Regional Dissent: Do Local Economic Conditions Influence FOMC Votes?*

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U.S. monetary-policy decisions are made by the 12 voting members of the FOMC. Seven of these members inherently represent national-level interests. The remaining members, a rotating group of presidents from the 12 Federal Reserve districts, come instead from sub-national jurisdictions. Does this structure have implications for the monetary policy-making process? We provide novel evidence that regional economic conditions influence the voting behavior of district presidents. Specifically, a regional unemployment rate that is one-percentage-point higher than the national level is associated with an approximately nine-percentage-points higher probability of dissenting in favor of looser policy at the FOMC.

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1 Introduction

The Federal Reserve System is composed of a Board of Governors in Washington, D.C. and 12 Federal Reserve districts (see Figure 1). The System is responsible for upholding the dual mandate of price stability and full employment in the nation. To do so, the 19-member Federal Open Market Committee (FOMC) determines the best course of action for monetary policy. Seven members, including the Chair, come from the Board of Governors. They are nominated by the U.S. President and have voting rights at every FOMC meeting. The remaining 12 members are the presidents of the Federal Reserve districts. The FOMC employs a scheme where all district presidents participate in discussions but only five out of the 12 vote on monetary-policy matters in any given year according to a rotating schedule. The New York Fed votes every year, Chicago and Cleveland vote every other year, and each of the other nine districts votes every three years.

In this paper, we investigate whether the regional component in the FOMC's voting structure has implications for monetary-policy decisions. First, we construct a panel dataset of economic activity and FOMC voting across the 12 Fed districts. Second, we use our dataset to examine whether local economic conditions influence the voting behavior of district presidents. In brief, we run a district-level Taylor-rule-like specification where the decision of district presidents to dissent at the FOMC is regressed on district-level inflation and unemployment. Finally, we document how voting power scaled by economic activity is uneven across districts, which could result in policy biased towards over-represented districts. In what follows, we describe these steps in further detail, along with our main results.

Section 2 begins with the history of the Federal Reserve System. It was designed to feature regional input; however, the explicit goals have always been national. Anecdotally, we find that district presidents will often refer to conditions in their own district, but whether their FOMC votes are biased towards their own district's conditions is ultimately an empirical question. Thus, we turn to constructing a district-level dataset. Districts are not necessarily divided along state lines. Consequently, we must construct macro variables from county-level data and aggregate up to the Fed-district level. We ob-

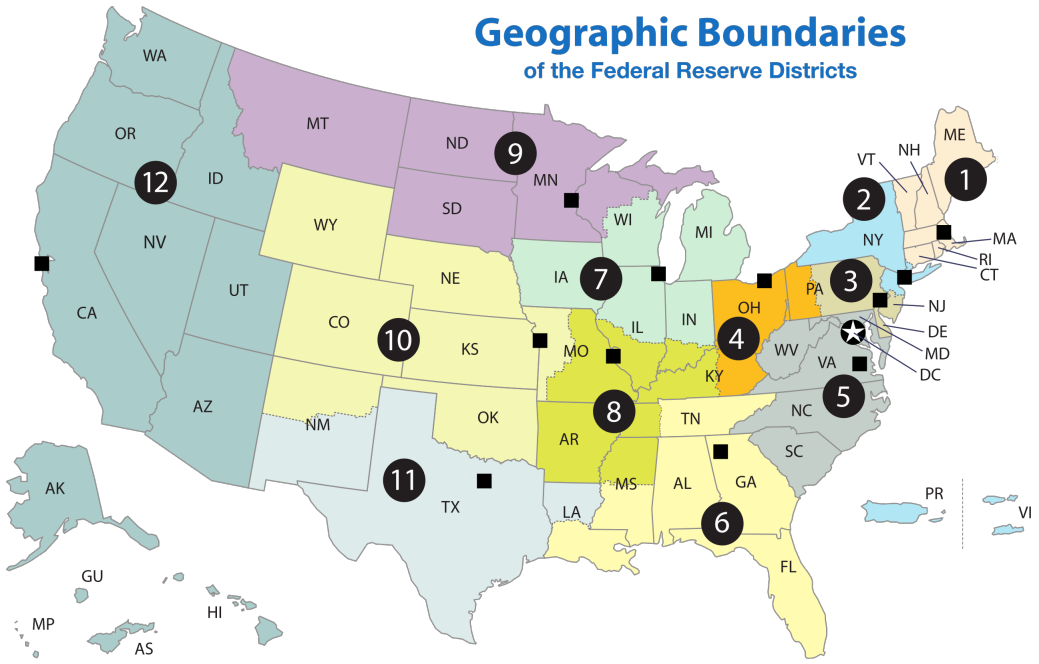

Figure 1: Map of the Federal Reserve System

Notes: Map of the geographic boundaries of the Federal Reserve System. The star depicts the Federal Reserve Board of Governors in Washington, D.C. A black square indicates the location of a given district's headquarter office. The districts are: 1-Boston, 2-New York, 3-Philadelphia, 4-Cleveland, 5-Richmond, 6-Atlanta, 7-Chicago, 8-St. Louis, 9-Minneapolis, 10-Kansas City, 11-Dallas, 12-San Francisco. Image taken from Wikipedia, produced by Chris N. Houston, and shared under a creative commons license.

tain county-level labor-force data from the BLS, non-tradable inflation data from Hazell et al. (2022), and FOMC voting data from Thornton and Wheelock (2014). We encode the presidents' dissents related to the stance of monetary policy as an indicator of agreement with the policy proposed by the Fed Chair: 0 indicates agreement, -1 indicates a dissent in favor of tighter policy, and 1 indicates a dissent in favor of looser policy.

Our final dataset is a panel across Fed districts and FOMC meetings between 1990 and 2017. There are eight scheduled FOMC meetings a year, so we have a total of 224 scheduled meetings in our sample. Excluding New York, which never dissents during our sample, there are four districts that vote each meeting. Therefore, we have 896 votes by non-New-York district presidents during scheduled meetings in our sample. Out of these 896 votes, 72 are dissents in favor of tighter policy and 17 are for looser policy.

Section 3 analyzes whether local economic conditions influence FOMC voting. To

study this issue, we run regressions in the spirit of a Taylor rule, where the dissent variable for a voting district president in a given FOMC meeting is regressed on regional unemployment and non-tradable inflation as well as a rich set of fixed effects. The coefficient on non-tradable inflation is insignificant.[1] More importantly, the coefficient on unemployment goes in the expected direction and is economically and statistically significant. A one-percentage-point higher district unemployment increases the probability of dissenting in favor of looser policy at the FOMC by roughly 9.2 percentage points. This is conclusive evidence that district presidents do not base their voting decisions solely on national evidence. However, we do not take a stance on the cause of this phenomenon. For example, presidents may have better information about their own district's economy and extrapolate this information to their beliefs about the nation's economy, or they may be partial towards their own district.

We perform a battery of robustness checks, including unscheduled FOMC meetings, using overall inflation instead of non-tradable inflation, or lagging the inflation variable, without significant changes in the findings. Importantly, we also allow different responses of dissent to local conditions during and after the chairmanship of Alan Greenspan. During Greenspan's era, the coefficient on unemployment had approximately half the magnitude (5.6 instead of 9.2) and was non-significant. After his era, the coefficient increases (to 13.3) and becomes highly significant. This corresponds well with a notion in the literature that under Greenspan other FOMC members rarely used their votes to express dissent. Finally, we show that the results are similar when using ordered or penalized logistic regressions rather than ordinary least squares.

Section 4 discusses the implications of our findings. We show that districts have voting shares that are not proportional to their population or economic activity. Given the disparities in voting power and the fact that district presidents' votes reflect the economic conditions of their own district, monetary policy may be biased towards achieving the dual mandate in over-represented districts. To get a sense of this effect, we perform a counterfactual exercise where all districts vote at each FOMC meeting and the weight of

[1] The sign of the coefficient indicates that greater non-tradable inflation in a district implies that its president is more likely to dissent in favor of tighter policy.

each vote is based on the labor-force share of the corresponding district. Relative to the average predicted dissent across the districts actually voting at any given FOMC meeting, our labor-force-weighted average predicted dissent is much smoother. Furthermore, there are certain periods where the "actual-weighted" and "labor-force-weighted" predicted average dissents differ substantially in sign and magnitude.

The role of local economic conditions in the FOMC's decision-making process has been the subject of a small but growing literature. Early work showed that local economic variables did not seem to impact the votes of district presidents. One of the first studies in this field, Tootell (1991), shows that regional economic performance had little to no effect on the voting patterns of district presidents from 1965 to 1985. Likewise, Jung and Latsos (2015) use forward-looking Taylor-type rules to estimate FOMC members' implicit policy reaction functions and find that few presidents exhibited regional biases during the Greenspan era.

Coibion and Goldstein (2012) find that dispersion in economic conditions across Fed districts matters for the setting of interest rates due to the non-linearity of regional Phillips curves. However, they find no evidence that the relationship between interest rate decisions and regional heterogeneity is driven by FOMC members voting based on their regions of origin. Fos and Xu (2024) argue that, under some circumstances, district presidents might cast dissenting votes at the FOMC based on their own district's inflation.[2]

Some papers have studied disagreement at the FOMC using its members' spoken words rather than their observed votes. Meade (2005) uses FOMC transcripts rather than voting records to measure voiced dissent at FOMC meetings and finds that the rate of disagreement in internal discussions was quite high. Hayo and Neuenkirch (2013) use a probit model with regional and national macroeconomic variables to explain the content of Fed president speeches. The authors find that district presidents put relatively more weight on regional information when speaking within their home districts than when speaking outside of it. Bennani et al. (2018) also find that regional conditions influence

[2]This refers to columns (4) and (8) of Table 5 in Fos and Xu (2024), including president and time fixed effects. Inflation is not significant in column (4), but it is significant at the 10% level in column (8) which uses the authors "robust inflation measurement sample". Their result is conditional on analyzing "directionless" dissent, where one does not discern dissents in favor of tighter policy from those in favor of looser policy.

voiced policy preferences.

A small set of papers note that local economic conditions might indeed influence FOMC votes. Meade and Sheets (2005) find that economic conditions in the region of origin of FOMC participants (including Board members) impact FOMC voting (without controlling for time fixed effects). Eichler et al. (2018) uses forward-looking Taylor-type rules with regional bank stability as an additional variable and finds that regional bank stability had a significant effect on FOMC members' votes during Yellen's term (2014–2018).

The literature has also proposed that FOMC chairs may amplify or dampen the effect of local economic conditions on policy preferences. Dominant leaders such as Greenspan may reduce the impact of local conditions by pressuring other members to follow their views. More open leaders such as Bernanke, Yellen, or Powell may increase the impact of local economic conditions by allowing more diversity in opinions and dissent among members. This is consistent with our finding that the impact of economic conditions on dissent at the FOMC increases substantially after Greenspan.

Overall, the literature suggests that the influence of local economic conditions on FOMC decisions has historically been present in policy discussions, speeches, and general forms of voiced policy preference. We contribute to the literature by providing novel evidence that unemployment at the local level matters for the voting records of regionally-affiliated FOMC participants.

2 Institutional Details and Data

2.1 History

The Federal Reserve Act of 1913 established the Federal Reserve System, consisting of the Board and 12 regional banks. Given the United States had recently emerged from the Banking Panic of 1907, the System was tasked with "*furnish[ing] an elastic currency*" and "*establish[ing] a more effective supervision of banking.*" The structure of the System emerged from a debate over the balance between centralization and decentralization. Some insisted on regional interests being represented in a decentralized manner. Representative

Carter Glass, a co-sponsor of the Act, wrote, "*In the United States, with its immense area, numerous natural divisions, still more numerous competing divisions, and abundant outlets to foreign countries, there is no argument, either of banking theory or of expediency, which dictates the creation of a single central banking institution, no matter how skillfully managed, how carefully controlled, or how patriotically conducted*" (Glass, 1913). Others, such as Secretary of State Williams Jennings Bryan, believed the federal government needed to be involved for coordination and oversight. A compromise was reached featuring both regional banks and a Board consisting of individuals appointed by U.S. presidents.

The FOMC was formed by the Banking Act of 1933, granting voting rights exclusively to Fed district presidents. The Banking Act of 1935 revised these protocols to include the Board of Governors. The final changes were instituted in 1942 to give the structure of 12 voting members with the current rotation scheme. The President of the New York Fed acts as the vice chair of the FOMC and votes in every meeting. The historic economic significance of the Ohio River Valley and the manufacturing and transportation hub of Chicago resulted in the Cleveland and Chicago Feds' participation in FOMC votes every other year. The remaining nine districts vote one year out of every three.

Following the end of the gold standard and the onset of stagflation in the early 1970s, Congress clarified the directives of the Fed by passing the Reform Act of 1977. This act states the current dual mandate: "*The Board of Governors of the Federal Reserve System and the FOMC shall maintain long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates.*"

Throughout its history, the Federal Reserve System has had national goals. However, the regional banks were intended to bring local perspectives to policy discussions. Anecdotally, FOMC members often discuss district-level information and its value. In 1998, Governor Laurence H. Meyer said, "*The presidents, in addition to having regional information, also tend to have real-time information about consumer spending, business investment, and wage and price developments, for example, gathered from speaking to firms in their districts*" (Meyer, 1998). As an example of local information influencing district presidents' thinking, consider Boston Fed President Rosengreen who lamented that the number of cranes

he could count on a short walk in Boston reached double digits in November 2015 and that "*it is worth reflecting on the sustainability of that growth*" (Rosengren, 2015). In April 2016, the Boston Fed's Beige Book chapter noted that "*construction activity increased significantly in greater Boston*" and wages for skilled labor such as crane operators had risen substantially. Rosengren dissented in favor of tighter policy in September 2016. Similarly, Minneapolis Fed President Stern was known to discuss car counts at the local malls (Rolnick et al., 1999). Additionally, anecdotal and qualitative assessments for each district are gathered in the Beige Book for scheduled FOMC meetings.

Overall, regional input was a feature of the System's design; however, the System's objectives are national. Anecdotal evidence suggests district presidents emphasize their own district's conditions in their assessments of the whole economy. Whether this can be detected in actual FOMC voting behavior requires a district-level dataset, which we now turn to constructing.

2.2 Data

Federal Reserve districts are not necessarily divided along state lines, some states (specifically 14 of them) are split between different districts. Consequently, we must construct macroeconomic variables from county-level data when possible and aggregate these observations to the Fed-district level. We obtain county-level labor-force data from the Local Area Unemployment Statistics program of the BLS. This dataset provides monthly labor force statistics (total number of people employed, unemployed, and in the labor force), not seasonally adjusted, for U.S. counties starting in 1990. We aggregate these to the district level and construct the unemployment rate by dividing the number of unemployed people in a district by the labor force in that same district.

We obtain inflation data from Hazell et al. (2022), who construct state-level inflation series for the majority of U.S. states between 1978 and 2017. They compute an overall category, as well as tradable and non-tradable subcategories. The Hazell et al. (2022) data is quarterly, so we assign this figure to all months in that quarter (which will typically cover two FOMC meetings).

We source county-level population for years 1970 to 2020 from IPUMS NHGIS (Man-

son et al., 2022) which, in turn, comes from the decennial U.S. census. We get county-level GDP between 2001 and 2021 from the BEA Regional Economic Accounts. We obtain voting data from Thornton and Wheelock (2014). This dataset lists the Federal Reserve Board Governors and district presidents who dissent from the policy proposed by the Fed Chair and categorizes dissents as being attributed to "tighter", "looser", or "other" justifications. We collect the district presidents' dissents related to tighter and looser policy and encode them as an indicator of agreement with the proposed policy: -1 indicates a dissent in favor of tighter policy, 0 indicates agreement, and 1 indicates a dissent for looser policy.

Our final dataset is a panel across Fed districts and FOMC meetings between 1990 and 2017. There are eight scheduled FOMC meetings a year, so we have a total of 224 scheduled meetings in our sample. There are also five unscheduled meetings which we exclude from our baseline. Excluding New York, which never dissents during our sample period, there are four remaining districts that vote each meeting. Multiplying the 224 meetings by four gives 896 votes by rotating Fed district presidents during scheduled meetings in our sample. Out of these 896 votes, there are 72 dissents for tighter policy and 17 dissents for looser policy.[3] The remaining 807 votes therefore implicitly support the action proposed by the Fed Chair.

3 Regional Dissent at the FOMC

3.1 Specification

In order to evaluate whether local economic conditions impact the votes of Fed district presidents at FOMC meetings, we run the following Taylor-type regression:

$$y_{it} = \delta_t + \zeta_{p(it)} + \alpha_0 \pi_{it} + \alpha_1 \pi_{it} \mathbb{1}(t > 2006M1) + \beta_0 u_{it} + \beta_1 u_{it} \mathbb{1}(t > 2006M1) + \epsilon_{it}, \quad (1)$$

[3] Appendix Table A.1 lists the dates of all dissents in favor of tighter policy along with the district dissenting, the district president's last name, the unemployment rate and inflation at the national and district levels, and an indicator that takes the value of one if the district unemployment was lower than the national level at the time of the dissent. Appendix Table A.2 does the equivalent exercise but for dissents in favor of looser policy, and there the indicator takes the value of one if district unemployment was higher than the national level at the time of the dissent.

where i refers to the district $(1, 2, \ldots, 12)$, t refers to the FOMC meeting, y_{it} is the dissent variable for the president of District i at time t (-1 for a dissent in favor of tighter policy, 0 for agreement with the proposed policy, and 1 for a dissent in favor of looser policy), π_{it} and u_{it} are District's i non-tradable inflation and unemployment respectively, δ_t is a set of time fixed effects, and $\zeta_{p(it)}$ is a set of president fixed effects.[4]

We always exclude the New York Fed given it never dissented in our sample, and its president is the vice chair of the FOMC, an institutional position that makes dissent less likely. As Governor Laurence H. Meyer put it, "*the president of the New York Fed simply won't dissent*" (Meyer, 2010). However, the results are similar if we include New York. We use Driscoll-Kraay standard errors, which are robust to general forms of cross-sectional and temporal dependence with large time dimensions. We use four lags as would be suggested by Newey and West (1994). In some regression specifications, we include an indicator variable for FOMC meetings that occur after January 2006 interacted with local unemployment and inflation; this allows us to separately identify the effects of local economic conditions during and after the term of Alan Greenspan.

3.2 Baseline Results

Table 1 summarizes the results from regressions in the spirit of equation (1). In column (1), we present the simplest possible specification where we only include time fixed effects, we do not include president fixed effects, and we do not separate the Greenspan and post-Greenspan periods. Additionally, we drop unscheduled meetings. The coefficient on non-tradable inflation is not significant.[5] More importantly, the coefficient on unemployment is economically and statistically significant and goes in the expected direction. A one-percentage-point higher district unemployment is associated with a prob-

[4]This specification can be obtained from proposing a Taylor rule for a given district, a Taylor rule for the nation as a whole, and then subtracting the two to obtain a specification in terms of "dissents" relative to the proposed policy on the left hand side, and deviations from national variables on the right hand side. However, the national levels of unemployment and inflation would be absorbed by the time fixed effects, so they do not appear explicitly in equation (1).

[5]The sign of the non-statistically-significant coefficient indicates that greater non-tradable inflation in a district implies that its president is more likely to dissent in favor of tighter policy.

Table 1: OLS Regression Evidence

	(1)	(2)	(3)	(4)	(5)	(6)
Const.	-0.990***	-0.402*	-0.369	-0.209	-0.392	-0.010
	(0.209)	(0.240)	(0.229)	(0.298)	(0.244)	(0.166)
Unemploy	0.085***	0.092**	0.087**		0.091**	0.092**
	(0.030)	(0.039)	(0.038)		(0.039)	(0.040)
NT Infla.	-0.009	-0.001	-0.002			
	(0.026)	(0.019)	(0.020)			
Overall Infla.					-0.003	
					(0.028)	
Lag Infla.						-0.000
						(0.024)
Unemp. 90-05				0.056		
				(0.040)		
NT Infl. 90-05				0.002		
				(0.025)		
Unemp. 06-17				0.133**		
				(0.065)		
NT Infl. 06-17				-0.010		
				(0.033)		
Observations	896	896	916	896	896	892
President FE	NO	YES	YES	YES	YES	YES
Time FE	YES	YES	YES	YES	YES	YES
Unscheduled	DROP	DROP	KEEP	DROP	DROP	DROP
R Squared	0.338	0.529	0.524	0.532	0.529	0.524
Adj. R Squared	0.116	0.335	0.328	0.337	0.335	0.327

Notes: This table presents the estimation results from regressions of the type in equation (1) where the dependent variable is an indicator of agreement with the policy proposed by the Fed Chair: 1 indicates a dissent in favor of looser policy, 0 indicates agreement, and -1 indicates a dissent in favor of tighter policy. Columns (1) through (3), (5) and (6) do not include separate effects for the Greenspan and post-Greenspan periods, while column (4) does. The effects of inflation and unemployment after 2005 are $\alpha_0 + \alpha_1$ and $\beta_0 + \beta_1$ respectively. The effects of inflation and unemployment before 2006 are only α_0 and β_0 respectively. Driscoll-Kraay standard errors are given in parenthesis. Stars indicate significance: $^{*} = p < 0.1$, $^{**} = p < 0.05$, $^{***} = p < 0.01$.

ability of dissenting in favor of looser policy that is 8.5 percentage points higher.[6]

In column (2) of Table 1, which is our baseline specification, we incorporate president fixed effects. This accounts for the fact that some presidents might be consistently more

[6]Appendix Table A.3 reports the shares of dissents for tighter and for looser that "agree with our hypothesis", in the sense that dissents for tighter are accompanied with a district unemployment that is lower than the nation's and dissents for looser are accompanied with a district unemployment that is higher than the nation's. The table reports a version of this for the raw data, along with a version that performs a Frisch-Waugh-Lovell decomposition on column (2) of Table 1 and reports the shares of residualized dissents that agree with our hypothesis when compared with residualized unemployment (among observations that had non-zero dissent before residualizing).

hawkish or dovish (Istrefi, 2018; Bordo and Istrefi, 2023; Hack et al., 2023). The estimated coefficient on non-tradable inflation is near zero, but the coefficient on unemployment gets stronger and remains significant at the 5% level. Under this baseline specification, a one-percentage-point higher district unemployment is associated with a probability of dissenting in favor of looser policy that is 9.2 percentage points higher.[7] Following the methodology of Cattaneo et al. (2024), Figure 2 displays a binscatter of regional unemployment vs. dissent which helps visualize the relationship between these variables in a non-parametric way. Including unscheduled FOMC meetings, as we do in column (3), does not alter the results in any significant way.

Note that part of the reason we find a significant response to regional unemployment but not to regional non-tradeable inflation might be due to the fact that our measure of regional inflation is less precise than our measure of unemployment for several reasons. First, our inflation measure is at the state level rather than the county level, so aggregation to the Fed district level is imperfect. Second, only 35 states are present in the Hazell et al. (2022) data, and data from the available states is not necessarily representative within each of those states (as it comes only from certain big cities). Third, inflation is measured at the quarterly frequency rather than at the monthly one. For all of these reasons, there could be attenuation bias in the coefficient we estimate for regional inflation. We have used the best measure of inflation available to us and have also tried several others, but such alternative measures have their own drawbacks and do not significantly change any of our results.

3.3 Robustness

Within the FOMC voting literature, there is a notion that some FOMC chairs exhibited greater influence on their committees than others. Narrative accounts illuminate the power that Chairman Greenspan wielded to limit dissenting votes at the FOMC. To test this hypothesis, column (4) of Table 1 splits our sample into the Greenspan era and the

[7] Appendix Table A.4 presents results from our baseline regression with alternative measures of dissent. Using a simple indicator for dissent for looser, we find that higher district-level non-tradable inflation decreases dissents for looser (p-value=9.1%); however, this is based on a relatively small sample of 17 dissents in favor of looser policy.

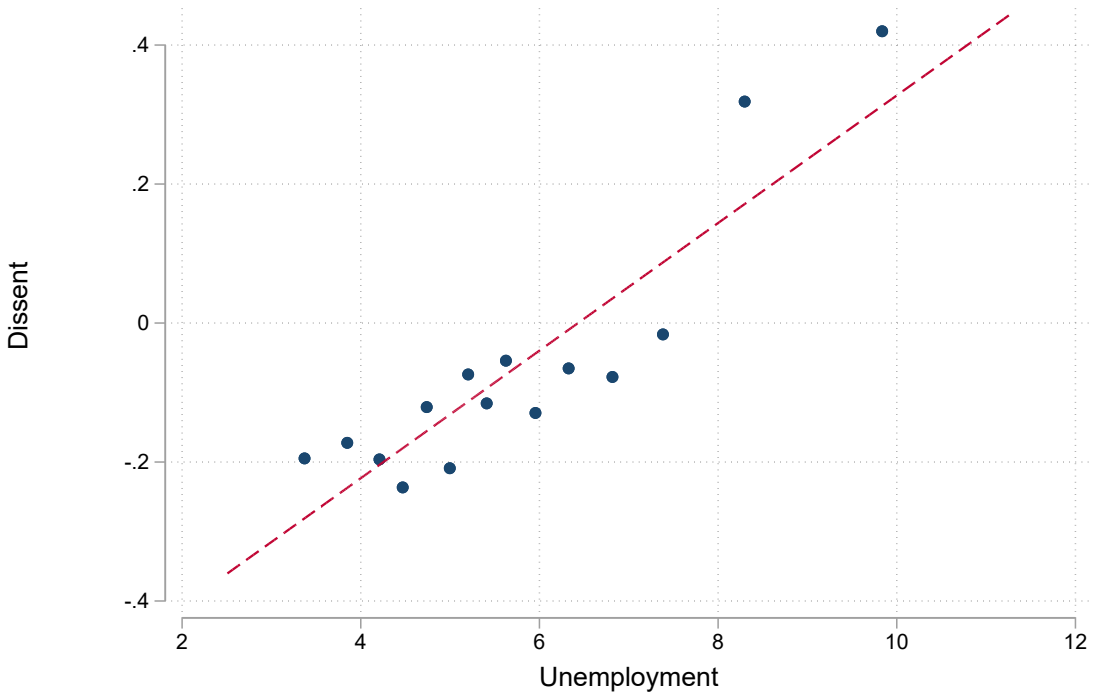

Figure 2: Binscatter of Regional Unemployment vs. Dissent

Notes: This figure plots a binscatter of regional unemployment against dissent using the specification in column (2) of Table 1 and the methods described in Cattaneo et al. (2024, 2019) (implemented using the Stata command "binsreg"). Importantly, the underlying information from which the binscatter is computed includes all of the 896 observations in our sample (not only the observations that have non-zero dissent). The specification in column (2) of Table 1, besides including regional unemployment, also includes time-fixed effects, president fixed effects, and regional inflation.

post-Greenspan era.

In the Greenspan era, the unemployment coefficient is smaller than in our baseline specification (5.6 percentage points) and non-significant. By contrast, in the post-Greenspan era, the unemployment coefficient is higher than in our baseline specification, at 13.3 percentage points, and is highly significant. Overall, these findings support the notion that either Chairman Greenspan discouraged dissent, or for some other reason, district presidents did not take into consideration regional economic conditions when voting at the FOMC.[8]

During the Greenspan period, dissenting votes by district presidents were rare. So it is not surprising that earlier literature did not reveal a significant relationship between

[8]To illustrate the potential sway Greenspan had over his committee, Appendix exhibit A.3 reproduces an excerpt from an FOMC transcript during his chairmanship.

voting behavior and local economic conditions. However, since 2006, there has been a rise in voting dissents. Specifically, our sample contains only 33 dissents between 1990 and 2005, for an average number of dissents per year of roughly 2 (0.25 dissents per FOMC meeting). The remaining 66 dissents in our sample happen between 2006 and 2017, for an average of 5.5 dissents per year (0.7 dissents per meeting).

Next, we conduct our baseline regression using alternative measures of inflation. Column (5) uses overall inflation rather than non-tradable inflation and column (6) uses lagged overall inflation. Both approaches yield estimates very similar to the baseline.

The qualitative results are largely not driven by any specific president. Figure A.1 reports the coefficient on unemployment and its confidence interval for leaving out one district president at a time. All point estimates are positive. Excluding Evans, Lacker, Minehan, Moskow, or Yellen brings the unemployment coefficient above 10%. While most estimates are significant at the 5% level, there are two exceptions. Excluding Hoenig results in a p-value of 12.5% and excluding Stern results in a p-value of 8.5%. These two presidents each account for 56 observations, the most of any president in our sample.

Our findings are robust to using logit specifications rather than the ordinary least squares baseline. Table 2 column (1) presents the estimates of an ordered logit. We are unable to include both time and president fixed effects, since there is "quasi-separation" in the data.[9] So, we use unemployment and non-tradable inflation gaps from the aggregate to control for national conditions and include only president fixed effects. A one-percentage-point increase in the district unemployment gap significantly decreases the chance of dissenting in favor of tighter policy by 5.4 percentage points while significantly increasing the probability of agreeing with the chair by 3.8 percentage points and the probability of dissenting in favor of looser policy by 1.6 percentage points (all measured as average marginal effects).

This asymmetry between the three average marginal effects can be explained as follows. First, the support region of predicted values that corresponds to agreement with the policy proposed by the chair is large. Second, the majority of president fixed effects

[9]Many presidents never dissent, and at many meetings there are no dissents. Ordered logit iteratively drops observations until there is variation in each time and president, leaving limited observations.

Table 2: Ordered and Penalized Logit Evidence

	Dissent (1)	Tighter (2)	Tighter (3)
Panel A: Odds Ratio			
Unemploy Gap	2.674***	0.347***	
	(0.760)	(0.119)	
NT Infl. Gap	0.933	0.912	
	(0.186)	(0.186)	
Unemploy			0.318*
			(0.190)
NT Infl.			0.805
			(0.259)
Panel B: Unemployment Margins			
Tighter	-0.054***		
	(0.016)		
Agreement	0.038***		
	(0.013)		
Looser	0.016***		
	(0.006)		
Unemploy Gap		-0.073***	
		(0.023)	
Unemploy			-0.112**
			(0.057)
Logit Type	Ordered	Penalized	Penalized
Observations	896	896	896
President FE	YES	YES	YES
Time FE	NO	NO	YES
Unscheduled	DROP	DROP	DROP

Notes: This table presents estimated odds ratios (Panel A) and average marginal effects (Panel B) from ordered and penalized logit regressions. Column (1) is an ordered logit with our standard dissent variable as the dependent variable. Columns (2) and (3) present penalized logits (Stata command "firthlogit") with the dependent variable being an indicator that is equal to 1 for dissents in favor of tighter policy and 0 otherwise. Gaps are defined as the deviation of the district-level economic variable from the respective national aggregate. Stars indicate significance: $^{*} = p < 0.1$, $^{**} = p < 0.05$, $^{***} = p < 0.01$.

put their respective presidents closer to the cutoff that separates agreement from dissents in favor of tighter policy than to the cutoff that separates agreement from dissents in favor of looser policy. Consequently, an increase in the unemployment gap is more likely to move presidents away from dissents in favor of tighter policy and into agreement with the chair than it is likely to move them away from agreements with the chair and into dissents in favor of looser policy.

Next we use penalized logit regressions. This allows us to include time and presi-

dent fixed effects despite quasi-separation.[10] However, penalized logit is only for binary outcomes, so we alter our dependent variable to be an indicator for dissent in favor of tighter policy. Column (2) uses district-level gaps and only president fixed effects. In response to a one-percentage-point increase in the district unemployment gap, the probability of dissenting for tighter significantly decreases by 7.3 percentage points. Column (3) uses all regressors from our linear baseline: unemployment, non-tradable inflation, president and time fixed effects. In response to a one-percentage-point increase in district unemployment, the probability of dissenting for tighter policy significantly decreases by 11.2 percentage points. Overall, the ordered and penalized logit results concur with our baseline linear results.

One outstanding concern is that regional shocks may simultaneously affect several districts such that some voting and non-voting districts may have systematically correlated conditions. In this case, our results could be driven not only by district conditions but by broader regional ones. We address this by using a placebo test presented in Appendix Figure A.2. We create hypothetical samples where we pair each voting district i with a random district j's economic data, run our baseline regression, and plot the density of the estimated unemployment coefficients. The distribution is roughly symmetric around zero, indicating that district presidents do not dissent more often in favor of looser policy if another randomly assigned district has high unemployment. We find our baseline unemployment coefficient of 0.092 to be larger than the corresponding coefficient in 98.2% of placebo samples. This suggests that not only are the results not driven by noise, but that we are specifically capturing the conditions in the district of the voting president.

[10] The penalized logit estimation procedure penalizes the log-likelihood by one-half of the logarithm of the determinant of the information matrix. The penalty term is minimized when the coefficient estimates are zero, effectively preventing coefficient estimates (for example our time or president fixed effects) from exploding. Therefore, it allows us to still include both time and presidents fixed effects while traditional logit does not. See Firth (1993) for the initial discussion of this penalization as a method to reduce small sample bias from maximum likelihood estimates, and Heinze and Schemper (2002) for extending the approach to the case of logit regressions with data that features quasi-separation. Lasso or ridge regression are other penalization techniques that serve a similar purpose but have an additional free parameter.

3.4 Discussion

While the regression in equation (1) captures correlations and not necessarily causal relationships, it is worth emphasizing that even then, our results allow us to conclude that district presidents are not making decisions by considering national outcomes exclusively. This is the case because any such national influences on FOMC dissents would be absorbed by the time fixed effects, even if they were non-linear and different than the traditional Taylor rule variables (i.e., inflation, unemployment, or the output gap).

While we cannot necessarily pinpoint why district presidents act as if regional conditions matter to them when voting at the FOMC, we proceed to discuss some options. First, district presidents may inherently care more about their own district than about the nation as a whole, perhaps because they are accountable to their local board of directors which is impacted primarily by local economic conditions. It is also possible that they are impacted by the revolving door phenomena whereby they have worked for or want to work for firms in their district (Blanes i Vidal et al., 2012; Lucca et al., 2014). Second, district presidents may have better or more up to date knowledge about their own district than about the whole nation due to information frictions (Mankiw and Reis, 2002; Sims, 2003), and they may believe that their local information is representative of the national economy. Third, district presidents may believe that the sectoral composition of their district is representative of the national economy and may receive more signals from sectors that are important in their district (e.g., oil for the Dallas Fed, finance for the NY Fed, etc.). Regardless of the cause, we can assert with a 95% confidence level that district presidents consider regional unemployment when voting at the FOMC.

4 Implications

Due to the structure of FOMC voting, Fed districts have heterogeneous vote shares. The allocation of voting power across districts does not necessarily correspond to the population or economic significance of the regions they represent, which may create a democratic deficit in monetary policy decision-making.

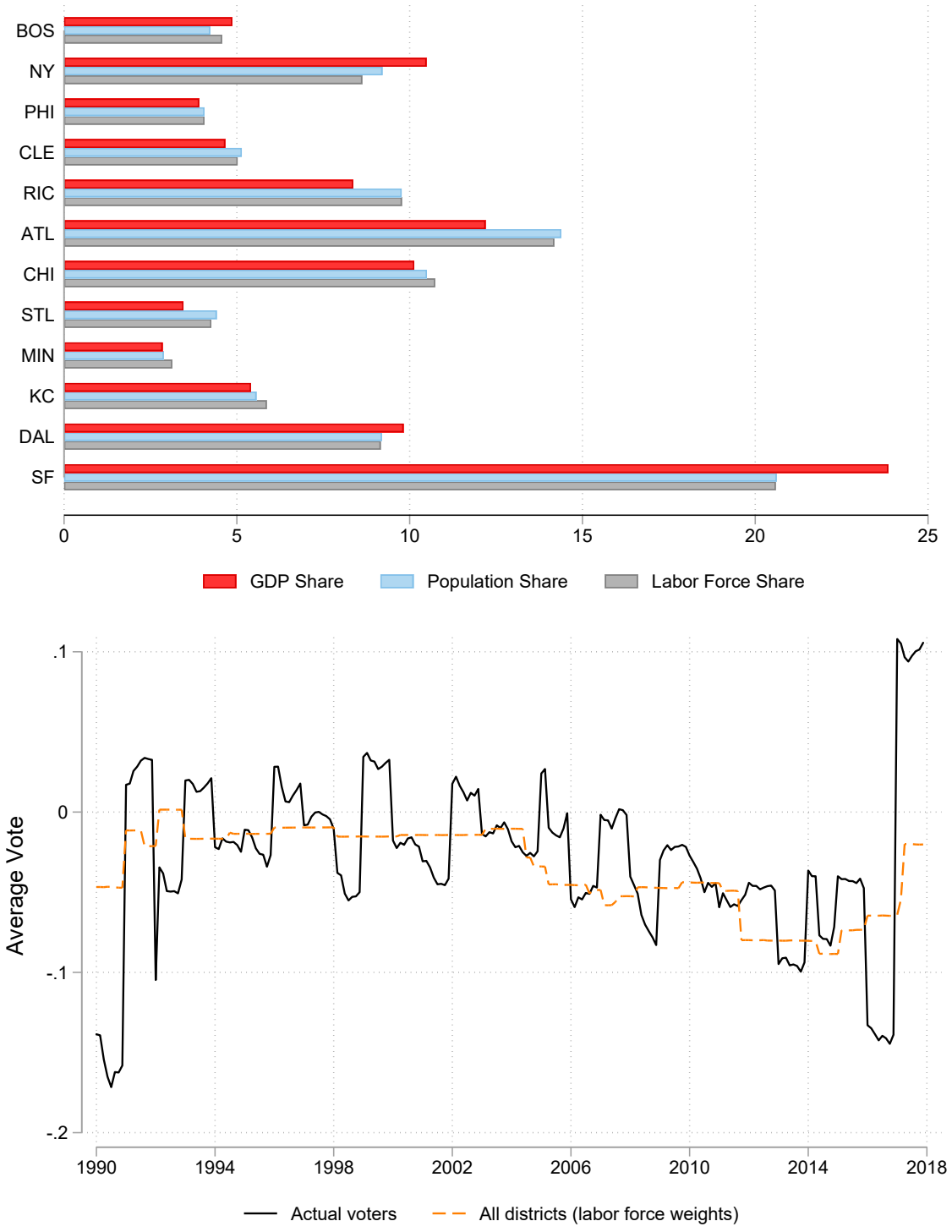

Figure 3: Representation and Average Predicted Votes

Notes: The top panel displays the shares of GDP, population, and labor force that each of the Fed districts accounted for in 2020 (population) or 2021 (GDP and labor force). The bottom panel plots the predicted value of dissents computed as described around equation (2), either averaged across only the districts that voted in each FOMC meeting (solid black line) or across all 12 Fed districts using labor-force weights (dashed orange line).

The top panel of Figure 3 depicts recent GDP, labor force, and population shares of each Fed district. The district voting shares differ significantly from the economic and population shares of each district. For instance, the Cleveland Fed District has twice as much voting power as its GDP share would imply (10% voting share compared to the 5% GDP share depicted in Figure 3). By contrast, the San Francisco Fed District has about a quarter of the voting power relative to what its GDP share would suggest (6.66% voting share compared to a 24% GDP share).

Given that district presidents' votes are influenced by regional conditions, monetary policy may be biased towards achieving full employment and stabilizing inflation in the districts that are over-represented. To get a glimpse of the potential implications, we now turn to comparing how FOMC voting might have behaved if all Fed districts (instead of just five out of 12) voted at the FOMC.

In order to predict how district presidents would have voted based on our econometric specification, we start with our baseline model in column (2) of Table 1. However, we exclude the time fixed effects, as we wish to construct an aggregate counterfactual that would be confounded by them. Without time fixed effects, we use deviations in the regional variables from their national aggregates. We arrive at the following regression:

$$y_{it} = \delta + \zeta_{p(it)} + \alpha_0(\pi_{it} - \pi_t) + \beta_0(u_{it} - u_t) + \epsilon_{it}. \tag{2}$$

We estimate equation (2) for the sample in column (2) of Table 1 and use these estimated coefficients to obtain the predicted value of dissent for all districts. Specifically, the predicted dissent of district i at time t is: $\hat{y}_{it} = \hat{\delta} + \hat{\zeta}_{p(it)} + \hat{\alpha}_0(\pi_{it} - \pi_t) + \hat{\beta}_0(u_{it} - u_t)$.

Having obtained the predicted dissent value for each district at each FOMC meeting, the bottom panel of Figure 3 aggregates these values across districts in two different ways. The black line aggregates the values of the five districts that actually voted at the corresponding FOMC meeting, each with a weight of one fifth. By contrast, the dashed orange line aggregates the values of predicted dissent across all districts using time-varying labor-force weights. As throughout the paper, dissents for tighter take the value of -1, agreements take the value of 0, and dissents for looser take the value of 1. Therefore, the

black line being at 0.1, as it is for most of 2017, indicates that at each meeting that year there was around a 50% chance that one voting district would have dissented in favor of looser policy.

The crucial feature of the bottom panel of Figure 3 is the substantial fluctuation that the black line displays at the yearly frequency, as the FOMC voting rotation shifts between districts that are at different business cycle stages compared to the U.S. average (and have presidents with different hawkish/dovish tilts, as described in Hack et al., 2023). By contrast, the orange line is much more stable and does not fluctuate gratuitously due to arbitrary annual voting rotation changes.

Consider, as an illustrative example, the case of 1999. The predicted average vote with the actual voting shares (solid black line) was around 3.5%, indicating an average preference for looser policy coming from the regional Feds at the FOMC. This positive value was due mostly to the fact that the Dallas Fed and the New York Fed were in the voting rotation that year and had higher unemployment than the U.S. average (and, in the case of President McTeer of Dallas, a relatively dovish president), while Kansas City and Richmond were excluded from the voting rotation and had much lower unemployment that the U.S. average (and, in Hoenig and Broaddus, relatively hawkish presidents). The predicted average vote across all districts with labor force weights (dashed orange line) was instead around -1.5%, indicating that if all districts had been considered, there would have instead been a preference for tighter policy stemming from the regional portion of the FOMC.

While we do find qualitative differences between the "actual-weighted" and "labor-force weighted" predicted votes, this exercise likely underestimates the magnitude of regional influence. Regional dissent could appear in voice rather than votes. Additionally, the policy proposed by the chair (or the language in the FOMC statement) could have been altered before voting to prevent an official dissent by a voting district president whose district's economic conditions were particularly different from the national ones.

5 Conclusion

We contribute to the FOMC decision-making literature by providing evidence that regional economic conditions influence the voting behavior of regionally-affiliated FOMC members significantly. Specifically, we find that a one-percentage-point higher district unemployment rate increases the likelihood that the president associated with that district dissents in favor of looser policy at the FOMC by more than nine percentage points. Overall, this suggests the district and voting structure of the FOMC results in monetary policy that may be biased towards districts whose share of FOMC votes exceeds their share in the U.S. population (or economy). While we do not take a stand on why presidents' votes reflect their own districts' economic conditions, this would be an interesting avenue for future work.

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Appendix

A Additional Figures and Tables

Table A.1: District Dissents for Tighter Policy

Meeting	District	President	District u	District π	National u	National π	Follows Hyp.
07feb1990	4	Hoskins	6.54	2.76	5.92	4.30	0
07feb1990	11	Boykin	6.69	3.26	5.92	4.30	0
27mar1990	4	Hoskins	6.01	2.76	5.56	4.30	0
27mar1990	11	Boykin	6.20	3.26	5.56	4.30	0
15may1990	4	Hoskins	5.50	3.90	5.25	4.27	0
02oct1990	4	Hoskins	5.37	4.65	5.55	4.52	1
02oct1990	11	Boykin	5.97	3.76	5.55	4.52	0
22mar1994	4	Jordan	7.13	2.87	6.91	3.21	0
22mar1994	5	Broaddus	5.80	4.09	6.91	3.21	1
06jul1994	5	Broaddus	5.39	2.96	6.30	2.72	1
27sep1994	5	Broaddus	4.90	2.96	5.70	2.72	1
06jul1995	10	Hoenig	4.49	3.47	5.94	3.04	1
03jul1996	9	Stern	3.82	2.70	5.72	2.77	1
20aug1996	9	Stern	3.45	2.70	5.17	2.77	1
24sep1996	9	Stern	3.38	2.70	5.07	2.77	1
20may1997	5	Broaddus	4.29	2.30	4.79	2.76	1
12nov1997	5	Broaddus	3.70	1.49	4.40	1.92	1
16dec1997	5	Broaddus	3.65	1.49	4.43	1.92	1
31mar1998	4	Jordan	5.09	1.98	5.05	1.65	0
19may1998	4	Jordan	4.10	1.52	4.28	1.63	1
19may1998	8	Poole	4.50	2.14	4.28	1.63	0
01jul1998	4	Jordan	4.60	2.02	4.82	1.60	1
18aug1998	4	Jordan	4.19	2.02	4.54	1.60	1
17nov1998	4	Jordan	4.19	2.10	4.21	1.64	1
15may2001	10	Hoenig	3.37	5.32	4.19	4.14	1
27jun2001	8	Poole	4.97	3.28	4.77	4.14	0
11dec2001	10	Hoenig	4.61	4.42	5.44	3.18	1
08aug2006	5	Lacker	4.95	3.65	4.74	3.84	0
20sep2006	5	Lacker	4.56	3.65	4.46	3.84	0
25oct2006	5	Lacker	4.36	2.28	4.17	2.61	0
12dec2006	5	Lacker	4.37	2.28	4.31	2.61	0
31oct2007	10	Hoenig	3.70	2.49	4.50	3.29	1
30jan2008	11	Fisher	4.67	4.55	5.43	3.59	1
18mar2008	3	Plosser	5.15	4.59	5.28	3.59	1
18mar2008	11	Fisher	4.34	4.55	5.28	3.59	1
30apr2008	3	Plosser	4.59	5.23	4.83	4.39	1
30apr2008	11	Fisher	3.93	5.79	4.83	4.39	1
25jun2008	11	Fisher	5.02	5.79	5.79	4.39	1
05aug2008	11	Fisher	5.27	5.65	6.16	4.83	1
27jan2010	10	Hoenig	8.26	2.24	10.60	2.24	1
16mar2010	10	Hoenig	8.06	2.24	10.25	2.24	1
28apr2010	10	Hoenig	7.47	3.35	9.55	3.49	1
23jun2010	10	Hoenig	7.69	3.35	9.68	3.49	1
10aug2010	10	Hoenig	7.57	3.08	9.60	3.41	1
21sep2010	10	Hoenig	7.25	3.08	9.25	3.41	1
03nov2010	10	Hoenig	7.50	2.40	9.35	2.95	1
14dec2010	10	Hoenig	7.31	2.40	9.19	2.95	1
09aug2011	9	Kocherlakota	6.00	2.12	9.14	3.42	1
21sep2011	3	Plosser	8.25	3.25	8.84	3.42	1
21sep2011	9	Kocherlakota	5.57	2.12	8.84	3.42	1
21sep2011	11	Fisher	8.11	3.96	8.84	3.42	1

Table A.1: District Dissents for Tighter Policy, Continued.

Meeting	District	President	District u	District π	National u	National π	Follows Hyp.
20jun2012	5	Lacker	8.13	1.80	8.47	2.48	1
13sep2012	5	Lacker	7.35	1.30	7.62	1.92	1
24oct2012	5	Lacker	7.39	1.46	7.59	2.04	1
12dec2012	5	Lacker	7.46	1.46	7.69	2.04	1
30jan2013	10	George	6.62	2.96	8.56	2.49	1
20mar2013	10	George	5.95	2.96	7.69	2.49	1
01may2013	10	George	5.75	3.23	7.30	2.29	1
19jun2013	10	George	6.22	3.23	7.84	2.29	1
31jul2013	10	George	6.11	3.44	7.74	2.26	1
18sep2013	10	George	5.43	3.44	7.06	2.26	1
30oct2013	10	George	5.45	3.81	7.01	2.00	1
17sep2015	5	Lacker	4.89	0.62	4.92	1.31	1
28oct2015	5	Lacker	4.90	2.20	4.90	1.79	0
16mar2016	10	George	4.18	0.90	5.16	2.07	1
27apr2016	10	George	3.92	0.85	4.72	2.38	1
27jul2016	10	George	4.43	1.64	5.19	2.35	1
21sep2016	1	Rosengren	3.86	3.03	4.85	2.35	1
21sep2016	4	Mester	5.14	0.72	4.85	2.35	0
21sep2016	10	George	3.90	1.64	4.85	2.35	1
02nov2016	4	Mester	4.77	0.90	4.48	2.49	0
02nov2016	10	George	3.59	2.55	4.48	2.49	1

Notes: This table contains the full list of dissents for tighter policy (dissent $= -1$) in scheduled FOMC meetings between 1990 and 2017. We include the date of the meeting, the number of the dissenting district (see Figure 1 for the mapping between the district names and their numbers), the last name of the dissenting district president, the regional unemployment rate and inflation in the dissenting district, the national unemployment rate and inflation, and an indicator that takes the value of one if district unemployment was lower than the national average ("Follows Hyp."). This indicator proxies for whether the dissent in question "agrees with our hypothesis", in the sense that dissents for tighter policy are accompanied by a regional unemployment rate that is lower than the national one (notice that here we are not controlling for inflation in any way, which can generate "false positives" or "false negatives"). District inflation is measured as non-tradable inflation from Hazell et al. (2022), as described in the main body of our paper. National unemployment and inflation are an aggregation of the corresponding district variables to the U.S. level (where the aggregation is done with the same procedure, described in the main body of the paper, used to aggregate from counties, or states, to the district level). In the case of unemployment, our constructed aggregate corresponds almost identically to what one could download from FRED as the non-seasonally-adjusted U.S. unemployment rate (the correlation between the two series is over 99.9%). In the case of inflation, our constructed aggregate measure does not identically correspond with U.S. CPI inflation, because our measure focuses on non-tradable inflation (and other reasons described in Hazell et al., 2022). Nevertheless, the correlation between our constructed U.S. aggregate of non-tradable inflation and actual U.S. CPI inflation is above 78%.

Table A.2: District Dissents for Looser Policy

Meeting	District	President	District u	District π	National u	National π	Follows Hyp.
06oct1992	4	Jordan	6.75	3.19	6.97	3.04	0
17nov1992	4	Jordan	6.96	3.19	7.16	3.04	0
30jun1999	11	McTeer	5.25	1.23	4.50	1.84	1
24aug1999	11	McTeer	4.84	2.41	4.23	2.40	1
24sep2002	11	McTeer	6.24	0.61	5.44	2.61	1
25jun2003	12	Parry	7.10	3.01	6.57	3.66	1
11dec2007	1	Rosengren	4.39	2.18	4.85	3.29	0
02nov2011	7	Evans	8.19	2.71	8.27	3.37	0
13dec2011	7	Evans	8.35	2.71	8.32	3.37	1
19jun2013	8	Bullard	8.14	1.67	7.84	2.29	1
18dec2013	1	Rosengren	6.07	2.96	6.53	2.01	0
29oct2014	9	Kocherlakota	3.35	1.43	5.60	2.38	0
17dec2014	9	Kocherlakota	3.99	1.43	5.40	2.38	0
15mar2017	9	Kashkari	4.19	2.07	4.60	2.83	0
14jun2017	9	Kashkari	3.58	1.88	4.53	2.58	0
13dec2017	7	Evans	3.79	1.14	3.97	2.28	0
13dec2017	9	Kashkari	3.46	1.16	3.97	2.28	0

Notes: This table contains the full list of dissents for looser policy (dissent = 1) in scheduled FOMC meetings between 1990 and 2017. We include the date of the meeting, the number of the dissenting district (see Figure 1 for the mapping between the district names and their numbers), the last name of the dissenting district president, the regional unemployment rate and inflation in the dissenting district, the national unemployment rate and inflation, and an indicator that takes the value of one if district unemployment was higher than the national average ("Follows Hyp."). This indicator proxies for whether the dissent in question "agrees with our hypothesis", in the sense that dissents for looser policy are accompanied by regional unemployment rate that is higher than the national one (notice that here we are not controlling for inflation in any way, which can generate "false positives" or "false negatives"). District inflation is measured as non-tradable inflation from Hazell et al. (2022), as described in the main body of our paper. National unemployment and inflation are an aggregation of the corresponding district variables to the U.S. level (where the aggregation is done with the same procedure, described in the main body of the paper, used to aggregate from counties, or states, to the district level). In the case of unemployment, our constructed aggregate corresponds almost identically to what one could download from FRED as the non-seasonally-adjusted U.S. unemployment rate (the correlation between the two series is over 99.9%). In the case of inflation, our constructed aggregate measure does not identically correspond with U.S. CPI inflation, because our measure focuses on non-tradable inflation (and other reasons described in Hazell et al., 2022). Nevertheless, the correlation between our constructed U.S. aggregate of non-tradable inflation and actual U.S. CPI inflation is above 78%.

Table A.3: Share of District Dissents for Tighter and for Looser "Following Hypothesis"

Dissent Type	Raw Data	FWL
Tighter	76.39%	64.29%
Looser	35.29%	63.16%

Notes: This table contains the shares of dissents for tighter and for looser policy that go in the direction "expected by our hypothesis", in the sense that dissents for tighter policy are accompanied by district unemployment that is lower than the national level and dissents for looser policy are accompanied by district unemployment that is higher than the national level. While we do not necessarily expect these numbers to be close to 100% (because we do not claim that local economic conditions are the **only** thing driving FOMC dissents by district presidents), we expect these numbers to be above 50%. The column labelled "Raw Data" displays the agreements with our hypothesis in the raw, unaltered, data, in the sense that we do not control for any other variables (like inflation or any fixed effects). For all dissents for tighter (looser) policy, we simply report the share of them where, in that period, the district of the dissenting president had an unemployment rate lower (higher) than the nation. In the column labeled FWL, instead, we run a Frisch-Waugh-Lovell decomposition based on our baseline specification (column (2) of Table 1), and report the share of observations that agree with our hypothesis. That is, both regional unemployment and the dissent variable are regressed on all independent variables in column (2) of Table 1 except for unemployment, then the residualized unemployment is compared with residualized dissent. We report the share of observations with a positive dissent residual that have a positive unemployment residual (reported as the "Looser" row in the table) and the share of observations with negative dissent residual that have a negative unemployment residual (reported as the "Tighter" row in the table). In three out of the four cases reported in the table, the share of dissents agreeing with our hypothesis is well above 50%. The single exception is the case of dissents for looser policy in the raw data. Nevertheless, the results in the FWL column indicate that, once we control for inflation and president fixed effects through the FWL decomposition, indeed the majority of dissents in favor of looser policy do agree with our hypothesis.

Table A.4: Dissent for Looser or Tighter

	(1) Looser Dissent	(2) Tighter Dissent
Const.	-0.065	0.336
	(0.112)	(0.228)
Unemploy	0.022	-0.070*
	(0.015)	(0.036)
NT Infla.	-0.015*	-0.015
	(0.009)	(0.018)
Observations	896	896
President FE	YES	YES
Time FE	YES	YES
Unscheduled	DROP	DROP
R Squared	0.363	0.524
Adj. R Squared	0.101	0.328

Notes: This table presents the estimation results from regressions similar to the baseline specification in column (2) of Table 1 but using alternative dependent variables. Column (1) uses a binary indicator for dissents in favor of looser policy (those are coded as a one and everything else, both agreements and dissents in favor of tighter policy, are coded as a zero), and column (2) uses a binary indicator for dissents in favor of tighter policy (those are coded as a one and everything else, both agreements and dissents in favor of looser policy, are coded as a zero). Recall that there are 17 dissents in favor of looser policy and 72 dissents in favor of tighter policy. Driscoll-Kraay standard errors are given in parenthesis. Stars indicate significance: $^{*} = p < 0.1$, $^{**} = p < 0.05$, $^{***} = p < 0.01$.

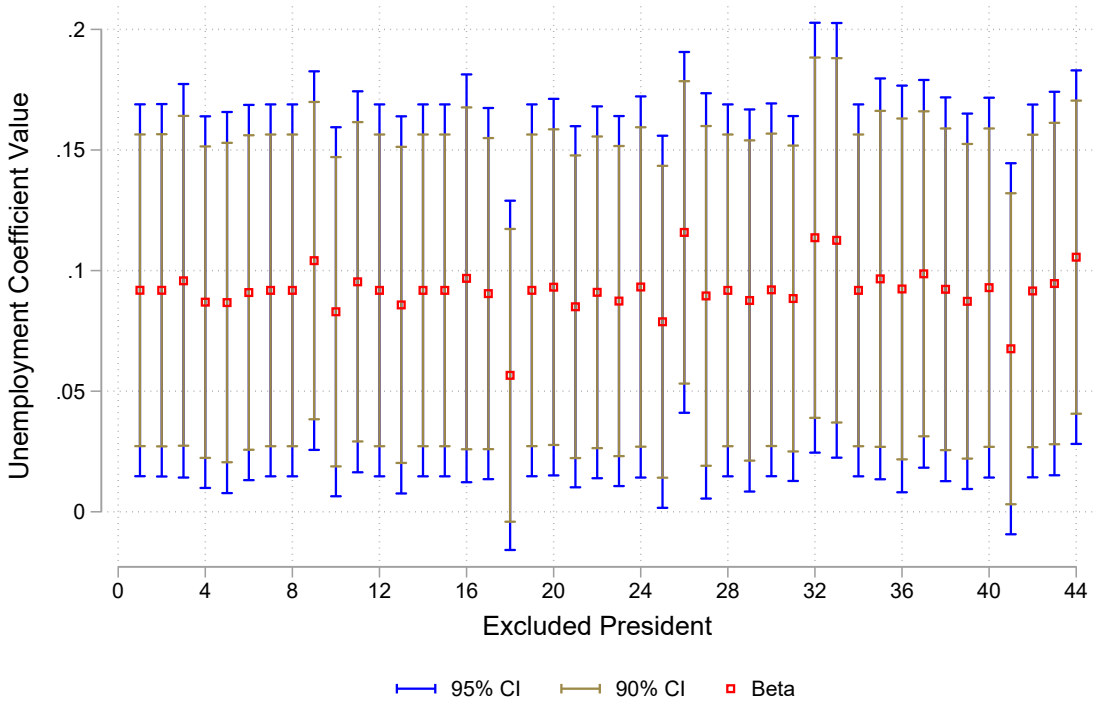

Figure A.1: Excluding One President at a Time

Notes: This figure plots the estimates and confidence intervals of the specification in column (2) of Table 1 leaving out one district president at a time. All estimated coefficients are positive. Excluding Hoenig (president number 18) results in a p-value of 0.125 and excluding Stern (president number 41) results in a p-value 0.085; all other estimates are significant at the 5% level. Excluding five presidents (9, Evans; 26, Lacker; 32, Minehan; 33, Moskow; and 44, Yellen) brings the unemployment coefficient above 10%.

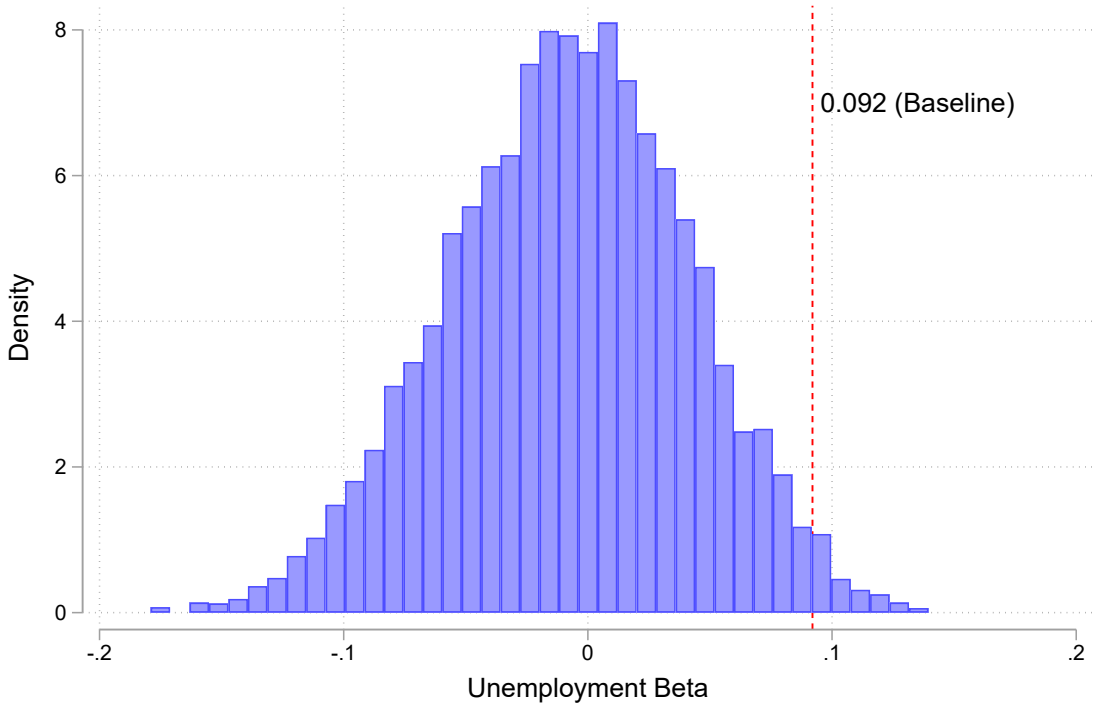

Figure A.2: Placebo Test

Notes: This figure plots the density of estimated unemployment coefficients using placebo data. We assign to each district i a placebo district j by selecting it at random from other districts (sampling without replacement). We then estimate our baseline specification (column (2) of Table 1) but where the dissent on the left-hand-side corresponds to the actual district i and the values of the independent variables on the right-hand-side correspond to those of placebo district j. This is done 10 000 times and the density of the unemployment coefficients is plotted in the figure. Less than 1.8% of our 10 000 placebo samples result in an unemployment coefficient that is larger than our baseline value of 0.092.

Figure A.3: Excerpt from FOMC transcript

MR. ANGELL: *That's why I want to have a tilt policy.*
CHAIRMAN GREENSPAN: *Yes, but the point is that if that is in fact the case, the risks are very clear; and one has much more clout per unit of action by moving in advance. I must admit I'm really trying to listen to your argument and I'm having difficulty with it, because there has been a general thrust of policy here which has been extraordinarily successful . . . The markets in this context cannot perceive of a further slight tightening of the targets as being negative. I really can't [see it].*
MR. ANGELL: *Well–*
CHAIRMAN GREENSPAN: *Remember this economy–*
MR. ANGELL: *That's the reason we have a 12-member group–because some people might see it differently.*
CHAIRMAN GREENSPAN: *Well, I think we've conveyed our points. I will take it out on a tennis court and see if–*
VICE CHAIRMAN CORRIGAN: *Well, I feel sorry for that ball!*

–Meeting of the Federal Open Market Committee June 29-30, 1988