

Ambiguity, Monetary Policy and Trend Inflation

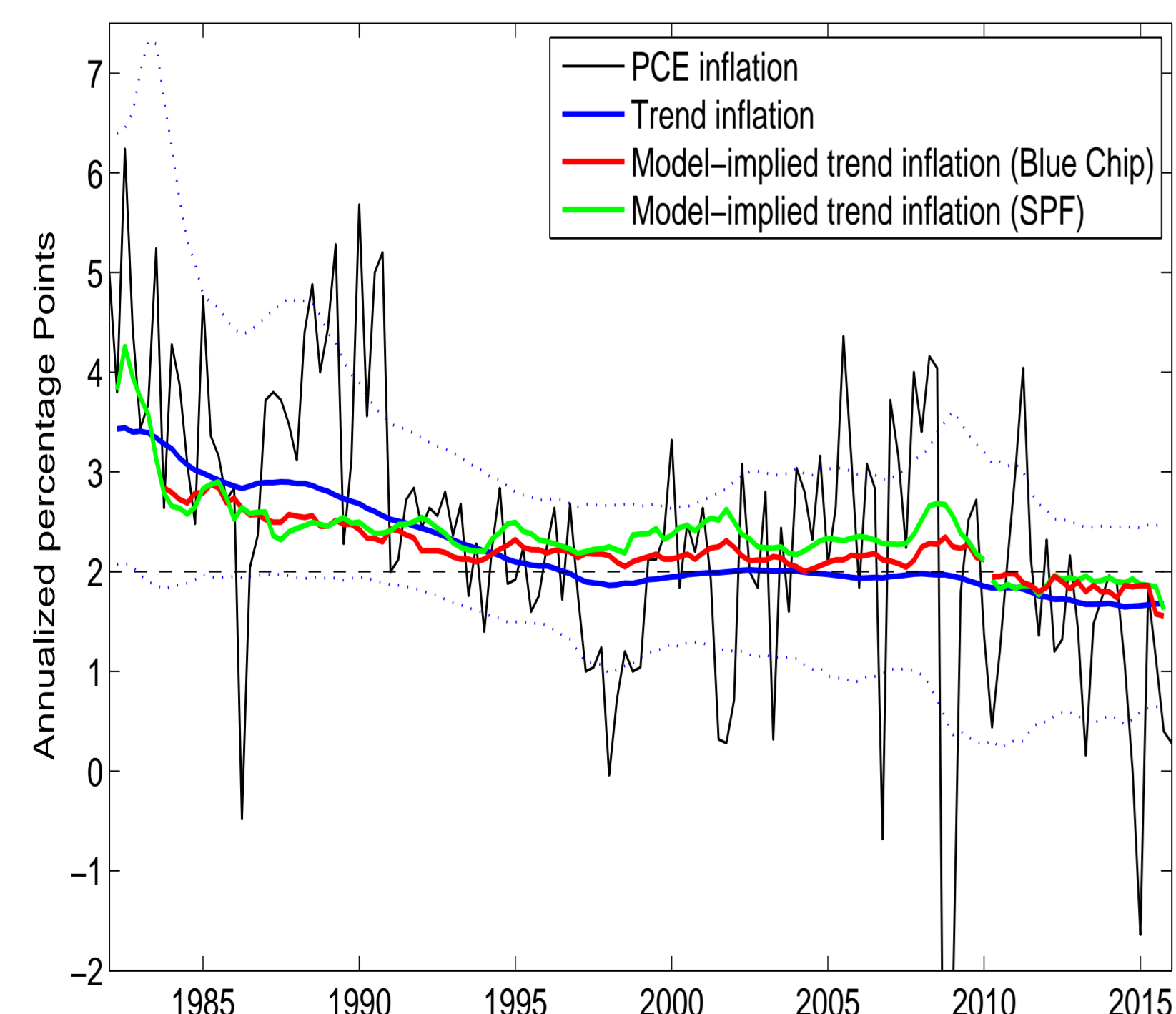
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Motivation

- Inflation exhibits low-frequency variation → **trend inflation**
- Trend inflation matters: e.g. affects the slope of the Phillips curve and optimal monetary policy
- There is hardly any theory for it:
 - most models ignore it
 - or explain it with exogenous variations in the inflation target
- We provide a **micro-foundation** for trend inflation

This paper

- Explains the dynamics of trend inflation as a function of the changes in the private sector's confidence in their understanding of monetary policy
- Makes sense of higher-than-target trend inflation before the Great Recession, as well as lower-than-target trend inflation after the Great Recession
- Uses data on expectations about the policy rate to discipline the model
- Discusses the implications of ambiguity for optimal policy



The model in a nutshell

- Standard small new-Keynesian model (similar to Galí, 2008):
 - No capital
 - Sticky prices (Calvo 1983)
 - Competitive labor market
- *The private sector is not fully confident about its understanding of the monetary policy rule*
- We model this as agents entertaining as possible not one, but multiple belief sets:

$$\mathbb{E}_t^\mu r_t \equiv \mathbb{E}_t r_t + \mu_t \quad \mu_t \in [-\bar{\mu}, \bar{\mu}]$$

Where $\bar{\mu}$ is a measure of their uncertainty

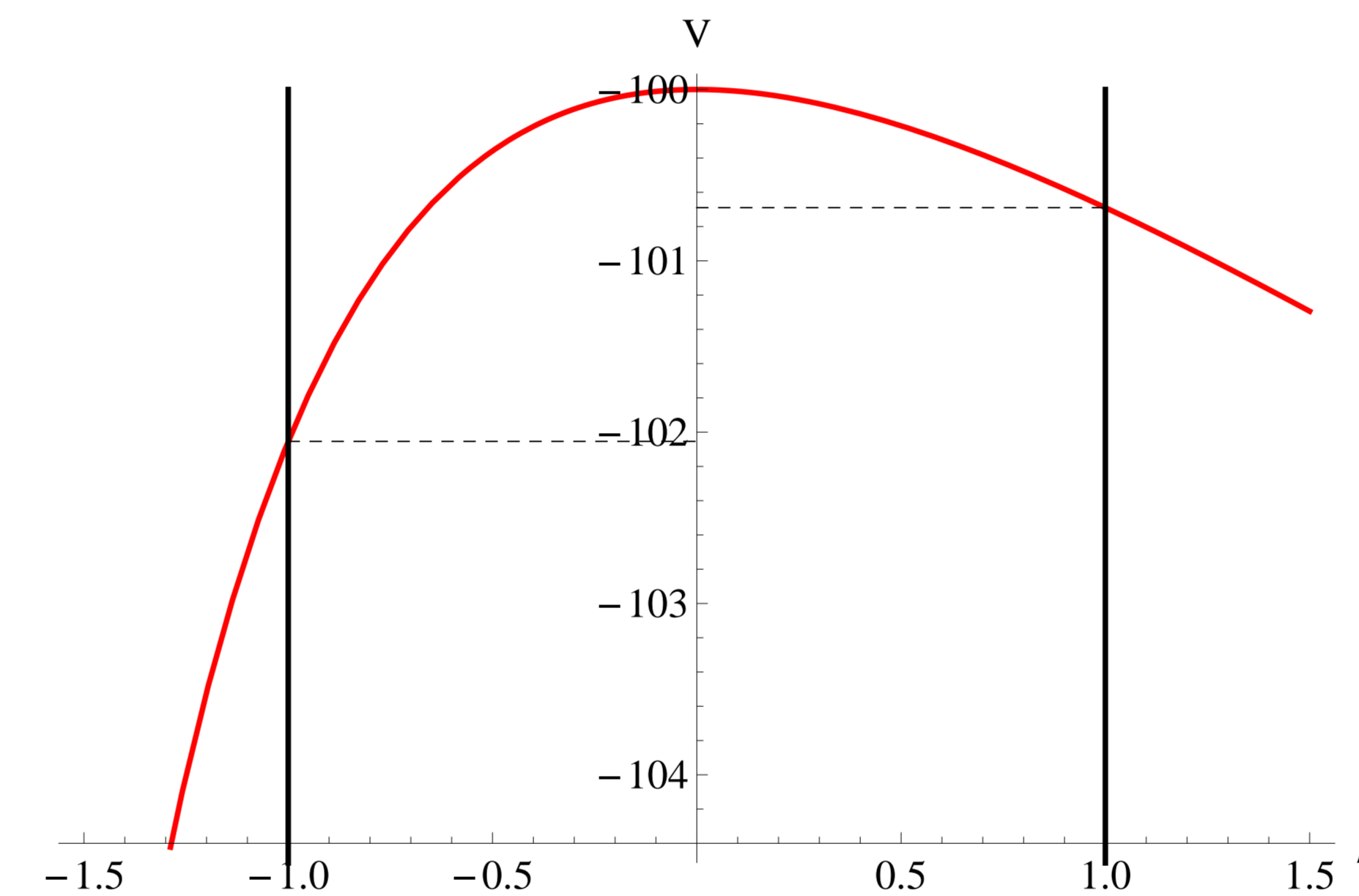
- The private sector dislikes this uncertainty and wants to be robust: consumption-savings choice based on the **worst case scenario**, i.e. on a **distorted belief** of the prevailing interest rate.
- The interest rate used for decision-making purposes is not the one set by the CB
- If the uncertainty bounds are **symmetric**, it will be **lower** than the one set by the CB
- At the **ZLB**, it will be **higher** than the one set by the CB

Key mechanism

- ⇒ Inflation will not hit the first-best level

$$\bar{\pi} = \pi^* + \frac{\bar{\mu}}{\phi - 1}$$

- ⇒ Price dispersion emerges
- It is worse for firms to have low relative prices than high relative prices.
- Labor productivity and ultimately welfare fall
- There is an endogenous “amplification” of ambiguity because the central bank responds to the inflationary pressures generated by model uncertainty



Main Results

1) We reconcile key stylized facts without resorting to exogenous shifts in the target or the parameter of the Taylor rule.

- 1 Match trend inflation dynamics in the US
- 2 Capture switch from indeterminacy in the early 1980's to determinacy without changes in the responsiveness to inflation
- 3 Account for the uncertainty about monetary policy and its fall in the 80s and 90s

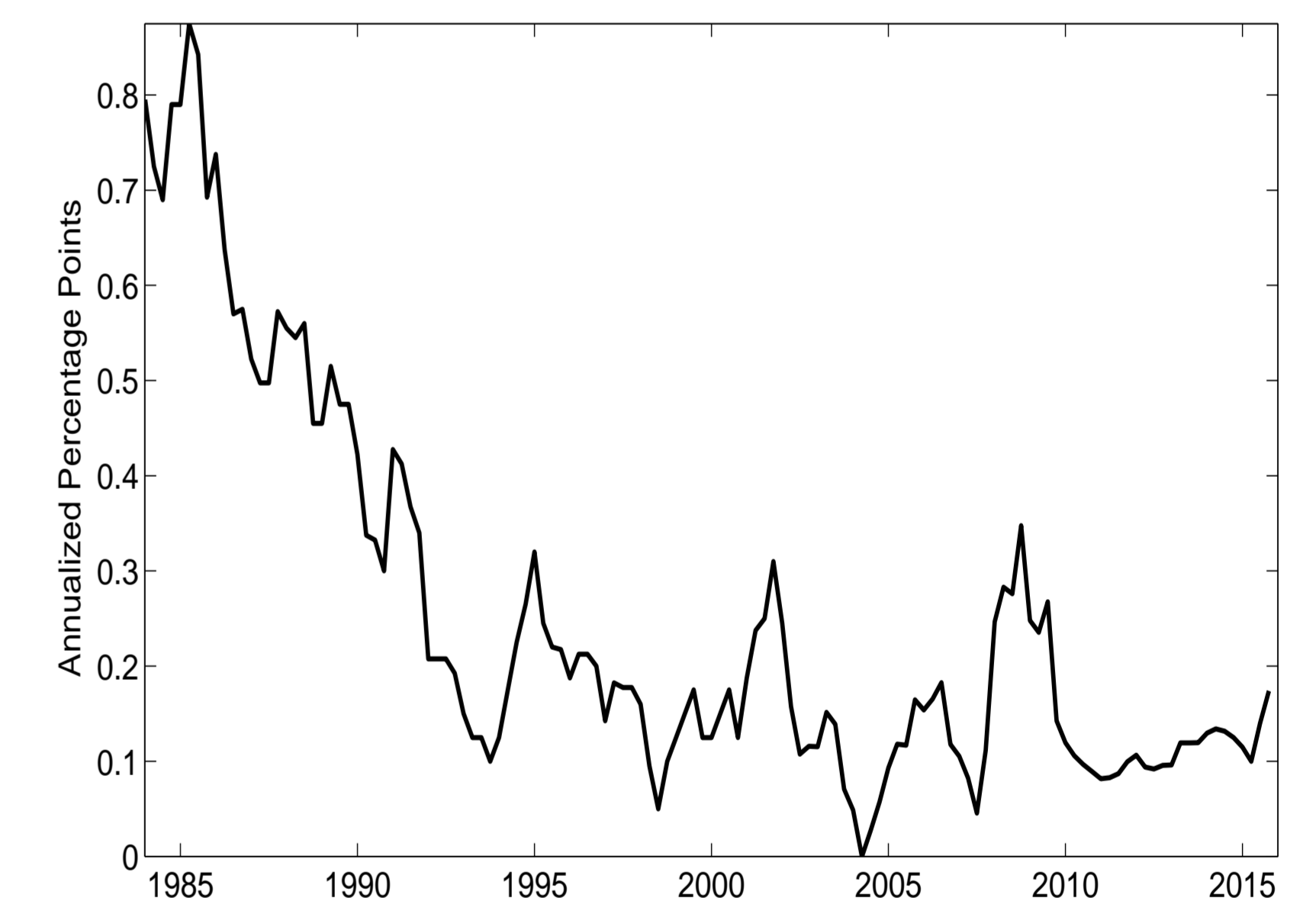
2) In normal times, the worst-case scenario is that policy is too loose and higher-than-target trend inflation prevails. Agents base their decision on a lower rate than the one prevailing, generating inflationary pressure and this generates higher than target trend inflation

3) At the ZLB, the worst-case scenario is that policy is too tight and lower-than-target trend inflation prevails. Data on forecasters' disagreement shows that uncertainty around the interest rate has not been symmetric and that the worst case has switched to a higher interest rate, thus pushing trend inflation below the target

The data

- Use *Blue Chip* data on forecasters' disagreement about the policy rate in the current quarter to measure ambiguity about policy: Interdecile dispersion of nowcasts of the Fed Funds rate
- Use the model to derive the implied measure of trend inflation
- Show this matches closely existing measures of trend inflation, e.g. Ascari and Sbordone (2014).

Fact #1: Uncertainty about monetary policy fell in the 80s and 90s



Fact #2: Asymmetry of the bounds during the ZLB

