# John Taylor, Persistence and Systematic Policy

Robert G. King

Boston University

# 1. TW Anderson: learning time series analysis

Follow This Blog On
Twitter
RSS

Web page and bio.

Posted on September 24, 2016 by John Taylor

My teacher, colleague, and good friend Ted Anderson died this week at the age of 98. Ted was my Ph.D. thesis adviser at Stanford in the early 1970s, and later a colleague when I returned to teach at Stanford in the 1980s. He was a most important influence on me and my research. He taught me an enormous amount about time series analysis, and about how to prove formal theorems in mathematics. I am grateful to him for sharing his wisdom and for endeavoring to instill his rigorous approach to econometric research. His lectures were clear and insightful, but it was from interacting with him in his office or in the Econometrics Seminar that one really learned time series analysis.

The Stanford Econometrics Seminar in the early 1970s was an amazingly fertile place for developing new ideas. Fortunately for me, the seminar focused on several new books which explored formally the problem of optimal economic policy formulation in statistical or probabilistic settings. We read and each presented chapters from Peter Whittle's *Prediction and Regulation*, Masanao Aoki's *Optimization of Stochastic Systems*, and Box and Jenkins' *Time Series Analysis: Forecasting and Control*. It was a terrific way to learn about the latest opportunities for pushing research frontiers. We each presented and critiqued chapters from these books and freely discussed possible extensions and implications.

# 2. The pathbreaking contribution

*Econometrica*, Vol. 47, No. 5 (September, 1979)

ESTIMATION AND CONTROL OF A MACROECONOMIC MODEL WITH RATIONAL EXPECTATIONS

BY JOHN B. TAYLOR[1]

- ABSTRACT: The paper investigates an econometric method for selecting macroeconomic policy rules when expectations are formed rationally. A simple econometric model of the U.S. is estimated subject to a set of rational expectations restrictions using a minimum distance estimation technique. The estimated model is then used to calculate optimal monetary policy rules to stabilize fluctuations in output and inflation, and to derive a long run tradeoff between price stability and output stability which incorporates the rationally formed expectations. The optimal tradeoff curve is compared with actual U.S. price and output stability and with the results of a monetary policy rule with a constant growth rate of the money supply.

# 3. Detail on the parsimonius model

designed *inter alia* to consider optimal inflation accomodation

$$(1)\quad y=\beta_1 y_{-1}+\beta_2 y_{-2}+\beta_3(m-p)$$
$$+\beta_4(m_{-1}-p_1)+\beta_5\hat{\pi}+\eta+\theta_1\varepsilon_{-1}$$

$$(2)\quad \pi=\pi_{-1}+\gamma\hat{y}+\varepsilon+\theta_2\varepsilon_{-1}$$

- Output less potential: y
- Inflation: $\pi$
- Policy Instrument: m-p;  p predetermined
- Expectation as of t-1: hat (^)
- Time series elements
  - Output AR(2): as in Sargent (supply)
  - Inflation IMA(1,1) as in Nelson-Schwert
- States for Chow-type control :
  - Past inflation
  - Past “transitory” inflation shock
  - Output gap lags

# 4. Visualizing policy trade-offs, performance

- Monetary policy objective

$$\lambda (y_t - y^*)^2 + (1-\lambda)(\pi_t - \pi^*)^2$$

- Feasible to improve on
  - Historical performance
  - Constant growth rate in money

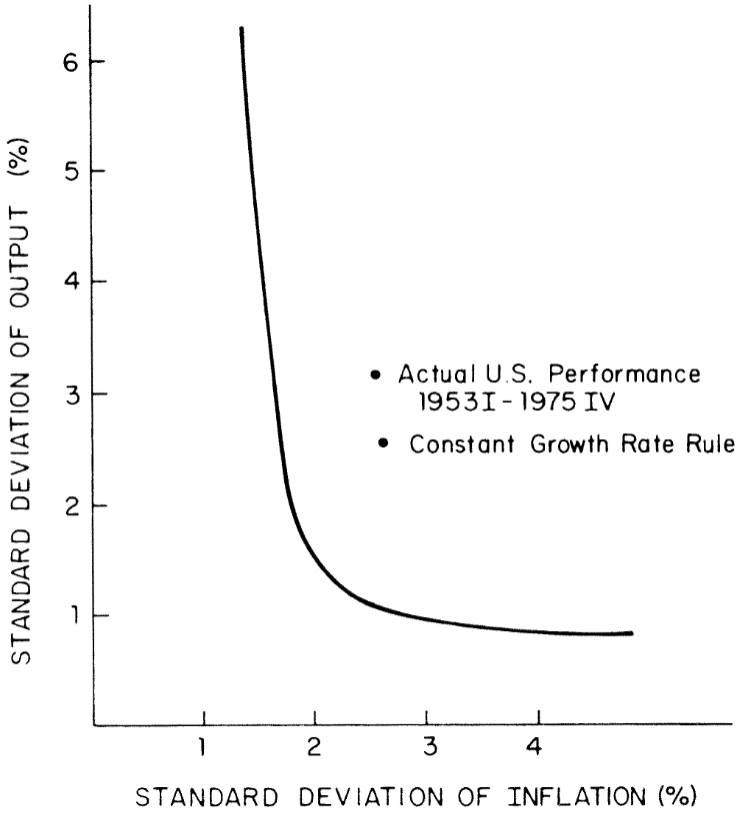


FIGURE 1—Output-inflation variation tradeoff.

# 5. A nearly efficient Monetary Policy Rule

"Stabilization, Accomodation and Monetary Policy Rules" (AER PP 1981)

- Money growth rule implied by benchmark model

$$(3)\quad m - m_{-1} = h_1 y_{-1} + h_2(y_{-1} - y_{-2}) + h_3(m_{-1} - p_{-1}) + h_4 \pi_{-1} + h_5 \varepsilon_{-1}$$

- Given estimates ($\beta$,$\theta$,$\gamma$), only one policy rule coefficient is free: response to past inflation ($h_4$) then also pins down differential response to transitory component ($h_5$)

- *Question: Is the monetarist rule inefficient because it is not countercvclical, or is it inefficient because it does not accommodate inflation? Or is it inefficient on both counts?*
- *Answer: A classic countercyclical monetary policy combined with no accommodation of inflation is nearly efficient*

# 6. Accommodation, inflation and credibility

from “Establishing Credibility: A Rational Expectations Viewpoint” (AER PP 1982)

- What is the rule change about which credibility is an issue in the current economic environment in the United States? That this question is not an easy one to answer…would itself seem like an obstacle to credibility.
- The old rule-that used on average for the last fifteen years or so-is not as difficult to characterize as the intended new rule… countercyclical elements: hen the unemployment rate rose …the Fed reacted by increasing the rate of growth of money. But, there has also been a strong inflation accommodation or validation effect…

- Relative to the previous policy rule, the contemplated policy change involves some reduction in accommodation--cutting money growth when the inflation rate is high is clearly a move away from accommodation-but there is as yet no indication (aside from political rhetoric) that the countercyclical component of monetary policy is likely to be abandoned.
- A prescient warning (in the spirt of Friedman and Poole): *Nominal interest rate targeting could easily result in accommodation of inflation, if nominal interest rates were not permitted (to) rise with the inflation rate.*

# 7. The 1990 Economic Report of the President

# 8. Discretion versus rules in practice (CR93)

- Systematic policy as a “kinder, gentler” version of “policy rule” (just kidding)
- Importance of transparency and communication
- Subtleties
  - Policy response to Kuwait shock
  - Transitions, home and abroad

# 9. The TR in practical policy circa 2007

- From 1995, some FOMC members regularly review it: “The Taylor Rule and the Transformation of Monetary Policy” FRBKC 2007
- Poole (FRB SL articles, leading to 2007 “Understanding the Fed”)
  - Markets have learned predictable Fed behavior of TR form
  - Markets also reflect “forward guidance”
  - Fed+markets respond  to new info, so policy can look unpredictable
- Orphanides and Weiland (FRB SL 2008)
  - “Economic Projections and Rules of Thumb for Monetary Policy”
  - An explicit forward-looking version of TR

# 10. Policy Rules in the MPR rise and fall and …

- July 2017 Monetary Policy Report begins to cover policy rate implied by five well-known rules
- Taylor (2022) observes that actual policy departs substantially and Fed has not reported rule implications consistently

**Reporting rules is only a step toward systematic policy**

It is good that rules were put back in the Fed's *Monetary Policy Report*, but it would be more helpful if the Fed incorporated some of these rules or strategy ideas into its actual decisions. Apparently, this has not yet happened.

Even more troubling, as I write in March 2022, the Federal Reserve has again eliminated the table and the discussion of rules: the Fed's *Monetary Policy Report* sent to Congress on February 25, 2022, did not include the usual section on monetary policy rules. The Fed had included the section on policy rules in its *Reports* since July 2017, except for July 2020 during its initial response to Covid — a total of eight times going back to Janet Yellen's term as Fed chair.

# 11. Periodic Policy Reviews

## Review of Monetary Policy Strategy, Tools, and Communications

2025 Overview

Fed Listens 2025

### 2025 Overview

In November 2024, the Federal Reserve announced additional information about the periodic review of its monetary policy strategy, tools, and communications—the framework it uses to pursue its congressionally-assigned goals of maximum employment and price stability.

The review is focused on two specific areas: the Federal Open Market Committee's Statement on Longer-Run Goals and Monetary Policy Strategy (PDF), which articulates the Committee's approach to monetary policy; and the Committee's policy communications tools. The Committee's two percent longer-run inflation goal is not a focus of the review.

"We are open to new ideas and critical feedback and will take onboard lessons from the last five years and adapt our approach where appropriate to best serve the American people, to whom we are accountable," said Federal Reserve Chair Jerome H. Powell.

Like the review that concluded in 2020, the review will include outreach and public events with a wide range of parties. As part of the outreach effort, the Federal Reserve Board will host a research conference on May 15-16, 2025, with speakers and panelists from outside the Federal Reserve System.

Related Information

Federal Reserve announces additional information about the periodic review of its monetary policy strategy, tools, and communications

Second Thomas Laubach Research Conference

View Past Reviews

# 12. Periodic policy reviews challenges and opportunities

- John has long highlighted transitions between policy rules, in terms of economic impact and consequences for policy design
- In 1982, he described Volcker disinflation transition as challenging both in of determining the prior policy and the new policy.
- Circa 2007, central banks around the world had settled into common and fairly stable practices which incorporated substantially -- though imperfectly and incompletely -- principles of John's research program.
- These were set aside in the GFC and its aftermath, making it important to get back on track. The inflation surge in the wake of an inertial exit from the Covid shock reminds us of John's 1980s warnings about accommodation under interest rate policy
- Now, central banks around the world have adopted PPRs, setting in motion regular transitions, providing new challenges and opportunities for researchers and policymaking.