LECTURE 22  
FISCAL POLICY  
April 14, 2016  

I. REVIEW OF THE KEYNESIAN CROSS DIAGRAM  
A. Determination of output in the short run  
B. What causes short-run fluctuations?  
C. Another example of a shift in the expenditure line: A rise in animal spirits  
D. Other factors that shift the expenditure line  

II. FISCAL POLICY IN THEORY  
A. Definitions  
B. Example: A tax cut  
   1. How does a tax cut affect PAE?  
   2. Effects on output in the short run  
C. Countercyclical fiscal policy  

III. EMPIRICAL EVIDENCE ON THE EFFECTS OF FISCAL POLICY: DISCUSSION OF THE ROMER AND ROMER PAPER  
A. The difficulty in estimating the effect of tax changes on output  
B. Romer and Romer’s approach  
C. Empirical estimates of the macroeconomic effects of tax changes  
D. Evaluation  

IV. CASE STUDY: THE 2008 RECESSION AND THE FISCAL POLICY RESPONSE  
A. Causes of the 2008 recession  
B. Issues in designing the American Recovery and Reinvestment Act  
C. Estimates of the effect of the Recovery Act
Announcements

• We have handed out Problem Set 5.
  • It is due at the start of lecture on Tuesday, April 19th.
  • Problem set work session this Friday, April 15th, 4:30–6:30 p.m. in 648 Evans.
I. REVIEW OF THE KEYNESIAN CROSS DIAGRAM
Determination of Short-Run Output

• Equilibrium condition: 
  \[ Y = PAE \]
  
  • Output responds to demand in the short run
  • Referred to as the 45-degree line

• Planned spending is a function of output: 
  \[ PAE = C + I^p + G + NX \]
  
  • Where C depends on Y–T
  • Referred to as the expenditure line
Determination of Short-Run Output
What Causes Short-Run Fluctuations?

• Anything that shifts the expenditure line will cause output to change in the short run.
Example: A Fall in Autonomous Consumption

• A fall in consumption *not* caused by a fall in output.

• A decline in the intercept of the consumption function (\(\bar{C}\)).
A Fall in Autonomous Consumption

\[ Y = PAE \]

[Graph showing the relationship between PAE and Y with lines labeled PAE_1 and PAE_2, and points Y_2 and Y_*]
Example: A Rise in Animal Spirits

• Suppose that something causes firms throughout the economy to raise their expectations of the future $\text{MRP}_K$. 
A Rise in Animal Spirits

\[ Y = \text{PAE} \]

\[ \text{PAE}_1 \]
What Shifts the Expenditure Line?
Two Types of Macroeconomic Policy

• **Fiscal policy:** Actions taken by the government to change the budget surplus.

• **Monetary policy:** Actions taken by the central bank to affect nominal and real interest rates.
II. FISCAL POLICY IN THEORY
Fiscal Policy Terminology

- **Government budget surplus:**
  - Tax revenues – Government purchases (T–G)

- **Contractionary fiscal policy:** Actions that increase the government budget surplus.
  - Will decrease PAE at a given level of Y.

- **Expansionary fiscal policy:** Actions that decrease the government budget surplus.
  - Will increase PAE at a given level of Y.
Federal Budget Surplus and the Bush Tax Cuts

Source: Congressional Budget Office.
Substituting the Consumption Function into PAE

\[ C = \bar{C} + c \cdot (Y - T) \]

\[ \text{PAE} = C + I_p + G + NX \]

\[ = \bar{C} + c \cdot (Y - T) + I_p + G + NX \]

\[ = \bar{C} + cY - cT + I_p + G + NX \]

\[ = (\bar{C} - cT + I_p + G + NX) + cY \]

PAE Intercept Term
Short-Run Effects of a Tax Cut

\[ Y = \text{PAE} \]

\[ Y_1 \]

\[ (Y^*) \]
Combining the Effects of a Fall in Autonomous Consumption and a Tax Cut

\[ Y = \text{PAE} \]

\[ \text{PAE}_1 \]

\[ Y^* \]
Countercyclical Fiscal Policy

- Changes in the budget surplus (through changes in taxes or government purchases) to try to counteract other factors likely to cause a short-run fluctuation.
III. **Empirical Evidence on the Effects of Fiscal Policy: Discussion of the Romer and Romer Paper**
Difficulty in Estimating the Effect of Tax Changes
How do Romer and Romer try to deal with this difficulty?
Exogenous Tax Changes

Panel A. All exogenous tax changes

Source: Romer and Romer, “The Macroeconomic Effects of Tax Changes.”
Exhibit 2—Narrative Analysis of a Long-Run Tax Change

Revenue Act of 1964

Signed: 2/26/64

Change in Liabilities (excluding retroactive changes):
1964:II  - $8.4 billion  (Exogenous; Long-run)
1965:I    - $4.5 billion  (Exogenous; Long-run)

The motivation for the 1964 tax cut was the same as for the 1962 investment tax credit: faster long-run growth. Once again, there was no fear of a recession at the time the act was proposed or passed. The Revenue Act of 1964 was first proposed in the summer of 1962. President Kennedy, in his Radio and Television Report to the American People on the State of the National Economy, stated explicitly that the tax cut was not for countercyclical reasons: “Let me emphasize, however, that I have not been talking about a different kind of tax cut, a quick, temporary tax cut, to prevent a new recession” (8/13/62, p. 5). This view was repeated in two speeches in January 1963 (Annual Message to the Congress on the State of the Union, 1/14/63, pp. 1–2; Special Message to the Congress on Tax Reduction and Reform, 1/24/63, p. 1). Likewise, the 1963 Economic Report stated: “We approach the issue of tax revision, not in an atmosphere of haste and panic brought on by recession or depression, but in a period of comparative calm” (p. xiii). The Economic Report mentioned the possible countercyclical benefits of the tax cut, but made it clear that they were a sidelight. It stated: “While the basic purpose of my tax program is to meet our longer run economic challenges, we should not forget its role in strengthening our defenses against recession” (p. xxi). A similar statement was made in the 1964 Economic Report (p. 8). If anything, the economy was even stronger by the time the act was passed. President Johnson, in his Annual Budget Message to the Congress, Fiscal Year 1965, cited statistics showing solid economic growth and emphasized: “This is a record of strong expansion” (1/21/64, p. 3).

Kennedy and Johnson both gave as the rationale for the tax cut the need to eliminate fiscal drag so the economy could grow faster. In his August 1962 address, President Kennedy said: “our present tax system is a drag on economic recovery and economic growth,” and “this administration intends to cut taxes in order to build the fundamental strength of our economy, to remove a serious barrier to long-term growth” (Radio and Television Report to the American People on the State of the National Economy, 8/13/62, p. 4). In his Special Message to the Congress on Tax Reduction and Reform, Kennedy stated: “the largest single barrier to full employment of our manpower and resources and to a higher rate of economic growth is the unrealistically heavy drag of Federal income taxes on private purchasing power, initiative and incentive” (1/24/63, p. 1). Johnson reiterated this view (Annual Budget Message to the Congress, Fiscal Year 1965, 1/21/64, p. 3). Both administrations argued that the tax cut would stimulate economic growth. For example, the 1964 Economic Report stated: “The tax cut will give a sustained lift, year-in and year-out, to the American economy” (p. 8).
Specification

\[ \Delta Y_t = a + \sum_{i=0}^{M} b_i \Delta T_{t-i} + e_t. \]

- \( \Delta Y \) is the percentage change in real GDP.
- \( \Delta T \) is the new measure of exogenous tax changes (as a percent of GDP).
- The regression estimates the relationship between output growth and the contemporaneous and lagged values of tax changes.
- We expect a negative relationship.
Baseline Estimates

Figure 4. Estimated Impact of an Exogenous Tax Increase of 1 Percent of GDP on GDP
(Single equation, no controls)

Source: Romer and Romer, “The Macroeconomic Effects of Tax Changes.”
Evaluation

• Do you trust the narrative sources?

• Is narrative analysis reproducible?

• Does this approach deal with omitted variable bias successfully?
IV. CASE STUDY: THE 2008 RECESSION AND THE FISCAL POLICY RESPONSE
Source: Federal Reserve Bank of St. Louis, FRED.
Effects of the Housing Bubble
U.S. Household Debt

What happened when the bubble burst?
Single-Family Housing Starts

Credit Spreads during the Financial Crisis

TED Spread and Moody’s BAA-AAA Spread Through December 2009

Percentage points


Notes: The TED spread is defined as the three-month London Interbank Offer Rate (LIBOR) less the yield on the three-month U.S. Treasury security. Moody’s BAA-AAA spread is the difference between Moody’s indexes of yields on AAA and BAA rated corporate bonds.

Stock Prices during the Financial Crisis

What happened to PAE in 2008?
Effect of the Housing Bust and the Financial Crisis on Output

\[ Y = \text{PAE} \]

\[ \text{PAE}_1 \]

\[ Y^* \]
Percentage Change in Real GDP

Source: Federal Reserve Bank of St. Louis, FRED
Issues in Designing the 2009 Fiscal Stimulus

• How big should it be?
Issues in Designing the 2009 Fiscal Stimulus

- What should the composition be?
Fiscal Stimulus in the Recovery Act through August 2009

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<td>June\textsuperscript{b}</td>
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<td><strong>Total</strong></td>
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<td><strong>99.8</strong></td>
<td><strong>151.4</strong></td>
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Issues in Designing the 2009 Fiscal Stimulus

• How long should it last?
Estimates of the Impact of the Recovery Act

Table 1.

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<td>Full-Time-Equivalent Employment (Millions)</td>
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