

LECTURE 12

The Determinants of Macroeconomic Policy



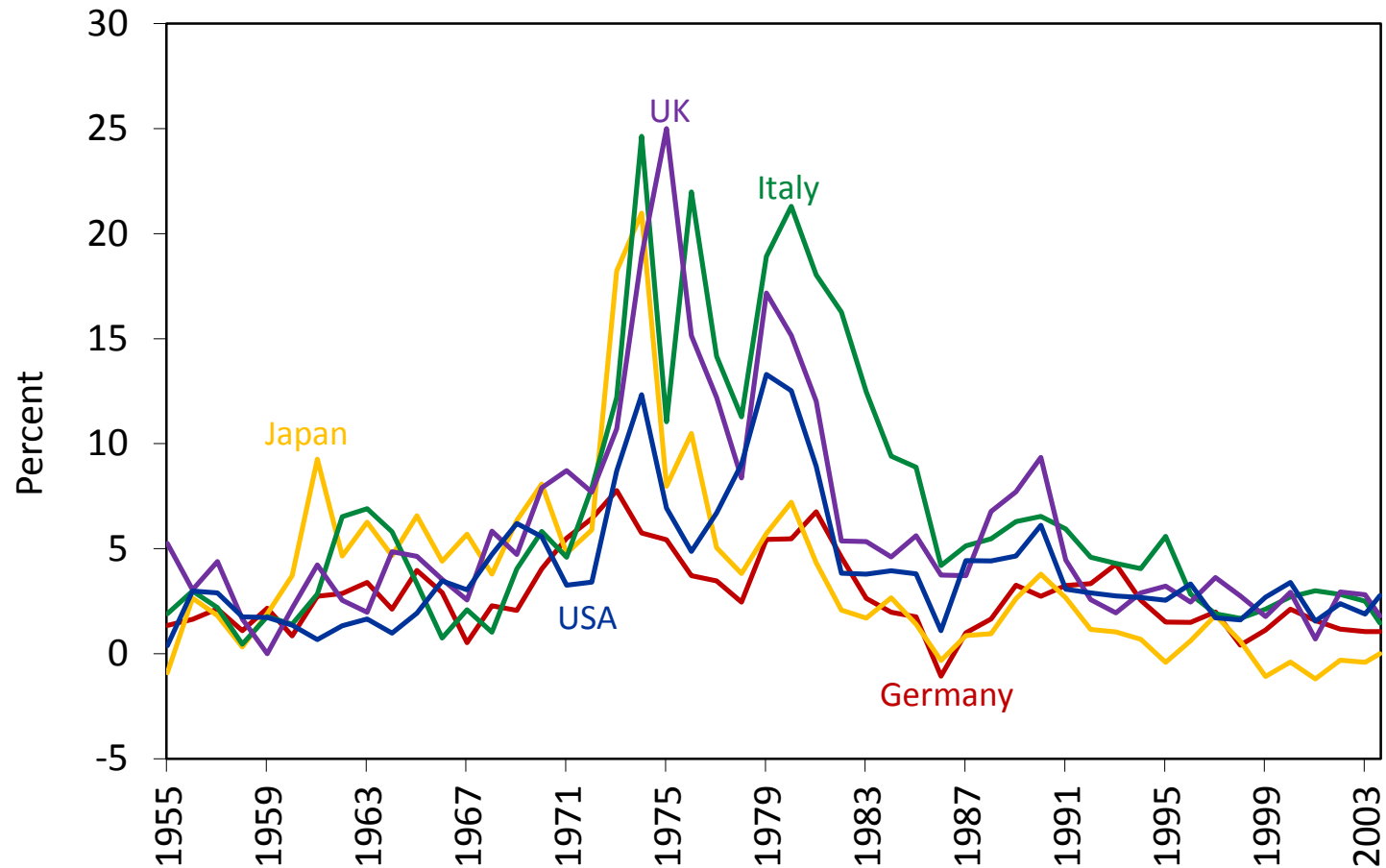
December 5, 2018

Announcements

- Papers are due Monday, Dec. 10, 5 PM.
- Lunch tomorrow (December 6) at 12:15 at the Women's Faculty Club.
- Office hours as usual tomorrow.

I. INTRODUCTION

Inflation in Five Countries



From: C. Romer, "Discussion of Meltzer"

II. RICHARD CLARIDA, JORDI GALÍ, AND MARK GERTLER,
“MONETARY POLICY RULES AND MACROECONOMIC
STABILITY: EVIDENCE AND SOME THEORY”

Derivation of the Equation that CGG Estimate (I)

- Starting point: A simple interest rate rule:

$$i_t = \alpha + \beta\pi_t + \gamma(y_t - \bar{y}_t),$$

or

$$i_t = r^{EQ} + \pi^* + \beta(\pi_t - \pi^*) + \gamma(y_t - \bar{y}_t)$$

(where $y \equiv \ln y$).

- CGG's changes:
 - i is assumed to depend on expected π and y rather than on their current values.
 - The Fed is assumed to adjust the interest rate gradually.

Derivation of the Equation that CGG Estimate (II)

Model:

$$(1) \quad i_t^* = r^{EQ} + \pi^* + \beta[E_t\pi_{t+1} - \pi^*] + \gamma[E_t(y_{t+1} - \bar{y}_{t+1})],$$

$$(2) \quad i_t = \rho i_{t-1} + (1 - \rho)i_t^* + e_t.$$

Dealing with expectations:

$$\pi_{t+1} = E_t\pi_{t+1} + u_{t+1},$$

$$y_{t+1} - \bar{y}_{t+1} = E_t[y_{t+1} - \bar{y}_{t+1}] + v_{t+1},$$

where u_{t+1} and v_{t+1} are uncorrelated with anything known at t .

Derivation of the Equation that CGG Estimate (III)

Algebra yields:

$$i_t = A + \rho i_{t-1} + (1 - \rho)\beta\pi_{t+1} + (1 - \rho)\gamma(y_{t+1} - \bar{y}_{t+1}) + \varepsilon_{t+1},$$

where

$$A \equiv (1 - \rho)[r^{EQ} + (1 - \beta)\pi^*],$$

$$\varepsilon_{t+1} = e_t - (1 - \rho)\beta u_{t+1} - (1 - \rho)\gamma v_{t+1}.$$

Discussion

What about the e_t component of the error term?

- What might be in it?
- Is that likely to cause bias?
- How could one deal with this?

What Might in e_t ?

- Other objectives (political goals, the trade balance, ...).
- Changes in r^{EQ} .
- Expectations of inflation and the output gap at horizons other than $t + 1$.
- Deviations from the rule caused by other operating procedures (such as money targeting) or from trouble hitting the target i .
- Changes in the inflation objective.
- Changes in beliefs (for example, about a permanent tradeoff or the responsiveness of inflation to slack).
- More?

TABLE II
BASELINE ESTIMATES

	π^*	β	γ	ρ	p
Pre-Volcker	4.24 (1.09)	0.83 (0.07)	0.27 (0.08)	0.68 (0.05)	0.834
Volcker-Greenspan	3.58 (0.50)	2.15 (0.40)	0.93 (0.42)	0.79 (0.04)	0.316

Standard errors are reported in parentheses. The set of instruments includes four lags of inflation: output gap, the federal funds rate, the short-long spread, and commodity price inflation.

From: Clarida, Galí, and Gertler, “Monetary Policy Rules and Macroeconomic Stability”

Interpretations of a coefficient on inflation less than 1

- Old Keynesian interpretation: The economy is unstable – a small shock can send inflation spiraling off to plus or minus infinity.
- New Keynesian interpretation (CGG): There can be sunspot-driven fluctuations.

The Rest of CGG's Model

- New Keynesian IS curve:

$$y_t = E_t[y_{t+1}] - \gamma r_t + \varepsilon^y_t$$

- New Keynesian Phillips curve:

$$\pi_t = \delta E_t[\pi_{t+1}] + \lambda y_t + \varepsilon^\pi_t$$

- Note that if $\delta \approx 1$, the new Keynesian Phillips curve implies:

$$E_t[\pi_{t+1}] = \pi_t - \lambda y_t - \varepsilon^\pi_t$$

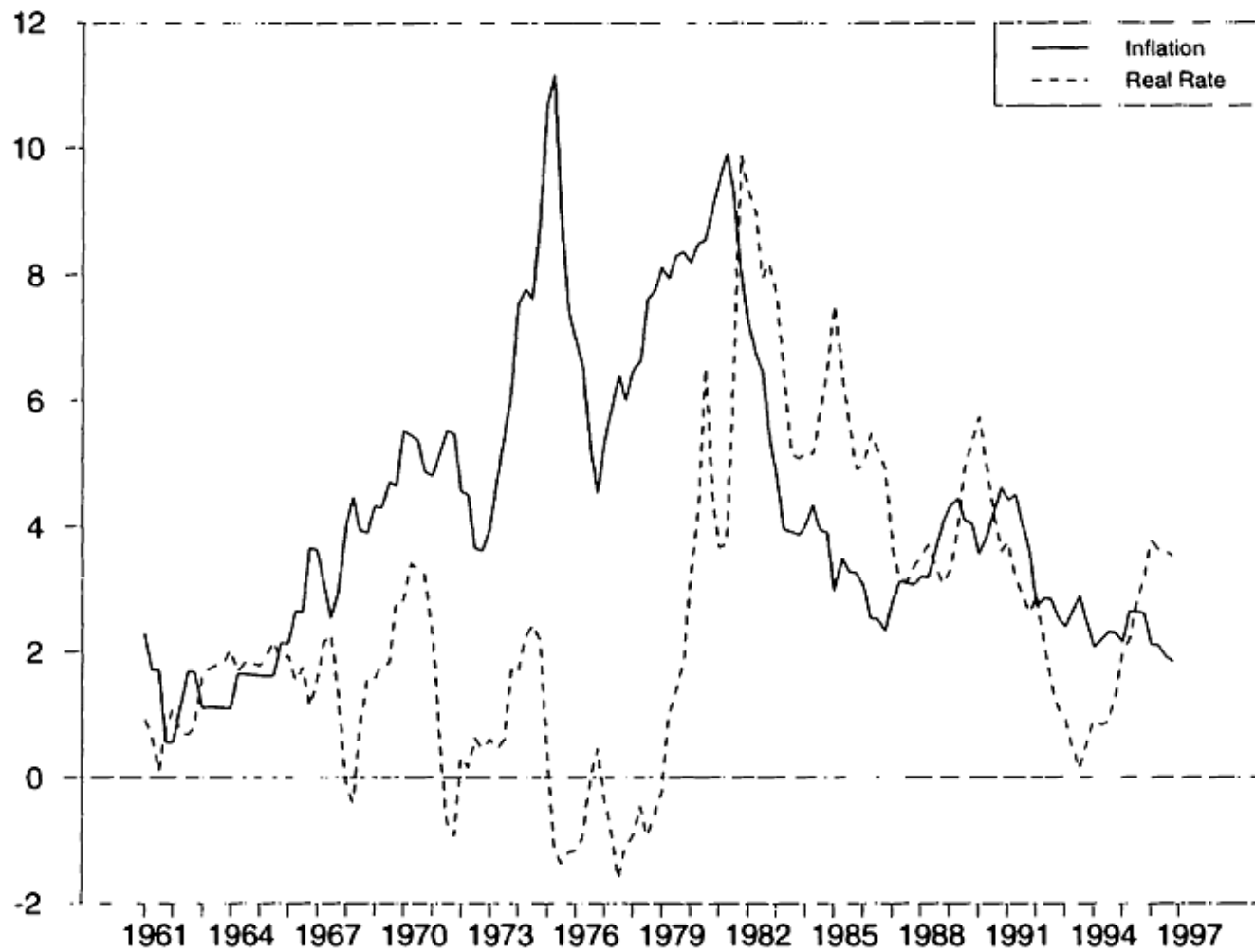
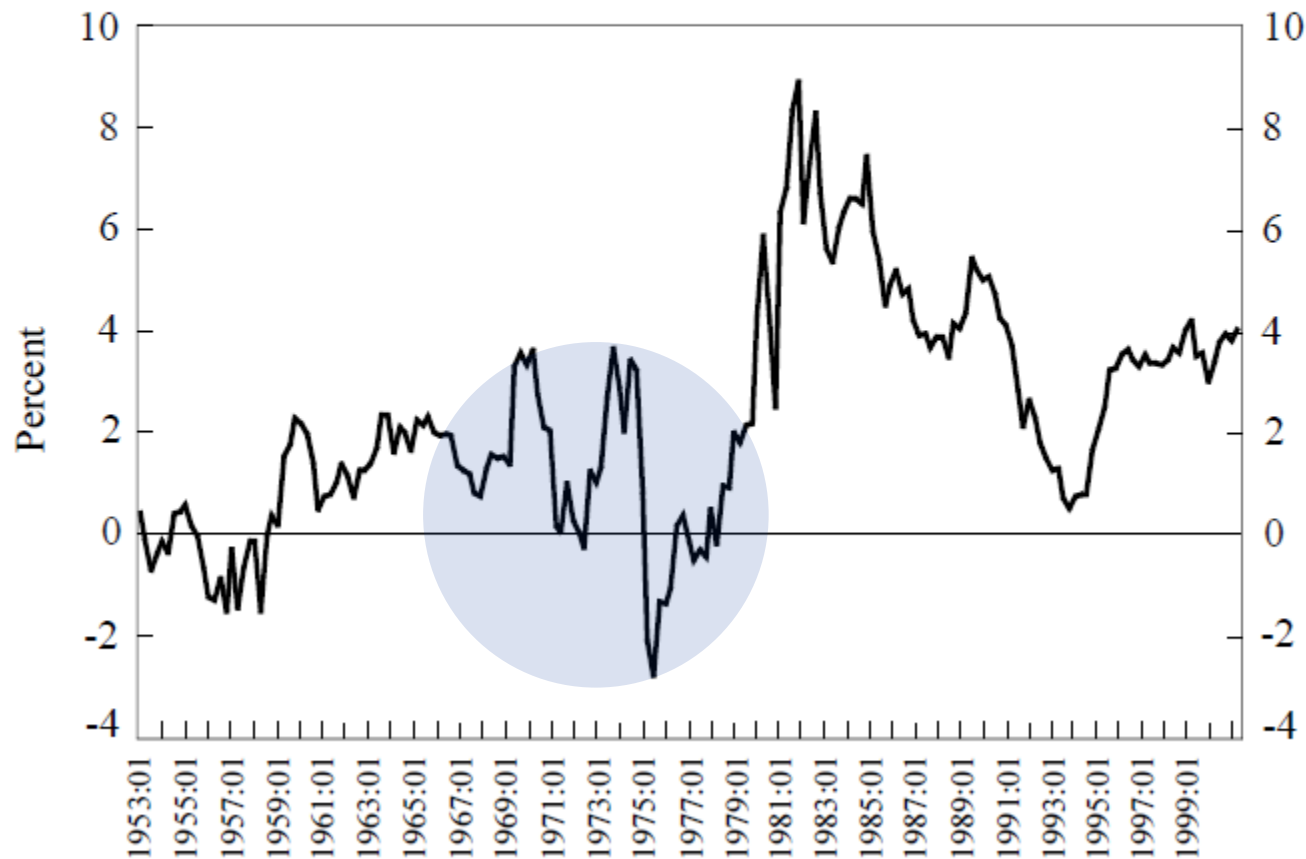


FIGURE IV
The Real Interest Rate and Inflation

From: Clarida, Galí, and Gertler, "Monetary Policy Rules and Macroeconomic Stability"

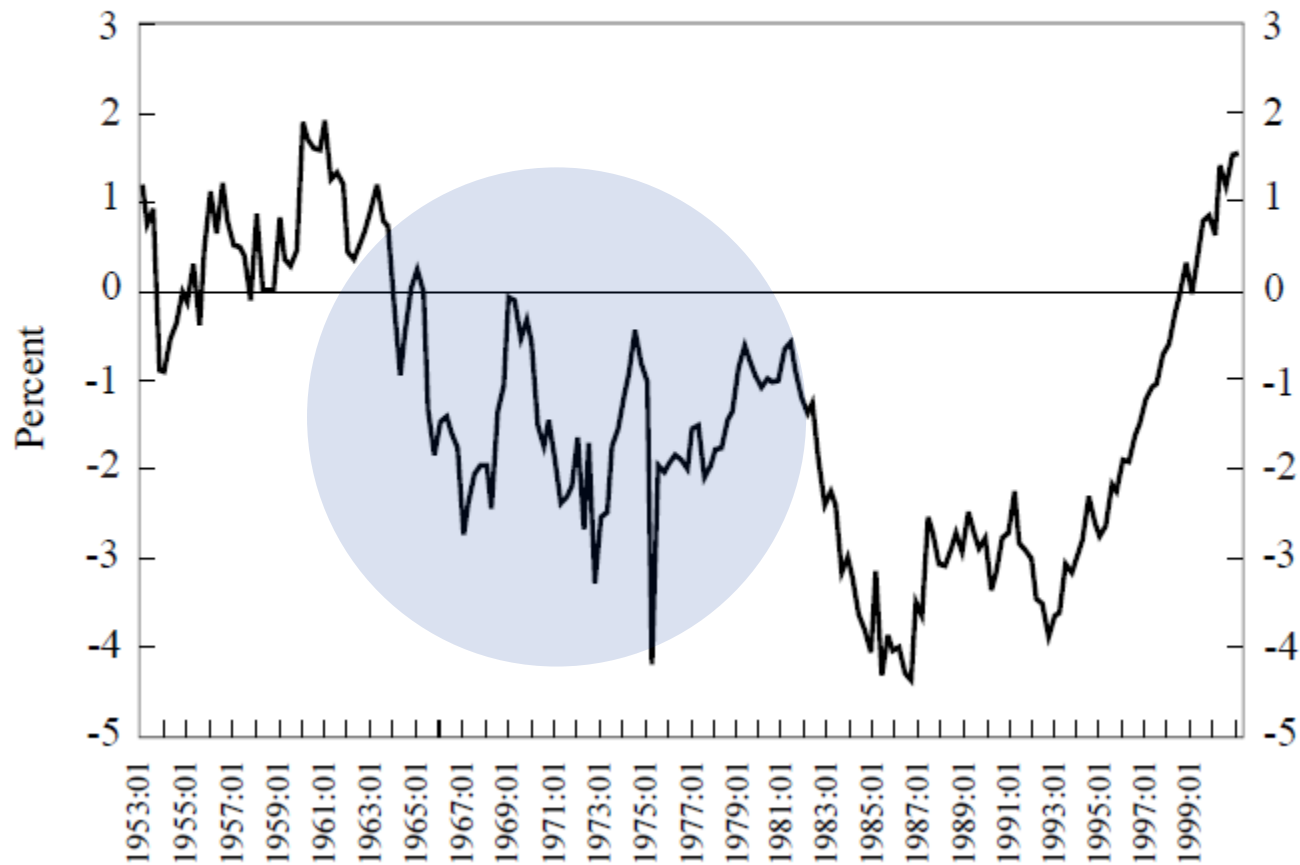
III. ROMER AND ROMER, “THE EVOLUTION OF ECONOMIC UNDERSTANDING AND POSTWAR STABILIZATION POLICY”

Chart 4
Ex Ante Real Federal Funds Rate



From: Romer and Romer, "The Evolution of Economic Understanding"

Chart 3
Ratio of High-Employment Surplus to Potential GDP



From: Romer and Romer, "Evolution of Economic Understanding"

Possible Determinants of Policy

- Technical problems (Orphanides, Brunner and Meltzer, Calomiris and Wheelock)
- Politics (Meltzer, Weise)
- Preferences (Favero and Rovelli, Rotemberg)
- Ideas (Friedman and Schwartz, DeLong, Mayer, Romer and Romer, Primiceri)

Broad Outline of Romer and Romer

- Document the evolution of economic ideas among policymakers.
- Try to show that ideas determined policy.
- Mainly use narrative evidence, but some statistical evidence as well.

Key Characteristics of Policymakers' Framework

- Normal or sustainable rate of unemployment
- Belief in a permanent inflation-unemployment tradeoff
- Sensitivity of inflation to slack

Narrative Sources

- Record of Policy Actions and Minutes of the FOMC
- Romer and Romer (2004) adds in speeches and Congressional testimony.
- *Economic Report of the President*

Characteristics of Policymakers' Economic Framework in Different Eras

Characteristic	1950s	1960s	Early 1970s	Mid 1970s	Late 1970s	1980s & Early 1990s	Late 1990s
Normal u or \bar{u}	4.5-5%	4%	4%	5.5%	5.0%	6-7%	5%
Belief in a permanent π - u trade-off	No (Perhaps a positive relationship)	Yes	No	No	No	No	No (perhaps a positive relationship)
Sensitivity of π to slack	Medium	N/A π varies with u	Initially high, then very low	Medium	Very low	Medium	Medium

From: Romer and Romer, "Evolution of Economic Understanding"

In 1959, when the current rate of unemployment was 5.0%, the chief economist of the Board of Governors said:

“[t]he economy is approaching the limits of resource utilization.”

(Minutes, 6/16/59, p. 6)

Characteristics of Policymakers' Economic Framework in Different Eras

<u>Characteristic</u>	<u>1950s</u>	<u>1960s</u>	<u>Early 1970s</u>	<u>Mid 1970s</u>	<u>Late 1970s</u>	1980s & <u>Early 1990s</u>	<u>Late 1990s</u>
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From: Romer and Romer, "Evolution of Economic Understanding"

Of inflation in the second half of 1967 (when unemployment was 3.9%), the *Economic Report* stated:

“Demand was not yet pressing on productive capacity – over-all or in most major sectors. The period of slow expansion [from mid-1966 to mid-1967] had created enough slack so that production could respond to increasing demand without significant strain on productive resources.”

(*EROP*, 1968, p. 105)

Characteristics of Policymakers' Economic Framework in Different Eras

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Belief in a permanent π - u trade-off	No (Perhaps a positive relationship)	Yes	No	No	No	No	No (perhaps a positive relationship)
Sensitivity of π to slack	Medium	N/A π varies with u	Initially high, then very low	Medium	Very low	Medium	Medium

From: Romer and Romer, "Evolution of Economic Understanding"

The 1970 *Economic Report* said:

“output will be below its potential and the rate of inflation, while declining, will probably still be too high. The transition to an economy growing along the path of potential output at full employment with reasonable price stability will not have been completed.”

(*EROP*, 1970, p. 65)

Arthur Burns concluded that:

“monetary policy could do very little to arrest an inflation that rested so heavily on wage-cost pressures. In his judgment a much higher rate of unemployment produced by monetary policy would not moderate such pressures appreciably.”

(Minutes, 6/8/71, p. 51)

The 1979 *Economic Report* stated:

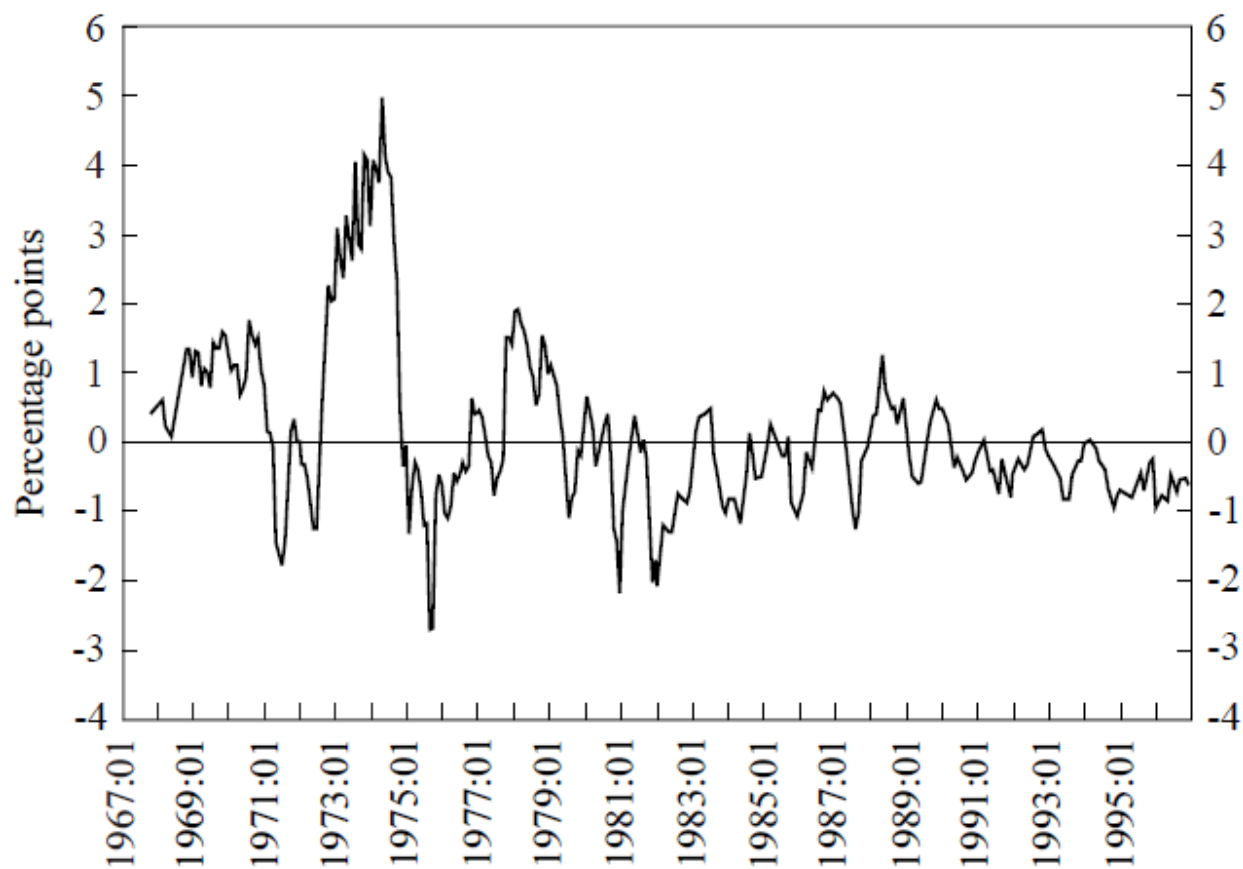
“The stubborn resistance of inflation to the traditional remedies reflects the fact that the rate of wage and price increase is relatively inflexible in the face of slack demand,” and that “[r]eductions in output and major increases in unemployment are no longer as effective in slowing the rate of wage and price increase”

(*EROP*, 1979, p. 78)

Evaluation of the Narrative Evidence on Ideas

- How do we know they policymakers actually believed what they said?
- Might Romer and Romer see what they want to see in the sources?
- How do we know that the views were representative?

Chart 1
Average Greenbook Forecast Errors for Inflation



From: Romer and Romer, "Evolution of Economic Understanding"

Table 2
Summary Statistics for the Natural Rate of Unemployment
Implicit in Greenbook Forecasts

	Martin (67:10-70:1)	Burns (70:2-75:6)	(75:7-78:2)	Miller (78:3-79:7)	Volcker (79:8-87:7)	Greenspan (87:8-96:12)	Pre-Volcker (67:10-79:7)	Post-Volcker (79:8-96:12)
Mean	2.5%	3.1%	8.2%	4.6%	8.0%	6.7%	4.5%	7.3%
Standard deviation	1.6	3.5	2.5	2.2	2.4	1.8	3.6	2.2
N	20	61	32	15	66	76	128	142

Note: The implicit estimates of the natural rate are computed from the forecasts of unemployment and the change in inflation in the quarter of the forecast and the two subsequent quarters. See text for details.

From: Romer and Romer, “Evolution of Economic Understanding”

Were ideas reflected in policy and outcomes?

In 1955, one FOMC member said:

“I feel that there are inflationary pressures present which should be checked now by a firmer monetary policy—one firm enough to curtail spending and thus dampen price pressures.”

(*Minutes*, November 16, 1955, p. 20)

In July 1971, Arthur Burns said:

“[A] substantial increase in unemployment has failed to check the rapidity of wage advances or to moderate appreciably the rise of the general price level. With increasing conviction, I have therefore come to believe that our Nation must supplement monetary and fiscal policy with specific policies to moderate wage and price increases.”

(Federal Reserve Bulletin, July 1971, p. 596)

In March 1980, Paul Volcker said:

“In the past, at critical junctures for economic stabilization policy, we have usually been more preoccupied with the possibility of near-term weakness in economic activity or other objectives than with the implications of our actions for future inflation. . . . The result has been our now chronic inflationary problem. . . .

The broad objective of policy must be to break that ominous pattern. . . . Success will require that policy be consistently and persistently oriented to that end. Vacillation and procrastination, out of fears of recession or otherwise, would run grave risks.”

(Federal Reserve Bulletin, Mar. 1980, p. 214)

Evaluation of the Narrative Evidence of the Link between Ideas and Policy

- Actions are often consistent with views.
- Less narrative evidence that ideas drove policy that we would have liked.

Evidence from Estimates of a Monetary Policy Rule

Specification:

$$(4) \quad r^{\text{DT}}_t = \alpha + \beta\pi_t + \gamma(Y_t - \bar{Y}_t) + \rho r^{\text{DT}}_{t-1}$$

r^{DT}_t is the detrended ex ante real interest rate

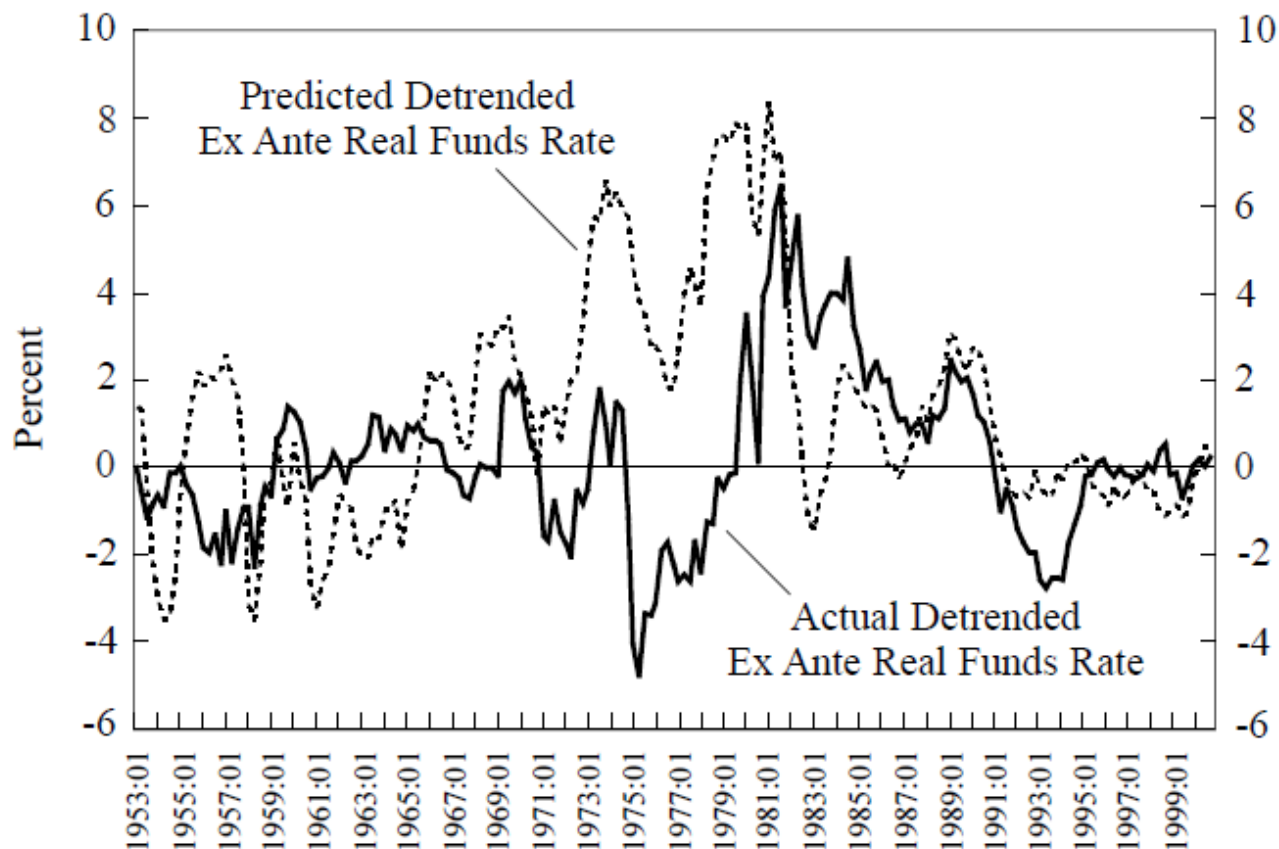
π is inflation

Y is the log of output

\bar{Y} is the log of normal or trend output

α reflects the target rate of inflation

Chart 5
Actual Real Federal Funds Rate and
Predicted Rate from a Post-1979 Monetary Rule



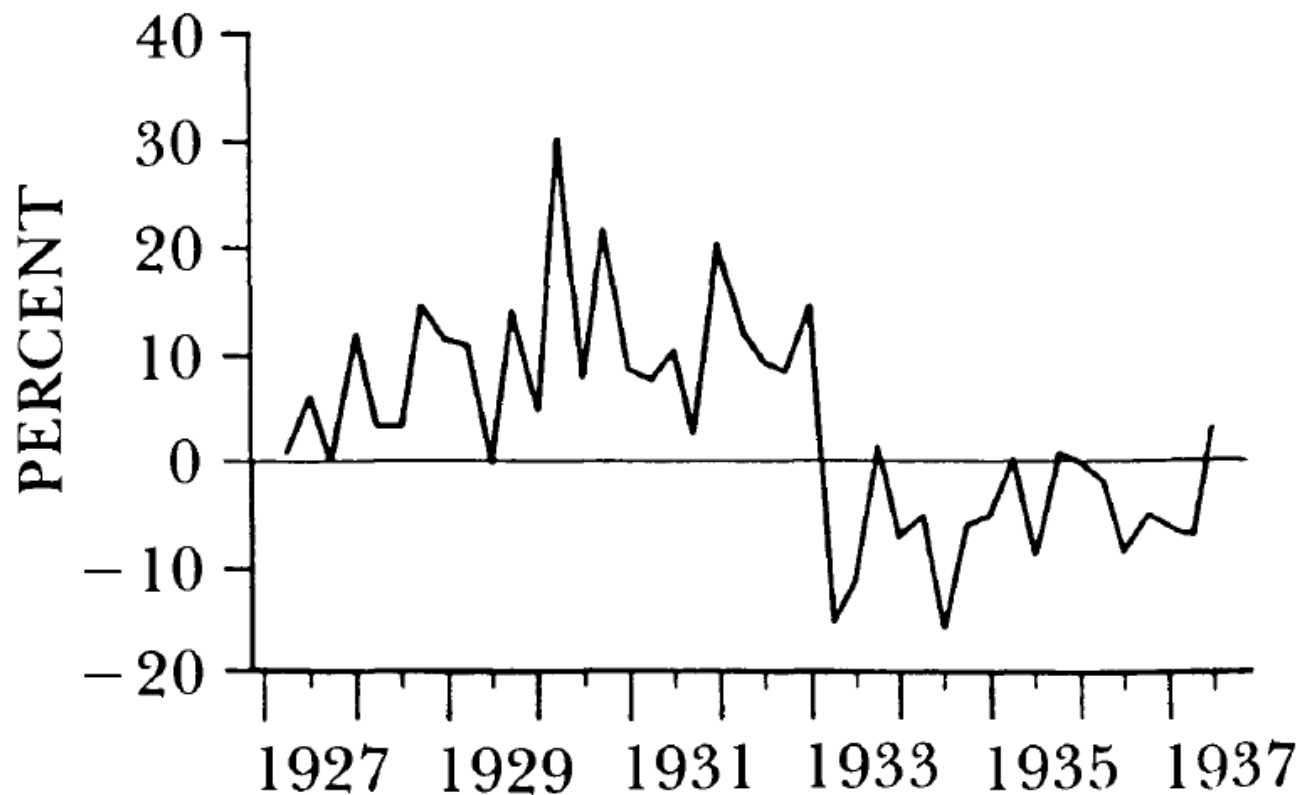
From: Romer and Romer, "Evolution of Economic Understanding"

Can we use the same framework to think about policy in the recent period?

- Do we need to expand the ideas considered?
- Perhaps a key idea is the belief that policy (monetary or fiscal) is ineffective.

IV. BARRY EICHENGREEN AND PETER TEMIN, “THE GOLD STANDARD AND THE GREAT DEPRESSION”

Ex Ante Real Commercial Paper Rate



From: Romer, "The Nation in Depression"

Theme of Eichengreen and Temin

- Ideas related to the gold standard were the key source of policy mistakes in the early 1930s.
- The role of ideas was stressed by Friedman and Schwartz (but they emphasized different ideas).

Ideas Eichengreen and Temin Associate with the Gold Standard Mentality

- Gold standard is good—source of stability.
- Depression was caused by loose policy in the 1920s.
- Deflation is the right response to the crisis.
- These ideas are less directly about the economic framework and more about policy prescriptions.

Eichengreen and Temin's Evidence

- How do they make their case?
- What is universe of sources considered?
- Are ideas really related to the gold standard?
- Is there a link from ideas to actions?

The same view prevailed in Washington DC and in the regional branches of the Federal Reserve System.⁴⁶ As unemployment spiralled upwards, Lynn P. Talley of the Reserve Bank of Dallas wrote to George Harrison of the New York Federal Reserve Board that his directors were not ‘inclined to countenance much interference with economic trends through artificial methods . . .’.⁴⁷

From: Eichengreen and Temin, “The Gold Standard and the Great Depression”

Two Ideas that Might be Missing

- Not much discussion of the notion that Fed didn't act to stop panics for fear of a speculative attack.
- Notion that monetary policy was impotent.

V. ULRIKE MALMENDIER, STEFAN NAGEL, AND ZHEN
YAN: “THE MAKING OF HAWKS AND DOVES”

Main Idea

- Do past inflation experiences influence the forecasts, votes, speeches, and ultimate policy moves of the Federal Reserve FOMC?
- Their answer is yes to all four questions.
- How does this fit in with the material for today?
 - Less about ideas.
 - More about how experts forecast inflation.

Question 1: Does an FOMC member's past experience of inflation affect their inflation forecast?

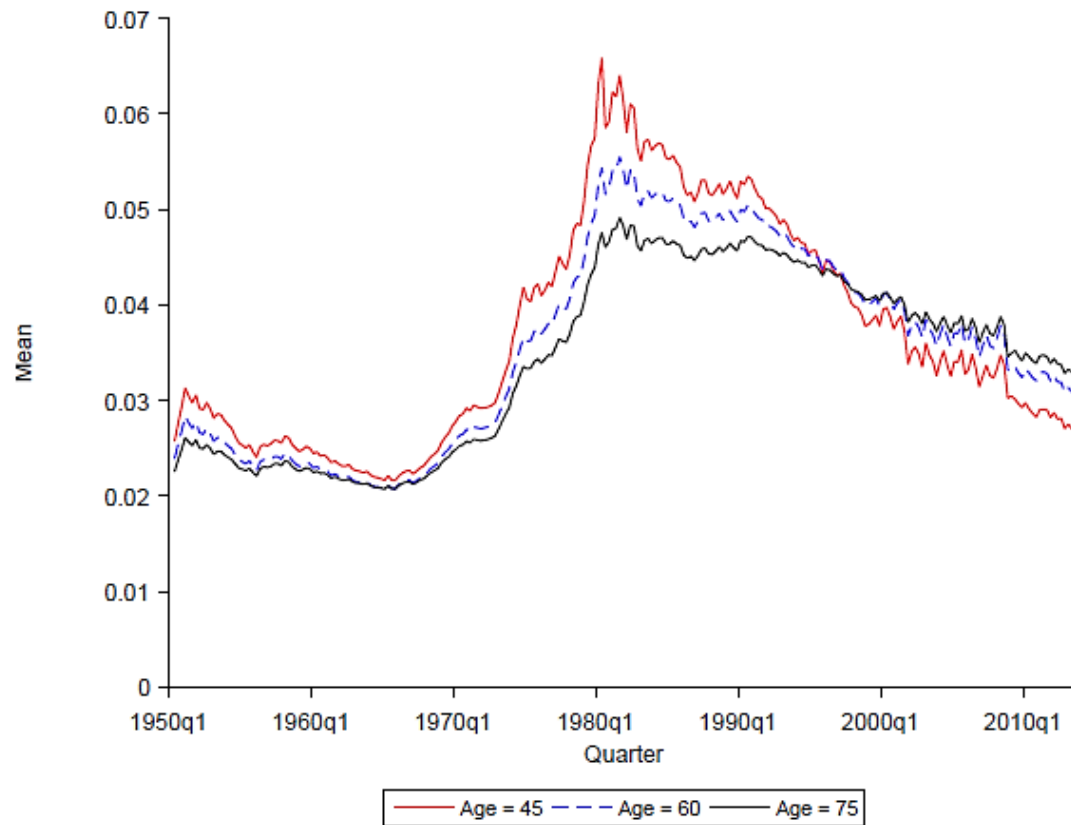
- **Data:**
 - Individual-level forecasts supplied for the Monetary Policy Reports to Congress and Greenbook forecasts.
 - Biographical information about age, along with historical data on inflation.

Learning-from-experience model of Malmendier and Nagel (2016).

- Inflation is perceived as an AR(1) and people update their forecast based on experience.
- Sequence of gains determines how strongly cohorts revise the parameter estimates when faced with an inflation surprise.
- In LFE model, the gain is decreasing in the size of the lifetime data of cohorts.
- As a result, younger people have a higher gain and so react more to surprise inflation than older ones.

Figure A.1
Mixed Seasonal AR(1) Model Estimates
(with $\theta = 3.044$ at ages 45, 60, and 75)

(b) Long-run mean μ



From: Malmendier, Nagel, and Yan, “The Making of Hawks and Doves”.

Question 1: Does an FOMC member's past experience of inflation affect their inflation forecast? (Continued)

- **Specification:**

$$\tilde{\pi}_{j,t+1|t} - \tilde{\pi}_{t+1|t} = a + \phi(\pi_{j,t+1|t}^e - \tilde{\pi}_{t+1|t}) + \varepsilon_t, \quad (7)$$

- $\tilde{\pi}_{j,t+1|t} - \tilde{\pi}_{t+1|t}$ is the difference between the member's forecast and the staff forecast.
- $(\pi_{j,t+1|t}^e - \tilde{\pi}_{t+1|t})$ is the difference between member forecast based on experience and staff forecast.

Table 1
Influence of FOMC Members' Inflation Experiences on their Inflation Forecasts

	Panel B: OLS regression			
	(i)	(ii)	(iii)	(iv)
Exp.-based fcst. - staff fcst.	0.37 (0.10)	0.40 (0.12)	0.81 (0.37)	0.82 (0.39)
Member \times fcst. horizon FE	No	Yes	No	No
Member FE	No	No	No	Yes
Meeting \times fcst. horizon FE	No	No	Yes	Yes
Clustered s.e.	Member and Meeting	Member and Meeting	Member	Member
Observations	383	383	383	383
Adjusted R^2	34.7%	41.0%	77.7%	81.5%

From: Malmendier, Nagel, and Yan, "The Making of Hawks and Doves".

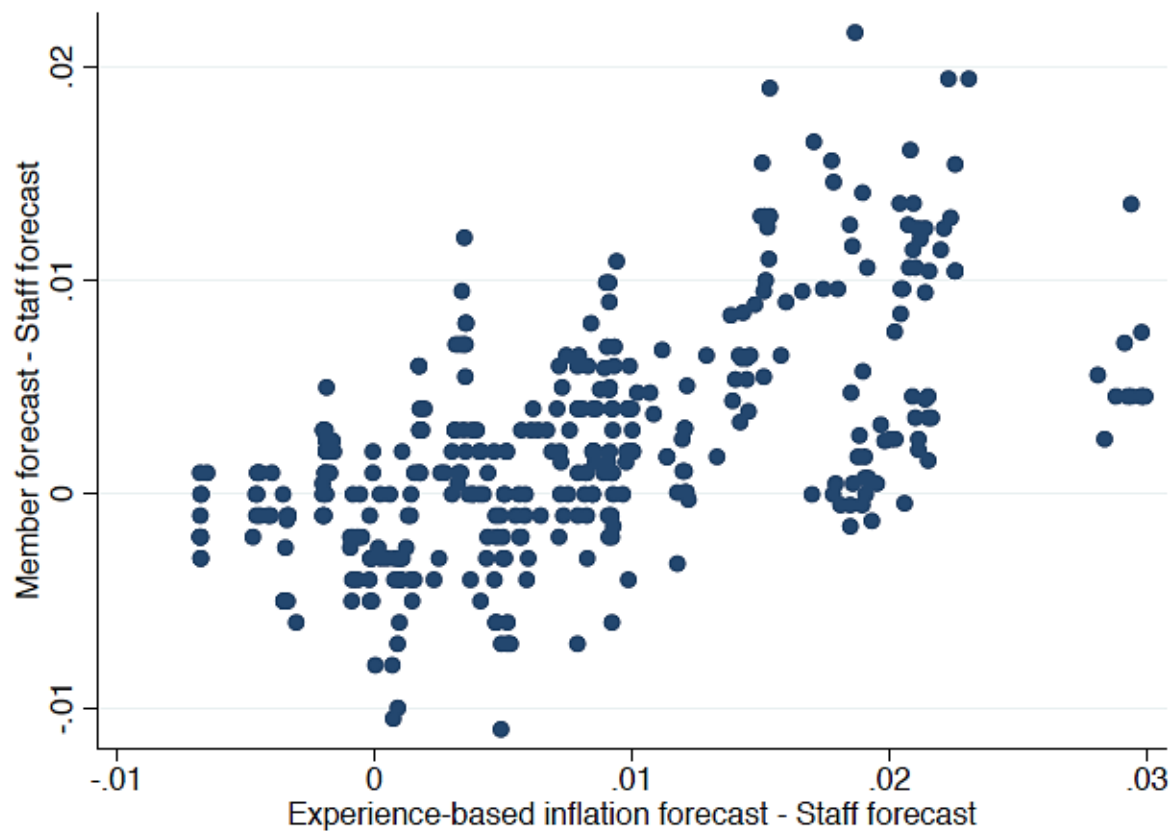


Figure 1
Relationship Between FOMC Member Inflation Forecasts in the MPR and their
Experienced-Based Inflation Forecasts

From: Malmendier, Nagel, and Yan, “The Making of Hawks and Doves”.

Question 2: Does an FOMC member's past experience of inflation affect their voting behavior?

- **Data:**
 - Individual-level votes (dissent hawk, agree, dissent dove).
 - More biographical information (degree, party of nominating president, etc.)

Question 2: Does an FOMC member's past experience of inflation affect their voting behavior? (Continued)

- **Key input:** An individual-level desired interest rate that incorporates heterogeneity (including experience-derived inflation forecast) into a standard Taylor Rule:

$$i_{j,t}^* = r_{j,t} + \pi_{j,t}^* + \lambda_{j,t}(\omega\pi_{j,t+1|t}^e + (1 - \omega)\pi_t - \pi_{j,t}^*) + \gamma_{j,t}(y_t - y_{j,t}^*), \quad \text{where } 0 \leq \omega \leq 1. \quad (9)$$

The parameter ω represents the weight that FOMC members put on their own subjective expectation $\pi_{j,t+1|t}^e$ rather than the objective information π_t .

We specify the heterogeneity of FOMC members in the following way:

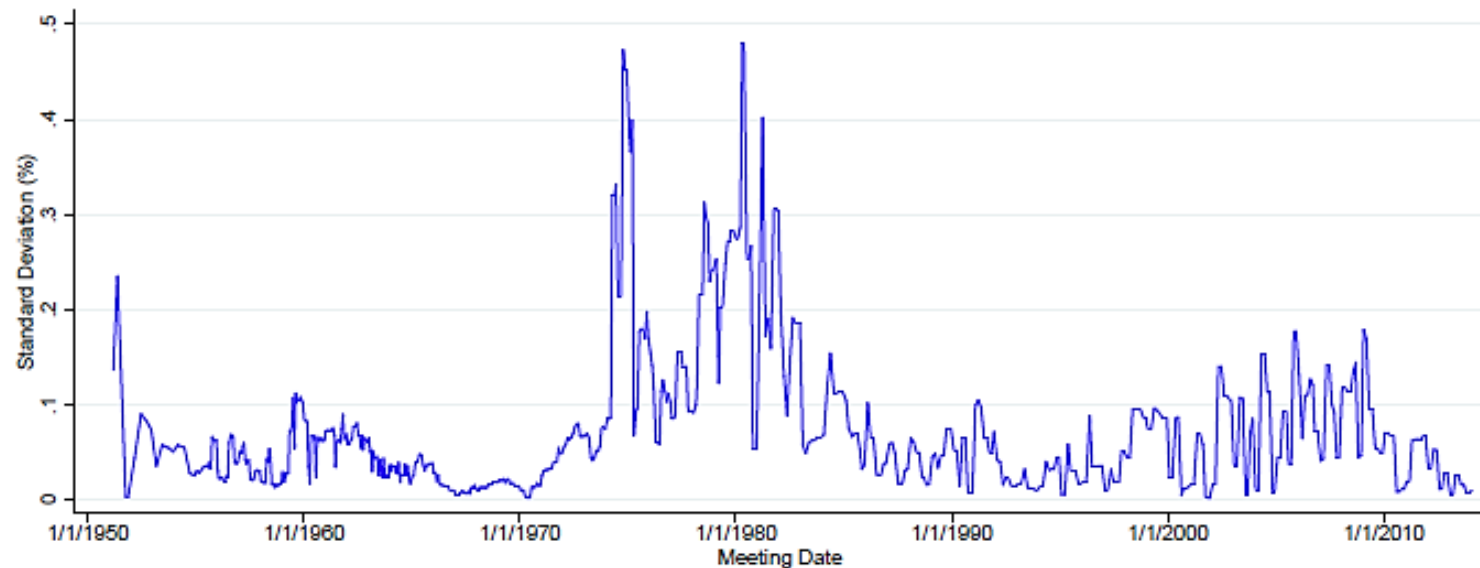
$$\begin{aligned} \lambda_{j,t} &= \lambda_0 + (x_{j,t} - \mu_x)' \lambda_1, \\ \gamma_{j,t} &= \gamma_0 + (x_{j,t} - \mu_x)' \gamma_1, \\ \pi_{j,t}^* &= \pi^* + (x_{j,t} - \mu_x)' \alpha_1, \\ y_{j,t}^* &= y^* + (x_{j,t} - \mu_x)' \alpha_2, \\ r_{j,t} &= r + (x_{j,t} - \mu_x)' \alpha_3, \end{aligned} \quad (10)$$

where $x_{j,t}$ is a vector of characteristics of FOMC member j at time t

$$i_{j,t}^* \approx a_t + \lambda_0 \omega \pi_{j,t+1|t}^e + \kappa' x_{j,t} + \pi_t x_{j,t}' \lambda_1 + (y_t - y^*) x_{j,t}' \gamma_1, \quad (11)$$

where a_t is a time fixed effect and κ is a vector of constants. We use this version of the

Figure 3
Dispersion of Experience-based Inflation Forecasts in each FOMC meeting



(b) Standard deviation of members' experience-based inflation forecasts

From: Malmendier, Nagel, and Yan, "The Making of Hawks and Doves".

Question 2: Does an FOMC member's past experience of inflation affect their voting behavior? (Continued)

- **Specification:**

following ordered probit model: For $k \in \{-1, 0\}$,

$$\begin{aligned} P(V_{j,t} \leq k | \pi_{j,t+1|t}^e, x_{j,t}, \pi_t, y_t) \\ = \Phi[\delta_{k,j,t} - a_t - \lambda_0 \omega \pi_{j,t+1|t}^e - \kappa' x_{j,t} - \pi_t x_{j,t}' \lambda_1 - (y_t - y^*) x_{j,t}' \gamma_1], \end{aligned} \quad (12)$$

where $\Phi(\cdot)$ denotes the standard normal cumulative distribution. We normalize $a_1 = 0$, and we suitably scale all variables so that the latent residual has unit standard deviation.¹⁴ The main variable of interest in estimating equation (12) is the experience-based forecast $\pi_{j,t+1|t}^e$. $\delta_{k,j,t}$ is the threshold for dissenting.

- Why do they need a “Wallich Dummy”?

Table 3
Experience-based Inflation Forecasts and FOMC Voting Behavior

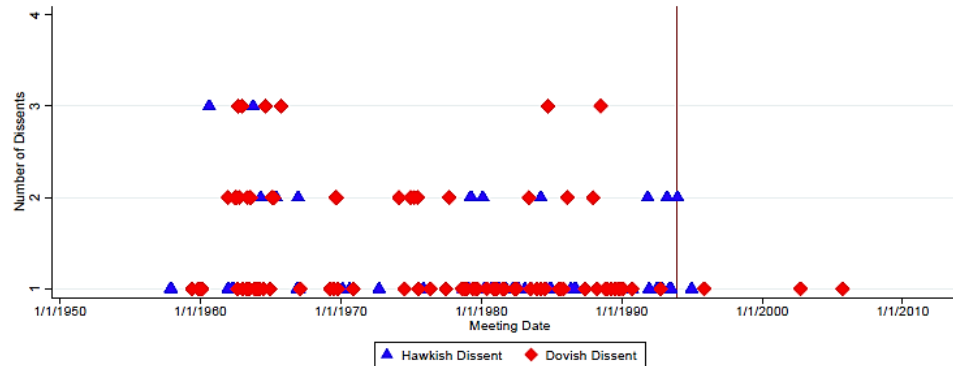
	Ordered Probit		Ordered Probit “de-chaired”	
	(i)	(ii)	(iii)	(iv)
Experienced-Based Forecast	216.6 (66.1)	214.4 (67.8)	97.2 (39.5)	98.5 (39.0)
Wallich Dummy	1.43 (0.36)	1.39 (0.36)	1.05 (0.17)	1.05 (0.17)
Meeting FE Thresholds	Yes Role $\times I_{>93}$	Yes All	No Role $\times I_{>93}$	No All
Observations	6,707	6,707	6,707	6,707
Pseudo R^2	39.0%	39.1%	9.7%	10.0%
APE of Experienced-Based Forecast:				
Dovish Dissent	-7.6	-7.6	-5.1	-5.1
Consent	-4.4	-4.3	-2.5	-2.5
Hawkish Dissent	12.1	11.9	7.6	7.7
APE of Wallich Dummy:				
Dovish Dissent	-0.050	-0.050	-0.055	-0.055
Consent	-0.029	-0.028	-0.027	-0.027
Hawkish Dissent	0.080	0.077	0.082	0.082

From: Malmendier, Nagel, and Yan, “The Making of Hawks and Doves”.

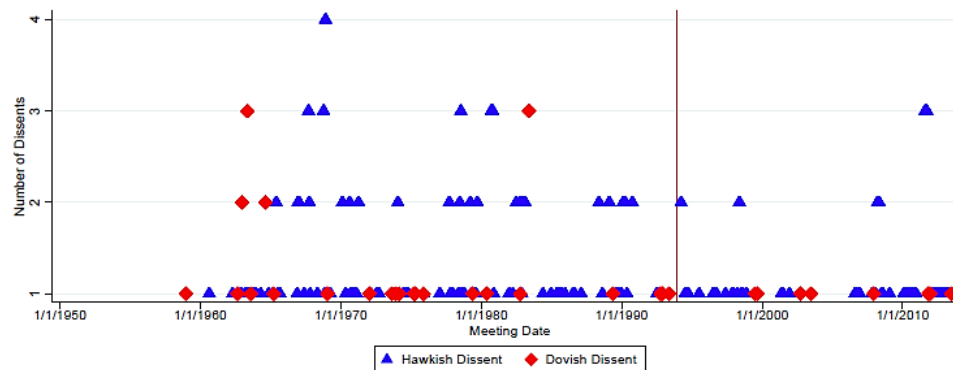
Question 3: Does an FOMC member's past experience of inflation show up in the tone of their speeches?

- Why do MNY look at this question?

Figure 2
Dissents in FOMC Meetings



(a) Dissents by Federal Reserve Board Members



(b) Dissents by Regional Federal Reserve Presidents

From: Malmendier, Nagel, and Yan, “The Making of Hawks and Doves”.

Question 3: Does an FOMC member's past experience of inflation show up in the tone of their speeches? (Continued)

- **Data:** Speeches and statements from FRASER, plus speeches from websites of regional FRBs.
 - 4,294 speeches for 86 FOMC members from 1951–2014.
 - Any concerns?

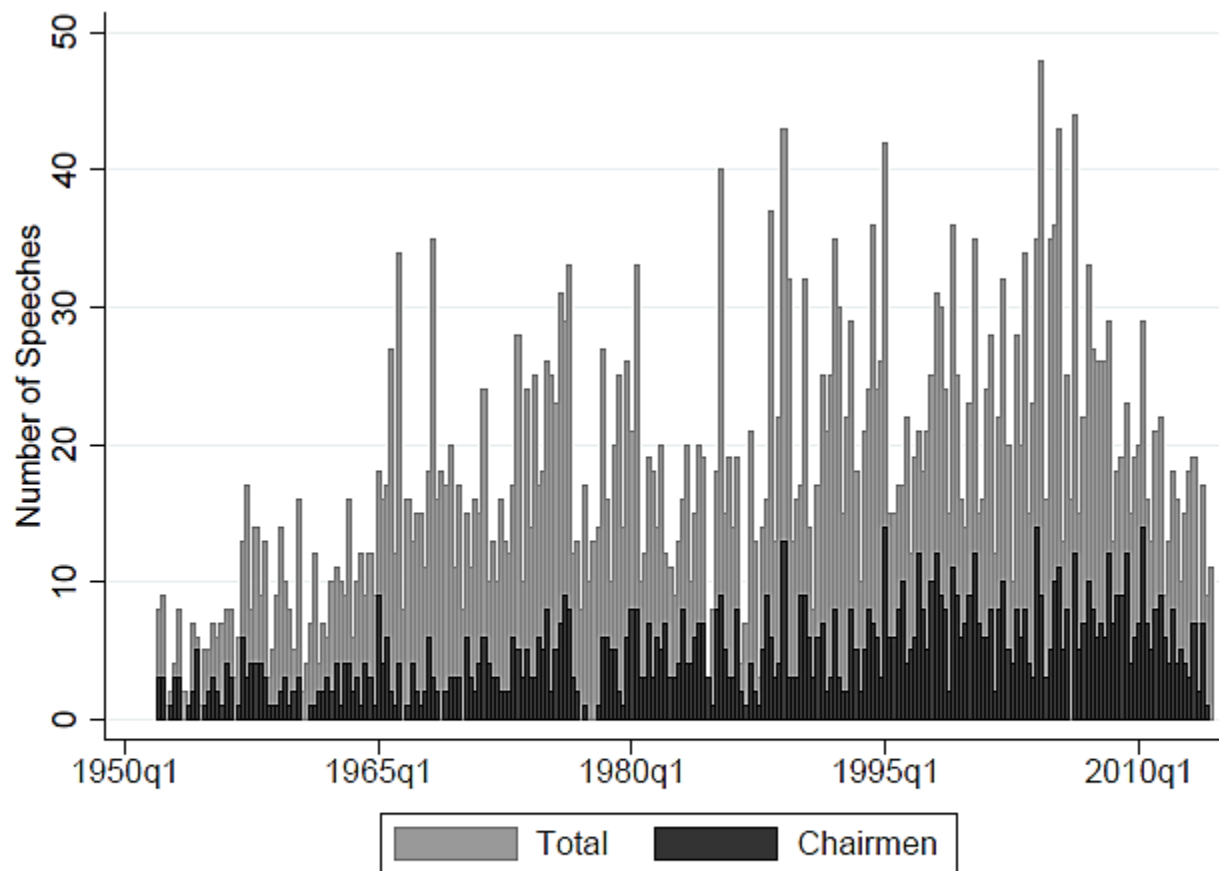


Figure 4
Number of FOMC Member Speeches Over Time

From: Malmendier, Nagel, and Yan, “The Making of Hawks and Doves”.

Question 3: Does an FOMC member's past experience of inflation show up in the tone of their speeches? (Continued)

- How do they classify the tone of the speeches?
 - Automated search and count procedure.
 - Two-word combinations from two sets of words (goals and attitudes).
 - For example inflation and high would be a hawkish combination.

$$Net\ Index = \frac{Hawkish}{Hawkish + Dovish} - \frac{Dovish}{Hawkish + Dovish}. \quad (13)$$

Question 3: Does an FOMC member's past experience of inflation show up in the tone of their speeches? (Continued)

- **Specification:**

- Assume that cross-sectional differences in Net Index between FOMC members maps into differences in their desired interest rate.

$$Net\ Index_{j,t} = \alpha_t + \beta_1 \pi_{j,t+1|t}^e + \beta_2' x_{j,t} + \pi_t x_{j,t}' \beta_3 + (y_t - y^*) x_{j,t}' \beta_4, \quad (14)$$

- The time fixed effect (α_t) absorbs common time-variation in the use of hawkish and dovish expressions.

Table 7
Experience-based Inflation Forecasts and FOMC Members' Tone of Speeches

	Net Index excluding (un)empl.			Net Index including (un)empl.		
	(i)	(ii)	(iii)	(iv)	(v)	(vi)
Experience-Based Fcst.	32.88 (14.52)	39.15 (18.50)	43.28 (16.32)	29.97 (13.70)	38.97 (17.74)	47.07 (14.68)
Wallich Dummy	0.10 (0.08)	0.17 (0.10)	- -	0.12 (0.07)	0.16 (0.07)	- -
Member FE	No	No	Yes	No	No	Yes
Year-quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Chair's speeches dropped	No	Yes	No	No	Yes	No
Industry expr. controls	Yes	Yes	No	Yes	Yes	No
Degree controls	Yes	Yes	No	Yes	Yes	No
Adjusted R^2	4.4%	4.7%	5.7%	3.9%	4.3%	5.1%
Observations	4294	3295	4294	4294	3295	4294

From: Malmendier, Nagel, and Yan, "The Making of Hawks and Doves".

Question 4: Does the partial reliance on personal experiences affect the committee's ultimate decision about the funds rate target?

- **Specification:**

Averaging equation (11) across all FOMC members present at a meeting at time t , we obtain (as derived in Appendix B)

$$i_t^* = \beta_0 + \bar{z}_t + \beta_e \bar{\pi}_{t+1|t}^e + \beta_\pi \pi_t + \beta_y (y_t - y^*), \quad (15)$$

where $\bar{\pi}_{t+1|t}^e$ is the average of the FOMC members' experience-based inflation forecasts as of the meeting at time t , and \bar{z}_t is the time- t average of

$$z_{j,t} = \kappa' x_{j,t} + \pi_t x_{j,t}' \lambda_1 + (y_t - y^*) x_{j,t}' \gamma_1. \quad (16)$$

With $\bar{z}_t = 0$ and $\beta_e = 0$ (the latter would follow from $\omega = 0$ in equation (11)), this reduces to the standard Taylor rule. Our earlier analyses suggest instead $\omega > 0$ and hence $\beta_e > 0$, i. e., that FOMC members rely to some extent on their experience-based inflation forecast,

Question 4: Does the partial reliance on personal experiences affect the committee's ultimate decision about the funds rate target? (Continued)

- **Data:**
 - MNY use Greenbook forecasts of inflation and the output gap for π_t and $(y_t - y^*)$.
 - Data start in 1987Q3.
 - Stop in 2007Q2 (because Fed started reacting to news about financial markets).

Table 8
Influence of FOMC Members' Inflation Experiences on the Target Federal Funds Rate

	(i)	(ii)	(iii)	(iv)	(v)
Experience-based inflation forecast	-	0.38	0.61	0.46	0.44
	-	(0.21)	(0.24)	(0.21)	(0.21)
Staff's core inflation forecast	1.51	1.27	1.44	1.27	1.25
	(0.13)	(0.23)	(0.23)	(0.17)	(0.20)
Staff's output gap forecast	0.67	0.69	0.46	0.98	1.00
	(0.06)	(0.06)	(0.10)	(0.08)	(0.15)
Lagged federal funds rate target	-	-	-	0.68	0.69
	-	-	-	(0.04)	(0.04)
Intercept	0.80	0.11	2.17	-0.03	-0.08
	(0.44)	(0.36)	(0.86)	(0.16)	(0.42)
Member characteristics	N	N	Y	N	Y
Method	OLS	OLS	OLS	NLS	NLS
Observations	80	80	80	80	80
Adjusted R^2	85.8%	86.5%	87.7%	97.6%	97.6%

From: Malmendier, Nagel, and Yan, "The Making of Hawks and Doves".

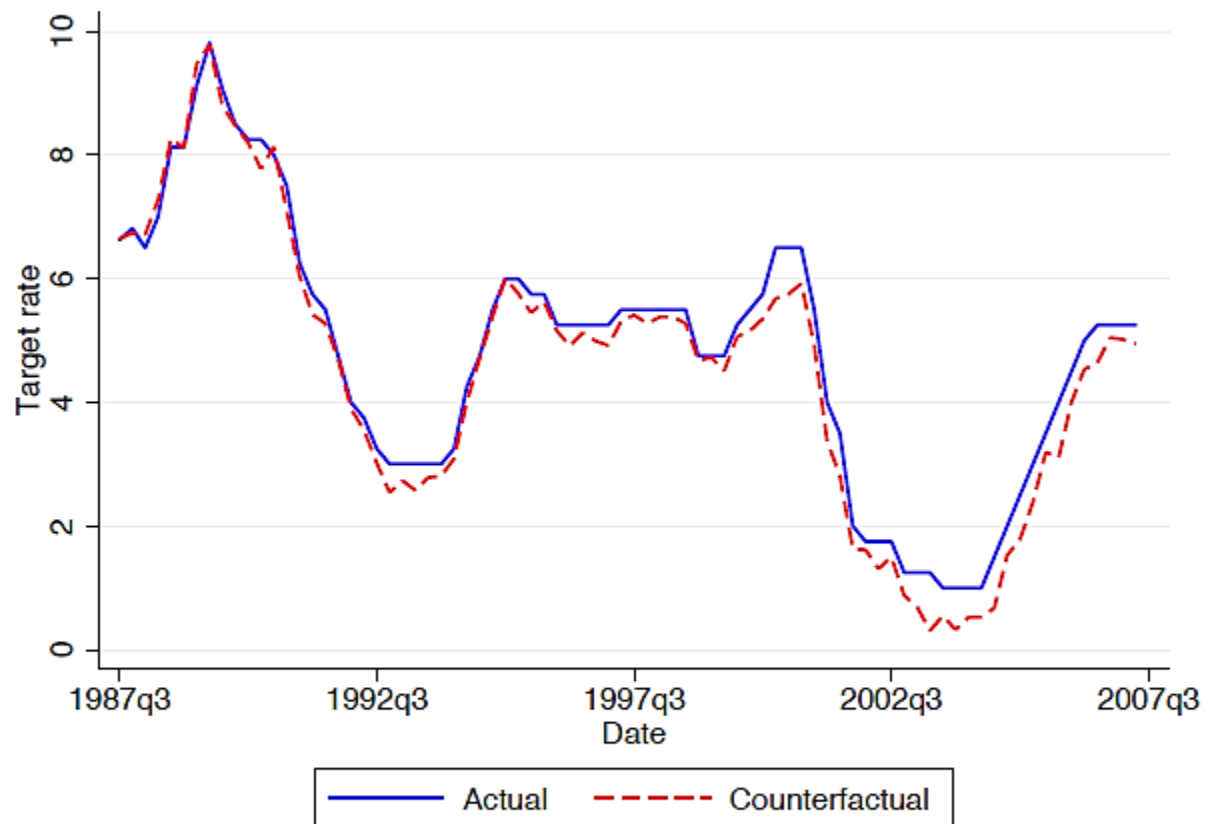


Figure 5
Counterfactual Federal Funds Rate Target (with experience effects removed)

From: Malmendier, Nagel, and Yan, "The Making of Hawks and Doves".

Evaluation

- What do we learn from this exercise?
- Did you find it convincing?