Using Historical Perspective of Keynesian vs. Neoclassical Macro in Teaching Principles

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Great Depression to Great Recession

Fisher vs. Keynes

Neoclassical vs Keynesian

Lectures including Online FRED.

Homework including EconLowdown Modules.
  - Using State of Art Econ Govt data & Online Modules.
  - Without reliance on Proprietary Online Services.
  - Adjust as FRED, EconLowdown Advance/Evolve.
  - (In FRED We Trust).
What We Teach Matters: Not Just How

- What is an Economic Fallacy?
- What is an Economic Fact?
- What is a Macroeconomic Principle?
- What Math can we use?
- Can We Tell the Story of Macro?
Fallacies: AS-AD derivation.

- Keynesian Cross gives $AS - AD$ analysis.

- IS-LM gives $AS - AD$ analysis.

- Phillips curve gives $AS - AD$ analysis.

- Oil Price Theory of Stagflation gives $AS - AD$ analysis.

- David Colander, 1995, "The Stories We Tell:
  - A Reconsideration of AS/AD Analysis."
Stylized Facts

- Normal Real Business Cycle Stylized Facts
- Solow Growth Facts of balanced growth path.
- Phillips curves during Asset Market Booms & Busts
- Bank Collapse Causing Crises of Grt Depress & Grt Rec.
Macro Principles

- S & D for capital depends on Real Interest Rate:
  - Fisher 1896 Model allows "Ramsey" RBC explanation.

- Ramsey (1928) underlies Neoclassical & (New) Keynesian.


- Ramsey World $AS - AD$ depends on real price of Gds to Labor: $1/w$.
  - Ramsey World S&D in Labor market depends
  - on real price of Labor to Goods: $w/1$.
  - Real Interest Rate constant in Ramsey World
Math We Can Use

- Graphs of Data over time: FRED mainly.
  - Plus BLS graphs, NIPA Dpt Comm.& OECD tables.
- Graphs of Functional Data, in time: Phillips Curve
  - Can Construct Using FRED data in Excell.
- Graphs of Functions between 2 Variables:
  - eg. Price, Quantity; Output, Input.
- Graphs of Functions Shifting:
  - Comparative Statics Change in one Parameter.
- Tables.
- Equations: Simple Algebra Only
  - $C + I + G = Y = GDP; \ R = r + \pi; \ GDP = GDI.$
  - Maybe: $wl + rk - \delta + G - T = Y = GDI$
  - $(A \cdot B + C \cdot D + E = F).$
• Microeconomic to Macroeconomic Foundations

• Comovement & Crises

• Cycles & Growth

• Policy
Micro Principles Used in Macro
Microeconomic to Macroeconomic Foundations

- PPC, Production Function, Indifference Curve.
  - Diminishing Marg Prod. & Marg Utility; Mrkt Structure.
  - Supply & Demand as function of Relative Price
  - Comparative Statics

- Smith, Ricardo, Bentham, Jevons, Menger, Walras,
  - Malthus, Darwin, & Marshall
  - Labor Theory of Value vs Neoclassical Theory of Value

- Application: Gasoline Prices & Loss of US World Auto Mrkt
  - Current Dollar Gas Prices vs Real Dollar Gas Prices

- Appendices: How Darwin Solved Shape of Production Curve
  - Plus: Graphs & Data; Using FRED; \( y = a + bx \).

- EconLowdown Module: Supply & Demand
  - Review of S&D basics + Comp. Statics
Figure: General Equilibrium Production Function (Blue) and Utility Level Expressed as Indifference Curve (Red).
Figure: US Gasoline Prices: Actual & Constant 2013 Prices, 1929-2014.
Figure: US Gasoline Index divided by All Items CPI, 1990:4 - 2016:3.
Aggregate Output and Income
Microeconomic to Macroeconomic Foundations

- National Output & Income Accounting
  - NIPA Tables for GDP & GDI
  - 4 Categories of Each GDP & GDI
  - Kuznets & Stone; Fisher (price index).
  - Nominal vs Real: Using the Price Index

- Production of Output from Input
  - General Function and Graph
  - Representative Agent Economy
  - Circular Flow: GDP = GDI
  - Classical Dichotomy: Nominal & Real Economy

- Application: US Real & Nominal GDP Growth
  - Appendix: Nominal vs Real Interest Rate: Fisher eqtn.

- EconLowdown Module: GDP & Pizza
Macro Divergence from Micro
Microeconomic to Macroeconomic Foundations

- Great Depression: Facts (FRED)
  - Real GDP, Unemployment, Inflation, Currency/Deposits.
  - Govt Spending including Defense and not.
  - Comparison to Great Recession Facts.

- Bifurcation of Macro Theory
  - Keynes’s Approach: 1930 Cross, Thry of Bus Cycle.
  - National Accounting and Keynesian Cross
  - Profit $\equiv I - S$; Excess Savings Spent by Govt.
  - Add Keynes 1936 Consumption Function
  - Stabilization Policy Arises.

- Applic: Grt Depression using Keynes Cross.
  - Append: Keynes’s Price Theory vs. Marshall’s.

- EconLowdown Module: Great Depression 1 & 2.
Figure: US Currency to Demand Deposit Ratio, 1923-1939.
Facts of Cycle and Growth Trends (FRED)
  - Shares of GDP & GDI over Cycle

RBC Theory & Growth Theory & Crisis Theory

Applic: Equity Premium Puzzle.

Append: Structural Transformation by Sector;
  - Why Doesn’t Capital Flow from Rich to Poor Neighborhoods?

EconLowdown Module: Unemployment.
Figure: US 1930-2014, Growth Rate of Both Real Personal Consumption Expenditure (Red) and Real GDP (Blue) Minus 3.5% (trend growth rate).
Public Bank & Private Bank Money
- Monetary Aggregates (FRED).
- Govt’s Central Bank: the Fed;
- Bank Panics Leading to Fed.
- Institutions & Mrkts.

Theory of Money Demand & Fisher.
- Quantity Theory, Inflation Targeting, Taylor Rule.
- Temp & Permanent Liquidity Effects, & Wicksell.

Applic: Ex-Post US Real Interest Rates.
- Append: Historical Money, Inflation & Debt;
- Fiscal Theory of the Price Level.

EconLowdown Module: Capital Markets. & Monetary Policy.
Facts: WWI, WWII, Korean War & Inflation
- Vietnam war Inflation: a period of "Peacetime".
- Granger Causality of Oil Prices by Money & Inflation
- Killian & coauthors on monetary causes of Oil prices.

- AS-AD with nominal prices vs Relative Prices.
- Monetary hypothesis of "OPEC Oil Shocks".
- Inflation Tax & Long run Growth.

Applic: Grt Depres. Turning Pt with ’33 Banking Act & FDIC
EconLowdown Module: Great Inflation, Grt Depres. 3 & 4.
Figure: Real WTI Oil Prices, from Jan. 1947 to Dec. 1973: WTI US$ per barrel divided by US CPI index, in 1982 Constant Dollars.
Figure: Real Oil Prices in 1982 US Dollars, 1947 - 2016.
Figure: Effect of inflation on real GDP Growth rate, OECD developed country sample set; panel data estimation.
Phillips Curves: During Bank Productivity Change
And Corresponding Stock Market Change: Debt-Deflation & Credit-Inflat.

Figure: Phillips Curve During US Stock Market Crash and the Great Recession
July 2008-May 2009 Stock Crash with Bank Crash

Figure: S&P 500 Index During Great Recession.
Figure: US Phillips Curve During Great Depression
Grt Depres. Stock Market Crash with Bank Crash

**Figure:** Dow Jones Industrial Average Percentage Change in Great Depression

Dow Jones Stock Index % Change  
May 1929 - May 1933

% Change  
Dow Jones Stock Price  
0 10 20 30 40 50 60  
Months 

-80.0 -60.0 -40.0 -20.0 0.0 20.0 40.0 60.0 80.0
Figure: Phillips Curve from 1959:1 to 1969:12
Figure: Dow Jones Industrial Average during the 1960’s.
Savings, Investment & Interest
Cycles & Growth

- **Facts: Income Flow on Wealth; Savings & Investment data.**
- **Keynesian Analysis of Capital Market**
  - IS: Supply shifts out by more than Demand, when $Y \uparrow$;
  - "Excess Savings" & Downward sloping IS.
  - LM: D shifts out by more than S ; LM slopes up.
  - Horizontal Lines on Solow Growth path: general case.
  - Policy: Govt Spending & Money increases Good.
- **Fisherian Neoclass. 2-period Model of Sav & Invest.**
  - Business Cycle Explanation: just 2 joint Comparative Statics.
  - TFP increase, and $y_0$ endowment increase.
  - Get Keynes (1936) only graph with $y_0$ endowment increase.
- **Applic: Present Discounted Value.**
- **Append: Savings & Investment data on same basis (FRED).**
- **EconLowdown Module: Time Value of Money; & Soar to Savings.**
**Figure:** Shift Back in Supply and Upwards in Demand for Capital (Black), from a Productivity Increase Relative to Baseline (Red): Capital Investment (and Savings) Unchanged, but Interest Rate Higher.
Figure: An Increase in Current Income Endowment Shifts out the Supply of Capital (Black Curve) and Lowers the Real Interest Rate.
Figure: Capital Market with 5% Increase in Goods Productivity and Income Endowment (Black) versus Baseline (Red).
Facts

- Monetary Prices Versus Relative Prices
- Capital to Goods Price & Debt-Deflation
- Stylized Facts Of Cycles

Theory: Ramsey’s World with AS-AD

- Ramsey Markets for Output, Labor and Capital
- RBC Analysis: Goods & Time Endowment Changes

Application: Crisis from Fixed Wage

Appendix: Crisis from Bank Productivity Crash.

EconLowdown Module: "The Great Depression 5".
Figure: US Nominal Price of Goods (CPI) Divided by the Nominal Wage Rate (average weekly wage and salary, full time, 16 and over): \( \frac{P}{W} \), 1979 to 2015
Figure: Annual Growth Rate of Real Wage Rate and Trend-Adjusted Real GDP, US 1965:6-2014.
Figure: Annual Average Growth Rates of US Civilian Labor Force Participation Rate, 1957:7-2015.14, (Blue) and Normalized Real GDP (Red).
Figure: Business Cycle Expansion in Goods Market: $AS - AD$ Equilibrium with 5% Increase (in Black) in Both Productivity $A$ and Time $T$ as Compared to the Original (in Red).
Figure: Business Cycle Expansion: Labor Market has a Shift out in Demand (Black) and Pivoting of Supply (Black) as Compared to Original (Red).
Figure: Capital Market Shows Shift Out of Demand for Capital (Black Curve) When both Factor Productivity $A$ and Time Endowments $T$ Increase by 5% relative to the Original Example Equilibrium (Red Curve).
Figure: Excess Labor Supply with a Fixed Wage During Contraction (in Black) relative to the original example equilibrium (in Red).
Growth, Progress and AS-AD

Cycles & Growth

• Stylized Growth Rate Facts
  • Solow & Solow Plus Growth Facts

• Theory: Growth Puzzle that Solow Solved
  • A Comparative Static Productivity Increase
  • AS-AD with Solow Growth
  • Solow Growth from Ramsey World
  • AS-AD with Continual Technological Progress

• Application: Trend Down in Time

• Appendix: Growth with Human Capital

• EconLowdown Module "Economic Growth".

Gillman (Federal Reserve Bank of St. Louis)
Figure: US Years of Education by Birth Cohort
Figure: \( AS - AD \) Equilibrium with Goods Productivity Increase (in Black) as Compared to the Original (in Red).

\[
\frac{1}{w} - y
\]
Figure: Increase in Productivity (Black Curves) Raises $w$ and Leaves Employment Unchanged.
Figure: AS – AD Equilibria Over Time With 2% Exogenous Growth Example; Moving From Red to Black Curves over 4 years.
**Figure**: Labor Market with 2% Exogenous Growth and Rising Real Wage, Constant Employment, Over Time.
Policy as Social Insurance

Policy

- **Facts:** British and American "Welfare States"
- **Theory:** Moral Hazard Danger of Social Insurance
  - Inequality and Consumption
  - Permanent Income Consumption
  - Ramsey World’s Keynesian Cross
  - Spanning Keynesian & Friedman Consumption
  - Social Insurance Examples
- **Application:** FDIC Post-2010 Dodd-Frank
- **Appendix:** Taxes, Public Goods, Insurance
- **EconLowdown Modules** "Government Budgets" & "Fiscal Policy".
Figure: Consumption as a Fraction of Income: in the Keynesian Theory of Consumption $C = a + bY$. 
$c/(y_{Perm}) = a$

**Figure**: Consumption as a Fraction of Permanent Income: Ramsey-Friedman Theory
Figure: Ramsey Consumption Theory and Business Cycles: Increase in A
The Great Recession and Lost Decade

Policy

- **Facts:** Fed "Bailout" of US Bank System?
- **Theory:** Bagehot's law of financial efficiency
  - Tax on Capital Markets, Welfare Loss,
  - Financial "Repression"
  - Seeking Yield": Capital Market Distortion
  - Government Capital Flooding
  - Internationally Inefficient Bank Subsidization
  - Deconstructing 3-Equation Keynesian Bank Model
- **Application:** Normalizing Policy
- **Appendix:** Being Earnest on Banking
- **EconLowdown Module** "The Great Depression 6".
Figure: Great Recession and Post 9/11 Negative Real Interest Rates (Green) vs. FFR (Blue) and CPI inflation at a monthly frequency (Red).
Fed Caused Lost Decade?
Purple line (Total Assets) - (MBS) follows Red (Excess Reserves)
Fed’s Assets Minus MBS & Excess Res. = 0

All Federal Reserve Banks - Total Assets
Excess Reserves of Depository Institutions
Mortgage-backed securities held by the Federal Reserve: All Maturities
All Federal Reserve Banks - Total Assets-Mortgage-backed securities held by the Federal Reserve: All Maturities-Excess Reserves of Depository Institutions
Interest on Excess Reserves Forces Down Real Interest Rt.

**Figure: Loan Ratio (Blue) & Real Int. Rt. (Red)**

Commercial and Industrial Loans, All Commercial Banks/Total Checkable Deposits

3-Month Treasury Bill: Secondary Market Rate/100 - (Consumer Price Index for All Urban Consumers: All Items/100)

fred.stlouisfed.org

myf.red/g/5pAe
**Figure:** Loan to Demand Deposit Ratios: Consumer Loans Ratio in Red; Commercial and Industrial Loans Ratio in Blue.
When Effective Ceiling Imposed On Real Interest Rate

Figure: Savings and Investment: Aggregate Supply and Demand for Capital k With Real Interest Rate Ceiling
Fed’s Shift out of Supply of Capital through the Open Market Purchases of US Treasury or Treasury backed Securities: Creating the Bank System’s Excess Reserves.

"Excess Reserves" That Fed Supplied Buying Treas Debt

Figure: Gillman (Federal Reserve Bank of St. Louis) With FRED and EconLowdown 3-4 November 2016
Capital Tax Wedge on Priv Invest. with High $r$ for Investment
Low $r$ for Savings: Dead Weight Triangle Loss of Welfare

Figure: "Deadweight Loss Triangle"
Figure: Optimal Portfolio Diversification between Market Portfolio (Tangency) and "Risk-free" Government Debt.
Economy’s Python Digestion of Prickly Problem

Porcupine Eaten?: Prickly Future Inflation

Figure: US Economy’s Python