

Introduction to Modern Macroeconomics

August 27, 2015

Sources Used in This Presentation

- ▶ VROEY and MALGRANGE (2011)
- ▶ Goodwin et al. (2007)

Microeconomics vs. Macroeconomics

- ▶ Microeconomics
 - ▶ Object of analysis is a single market: are car prices driven by supply or demand changes?
 - ▶ Behavior of individual consumers and firms: decisions about what to buy, sell, or produce
 - ▶ applications in trade, industrial organization, labor economics, public finance, and welfare economics
- ▶ Macroeconomics:
 - ▶ Object of analysis is overall economy: what causes inflation?
 - ▶ Behavior of aggregate variables: GDP, interest rates, inflation, etc.
 - ▶ Monetary/fiscal policies and their effects on economy

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- ▶ In the 1930s, economies were clearly not in equilibrium: high unemployment, output was below capacity
- ▶ Classical economics didn't really have an explanation for this disequilibrium, which from a micro perspective, shouldn't have occurred

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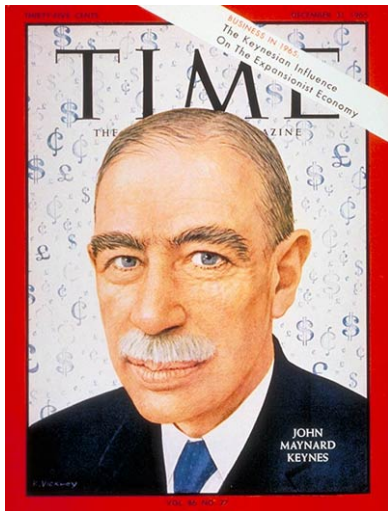
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- ▶ Keynes observed that microeconomic principles of markets clearing, didn't necessarily apply to macro economics
- ▶ He argued that under-employment and under-investment are likely to be the natural state unless active measures are taken

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- ▶ While Keynes believed that increasing investment spending would be the key to getting out of a depression, he thought that low interest rates alone would be insufficient
- ▶ He suggested that government should be taking more direct control of the level of national investment

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- ▶ While followers of Keynes retained his emphasis on deficiencies in aggregate demand, they tended to emphasize the use of fiscal policy **to keep employment rates up**
 - ▶ *Fiscal policy* is the manipulation of levels of government spending and taxation to raise or lower the level of aggregate demand

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 - ▶ They argued that governments should focus on keeping the money supply steady, and not try to take an active role in directing the economy, even when unemployment is high

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- ▶ The idea was that the government could choose to “trade off” unemployment and inflation by letting the economy suffer a little more inflation to get the unemployment rate down, or vice versa.

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 - ▶ In the short run (months or years) we are in a primarily Keynesian world where fiscal and monetary policies can be effective
 - ▶ In the long run, however – after such a period of time that even “sticky” markets can adjust – we are in a classical world, where money only affects prices

1980s: New Classical Macroeconomics

Robert Lucas, University of Chicago



"The most influential macroeconomist of the last quarter of the 20th century"

– N. Gregory Mankiw

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- ▶ Lucas (1976) argued that Keynes should have tried to make Walras's static model dynamic, instead of demonstrating the existence of unemployment in a static framework
- ▶ The most influential of Lucas's judgments about Keynesian theory is the famous Lucas critique:

The econometric models of the time could not serve their purpose of comparing alternative economic policies because the coefficients of the models were estimated by econometric methods (rather than being derived from theory), and their numerical values were independent of any changes in institutional regime

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- ▶ A totally different picture of the business cycle emerged

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- ▶ Conclusion: governments should refrain from trying to prevent their occurrence

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- ▶ **Before their paper appeared, the general opinion was that such an enterprise was impossible!**

Real Business Cycles

Finn Kydland and Edward Prescott



Received Nobel Memorial Prize in Economics in 2004

“for their contributions to dynamic macroeconomics: the time consistency of economic policy and the driving forces behind business cycles”

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- ▶ Within a decade, several such new models blossomed
- ▶ These models shared the same purpose of amending, if not reversing, new classical conclusions, thereby reviving Keynes's mitigated view of the market system

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- ▶ And New Classicals contributed:
 - ▶ exogenous shocks
 - ▶ the dynamic stochastic perspective, the equilibrium discipline
 - ▶ intertemporal substitution and rational expectations

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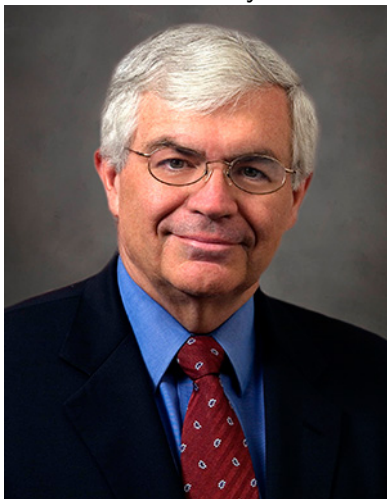
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 3. *an economic policy shock*, a purely residual shock uncorrelated with either inflation or output.

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John B. Taylor



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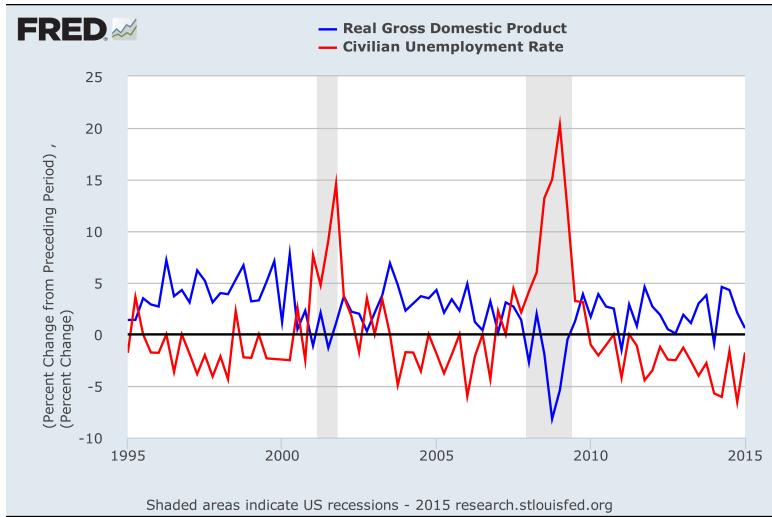
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- ▶ New wave of macroeconomic research: macroprudential regulation
- ▶ Who will be the next Kydland and Prescott?

2010s...

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is a very exciting time to be a macroeconomist!

References

- N. Goodwin, Global Development, and Environment Institute. Historical developments in macroeconomics. *The Encyclopedia of Earth*, 2007. URL <http://www.eoearth.org/view/article/51cbee057896bb431f6958a5>.
- John Maynard Keynes. *The General Theory of Employment, Interest and Money*. Palgrave Macmillan, 1936.
- Finn E Kydland and Edward C Prescott. Time to Build and Aggregate Fluctuations. *Econometrica*, 50(6):1345–70, November 1982. URL <http://ideas.repec.org/a/ecm/emetrp/v50y1982i6p1345-70.html>.
- Robert Jr Lucas. Econometric policy evaluation: A critique. *Carnegie-Rochester Conference Series on Public Policy*, 1(1):19–46, January 1976. URL <http://ideas.repec.org/a/eee/crcspp/v1y1976ip19-46.html>.
- John B. Taylor. Discretion versus policy rules in practice. *Carnegie-Rochester Conference Series on Public Policy*, 39(1):195–214, December 1993. URL <http://ideas.repec.org/a/eee/crcspp/v39y1993ip195-214.html>.
- Michel DE VROEY and Pierre MALGRANGE. The History of Macroeconomics from Keynes's General Theory to the Present. Discussion Papers (IRES - Institut de Recherches Economiques et Sociales) 2011028, Université catholique de Louvain, Institut de Recherches Economiques et Sociales (IRES), June 2011. URL <http://ideas.repec.org/p/ctl/louvir/2011028.html>.