074	0.439

Note: *** p<0.01, ** p<0.05, * p<0.1. This table shows results for regressions where the independent variable is the regional share of radio ownership. The dependent variable is the change in the percentage of the vote won by Roosevelt between the 1932 and the 1936 elections. State income per capita growth in 1935 comes from the BLS. City-level data include state fixed effects in the last specification. Standard errors are clustered at the state level for the first two columns and at the city level in columns 3 and 4.

Table A.12: IV Regressions, Bi-weekly Data

		Distance	
	OLS	First Stage	IV
Coefficient	0.356***	-0.001***	0.758**
	(0.087)	(0.000)	(0.323)
F-Test	27.290		17.779
Observations	266	268	268

Note: *** p<0.01, ** p<0.05, * p<0.1. This table shows the results of the instrumental variable regression for the bi-weekly debit regression. The dependent variable is the log of the bi-weekly sum of debits. The independent variable is the county share of radios. The share of radio is instrumented by the city distance to the closest radio station. I use the information provided by the Seventh Annual Report of the Federal Radio Commission to the Congress of the United States of 1933. The report shows the radio station locations in on map with the name of the city. I calculate the distance in miles of those stations with the city for which I have debits. There are 113 stations. Standard errors are clustered at the city level

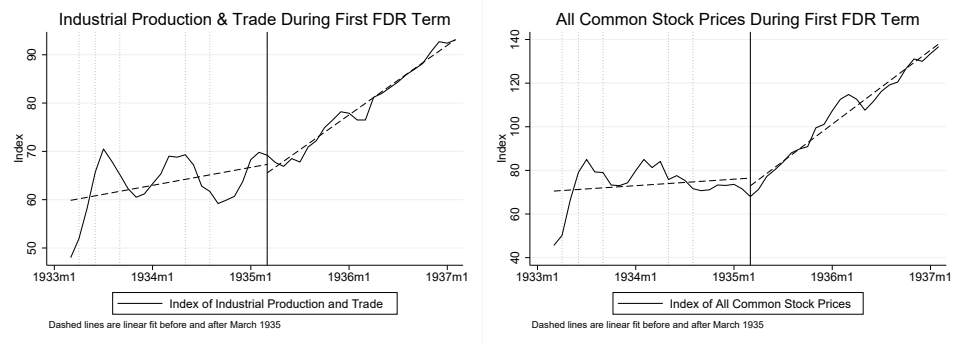
Table A.13: Difference-in-difference with Change in Debits in 1937

	(1)	(2)	(3)	(4)	(5)
Radio Share ($t > t_0$)	0.179***	0.176***	0.208***	0.223***	0.212**
	(0.039)	(0.062)	(0.064)	(0.084)	(0.088)
Change 1937 ($t > t_0$)	-0.041	-0.052*	-0.060**	-0.095	-0.085
	(0.029)	(0.031)	(0.024)	(0.126)	(0.117)
Change 1937 X Radio($t > t_0$)	0.141	0.371**	0.292*	0.410	0.390
	(0.122)	(0.155)	(0.151)	(0.317)	(0.298)
City FE	Yes	Yes	Yes	Yes	Yes
State-Time FE	No	Yes	Yes	Yes	Yes
FRD-Time FE	No	No	Yes	Yes	Yes
Outliers	Yes	Yes	Yes	No	No
Controls	No	No	No	No	Yes
Observations	1,004	972	972	872	872

Note: The table shows the results for running specification 1 adding an interaction term that includes the two-month change in logs between November and December 1936 and January and February 1937 and the post-speech dummy and a triple interaction between those two variables and the radio share. Column (1) shows the results for the specification without controls. Column (2) adds state week fixed effects. Column (3) is (2) plus Federal Reserve District fixed effects. Column (4) is (3) and drops outliers. Outliers are cities with weekly changes greater than |1| in logs and drops 5% of the bigger and smaller cities. Column (5) is (4) plus controls. Controls are trends interacted with the share of urban population, African American population, and share of population older than 55. Standard errors are clustered at the city level.

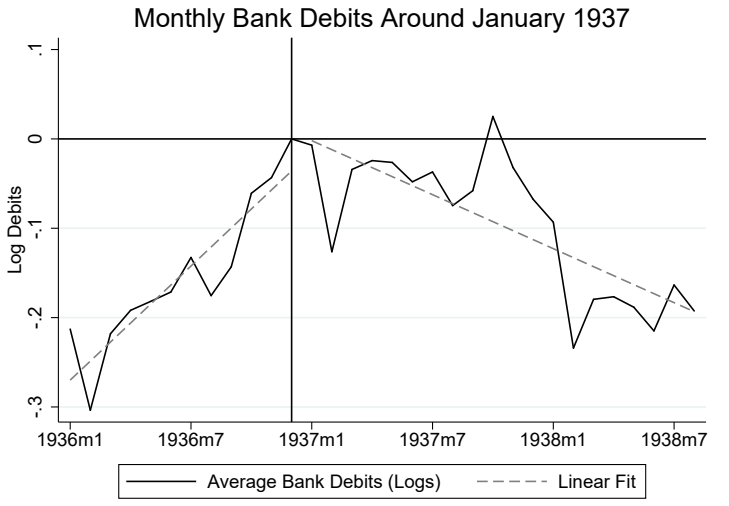
A.2 Additional Figures

Figure A.1: Economic Growth During Roosevelt's First Term



Note: The left panel shows the industrial production and trade index between March 1933 and February 1937. The vertical black line is March 1935. The gray dots represent other previous Firesides Chats. The right panel shows the stock market index.

Figure A.2: Decline in Economic Activity When Payroll Tax Is Implemented



Note: In this figure, the continuous line shows the residual of a regression of bi-weekly log bank debits by city as dependent variables over time fixed effects and city fixed effects. The last two weeks of December 1936 are omitted. The dashed lines show the linear prediction of the data before and after January 1937.

A.3 Other Speeches

Since Roosevelt's inauguration until the event described in this paper, there were six other Fireside Chats. I considered the Fireside chat of April 1935 because it involved a policy that affected the consumption-saving decisions of individuals and also because it was an isolated event. But other speeches could also affect expectations and improve consumers' mood, as described by many historians. The following tables show the effect of the other speeches.

Table A.14: Bi-weekly City-Level Regression: Fireside Chat of July 24, 1933

	(1)	(2)	(3)	(4)
12-Apr-33	-0.284	-0.193	-0.477**	-0.170
	(0.191)	(0.170)	(0.201)	(0.181)
26-Apr-33	-0.159	-0.047	-0.325*	-0.036
	(0.182)	(0.171)	(0.189)	(0.184)
10-May-33	-0.128	-0.077	-0.266	-0.029
	(0.177)	(0.160)	(0.183)	(0.171)
24-May-33	-0.221	-0.217	-0.331**	-0.178
	(0.148)	(0.151)	(0.150)	(0.161)
7-Jun-33	-0.121	-0.065	-0.204	-0.028
	(0.133)	(0.124)	(0.137)	(0.129)
21-Jun-33	-0.057	-0.052	-0.112	-0.061
	(0.112)	(0.111)	(0.113)	(0.117)
5-Jul-33	0.070	0.062	0.042	0.037
	(0.101)	(0.103)	(0.101)	(0.110)
2-Aug-33	0.236**	0.236**	0.264***	0.181*
	(0.095)	(0.098)	(0.097)	(0.101)
16-Aug-33	-0.147	-0.141	-0.091	-0.123
	(0.135)	(0.140)	(0.134)	(0.137)
30-Aug-33	-0.198	-0.194	-0.116	-0.207
	(0.155)	(0.157)	(0.157)	(0.161)
13-Sep-33	-0.418***	-0.441***	-0.308**	-0.378***
	(0.131)	(0.134)	(0.139)	(0.140)
27-Sep-33	-0.333**	-0.335**	-0.194	-0.359**
	(0.155)	(0.148)	(0.161)	(0.157)
11-Oct-33	-0.559***	-0.591***	-0.393**	-0.613***
	(0.157)	(0.158)	(0.157)	(0.165)
25-Oct-33	-3.475**	-3.454**	-3.281**	-2.554
	(1.554)	(1.610)	(1.555)	(1.655)
8-Nov-33	-0.339*	-0.396**	-0.118	-0.421**
	(0.187)	(0.193)	(0.190)	(0.210)
22-Nov-33	-0.595**	-0.475**	-0.347	-0.510**
	(0.231)	(0.203)	(0.243)	(0.224)
No Outliers	No	Yes	No	Yes
Controls	No	No	Yes	No
Observations	4,161	3,990	4,161	3,743
Cities	219	210	219	197

Results for the week ending on July 19th are omitted. (1) Represents the full-unrestricted sample. (2) Eliminates outliers. (3) Adds controls. (4) Eliminates cities with a Federal Reserve. The controls are trends interacted with the share of urban population and the share of black population. Outliers are cities with changes bigger than 1 and smaller than -1 in logs. Clusters are at the city level. *** p<0.01, ** p<0.05, * p<0.1

Table A.15: Bi-weekly City level Regression: Fireside Chat of May 7, 1933 and October 22, 1933

	May 7th, 1933				October 22th, 1933			
	(1)	(2)	(3)	(4)	(7)	(8)	(9)	(10)
19-Apr-33	-0.236**	-0.210**	-0.247**	-0.192*	0.256	0.339**	0.122	0.407**
	(0.118)	(0.105)	(0.117)	(0.111)	(0.180)	(0.163)	(0.173)	(0.179)
3-May-33	0.000	0.000	0.000	0.000	0.492**	0.549***	0.369*	0.599***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.190)	(0.167)	(0.188)	(0.182)
17-May-33	-0.250**	-0.311***	-0.240**	-0.288***	0.242	0.239	0.129	0.310*
	(0.105)	(0.092)	(0.105)	(0.096)	(0.173)	(0.162)	(0.172)	(0.179)
31-May-33	-0.113	-0.170	-0.092	-0.209*	0.380**	0.380***	0.277*	0.390**
	(0.125)	(0.106)	(0.124)	(0.109)	(0.155)	(0.145)	(0.157)	(0.159)
14-Jun-33	-0.132	-0.144	-0.101	-0.118	0.361*	0.405**	0.268	0.481***
	(0.159)	(0.139)	(0.159)	(0.146)	(0.186)	(0.163)	(0.185)	(0.173)
28-Jun-33	0.136	0.053	0.177	-0.005	0.628***	0.603***	0.546***	0.594***
	(0.152)	(0.134)	(0.152)	(0.143)	(0.160)	(0.155)	(0.158)	(0.168)
12-Jul-33	0.039	-0.043	0.090	-0.037	0.531***	0.507***	0.459***	0.561***
	(0.161)	(0.141)	(0.161)	(0.153)	(0.156)	(0.150)	(0.154)	(0.160)
26-Jul-33	0.224	0.189	0.286	0.115	0.717***	0.739***	0.655***	0.714***
	(0.175)	(0.152)	(0.177)	(0.161)	(0.158)	(0.151)	(0.153)	(0.161)
9-Aug-33	0.042	-0.014	0.114	-0.022	0.535***	0.536***	0.483***	0.576***
	(0.174)	(0.154)	(0.174)	(0.163)	(0.147)	(0.142)	(0.146)	(0.151)
23-Aug-33	-0.112	-0.156	-0.030	-0.191	0.380***	0.393**	0.339**	0.408**
	(0.185)	(0.164)	(0.189)	(0.175)	(0.146)	(0.154)	(0.142)	(0.161)
6-Sep-33	-0.185	-0.249	-0.093	-0.232	0.307**	0.301**	0.276**	0.367**
	(0.177)	(0.157)	(0.179)	(0.165)	(0.136)	(0.136)	(0.134)	(0.146)
20-Sep-33	-0.364*	-0.432**	-0.261	-0.435**	0.129	0.117	0.108	0.163
	(0.193)	(0.168)	(0.192)	(0.179)	(0.110)	(0.112)	(0.109)	(0.123)
4-Oct-33	-0.184	-0.260	-0.071	-0.296*	0.308***	0.289**	0.298***	0.303**
	(0.183)	(0.161)	(0.182)	(0.174)	(0.111)	(0.112)	(0.111)	(0.123)
18-Oct-33	-0.492**	-0.549***	-0.369*	-0.599***	0.000	0.000	0.000	0.000
	(0.190)	(0.167)	(0.188)	(0.182)	(0.000)	(0.000)	(0.000)	(0.000)
1-Nov-33	-0.221	-0.324*	-0.087	-0.396**	0.271**	0.225**	0.282**	0.202
	(0.202)	(0.182)	(0.199)	(0.197)	(0.112)	(0.111)	(0.112)	(0.123)
15-Nov-33	-0.485**	-0.478**	-0.341	-0.499**	0.007	0.071	0.028	0.100
	(0.213)	(0.189)	(0.212)	(0.209)	(0.129)	(0.121)	(0.130)	(0.133)
29-Nov-33	-0.437*	-0.440**	-0.283	-0.502**	0.055	0.109	0.086	0.096
	(0.224)	(0.198)	(0.225)	(0.223)	(0.169)	(0.167)	(0.170)	(0.186)
13-Dec-33	-0.374*	-0.461**	-0.209	-0.449**	0.119	0.088	0.160	0.149
	(0.217)	(0.207)	(0.210)	(0.226)	(0.151)	(0.152)	(0.150)	(0.162)
	-0.436**	-0.456***	-0.261	-0.478***	0.057	0.094	0.108	0.121
27-Dec-33	(0.194)	(0.157)	(0.201)	(0.173)	(0.123)	(0.128)	(0.129)	(0.139)
No Outliers	No	Yes	No	Yes	No	Yes	No	Yes
Controls	No	No	Yes	No	No	No	Yes	No
Observations	4,674	4,484	4,674	4,237	4,674	4,484	4,674	4,237
Cities	246	236	246	223	246	236	246	223

(1) and (5) represents the full-unrestricted sample. (2) and (6) eliminate outliers. (3) and (7) add controls. (4) and (8) eliminates cities with a Federal Reserve. The controls are trends interacted with the share of urban population and the share of black population. Outliers are cities with changes bigger than 1 and smaller than -1 in logs. Clusters are at the city level. *** p<0.01, ** p<0.05, * p<0.1

Table A.16: Bi-weekly City Level Regression: Fireside Chat of June 28, 1934

	(1)	(2)	(3)	(4)
10-Jan-34	-0.200	-0.206	-0.286	-0.230
	(0.174)	(0.177)	(0.176)	(0.195)
24-Jan-34	-0.087	-0.078	-0.166	-0.026
	(0.162)	(0.163)	(0.162)	(0.182)
7-Feb-34	0.122	0.051	0.050	0.054
	(0.155)	(0.152)	(0.153)	(0.167)
21-Feb-34	-0.063	-0.101	-0.128	-0.086
	(0.125)	(0.126)	(0.126)	(0.138)
7-Mar-34	-0.002	-0.021	-0.059	0.028
	(0.145)	(0.144)	(0.143)	(0.155)
21-Mar-34	-0.024	-0.035	-0.074	-0.023
	(0.128)	(0.130)	(0.128)	(0.143)
4-Apr-34	-0.026	-0.087	-0.069	-0.097
	(0.155)	(0.151)	(0.153)	(0.167)
18-Apr-34	-0.042	-0.045	-0.078	-0.062
	(0.115)	(0.110)	(0.114)	(0.121)
2-May-34	0.052	0.032	0.023	0.008
	(0.112)	(0.110)	(0.112)	(0.121)
16-May-34	-0.056	-0.130	-0.077	-0.118
	(0.110)	(0.100)	(0.109)	(0.109)
30-May-34	-0.082	-0.117	-0.096	-0.105
	(0.107)	(0.105)	(0.107)	(0.114)
13-Jun-34	-0.161	-0.234**	-0.168	-0.214*
	(0.114)	(0.104)	(0.114)	(0.111)
11-Jul-34	-0.122	-0.173	-0.115	-0.134
	(0.120)	(0.112)	(0.120)	(0.119)
25-Jul-34	-0.025	-0.016	-0.010	-0.006
	(0.093)	(0.087)	(0.093)	(0.094)
8-Aug-34	-0.132	-0.198*	-0.110	-0.152
	(0.124)	(0.113)	(0.125)	(0.118)
22-Aug-34	-0.236*	-0.252*	-0.207	-0.246*
	(0.130)	(0.129)	(0.131)	(0.136)
5-Sep-34	-0.323**	-0.407***	-0.287*	-0.418***
	(0.154)	(0.142)	(0.154)	(0.153)
19-Sep-34	-0.415***	-0.476***	-0.372***	-0.458***
	(0.142)	(0.135)	(0.140)	(0.147)
3-Oct-34	-0.313*	-0.395**	-0.263	-0.403**
	(0.162)	(0.156)	(0.161)	(0.173)
17-Oct-34	-0.452**	-0.530***	-0.395*	-0.497**
	(0.205)	(0.202)	(0.202)	(0.228)
31-Oct-34	-0.286	-0.363*	-0.222	-0.371
	(0.204)	(0.203)	(0.200)	(0.231)
14-Nov-34	-0.409**	-0.489**	-0.338*	-0.450**
	(0.198)	(0.191)	(0.195)	(0.215)
28-Nov-34	-0.384**	-0.356*	-0.306*	-0.351*
	(0.182)	(0.184)	(0.178)	(0.205)
No Outliers	No	Yes	No	Yes
Controls	No	No	Yes	No
Observations	6,760	6,578	6,760	6,240
Cities	260	253	260	240

Results for the week ending on June 27th are omitted. (1) Represents the full-unrestricted sample. (2) Eliminates outliers. (3) Adds controls. (4) Eliminates cities with a Federal Reserve. The controls are trends interacted with the share of urban population and the share of black population. Outliers are cities with changes bigger than 1 and smaller than -1 in logs. Clusters are at the city level. *** p<0.01, ** p<0.05, * p<0.1

Table A.17: Bi-weekly City Level Regression: Fireside Chat of September 30, 1934

	(1)	(2)	(3)	(4)
17-Jan-34	0.148	0.223	0.008	0.308*
	(0.173)	(0.168)	(0.172)	(0.181)
31-Jan-34	0.411**	0.469**	0.279	0.462**
	(0.181)	(0.181)	(0.174)	(0.200)
14-Feb-34	0.398**	0.374**	0.274*	0.429***
	(0.158)	(0.152)	(0.155)	(0.163)
28-Feb-34	0.363**	0.441***	0.246	0.469***
	(0.164)	(0.152)	(0.160)	(0.163)
14-Mar-34	0.311*	0.321*	0.202	0.357**
	(0.168)	(0.164)	(0.165)	(0.175)
28-Mar-34	0.332**	0.390**	0.231	0.410**
	(0.163)	(0.159)	(0.158)	(0.171)
11-Apr-34	0.342**	0.351**	0.249	0.350**
	(0.161)	(0.152)	(0.155)	(0.164)
25-Apr-34	0.413***	0.501***	0.328**	0.493***
	(0.143)	(0.140)	(0.140)	(0.151)
9-May-34	0.370**	0.361**	0.292**	0.353**
	(0.149)	(0.145)	(0.146)	(0.158)
23-May-34	0.246	0.290*	0.175	0.311*
	(0.150)	(0.148)	(0.146)	(0.161)
6-Jun-34	0.293*	0.302**	0.231	0.306**
	(0.151)	(0.141)	(0.148)	(0.152)
20-Jun-34	0.263**	0.313**	0.208	0.344**
	(0.129)	(0.123)	(0.129)	(0.133)
4-Jul-34	0.340**	0.358**	0.294*	0.375**
	(0.157)	(0.151)	(0.152)	(0.164)
18-Jul-34	0.212	0.286**	0.173	0.329**
	(0.148)	(0.139)	(0.146)	(0.149)
1-Aug-34	0.413***	0.434***	0.382***	0.468***
	(0.146)	(0.147)	(0.143)	(0.158)
15-Aug-34	0.115	0.144	0.092	0.187
	(0.146)	(0.144)	(0.145)	(0.153)
29-Aug-34	0.011	0.048	-0.005	0.055
	(0.117)	(0.115)	(0.116)	(0.126)
12-Sep-34	-0.003	-0.032	-0.011	-0.010
	(0.117)	(0.102)	(0.117)	(0.111)
10-Oct-34	0.017	0.001	0.025	0.038
	(0.142)	(0.126)	(0.142)	(0.142)
24-Oct-34	-0.041	-0.025	-0.025	0.001
	(0.160)	(0.162)	(0.159)	(0.183)
7-Nov-34	0.103	0.070	0.126	0.091
	(0.160)	(0.152)	(0.160)	(0.170)
21-Nov-34	-0.102	-0.024	-0.071	0.027
	(0.166)	(0.155)	(0.165)	(0.172)
5-Dec-34	0.105	0.129	0.144	0.117
	(0.165)	(0.155)	(0.166)	(0.163)
No Outliers	No	Yes	No	Yes
Controls	No	No	Yes	No
Observations	6,240	6,072	6,240	5,760
Cities	260	253	260	240

Results for the week ending on September 26th are omitted. (1) Represents the full-unrestricted sample. (2) Eliminates outliers. (3) Adds controls. (4) Eliminates cities with a Federal Reserve. The controls are trends interacted with the share of urban population and the share of black population. Outliers are cities with changes bigger than 1 and smaller than -1 in logs. Clusters are at the city level. *** p<0.01, ** p<0.05, * p<0.1

The tables show that there in heterogeneity on the effect of different Fireside Chats. In May 1933, Roosevelt gave a speech about the New Deal. In that speech Roosevelt explained how the New Deal was going. During the speech, Roosevelt recognized some mistakes[22] and also explained some challenges for the policies he was pursuing. Also this speech, according to some sentiment analysis, is considered pessimistic. That may explain the negative reaction of bank debits after the speech. Nevertheless, this speech was delivered in a period with a lot of changes. It was given in the middle of the "Hundred Days" and at the end of the gold standard.

The speech of July 1933 is followed by a big and short-lived positive increase in bank debits. This speech was more optimistic and presented results from the Hundred Days. This speech was given after Congress passed the farm and industrial recovery acts; therefore, he could explain the effects of these policies, giving practical examples. The speech of October 1933 also presents a positive and short-lived effect.

The speeches in 1934 don't have a significant effect. This could be because no big announcements were made or because of the topics. The analysis of why a speech works or not goes beyond the scope of this paper, but it seems that the fact of announcing a relevant policy can make a difference. In particular, the speech of April 1935 talked about future policies, which can explain the big economic effect of that announcement. The rest mostly described short-run policies, without changes in future benefits or taxes, which can explain the small effect. The effect could be stronger in groups that benefited more from the policies.

In addition to the Fireside Chat in April, President Roosevelt had another speech in 1935 in which he announced some of the characteristics of the policies announced in the Fireside Chat of April 28. This was the State of the Union of January 4, 1935, where he mentioned the work relief program. This speech was on a weekday at noon. This means that my measure of exposure would not be a good proxy for the share of the population that listened to the speech; if people were not in their houses, they could have been listening in other places, but they might not have been

[22] "I do not deny that we may make mistakes of procedure as we carry out the policy."

able to hear the speech if they were working. I run specification 2 around that event. Results are presented in table A.18.

Table A.18: Bi-weekly City Level Regression: State of the Union and Message to the Congress

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1-Aug-34	0.354**	0.406**	0.306**	0.367**	0.441**	0.383**	0.370**
	(0.150)	(0.157)	(0.151)	(0.158)	(0.170)	(0.176)	(0.159)
15-Aug-34	0.104	0.151	0.064	0.120	0.206	0.225	0.124
	(0.195)	(0.196)	(0.198)	(0.199)	(0.209)	(0.226)	(0.200)
29-Aug-34	0.012	0.054	-0.038	0.013	0.048	0.061	0.012
	(0.191)	(0.192)	(0.187)	(0.186)	(0.198)	(0.214)	(0.188)
12-Sep-34	-0.061	-0.023	-0.175	-0.131	-0.078	-0.001	-0.124
	(0.187)	(0.184)	(0.184)	(0.182)	(0.196)	(0.201)	(0.183)
26-Sep-34	-0.054	-0.021	-0.127	-0.088	-0.068	0.061	-0.084
	(0.179)	(0.178)	(0.169)	(0.167)	(0.180)	(0.176)	(0.168)
10-Oct-34	-0.229	-0.201	-0.314*	-0.281	-0.230	-0.161	-0.268
	(0.173)	(0.172)	(0.172)	(0.171)	(0.184)	(0.191)	(0.172)
24-Oct-34	-0.355**	-0.331*	-0.408**	-0.380**	-0.348*	-0.333*	-0.372**
	(0.180)	(0.181)	(0.174)	(0.174)	(0.188)	(0.196)	(0.175)
7-Nov-34	-0.157	-0.139	-0.256	-0.233	-0.189	-0.159	-0.231
	(0.172)	(0.171)	(0.167)	(0.167)	(0.180)	(0.192)	(0.168)
21-Nov-34	-0.427***	-0.413***	-0.416***	-0.399***	-0.339**	-0.322**	-0.390***
	(0.147)	(0.148)	(0.141)	(0.140)	(0.149)	(0.157)	(0.141)
5-Dec-34	-0.167	-0.157	-0.240*	-0.229*	-0.218	-0.271*	-0.229*
	(0.134)	(0.134)	(0.131)	(0.131)	(0.132)	(0.141)	(0.132)
19-Dec-34	-0.083	-0.078	-0.100	-0.095	-0.033	-0.035	-0.106
	(0.126)	(0.126)	(0.123)	(0.123)	(0.130)	(0.140)	(0.123)
16-Jan-35	0.029	0.025	-0.029	-0.035	0.020	0.043	-0.038
	(0.123)	(0.124)	(0.121)	(0.121)	(0.129)	(0.138)	(0.122)
30-Jan-35	0.270**	0.260**	0.159	0.148	0.198	0.169	0.143
	(0.129)	(0.130)	(0.117)	(0.117)	(0.128)	(0.136)	(0.118)
13-Feb-35	0.111	0.097	-0.002	-0.018	0.072	0.116	-0.014
	(0.146)	(0.148)	(0.135)	(0.136)	(0.145)	(0.157)	(0.137)
27-Feb-35	0.147	0.128	0.043	0.021	0.084	0.115	0.023
	(0.141)	(0.144)	(0.132)	(0.133)	(0.143)	(0.155)	(0.134)
13-Mar-35	0.154	0.130	0.024	-0.004	0.048	0.077	-0.012
	(0.160)	(0.163)	(0.146)	(0.147)	(0.158)	(0.174)	(0.148)
27-Mar-35	0.234*	0.206	0.129	0.096	0.141	0.113	0.088
	(0.139)	(0.143)	(0.127)	(0.129)	(0.138)	(0.151)	(0.130)
10-Apr-35	0.115	0.082	0.022	-0.017	0.056	0.074	-0.024
	(0.146)	(0.151)	(0.138)	(0.140)	(0.147)	(0.162)	(0.141)
24-Apr-35	0.194	0.156	0.076	0.031	0.122	0.116	0.033
	(0.162)	(0.168)	(0.150)	(0.154)	(0.163)	(0.175)	(0.155)
8-May-35	0.393***	0.351**	0.286**	0.236	0.301**	0.308*	0.223
	(0.150)	(0.157)	(0.141)	(0.146)	(0.152)	(0.165)	(0.146)
22-May-35	0.338**	0.291*	0.228	0.172	0.310*	0.304*	0.181
	(0.161)	(0.169)	(0.154)	(0.160)	(0.164)	(0.179)	(0.160)
5-Jun-35	0.110	0.058	0.014	-0.048	0.031	-0.006	-0.045
	(0.161)	(0.167)	(0.156)	(0.160)	(0.162)	(0.178)	(0.161)
19-Jun-35	0.205	0.149	0.087	0.021	0.119	0.134	0.017
	(0.159)	(0.168)	(0.150)	(0.156)	(0.165)	(0.176)	(0.157)
No Outliers	No	No	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	Yes	Yes	Yes
Cities	259	259	255	255	242	228	254
Observations	6,475	6,475	6,375	6,375	6,050	5,700	6,350

Week ending on January 2nd is omitted. (1) Unrestricted. (2) Adds controls. (3) Drops outliers. (4) Drops outliers and includes controls. (5) Drops cities with a Federal Reserve. (6) Drops 10% of the cities with the highest and lowest average debits. (7) Drops New York City. Controls are trends interacted with the share of urban population, black population and population older than 55. Outliers are cities with changes in log bigger than 1 in absolute value. Standard errors are clustered at the city

A.4 Other Macroeconomic Aggregates

This section explores what happened with income, inflation, and employment. For income, I use personal income per capita at the state level from the BLS. For employment, I use manufacturing employment and non-manufacturing employment from Wallis (1989). He had an index for each of the 48 continental states plus the District of Columbia. In the case of the inflation data, CPI was obtained at a city level at that time. The BLS collected data for 15 cities, I include data for Atlanta, Chicago, Cincinnati, Cleveland, Dallas, Detroit, Kansas City, Los Angeles, Minneapolis, New York City, Philadelphia, Saint Louis, San Francisco, and Seattle. I run that regression controlling for state income and federal aid. The following table presents the results for income, employment, and inflation:

Table A.19: Macro Variables and Radio

	State Level				City Level	
	GDP pc growth	GDP pc	Man Empl	Non-Man Empl	Inflation	
I(year=1930)	0.448***	505.522***	42.1**	0.10	0.088***	0.032
	(0.146)	(77.953)	(17.23)	(18.35)	(0.024)	(0.034)
I(year=1931)	0.368**	380.485***	38.5**	-1.02	0.069**	0.029
	(0.155)	(99.330)	(17.04)	(19.63)	(0.034)	(0.042)
I(year=1932)	0.503***	200.322*	28.7**	-11.02	0.075	0.063
	(0.130)	(100.505)	(10.56)	(14.26)	(0.056)	(0.048)
I(year=1933)	-0.000	2.651	12.5	11.3	-0.040*	-0.035
	(0.125)	(37.653)	(10.07)	(9.61)	(0.021)	(0.027)
I(year=1935)	0.451***	123.186***	4.94	18.8*	0.088**	0.087**
	(0.135)	(21.500)	(7.76)	(10.71)	(0.041)	(0.040)
I(year=1936)	0.271**	270.369***	-0.71	- 16.4	0.075***	0.076**
	(0.120)	(53.608)	(11.50)	(11.90)	(0.028)	(0.030)
I(year=1937)	0.350***	353.841***	-7.32	-1.68	0.107***	0.101***
	(0.121)	(75.076)	(12.46)	(11.77)	(0.033)	(0.035)
I(year=1938)	0.349***	250.773***	-18.2*	12.8	0.034	0.051**
	(0.125)	(32.057)	(9.70)	(19.75)	(0.021)	(0.025)
I(year=1939)	0.270***	307.016***	-2.53	11.7	0.078***	0.079***
	(0.089)	(56.463)	(12.3)	(18.48)	(0.019)	(0.028)
Federal aid						-0.000**
						(0.000)
State income						0.000
						(0.000)
Observations	490	490	480	480	140	140
R-squared	0.877	0.991	0.904	0.862	0.945	0.951

Note: *** p<0.01, ** p<0.05, * p<0.1. The dependent variable is presented on the top of the column. Income per capita growth and income per capita are at the state level and come from the BLS. Manufacturing and non-manufacturing employment come from Wallis (1989) and are at the state level. Inflation data come from the BLS and are at the city level for 14 cities. Standard errors are clustered at the state or city level depending on the specification.

We can see a positive effect after the reform. For income per capita at a state level we can see that the effect is significant for income per capita in levels and growth. We see also that these regions were growing faster at the beginning of the period, which indicates some cyclical difference between the states. In the case of employment, we can see that in the case of manufacturing employment there is no effect in the period after the speech. The effect is small and not statistically significant. In the case of non-manufacturing employment, we can see a large and significant impact. These results are consistent with a local increase in economic activity. If the effect is

local, the increase in the demand for tradable goods should be similar in every region, as the rise in the demand comes from everywhere. In the case of inflation, there are no significant pre-trends. We see a positive and significant effect after the speech.

A.5 Model the Tax Announcement

The empirical results indicate that cities more exposed to the speech reacted by spending more on durable goods. Though Roosevelt's speech had several features, I now turn to focus solely on the fiscal side. The WPA and SSA represented future increases in government expenditures that were financed with a future permanent payroll tax. To rationalize the empirical findings through the lens of theory and incorporate the evidence of other academic works, I develop a multi-region sticky information model (e.g. Reis (2006) and Coibion (2006)), in which regions have different levels of information stickiness. My framework also builds on models of durable goods (as in Barsky et al. (2007) and Engel and Wang (2011)). The model also tries to understand the level of inattention in the data and how radio usage helped to reduce inattention to the announcement.

Having consumers with sticky information implies that in each period there is a constant probability of updating information. Roosevelt's speech can be interpreted as an increase in the perceived probability that the WPA and SSA would be implemented. Therefore, consumers who listened to the speech would adjust their expectations given this announcement, while consumers who did not listen to the speech would maintain the same expected consumption path. In that sense, a higher probability of updating information could be associated with listening to the speech, and hence with a higher share of radio ownership. Later in this section, I relate radio usage and the speed of information updating in the model.

Only consumers have sticky information. They live in one of many symmetric regions in the economy. In each region, there is a tradable durable and non-durable sector with perfectly competitive firms. There is no labor mobility between regions, but there is perfect labor mobility across sectors in a region. There is a single mone-

tary policy that targets aggregate variables. Goods can be traded across regions with no trade costs, and consumers have preferences for varieties of goods produced everywhere.

A.5.1 Setting

I start with a version of the model in which there are only two regions $r = \{A, B\}$. Each region has a representative agent i that, given her information in time t, consumes a final good bundle $X_{r,t}$ and supplies labor $N_{r,t}$. The consumption bundle is composed of the flow of a non-durable good (C) and the stock of a durable good (D) that depreciates at rate δ. The representative consumer maximizes:

$$\max E_{t-k} \sum_{z=0}^{\infty} \beta^z \left[\log X_{r,t+z} - \frac{\nu}{1+\psi} N_{r,t+z}^{1+\psi} \right]$$

subject to

$$P_{r,C,t+z} C_{r,t+z} + P_{r,D,t+z} I_{r,t+z} + B_{r,t+z} \leq (1 - \tau_{r,t}) W_{r,t+z} N_{r,t+z} + B_{t+z-1} R_{r,t+z-1} + T_{r,t+z}$$

with

$$X_{r,t+z} = \left[(1-\alpha)^{\frac{1}{\eta}} C_{r,t+z}^{\frac{\eta-1}{\eta}} + \alpha^{\frac{1}{\eta}} D_{r,t+z}^{\frac{\eta-1}{\eta}} \right]^{\frac{\eta}{\eta-1}} \tag{4}$$

and

$$I_{r,t} = D_{r,t} - (1-\delta) D_{r,t-1}$$

$N_{r,t}$ is the labor supply, which can be provided to both sectors D and C with $N_{r,t} = N_{C,r,t} + N_{D,r,t}$. $W_{r,t}$ is the wage earned in region $r = A, B$; as there is free labor mobility within a region, wages across sectors are equalized; therefore $W_{r,t} = W_{D,r,t} =$

$W_{C,r,t}$. $B_{r,t}$ is the holding of a riskless bond that costs R_t. $C_{r,t}$ is the consumption of non-durables and $D_{r,t}$ is the stock of durables. Both of them aggregate to $X_{r,t}$ given by equation 4. Finally, $T_{r,t}$ is transfers from the government and $\tau_{r,t}$ is the payroll taxes charged to consumers to finance those transfers. As firms are competitive, profits are zero. The non-durable consumption bundle consists of one good produced locally (H) and another produced abroad (F) with a common elasticity of substitution between both goods ω_c. ϕ_c represents a preference shifter that is between zero and one. If $\phi \in (0.5, 1]$ the local consumer has home bias. The non-durable consumption bundle is given by:

$$C_{r,t} = \left[\phi_c^{\frac{1}{\omega_c}} C_{H,r,t}^{\frac{\omega_c - 1}{\omega_c}} + (1 - \phi_c)^{\frac{1}{\omega_c}} C_{F,r,t}^{\frac{\omega_c - 1}{\omega_c}} \right]^{\frac{\omega_c}{\omega_c - 1}}$$

The corresponding price index of the non-durable consumption bundle is:

$$P_{r,C,t} = \left[\phi_c P_{C,H,r,t}^{1-\omega_c} + (1 - \phi_c) P_{C,H,r',t}^{1-\omega_c} \right]^{\frac{1}{1-\omega_c}}$$

where r' is B when $r = A$ and vice versa. $P_{C,H,r,t}$ is the price of the non-durable good produced in r and $P_{C,H,r',t}$ is the price of the non-durable good produced in $r' \neq r$. The durable good is also tradable, and given by:

$$D_{r,t} = \left[\phi_d^{\frac{1}{\omega_d}} D_{H,r,t}^{\frac{\omega_d - 1}{\omega_d}} + (1 - \phi_d)^{\frac{1}{\omega_d}} D_{F,r,t}^{\frac{\omega_d - 1}{\omega_d}} \right]^{\frac{\omega_d}{\omega_d - 1}}$$

and its price index is defined as:

$$P_{r,D,t} = \left[\phi_d P_{D,H,r,t}^{1-\omega_d} + (1 - \phi_d) P_{D,H,r',t}^{1-\omega_d} \right]^{\frac{1}{1-\omega_d}}$$

with $P_{D,H,r,t}$ the price of the durable good produced in r and $P_{D,H,r',t}$ the price of the durable good produced in $r' \neq r$.

I introduce inattentive consumers as in Coibion (2006), Mankiw and Reis (2007), and Reis (2006). Consumers in region $r = A, B$ adjust their information with an

exogenous probability $(1-\mu_r)$. Then, the representative consumer in each region decides her consumption path depending on whether she has updated information. Consumers who do not adjust information at the moment of the announcement will act as if the announcement was not made. They will continue following the path of consumption previously decided. Consumers who heard the announcement adjust information and revise their consumption plans accordingly. Therefore, $1-\mu_r$ represents the fraction of consumers who update information in a given region (i.e. those who listened to the announcement). I relate $1-\mu_r$ to the measure of exposure used in the empirical part of this paper. Specifically, listening to the speech increased the perceived probability that the WPA and SSA would be implemented as policy, leading consumers who listened to the speech to react according to those anticipated policies. In an extreme case, if nobody listens to the speech, nothing new happens.

Given this setting, the log-linearized level of desired consumption is defined by $\check{c}^*$ in the case of the non-durable good and $\check{d}^*$ for the durable good. Then, the time t log-linearized consumption of the non-durable good in region r and produced in region s, $\check{c}_{s,r,t}$ is given by:

$$\check{c}_{s,r,t} = (1-\mu_r)\sum_{i=0}^{\infty}\mu_r^i E_{t-i}\check{c}^*_{s,r,t}$$

and in the case of the durable good:

$$\check{d}_{s,r,t} = (1-\mu_r)\sum_{i=0}^{\infty}\mu_r^i E_{t-i}\check{d}^*_{s,r,t}$$

Expectations about the future will be particularly important for the consumption of the durable good, as consumers will not want to over or under-consume in case a particular shock happens in the future.

Firms produce with labor and have constant returns to scale in a perfectly competitive market. They don't face any rigidity in pricing or information. Hence, price

is equal to the marginal cost. The production function is linear in labor; therefore, the firms' optimization problem gives the following price equation:

$$P_{H,s,r,t} = \frac{W_{r,t}}{A_{r,s,t}}$$

for sector $s = c, d$ in region r. $A_{r,s,t}$ is the total factor productivity of the firm that is normalized to one in the steady state. The market clearing condition is:

$$Y_{r,C,t} = C_{H,r,t} + C_{F,r',t}$$

and

$$Y_{r,D,t} = I_{H,r,t} + I_{F,r',t}$$

Finally, the monetary authority targets the national nominal GDP. There is no monetary shock, therefore

$$M_t = \sum_{r=1}^{2} (P_{C,H,r,T} Y_{r,C,t} + P_{D,H,r,T} Y_{r,D,t})$$

with $M_t = \bar{M}$.

A.5.2 Calibration

I set the substitution between durable and non-durable $\eta = 1$ and preferences for durables $\alpha = 0.25$. Preference for local goods are $\phi_s = 0.7$ and the Frisch elasticity is $\psi^{-1} = 1$. The elasticity of substitution between local and foreign goods $\omega_s = 7$ and the quarterly depreciation rate of durables $\delta = 0.05$. The intertemporal discount factor is $\beta = 0.995$.

A.5.3 Policy Announcement

I simulate the effect of the announcement of an increase in payroll taxes. To simplify the effect of the tax, the revenues of the tax will be transferred completely to consumers according to their contribution in each region. This shock aims to mimic some features of the SSA.

Eventually, this shock will produce an increase in the cost of labor, affecting the consumption-leisure optimality condition. As the shock is permanent, it should produce a decrease in consumption of both goods. In a model with symmetric regions, only non-durable goods, and no frictions, the shock will produce a decrease in spending at the moment it happens, rather than at the time when the shock is announced. Regions will not borrow from each other as they have the same information, and they do not have any other instrument to smooth the shock.

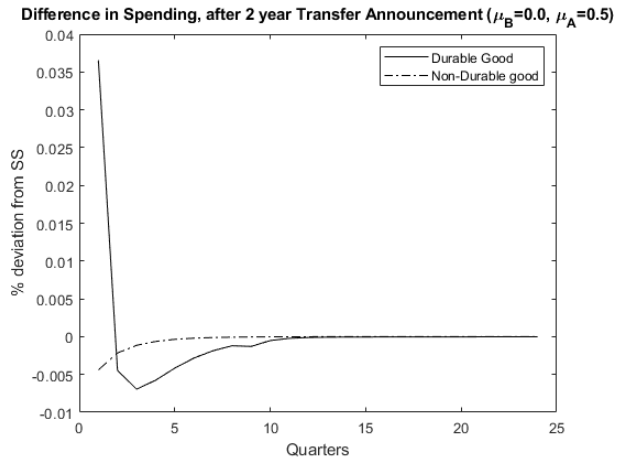
This result changes with a durable good. Durable goods allow consumers to have inter-temporal substitution. Therefore, regions can change their spending on durable goods today to smooth the shock. This will allow them to have a bigger stock of durables at the moment of the shock. With this higher stock, they can decrease spending on durable $I_{r,t}$ strongly at the moment when the policy is implemented. With this adjustment, households can smooth both the consumption of durables, which will depreciate slowly, and the consumption of non-durable goods, as the adjustment is produced by the flow of durable goods. That is why, with full information, both regions should increase their consumption of durable good at the moment of the announcement.

With heterogeneity in the information adjustment parameter μ_r between regions r, consumers in the more informed region receive the announcement earlier, in the same way that listening to Roosevelt's speech can produce an increase in the perceived probability that the policy will occur. Therefore, we should expect an increase in spending on durable goods in the more informed region in anticipation of an announcement of a payroll tax. Prices also play a role here. The announcement

increases the demand for durable goods. As durable goods are tradable, the change in price will be a function of how many households know about the announcement. The uneven information will produce a relatively low price of durable goods for the more informed region compared with the less informed region, as not everybody will perceive the shock. This difference in the perceived price of durable goods and the value that each region gives to the durable good will increase even more the difference in spending on durable goods.

To simulate the effect of being exposed to the speech, region B will be relatively more attentive compared to region A. In the following simulation I will assume that region B is always fully informed, and region A is partially adapting to information each period ($\mu_A = 0.5$, $\mu_B = 0$). Then, I shock the economy with an announcement of a direct transfer $T_{r,t}$ completely financed by a 1 percent permanent increase in taxes τ_r, t for both regions. The following figure shows the differential effect on spending in region B compared with region A on durable and non-durable goods after the announcement ($P_{D,B,t}I_{B,t} - P_{C,B,t}I_{A,t}$ for durable goods and $P_{C,B,t}C_{B,t} - P_{C,A,t}C_{A,t}$ for non-durable goods).

Figure A.3: Simulations of the Effects of Announcing a Payroll Tax and Transfer Two Years in Advance

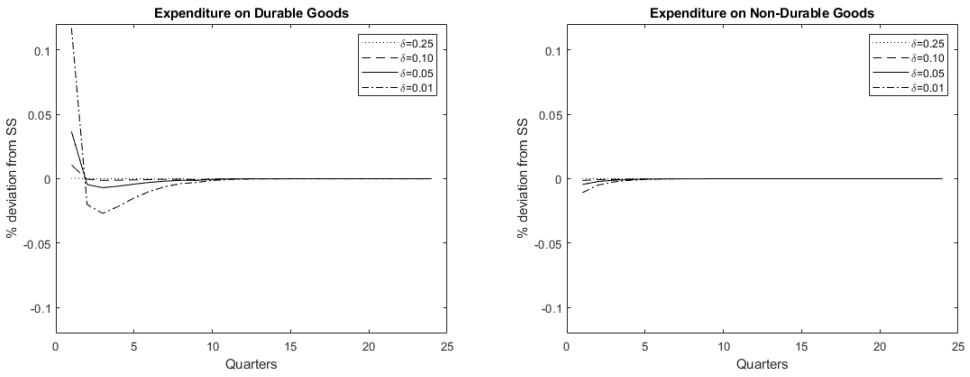


Note: The figure displays the quarterly difference in spending between two regions after an announcement made two years before a 1 percent increase in payroll taxes returned as a transfer to consumers. The difference is computed as the spending of the more attentive region (B) minus the spending of the less attentive region (A).

After the announcement, expenditures on the non-durable good does not react very differently across regions. There is a small relative increase in expenditure in the less attentive region, but the difference is not persistent. In the case of the durable good, the more informed region strongly increases its expenditures relative to the other. The reaction of the difference in durable goods expenditures is strong in the first period, but it rapidly goes to small negative numbers before it converges to zero. Intuitively consumers in the more informed region anticipate the shock and want to smooth their consumption, anticipating the increase in the cost of labor as discussed before. Because today's spending will affect future consumption of the stock of durable goods, more attentive consumers react strongly to the announcement today. The more attentive region reacts strongly only for one period. The effect is not very persistent because in region B all the consumers adjust their information at the moment of the shock ($\mu_B = 0$). In the following periods, more consumers in region A adjust, which creates the relative increase in the stock of durables.

To show the importance of durable goods, I run the same simulation, but now the durable good will depreciate at different rates. This simulation aims to show that the effect found in the last figure comes from the durable component of the good. Figure A.4 shows the results.

Figure A.4: Simulations for Different δ



Note: The figure displays the quarterly difference in expenditure between two regions after an announcement made two years before of a transfer financed with a 1 percent permanent increase in payroll taxes when there are only non-durable goods. The difference is computed as the spending of the more attentive region (B) minus the spending of the less attentive region (A). The left panel shows the difference in expenditure on durable goods, and the right panel shows the difference in expenditure on non-durable goods. The figure shows the simulation of the same shocks but changing the value of the durable depreciation rate δ

The left panel of Figure A.4 shows that since the durable good depreciates faster, the effect of the announcement in the more attentive region becomes smaller relative to the other region. For low values of depreciation, the differential effect is big, with a large reaction in the more attentive region. The graph shows that for a value of 0.25, meaning that the good depreciates completely in a year, the effect is very small. In an extreme case of $\delta = 1$, the difference between regions is zero until the announcement, when the more attentive region reacts differentially, but in a very small magnitude compared with the reaction with low depreciation rates. In the case of the non-durable good, there is a small reaction to accommodate the change in durable spending. Those differences disappear when there is no durable good.

A.5.4 From Radio Usage to Sticky Information

In the empirical analysis, I estimate an annual increase of roughly 2.0 percent in car expenditures of fully exposed regions compared with non-exposed regions the year after the announcement.[23] The objective here is to get a sense in the model of those changes, and to see if the model can replicate those results and, if so, under which parameters. One of the problems is that in the model I have a measure of information stickiness μ, whereas in the empirical part I have a measure of exposure to the speech given by radio usage. I assume that there is a relationship between the level of information stickiness and radio usage. I try to get a sense of the level of the relationship between both and the level of information stickiness in my empirical setting.

I first assume a linear relationship between radio usage and the level of information stickiness. Intuitively consumers are inattentive because information is costly. Having a radio should decrease that cost. With a radio, consumers will have access to the announcement easily; therefore they will have a lower level of inattention. I postulate that the true relationship between radio usage and the level of sticky information is:

$$1 - \mu_r = \Psi + \Theta \times RadioShare_r \tag{5}$$

Where $1 - \mu_r$ is the frequency that a consumer in r updates information and $RadioShare_r$ is the share of households with a radio in a region r. To establish parameters Ψ and Θ I increase the size of the model from two to include 49 regions (the 48 states plus DC data used in Section 4.2.2), and simulate a shock similar to the one described in the empirical setting. Hence, I modify the non-durable good aggregator in the utility function. Now the consumption of the foreign variety has the following form:

[23] Column (6) in Table A.8.

$$C_{F,r,t} = \left[\sum_{i \neq r}^{49} C_{F,r,i,t}^{\frac{\omega_V - 1}{\omega_V}} \right]^{\frac{\omega_V}{\omega_V - 1}}$$

in the case of the durable good it takes a similar form:

$$D_{F,r,t} = \left[\sum_{i \neq r}^{49} D_{F,r,i,t}^{\frac{\omega_V - 1}{\omega_V}} \right]^{\frac{\omega_V}{\omega_V - 1}}$$

$C_{F,r,i,t}$ is the consumption of non-durable goods of region r of products produced in region i and $D_{F,r,i,t}$ is the stock of durable goods in region r produced in region i. Then, I simulate an announcement of a 6 percent increase in payroll taxes that is fully paid through a transfer T_r, as in the SSA announcement. Then, I compute the one-year increase in the consumption of durable goods. I do this experiment for μ varying from 0.05 to 0.95 across the 49 regions.

From this simulation I determine changes in terms of durable goods expenditures for each region, which depends on the level of inattention μ_r. Once I simulate the model, I run the following regression:

$$\Delta(P_{d,r} \times I, r) = \Gamma + \Lambda \times (1 - \mu_r) + \varepsilon_r \tag{6}$$

where $\Delta(P_{d,r} \times I, r)$ is the change in spending on durable goods in a region r. The result is a value of $\Lambda = 5.6$ percent and $\Gamma = 0.005$. To create an empirical counterpart of equation 6, I run a similar regression with data on car sales per capita and radio usage. I run the difference between 1935 and 1934 in spending on cars:

$$\Delta(P_{d,r} \times I, r, 1935) = \xi + \Phi \times RadioShare_r + \epsilon_r \tag{7}$$

Now, I match the coefficient in equations 6 and 7 with the true coefficients of the relationship between information stickiness and radio usage assumed in equation 5. Assuming error terms equal to zero in expectations, I set the following expression:

$$1 - \mu_r = \left(\frac{\xi - \Gamma}{\Lambda} \right) + \frac{\Phi}{\Lambda} RadioShare_r$$

Thus, $\Psi = \left(\frac{\xi - \Gamma}{\Lambda} \right)$ and $\Theta = \frac{\Phi}{\Lambda}$. From the empirical part we have that $\Phi = 0.02$ and $\xi = 0.002$. From the model $\Lambda = 0.056$ and $\Gamma = 0.005$. With these parameters $\Psi = -0.088$ and $\Theta = 0.36$. This result means than an increase of 10 percent in the amount of radios in a county in 1935, increases the number of consumers that updated information by 3.6 percent according to the model.

This information provides an indication of the level of inattention of people at that time. According to the Census, the average household's radio usage in the United States was 34 percent in 1930 with a standard deviation of 17 percent. That means that the level of information stickiness μ was on average 87 percent, moving from 80 percent to 93 percent. Mankiw and Reis (2007) find a value of 92 percent for consumers. This value is relatively similar to the one found in this paper.

A.6 Speech Transcript

Since my annual message to the Congress on January fourth, last, I have not addressed the general public over the air. In the many weeks since that time the Congress has devoted itself to the arduous task of formulating legislation necessary to the country's welfare. It has made and is making distinct progress.

Before I come to any of the specific measures, however, I want to leave in your minds one clear fact. The Administration and the Congress are not proceeding in any haphazard fashion in this task of government. Each of our steps has a definite relationship to every other step. The job of creating a program for the Nation's welfare is, in some respects, like the building of a ship. At different points on the coast where I often visit they build great

seagoing ships. When one of these ships is under construction and the steel frames have been set in the keel, it is difficult for a person who does not know ships to tell how it will finally look when it is sailing the high seas.

It may seem confused to some, but out of the multitude of detailed parts that go into the making of the structure the creation of a useful instrument for man ultimately comes. It is that way with the making of a national policy. The objective of the Nation has greatly changed in three years. Before that time individual self-interest and group selfishness were paramount in public thinking. The general good was at a discount.

Three years of hard thinking have changed the picture. More and more people, because of clearer thinking and a better understanding, are considering the whole rather than a mere part relating to one section or to one crop, or to one industry, or to an individual private occupation. That is a tremendous gain for the principles of democracy. The overwhelming majority of people in this country know how to sift the wheat from the chaff in what they hear and what they read. They know that the process of the constructive rebuilding of America cannot be done in a day or a year, but that it is being done in spite of the few who seek to confuse them and to profit by their confusion. Americans as a whole are feeling a lot better – a lot more cheerful than for many, many years.

The most difficult place in the world to get a clear open perspective of the country as a whole is Washington. I am reminded sometimes of what President Wilson once said: “So many people come to Washington who know things that are not so, and so few people who know anything about what the people of the United States are thinking about.” That is why I occasionally leave this scene of action for a few days to go fishing or back home to Hyde Park, so that I can have a chance to think quietly about the country as a whole. “To get away from the trees”, as they say, "and to look at the whole forest.” This duty of seeing the country in a long-range perspective is one which, in a very special manner, attaches to this office to which you have chosen me. Did you ever stop to think that there are, after all, only two positions in the Nation that are filled by the vote of all of the voters – the President and the Vice-President? That makes it particularly necessary for the Vice-President and for me to conceive of our duty toward the entire country. I speak, therefore, tonight, to and of the American people as a whole.

My most immediate concern is in carrying out the purposes of the great work program just enacted by the Congress. Its first objective is to put men and women now on the relief rolls to work and, incidentally, to assist materially in our already unmistakable march toward recovery. I shall not confuse my discussion by a multitude of figures. So many figures are quoted to prove so many things. Sometimes it depends upon what paper you read and what broadcast you hear. Therefore, let us keep our minds on two or three simple, essential facts in connection with this problem of unemployment. It is true that while business and industry are definitely better our relief rolls are still too large. However, for the first time in five years the relief rolls have declined instead of increased during the winter months. They are still declining. The simple fact is that many million more people have private work today than two years ago today or one year ago today, and every day that passes offers more chances to work for those who want to work. In spite of the fact that unemployment remains a serious problem here as in every other nation, we have come to recognize the possibility and the necessity of certain helpful remedial measures. These measures are of two kinds. The first is to make provisions intended to relieve, to minimize, and to prevent future unemployment; the second is to establish the practical means to help those who are unemployed in this present emergency. Our social security legislation is an attempt to answer the first of these questions. Our work relief program the second.

The program for social security now pending before the Congress is a necessary part of the future unemployment policy of the government. While our present and projected expenditures for work relief are wholly within the reasonable limits of our national credit resources, it is obvious that we cannot continue to create governmental deficits for that purpose year after year. We must begin now to make provision for the future. That is why our social security program is an important part of the complete picture. It proposes, by means of old age pensions, to help those who have reached the age of retirement to give up their jobs and thus give to the younger generation greater opportunities for work and to give to all a feeling of security as they look toward old age.

The unemployment insurance part of the legislation will not only help to guard the individual in future periods of lay-off against dependence upon relief, but it will, by sustaining purchasing power, cushion the shock of economic distress. Another helpful feature of un-

employment insurance is the incentive it will give to employers to plan more carefully in order that unemployment may be prevented by the stabilizing of employment itself.

Provisions for social security, however, are protections for the future. Our responsibility for the immediate necessities of the unemployed has been met by the Congress through the most comprehensive work plan in the history of the Nation. Our problem is to put to work three and one-half million employable persons now on the relief rolls. It is a problem quite as much for private industry as for the government.

We are losing no time getting the government's vast work relief program underway, and we have every reason to believe that it should be in full swing by autumn. In directing it, I shall recognize six fundamental principles:

(1) The projects should be useful.

(2) Projects shall be of a nature that a considerable proportion of the money spent will go into wages for labor.

(3) Projects which promise ultimate return to the Federal Treasury of a considerable proportion of the costs will be sought.

(4) Funds allotted for each project should be actually and promptly spent and not held over until later years.

(5) In all cases projects must be of a character to give employment to those on the relief rolls.

(6) Projects will be allocated to localities or relief areas in relation to the number of workers on relief rolls in those areas.

I next want to make it clear exactly how we shall direct the work.

(1) I have set up a Division of Applications and Information to which all proposals for the expenditure of money must go for preliminary study and consideration.

(2) After the Division of Applications and Information has sifted those projects, they will be sent to an Allotment Division composed of representatives of the more important governmental agencies charged with carrying on work relief projects. The group will also include representatives of cities, and of labor, farming, banking and industry. This Allotment Division will consider all of the recommendations submitted to it and such projects as they approve will be next submitted to the President who under the Act is required to make

final allocations.

(3) The next step will be to notify the proper government agency in whose field the project falls, and also to notify another agency which I am creating – a Progress Division. This Division will have the duty of coordinating the purchases of materials and supplies and of making certain that people who are employed will be taken from the relief rolls. It will also have the responsibility of determining work payments in various localities, of making full use of existing employment services and to assist people engaged in relief work to move as rapidly as possible back into private employment when such employment is available. Moreover, this Division will be charged with keeping projects moving on schedule.

(4) I have felt it to be essentially wise and prudent to avoid, so far as possible, the creation of new governmental machinery for supervising this work. The National Government now has at least sixty different agencies with the staff and the experience and the competence necessary to carry on the two hundred and fifty or three hundred kinds of work that will be undertaken. These agencies, therefore, will simply be doing on a somewhat enlarged scale the same sort of things that they have been doing. This will make certain that the largest possible portion of the funds allotted will be spent for actually creating new work and not for building up expensive overhead organizations here in Washington.

For many months preparations have been under way. The allotment of funds for desirable projects has already begun. The key men for the major responsibilities of this great task already have been selected. I well realize that the country is expecting before this year is out to see the "dirt fly", as they say, in carrying on the work, and I assure my fellow citizens that no energy will be spared in using these funds effectively to make a major attack upon the problem of unemployment.

Our responsibility is to all of the people in this country. This is a great national crusade to destroy enforced idleness which is an enemy of the human spirit generated by this depression. Our attack upon these enemies must be without stint and without discrimination. No sectional, no political distinctions can be permitted. It must, however, be recognized that when an enterprise of this character is extended over more than three thousand counties throughout the Nation, there may be occasional instances of inefficiency, bad management, or misuse of funds. When cases of this kind occur, there will be those, of course, who will

try to tell you that the exceptional failure is characteristic of the entire endeavor. It should be remembered that in every big job there are some imperfections. There are chiselers in every walk of life; there are those in every industry who are guilty of unfair practices, every profession has its black sheep, but long experience in government has taught me that the exceptional instances of wrong-doing in government are probably less numerous than in almost every other line of endeavor. The most effective means of preventing such evils in this work relief program will be the eternal vigilance of the American people themselves. I call upon my fellow citizens everywhere to cooperate with me in making this the most efficient and the cleanest example of public enterprise the world has ever seen. It is time to provide a smashing answer for those cynical men who say that a democracy cannot be honest and efficient. If you will help, this can be done. I, therefore, hope you will watch the work in every corner of this Nation. Feel free to criticize. Tell me of instances where work can be done better, or where improper practices prevail. Neither you nor I want criticism conceived in a purely fault-finding or partisan spirit, but I am jealous of the right of every citizen to call to the attention of his or her government examples of how the public money can be more effectively spent for the benefit of the American people.

I now come, my friends, to a part of the remaining business before the Congress. It has under consideration many measures which provide for the rounding out of the program of economic and social reconstruction with which we have been concerned for two years. I can mention only a few of them tonight, but I do not want my mention of specific measures to be interpreted as lack of interest in or disapproval of many other important proposals that are pending.

The National Industrial Recovery Act expires on the sixteenth of June. After careful consideration, I have asked the Congress to extend the life of this useful agency of government. As we have proceeded with the administration of this Act, we have found from time to time more and more useful ways of promoting its purposes. No reasonable person wants to abandon our present gains – we must continue to protect children, to enforce minimum wages, to prevent excessive hours, to safeguard, define and enforce collective bargaining, and, while retaining fair competition, to eliminate so far as humanly possible, the kinds of unfair practices by selfish minorities which unfortunately did more than anything else to

bring about the recent collapse of industries.

There is likewise pending before the Congress legislation to provide for the elimination of unnecessary holding companies in the public utility field.

I consider this legislation a positive recovery measure. Power production in this country is virtually back to the 1929 peak. The operating companies in the gas and electric utility field are by and large in good condition. But under holding company domination the utility industry has long been hopelessly at war within itself and with public sentiment. By far the greater part of the general decline in utility securities had occurred before I was inaugurated. The absentee management of unnecessary holding company control has lost touch with and has lost the sympathy of the communities it pretends to serve. Even more significantly, it has given the country as a whole an uneasy apprehension of over concentrated economic power.

A business that loses the confidence of its customers and the good will of the public cannot long continue to be a good risk for the investor. This legislation will serve the investor by ending the conditions which have caused that lack of confidence and good will. It will put the public utility operating industry on a sound basis for the future, both in its public relations and in its internal relations.

This legislation will not only in the long run result in providing lower electric and gas rates to the consumer, but it will protect the actual value and earning power of properties now owned by thousands of investors who have little protection under the old laws against what used to be called frenzied finance. It will not destroy values.

Not only business recovery, but the general economic recovery of the Nation will be greatly stimulated by the enactment of legislation designed to improve the status of our transportation agencies. There is need for legislation providing for the regulation of interstate transportation by buses and trucks, to regulate transportation by water, new provisions for strengthening our Merchant Marine and air transport, measures for the strengthening of the Interstate Commerce Commission to enable it to carry out a rounded conception of the national transportation system in which the benefits of private ownership are retained, while the public stake in these important services is protected by the public's government.

Finally, the reestablishment of public confidence in the banks of the Nation is one of the most hopeful results of our efforts as a Nation to reestablish public confidence in private

banking. We all know that private banking actually exists by virtue of the permission of and regulation by the people as a whole, speaking through their government. Wise public policy, however, requires not only that banking be safe but that its resources be most fully utilized, in the economic life of the country. To this end it was decided more than twenty years ago that the government should assume the responsibility of providing a means by which the credit of the Nation might be controlled, not by a few private banking institutions, but by a body with public prestige and authority. The answer to this demand was the Federal Reserve System. Twenty years of experience with this system have justified the efforts made to create it, but these twenty years have shown by experience definite possibilities for improvement. Certain proposals made to amend the Federal Reserve Act deserve prompt and favorable action by the Congress. They are a minimum of wise readjustment of our Federal Reserve system in the light of past experience and present needs.

These measures I have mentioned are, in large part, the program which under my constitutional duty I have recommended to the Congress. They are essential factors in a rounded program for national recovery. They contemplate the enrichment of our national life by a sound and rational ordering of its various elements and wise provisions for the protection of the weak against the strong. Never since my inauguration in March, 1933, have I felt so unmistakably the atmosphere of recovery. But it is more than the recovery of the material basis of our individual lives. It is the recovery of confidence in our democratic processes and institutions. We have survived all of the arduous burdens and the threatening dangers of a great economic calamity. We have in the darkest moments of our national trials retained our faith in our own ability to master our destiny. Fear is vanishing and confidence is growing on every side, renewed faith in the vast possibilities of human beings to improve their material and spiritual status through the instrumentality of the democratic form of government. That faith is receiving its just reward. For that we can be thankful to the God who watches over America.