

Shocks and Propagation in Traditional and Modern Macro

Robert J. Gordon

Northwestern University, NBER, and CEPR

Presentation at Round Table “Where Do We Stand?”

Cournot Center Conference, *What’s Right with
Macroeconomics?*

Paris, December 2-3, 2010

3/1/16

1

The Big Questions

- My American focus is justified by:
 - Dominance of American authors in alternative versions of business cycle theory
 - Worldwide crisis starting in 2007 originated in U.S. financial markets
- My discussion is about closed-economy business cycle theory, omitting international macro and long-run growth issues
- The unanswered questions:
 - Why are some slumps long and intractable while other downturns are quickly reversed?
 - Do the answers clarify the co-existence of the Great Depression, the Japanese Lost Decade(s), the American Great Moderation followed by the Great American Slump?

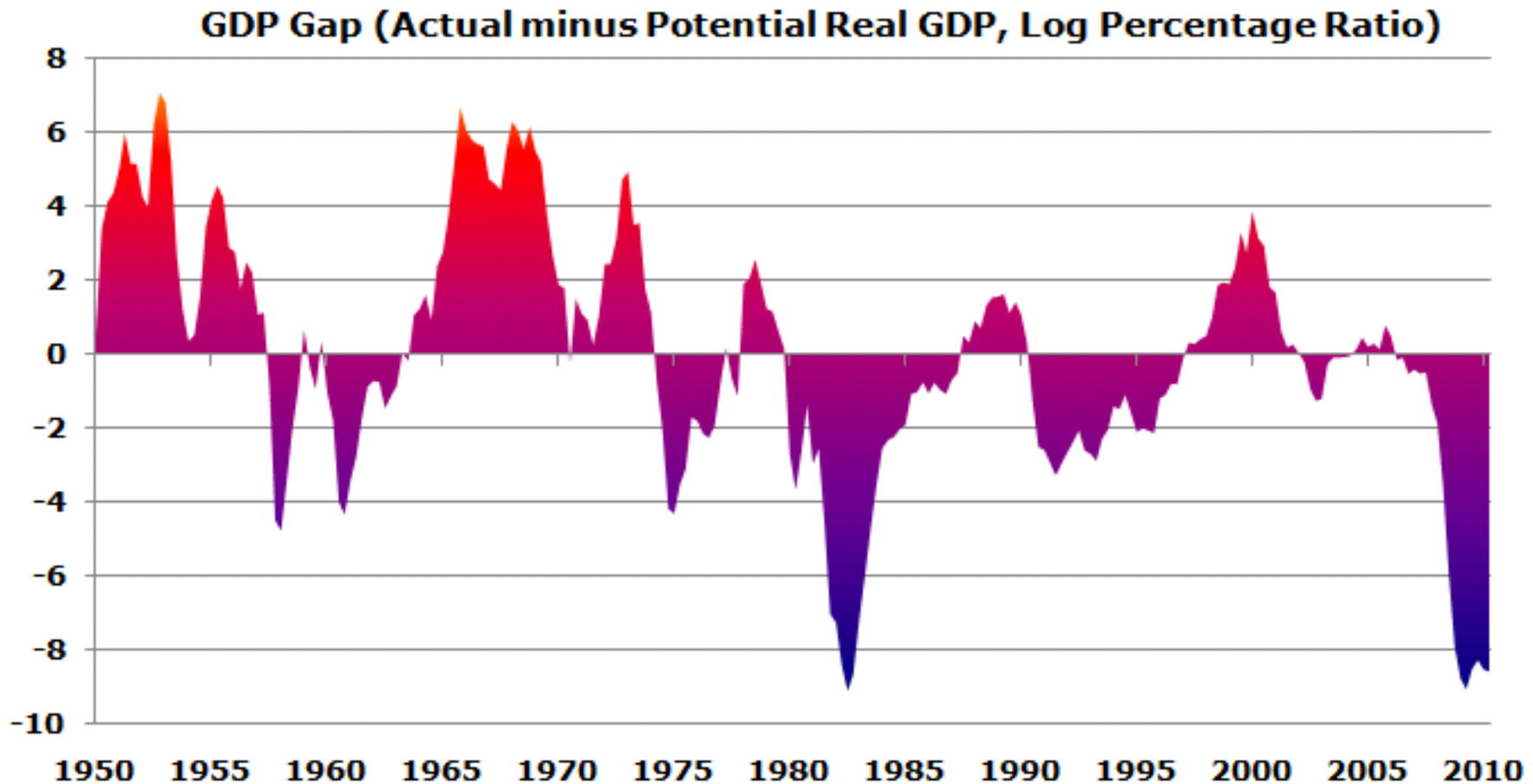
Outline

- Using history and theory to distinguish among sources of shocks
 - Not all bubbles end in major slumps, why?
- Propagation mechanisms in traditional macro
- The wrong set of shocks dominate modern macro
- Modern macro misses many of the propagation mechanisms

Background to the Emphasis on Shocks

- As of 2007, American macro was dominated by a debate on the sources of the the 1984-2007 “Great Moderation”
 - Was it diminished shocks or better behavior by the Fed?
 - This debate was summarily ended by the post-2007 crisis
- The emergence of the crisis highlighted that Greenspan was not the “Maestro” but was just plain lucky
- It was the same old Fed, which had benefitted from a temporary 20 years of minimal shocks.
- The Fed fueled the housing bubble, both by deviating from Taylor’s rule and also by defaulting on its duty to regulate financial institutions

Our Homework Assignment: Explain the Postwar Business Cycle



Part 1. A Taxonomy of Shocks: Private and Government Demand Shocks plus Supply Shocks

- Demand shocks: Separate by $C + I + G + NX$.
Adequate for 1950-2007 but not 1929-33 or 2007-09
 - Direct consumption shocks are minor, consumption behavior is better categorized as a propagation mechanism, e.g., response to wealth bubbles and their aftermath
 - Unstable investment, both residential and nonresidential, is part of the Keynesian heritage, based on the central concepts of coordination failure and long slumps following overbuilding.
 - Government military spending created instability 1940-1973, but then became too small to matter.
 - Like consumption, net exports represents mainly a propagation mechanism, as in 1980-85 when tight money caused a dollar appreciation and collapse of net exports

Source of Demand Instability: Investment in Residential and Nonresidential Structures

- Structures are inherently subject to overbuilding because of long gestation lags
 - Classic Example of coordination failure
 - Overbuilding and overindebtedness are not alternatives, they go together
- Now very timely, WSJ quotes
 - In Las Vegas numerous multi-billion dollar casino-hotel projects have halted construction midway; Hotel rooms are wildly overbuilt
 - “There won’t be another casino property built in Las Vegas for a decade”

Government-Created Shocks

- Instability caused by volatile military spending: WWII, Korea, Vietnam
 - Barro's dilemma in estimating multipliers
- Demand shocks caused by tight money required to fight inflation
- Need an inflation model that explains the sources of the inflation that became the motivation for tight money

Successive Inflation Models

- Dilemma in the mid-1950s, why did inflation speed up before capacity ceiling was reached?
- Initial Phillips Curve as christened by Samuelson-Solow (1959), negative tradeoff
- Friedman-Phelps natural rate hypothesis: short run negative tradeoff but in LR unemployment independent of inflation
- 1975-78: Gordon-Phelps model of policy responses to supply shocks. Now tradeoff could be negative or positive

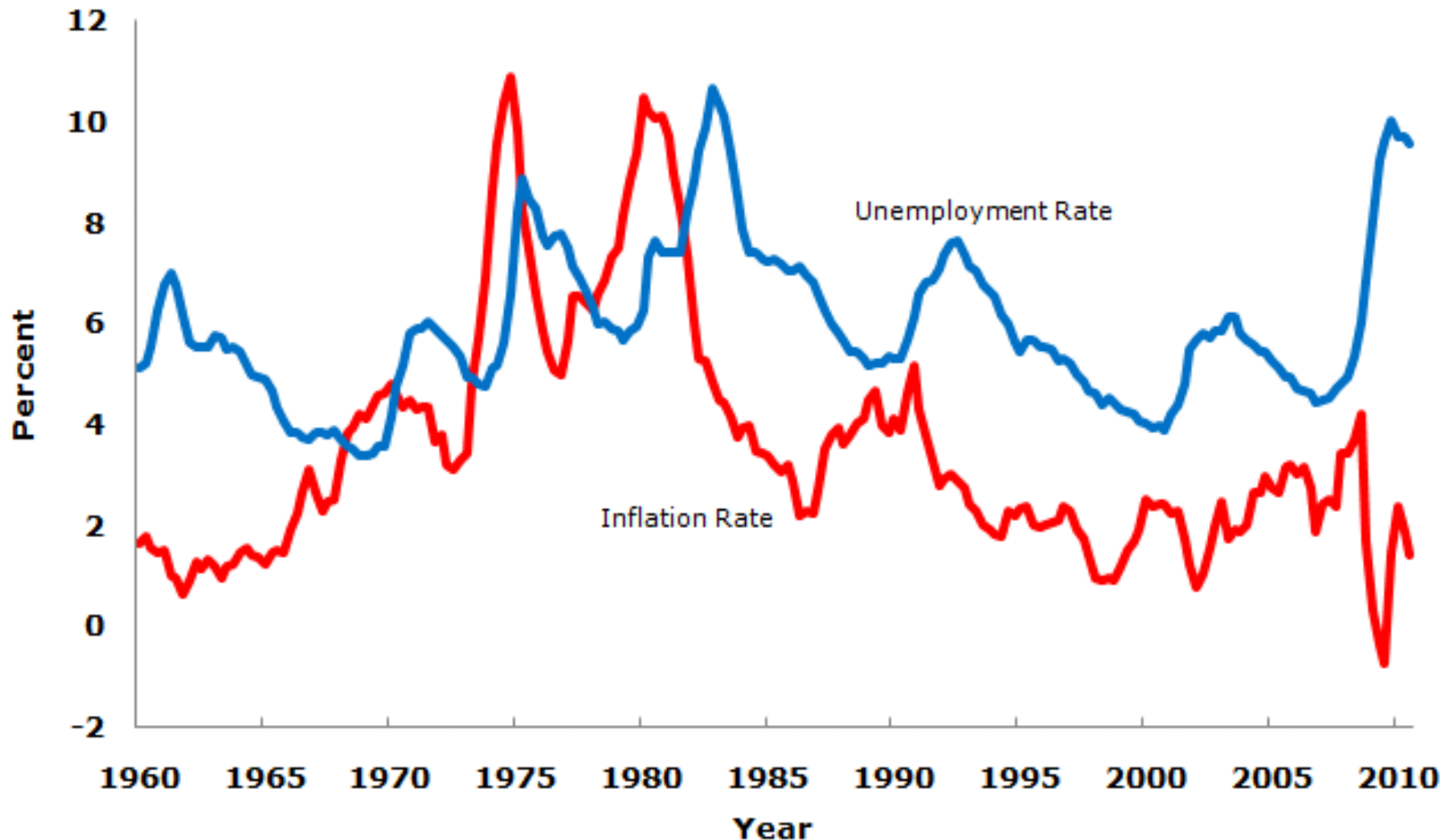
Theory Responds to Events



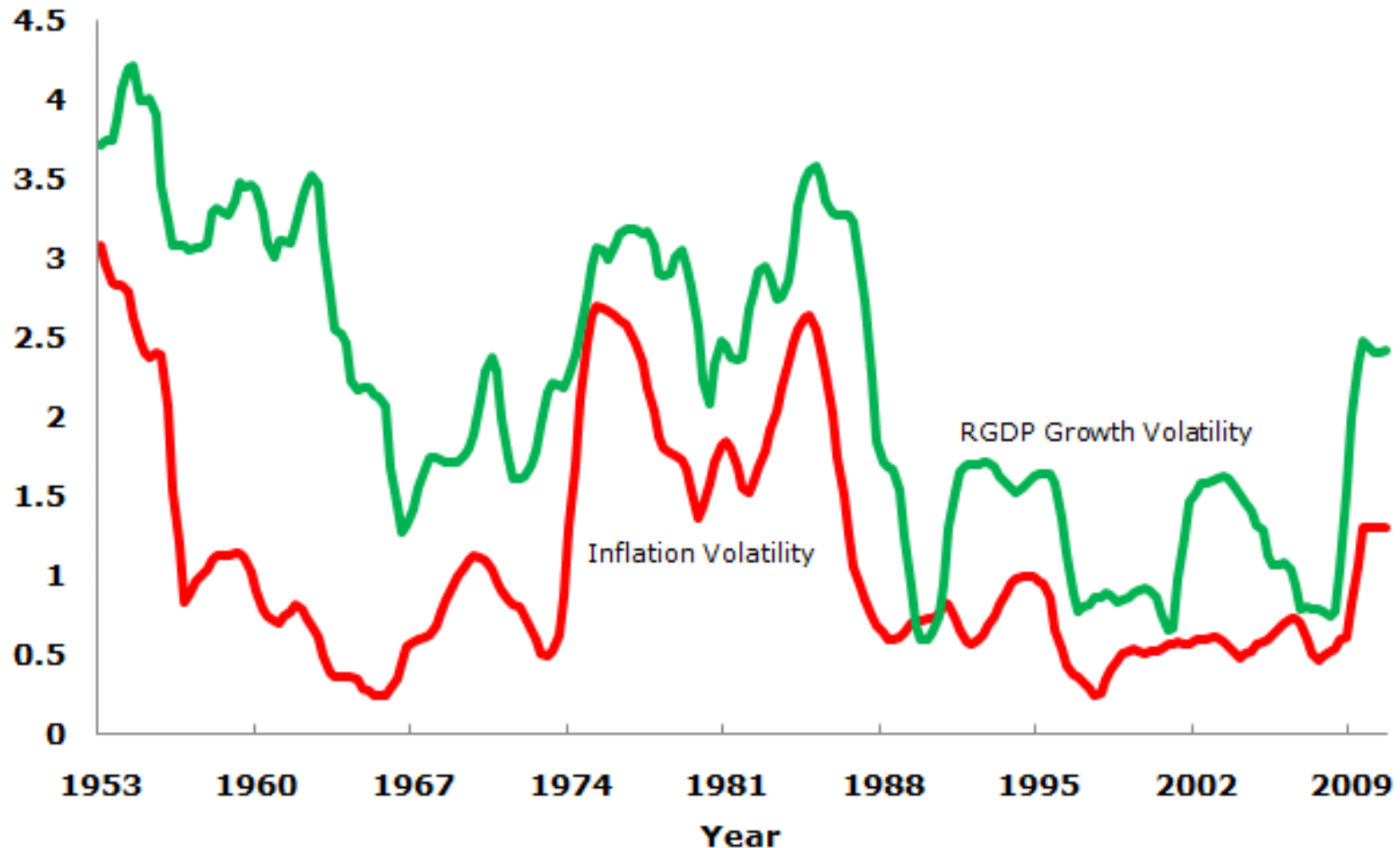
Traditional Macro As Of 1978

- Keynesian fixed-price IS-LM macro had been joined by the dynamic aggregate supply / aggregate demand model of inflation
- The twin peaks of inflation in the 1970s were linked to explicit measures of supply shocks: oil, food, exchange rates, productivity trends, Nixon price controls and their termination
- Theory validated by the “valley” of low inflation and low unemployment in the late 1990s due to “beneficial supply shocks,” same list

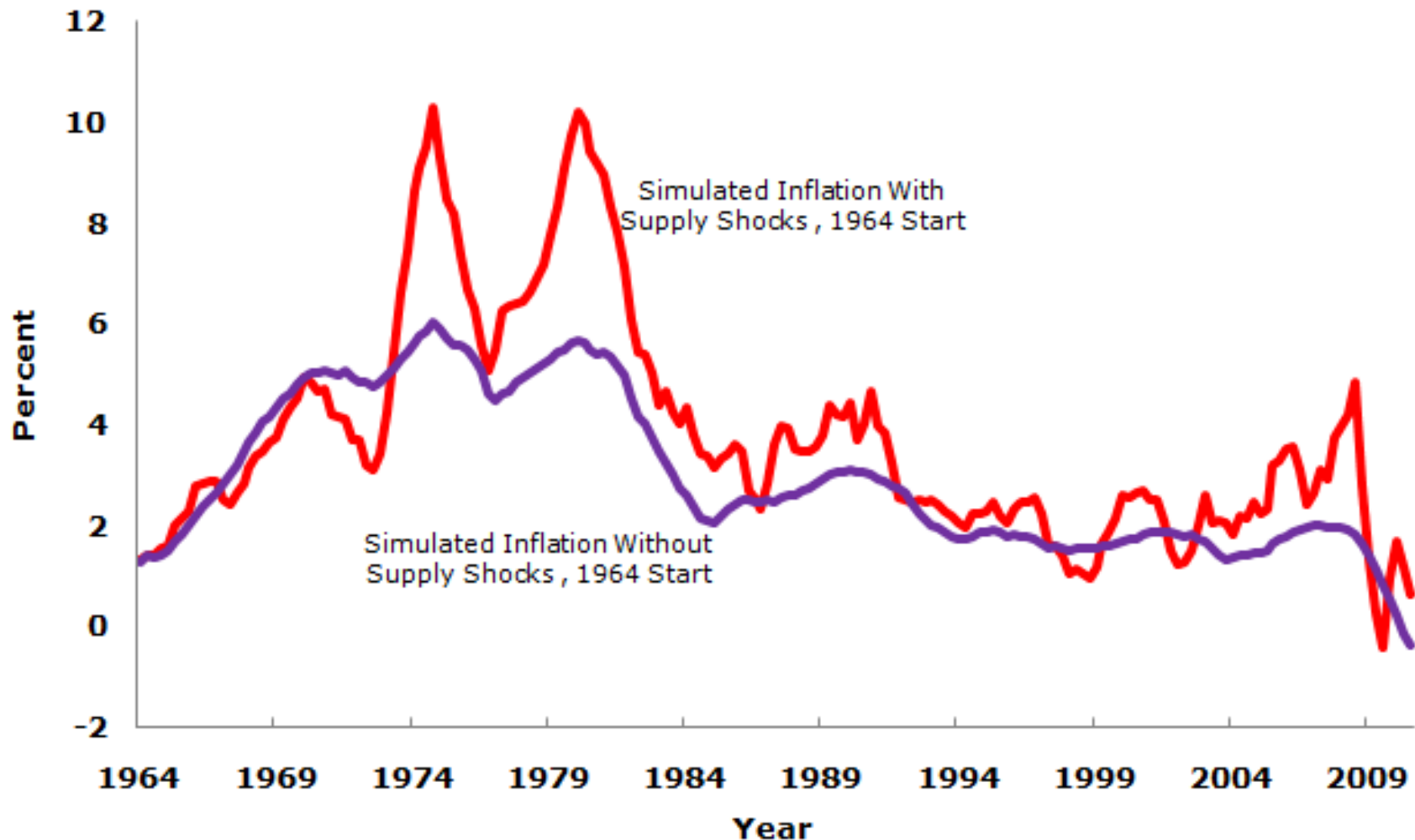
1970s: Inflation Creates Recessions



Supply vs. Demand as Sources of Real GDP Volatility



Econometric Estimate: How Important Were Supply Shocks?



Summary of Reduced Shocks that Explain “Great Moderation”

- Supply shocks dominate 1973-81
- Beneficial supply shocks help explain late 1990s (low oil, strong \$, productivity growth revival)
- Sources of reduced demand shocks before and after 1984
 - Lower share of military spending
 - Financial deregulation stabilized residential construction (at least until 2001)
 - Computers improved management of inventories

What Is Missing Here?

The Role of Asset Bubbles and Post-Bubble Hangovers

- Post-bubble hangovers: Great Depression, Japan, current U.S. slump
 - Key ingredients: an asset bubble fueled by leverage
 - 1920's the problem was 10% margin requirement together with corporate holding company leverage
 - Japan after 1989 and U.S. after 2006 shared in common collapse of asset values that led to tightened credit standards
 - Low or zero down payments and financial market overleverage in U.S. 2001-06 analogy with low down payments in U.S. stock market of 1927-29

Leverage: Explains Differences Among Bubbles

- 1927-29 vs. 1997-2000 stock market bubbles
 - 1927-29, 10% margin requirements
 - 1997-2000, 50% margin requirements & much stock purchase through mutual funds with zero leverage
- 1997-2000 bubble vs. 2001-06 housing bubble
 - No leverage problem in 1997-2000
 - Housing bubble in contrast was built on ever-decreasing down payments and increased financial sector leverage (12-to-1 up to 33-to-1)
- Geanakoplos (2010) develops an endogenous model of leverage. In his words, “Variations in leverage cause wild fluctuations in asset prices. This leverage cycle can be damaging to the economy and should be regulated.”

Similarities with 1927-29: Different Institutions, Same Overleveraging

- The parallel between low stock market margin requirements in the 1920s bubble and low down payment requirements in the housing bubble of this decade.
- Parallel between the securitization and leveraging of the past decade and the financial market fragility of the late 1920s.
- “The major part [of new equity issues], particularly from 1926 on, seems to have gone into erecting a financial superstructure of holding companies, investment trusts, and other forms of intercorporate security holdings that was to come crashing down in the 1930s”
- Also similar in the 1920s and in the current decade were large profits by investment bankers and a stimulus to consumer demand taking the form of capital gains on equities in the late 1920s and the form of mortgage equity withdrawal during the housing price bubble of 2003-07.

Why Bubbles in Some Places, not Others?

- Iceland, Ireland: moving beyond traditional loans = deposits banking model to loans >> deposits through borrowing
- Canada vs. U.S.: caution and tight regulation
- Texas vs. U.S.: the amazing constitution of the state of Texas
- Can there be any doubt that institutions matter?
- Missing in discussions of current hangover: tightened credit standards (my mortgage broker's story)

Part 2. Propagation Mechanisms in Traditional Macro

- Friedman permanent-income and Modigliani life-cycle theories of the consumption function
 - shifted attention from current to permanent income
 - Modigliani opened a channel for changes in financial and housing market wealth to alter consumption.
 - He incorporated a channel between asset bubbles and consumption but did not consider hangover effects of excess debt (that was in Irving Fisher)
- Jorgenson's neoclassical theory
 - rationalized the role of interest rates and tax incentives
 - along with changes in output (accelerator theory of investment)
- Baumol and Tobin clarified the sources of the interest sensitivity of the demand for money
- Friedman and Tobin viewed money as substitutable with other assets
 - leading to the possibility of unstable demand for narrow money

Theoretical Implications of Price Stickiness: NMC Macro

- The implications of price stickiness were developed for consumption behavior by Clower (1965) and for the labor market by Patinkin (1956).
- These contributions were then merged and codified into a general equilibrium model combining the commodity and labor markets by Barro and Grossman (1976), with additional contributions by Benassy (1976) and Leijonhufvud (1968).
- In the Barro-Grossman version, as in the IS-LM model, the price level is not just sticky but absolutely fixed.
 - Any change in nominal demand together with fixed prices automatically translates into a change in output
 - In turn this change in output alters *constraints*
 - faced by households attempting to work the number of hours they wish
 - faced by firms attempting to sell the profit-maximizing amount of production.

Patinkin's Labor Market Analysis

- Patinkin introduced the distinction
 - Marshallian “notional” demand curves
 - Constrained “effective” demand curves for labor
 - Marginal conditions are no longer met. $MRS \neq W/P \neq MPL$
- In a recession workers cannot find jobs or achieve the desired division between work and leisure that they desire at the going levels of wages and prices.
- The essential truth of this paradigm is evident in almost every country in the world in 2009 when we ask:
 - “Does each member of the labor force have the free choice of working the desired number of hours at the going wage and price?”
 - “Does each firm find it possible to sell the optimal level of production at the current wage and price?”
- Thus NMC models are central to understanding of the current worldwide crisis and previous economic downturns dating back to the Great Depression.
- This reinforces points in Willi Semmler's discussion yesterday

Process of Fixing Up Traditional Macro Was Completed by 1978

- Ingredients were a long list of demand shocks that shifted IS curve
- Government as a source of instability through military spending and inflation-fighting monetary policy
- Now the same model could reconcile
 - the dominant role of demand shocks as the explanation of the Great Contraction
 - The positive correlation of inflation and unemployment in 1974-75 and 1979-81.
- Merger of micro and macro
 - output and price of corn or wheat can be positively or negatively correlated depending on the importance of micro demand or supply shocks
 - So aggregate output and the rate of inflation can be positively or negatively correlated, depending on the relative importance of aggregate demand or supply shocks.

Traditional Macro Has No Problem with Traditional Questions

- Why Great Depression was so deep and so long?
 - Post-bubble hangover, unit banking in a world without FDIC, collapse of MS was partly endogenous, partly because of bank failures and lack of Fed action
 - New Deal fiscal stimulus was too small (but don't forget the Darby missing employees)
 - New Deal tried to push up wages and prices

Traditional Macro on a Second Question

- Why was recovery from 1980-82 twin recessions so fast, recovery from 2007-09 recession so slow
- 1980-82 caused by tight money to fight supply-shock inflation; when money was eased in August 1982 economy took off like a rocket
- 2007-09 not caused by tight money and cannot be cured by loose money; post-bubble hangover

Part 3. Modern Macro Chose the Wrong Set of Shocks

- Modern macro began with Kydland-Prescott Real Business-Cycle (RBC) Model
 - Only supply shocks mattered
 - No prices, money, no explanation of why prices and output could be both negatively and positively correlated
- Oil shocks, crop failures were already incorporated into 1978-era macro, what was new and unique in RBC was role of short-term unexplained technology shocks
 - What were the negative shocks, do people forget?
- With no demand or prices, RBC forced to interpret ^{3/1/16} Great Depression as a “massive bout of forgetfulness”²⁶

RBC lasted 10 years, replaced by DSGE Models

- Called “New Keynesian” because they have a demand side and price frictions
- Three core equations
 - Euler consumption function, consumption-leisure utility maximization
 - NK Phillips curve with no supply shocks
 - Taylor-rule-type monetary reaction function

Introduction via Blanchard's “Workhorse” Modern Macro Model

- From his 2008 paper “The State of Macro”
- Three components (aggregate demand, Phillips curve, monetary reaction)
- Aggregate demand
 - Euler first-order conditions of consumers
 - Consumption function of real interest rate and future expected consumption
 - No other source of demand, $C = AD$. No fixed investment, no inventory investment, no military spending, no foreign sector
 - *Consumption does not depend on income, no role for liquidity or NMC rationing constraints*

Second element: “New Keynesian” Phillips Curve

- New-Keynesian Phillips Curve (NKPC)
 - Inflation a function of expected future inflation
 - And unemployment or output gap
 - Or alternatively change in marginal cost (proxied by changes in labor’s share)
- No role for backward-looking inertia
- No role for supply shocks
- No explanation for twin peaks of inflation and unemployment in 1970s or low inflation in 1990s

Blanchard's Evaluation

- “Workhorse” model has replaced IS-LM in graduate education
 - While IS-LM still remains dominant for undergraduates
- Benefit: formalism, ability to make welfare statements
- Costs: first two equations are “patently false”
 - But he misses the absence of Campbell-Mankiw liquidity constraints in consumption
 - He misses absence of explicit supply shock terms in NKPC

Shocks: Compare the Long List of Traditional Macro with the Latest Modern DSGE Models

- Christiano (2010) as an example, three shocks:
 - Generalized technology shock
 - Investment-specific technology shock
 - Shock term in Taylor's rule for monetary policy
- No consideration of what are these technology shocks nor what it means for a technology shock to be negative
- The wide variety of demand shocks is missing
- Explicit supply shocks in the Phillips curve are missing

Part 4: Propagation Mechanisms in Modern Macro, What Is Missing

- Absence of channels from a financial meltdown to the real economy. What is the connection between modern macroeconomics and the crises of either 1927-33 or 2003-09?
- There is no channel:
 - from current income to consumption
 - no wealth effects on consumption
 - no liquidity effects of credit tightening
 - no multiplier-accelerator mechanism for consumer durables or investment
 - no role either for destabilizing military spending or stabilizing fiscal policy.

Failure of DSGE to Introduce Rationing and Constraints

- Price rigidity is logically incompatible with market clearing.
- Marginal conditions are no longer met.
 $MRS \neq W/P \neq MPL$
- Any cause of declining aggregate demand will force households to reduce consumption due to income constraints and to work less than desired.
- Euler-equation consumers hate to work, leading to the puzzle of why unemployment causes so much social distress

Blanchard's Characterization of Ritual Obedience to Rules of DSGE in Modern Macro Research

- Blanchard laments the herd mentality in modern macroeconomics in which an article “today often follows strict, haiku-like rules.”
- Christiano haiku: “It takes a model to beat a model”
- The problem with these repetitive articles in the DSGE tradition is the “introduction of an additional ingredient in a benchmark model already loaded with questionable assumptions. And little or no independent validation for the added ingredient.”
- He longs for the lifting of the haiku-like doctrinaire approach to macroeconomics and hopes for “the re-legalization of shortcuts and of simple models.”
- Unfortunately, his conclusion says nothing about the basic flaws:
 - Contradiction between market clearing and price stickiness
 - Inability of the NK Phillips curve to explain why inflation and U are sometimes negatively, sometimes positively correlated

Conclusions: Modern Macro Has Too Much Micro, Too Little Macro

- Individual representative agents assume complete and efficient markets and market clearing
- Models ignore the basic macro interactions implied by price stickiness, including macro externalities and coordination failures.
- In an economywide recession, most agents are not maximizing unconditional utility functions as in DSGE models but subject to binding income and liquidity constraints.
- DSGE models do not leave room for the full set of channels by which post-bubble hangovers reduce spending through capital losses, overbuilding, and overindebtedness