Lecture 12: Expectations

Intermediate Macroeconomics, Econ 102

François Geerolf

UCLA

May 14, 2018

One-handed economics?

- Let us come back to an analysis of the **short run**. (Lectures 2-8)
- The analysis in these lectures was favorable to:
  - stimulus during downturns.
  - deficit financing.

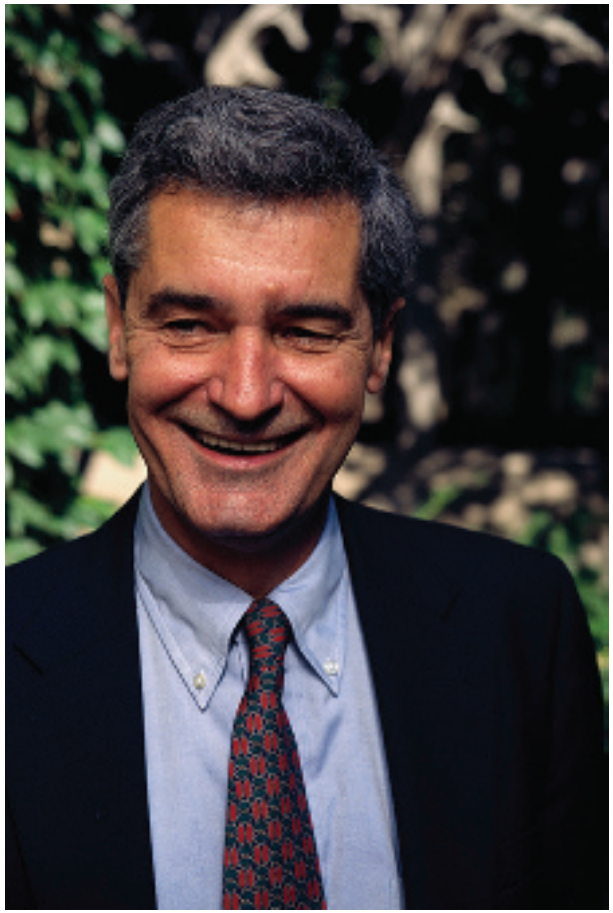
- Harry S. Truman (on the left): "Give me a one-handed Economist. All my economists say, On the one hand, on the other." In contrast, Keynesian economics seems **very (too?) one-handed**.
- Keynesian economics has been under attack since the 1970s, with many "on the other hand" qualifications, many of them relying on **expectations**. In this lecture, we go through some of these arguments.

Arguments

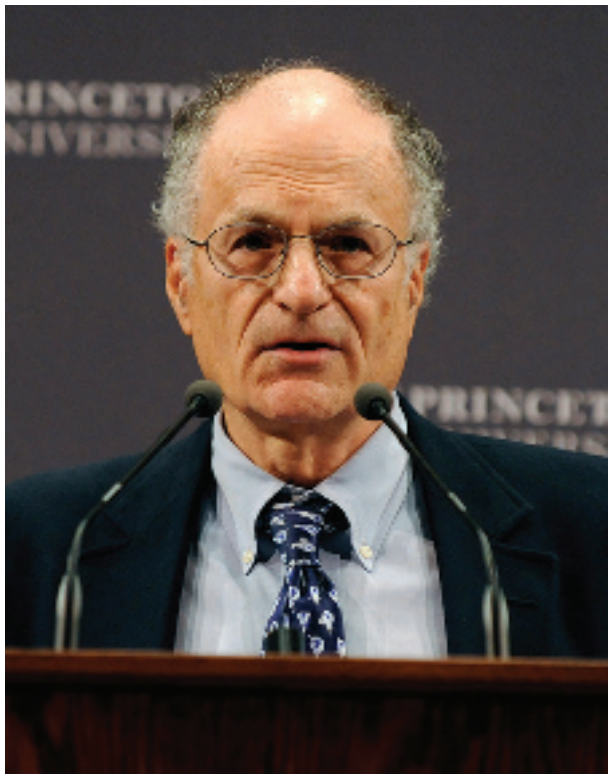
- In the model that we developed in lectures 2 to 8, expectations played a minor role, if any.
- JM Keynes, did not believe that people's expectations mattered so much for determining economic analysis, and therefore voluntary left them out of his analysis.
- In contrast, in the 1970s, the "rational expectations revolution" led to reconsider the role of expectations for macroeconomic analysis.
- We have already seen how this led to move from the traditional Phillips curve, to the accelerationist Phillips curve. Keynesian economics was also vincidated because **Keynesian analysis had not predicted stagflation**.
- Both in the academic and in the policy world, people listened more and more to anti-Keynesian economists, such as Robert Lucas, Thomas Sargent and Robert Barro. Much of the following analysis follows their ideas.

Rational Expectations Revolution

Robert Lucas
(1937 -)



Thomas Sargent
(1943 -)



Robert Barro
(1944 -)

Rational Expectations Revolution

- In the early 1970s, Robert Lucas and Thomas Sargent argued that people have rational expectations as they look into the future and do the best job they can in predicting it.
- In particular, consumers do not just look at their current income in order to decide on consumption, but use all possible available information.
- Similarly, firms do not only look at current sales and current interest rates to decide on investment, but they use all possible available information.
- The last 40 years in macroeconomic research are often called the "**rational expectations revolution**." The ideas of Robert Lucas, Thomas Sargent and Robert Barro have been very influential.

Anti-Keynesian tone

- Lucas and Sargent (1978) were very critical of Keynesian economics:

  That the predictions [of Keynesian economics] were wildly incorrect, and that the doctrine on which they were based was fundamentally flawed, are now simple matters of fact, involving no subtleties in economic theory. The task which faces contemporary students of the business cycle is that of sorting through the wreckage, determining what features of that remarkable intellectual event called the Keynesian Revolution can be salvaged and put to good use, and which others must be discarded.

Expectations may be everywhere

- Expectations may be everywhere:

1. **Investment**. In contrast, the Keynesian investment function only has current sales and current interest rate:

$$I(Y, i)$$

2. **Consumption (income)**. In contrast, the Keynesian consumption function only has current disposable income:

$$C(Y_D) = c_0 + c_1 Y_D$$

3. **Consumption (taxes)**. In Keynesian analysis, lower taxes today had no impact on expectations of future taxes tomorrow:

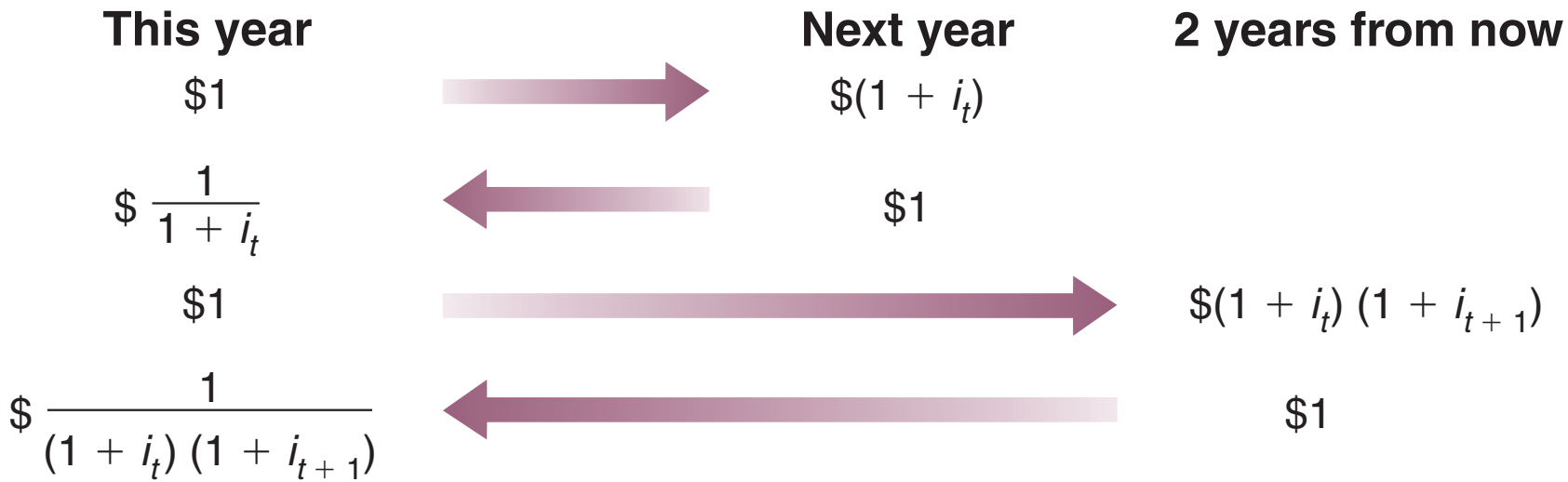
$$C(Y, T) = c_0 + c_1 (Y - T)$$

Robert Barro posits that this is not the case: if increases in taxes are expected that fully offset the impact of lower taxes today, then the effect on consumption might not be so large. This is called the Ricardian equivalence proposition. (this is a misnomer – David Ricardo **did not believe in "Ricardian equivalence"**)

Investment

- Investment is not only determined by current interest rates, but also by all future interest rates. A sequence of payments $\$z_t$, $\$z_{t+1}$, $\$z_{t+2}$ is worth in Present Discounted Value:

$$\$V_t = \$z_t + \frac{1}{1+i_t}\$z_{t+1} + \frac{1}{(1+i_t)(1+i_{t+1})}\$z_{t+2} + \ldots$$



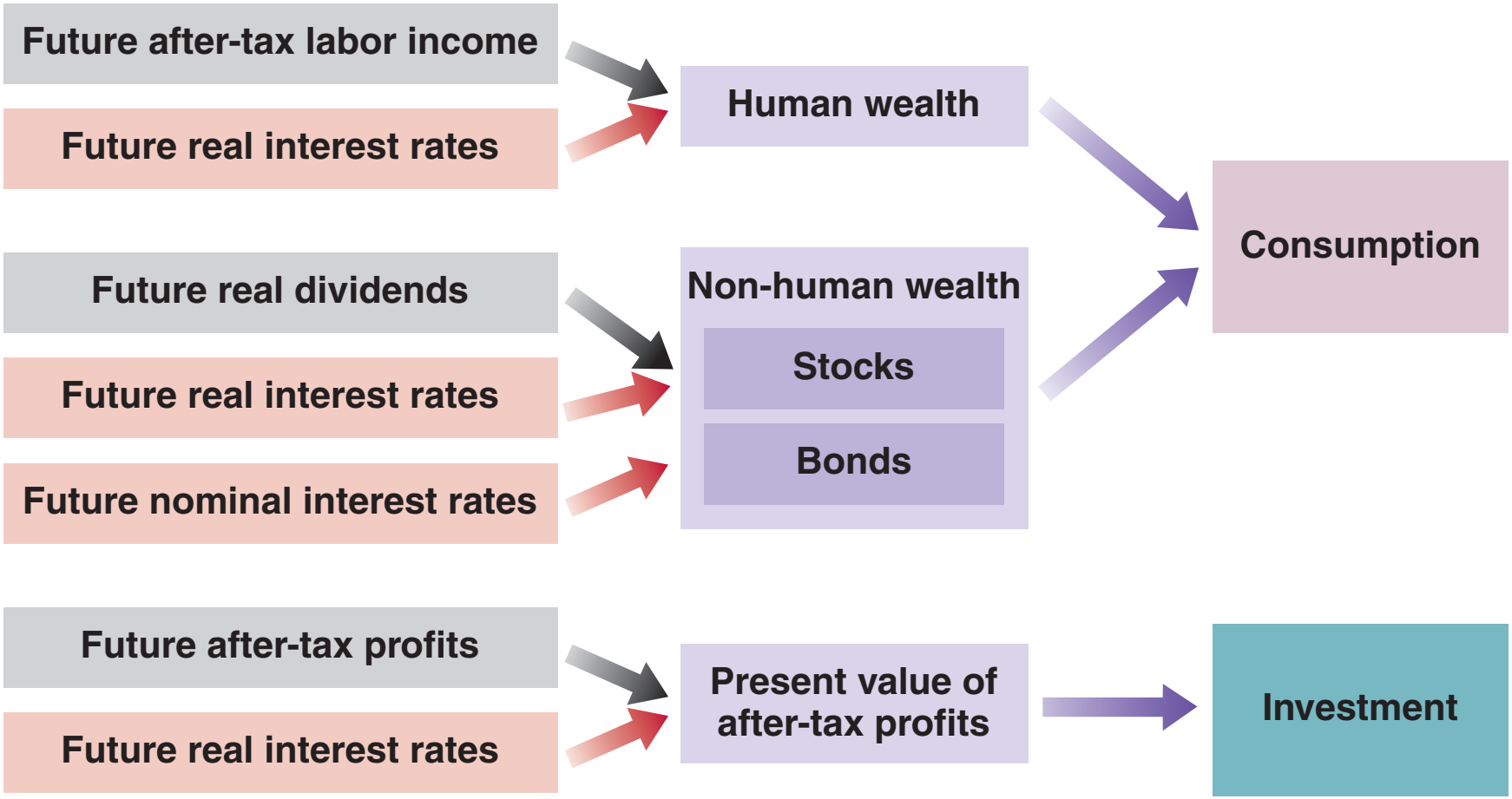
Consumption

- If consumers are "risk-averse", then they tend to smooth consumption over time.
- Therefore, their consumption is supposed to be based on their **permanent income**, rather than on their current income (Milton Friedman, Franco Modigliani). A "very foresighted consumer", as Blanchard (2017) calls him would add:
  - His human wealth: the present value of after-tax labor income. If his wage is w, grows at g, is discounted at r, and his horizon is T:

$$H = w + w\frac{1+g}{1+r} + w\left(\frac{1+g}{1+r}\right)^2 + ... + w\left(\frac{1+g}{1+r}\right)^{T-1}$$

  - His financial wealth and housing wealth, adding up to this non-human wealth.
- Consumption would then not be just a function of **current income**, as in Keynesian theory, but instead of **permanent income**.

A decent macroeconomic model?



IS Curve with expectations

- Recall Chapter 6, the IS relation:

$$Y = \underbrace{C(Y - T) + I(Y, r + x)}_{} + G$$

- We are going to have a slight change in notations.
- Assume **aggregate private spending** (private spending) A, equals the sum of consumption and investment spending:

$$A(Y, T, r, x) \equiv C(Y - T) + I(Y, r + x)$$

so that the IS relation becomes:

$$Y = A(Y, T, r, x) + G \qquad \frac{\partial A}{\partial Y} > 0, \frac{\partial A}{\partial T} < 0, \frac{\partial A}{\partial r} < 0, \frac{\partial A}{\partial x} < 0.$$

IS Curve with expectations

- Let primes denote **future values** and the superscript e denote an **expectation**, so

$$Y = A\left(Y, T, r, Y'^{e}, T'^{e}, r'^{e}\right)$$

with:

$$\frac{\partial A}{\partial Y} > 0, \frac{\partial A}{\partial T} < 0, \frac{\partial A}{\partial r} < 0, \frac{\partial A}{\partial Y'^{e}} > 0, \frac{\partial A}{\partial T'^{e}} < 0, \frac{\partial A}{\partial r'^{e}} < 0,$$

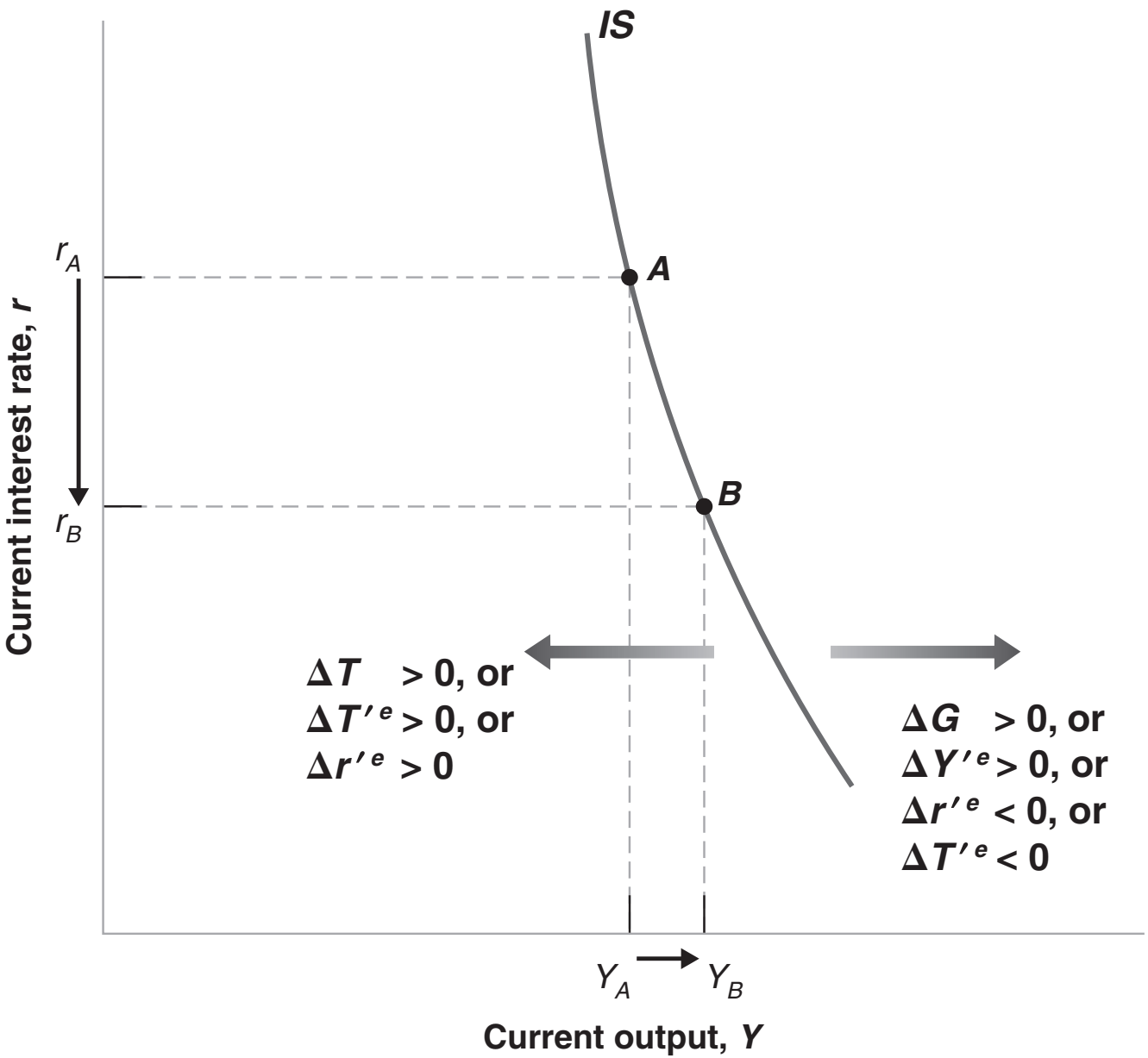
which means that:

  - Y or Y'^{e} increase $\Rightarrow$ A increases.
  - T or T'^{e} increase $\Rightarrow$ A decreases.
  - r or r'^{e} increase $\Rightarrow$ A decreases.

The New IS Curve

- **Given expectations**, a decrease in the real policy rate leads to a small increase in output.
- Indeed, present discounted values which matter for investment depend both on the next short-term interest rates, but also on longer run interest rates.
- Therefore, the IS Curve is **more steeply downward sloping**.
- Increases in government spending, or in expected future output, shift the IS curve to the right. Increases in taxes, in expected future taxes, or in the expected future real policy rate shift the IS curve to the left.

The New IS Curve



The New IS Curve

- The new IS curve is much steeper than the IS curve in previous chapters, so a decrease in the current policy rate is likely to have only a small effect on equilibrium output.
- A decrease in the current real policy rate, given unchanged expectations of the future real policy rate, does not have much effect on private spending.
- The multiplier is likely to be smaller because a change in current income, given unchanged expectations of future income, is unlikely to have a large effect on spending.

1. Taking expectations into account

2. Monetary Policy, Expectations, and Output

3. Deficit Reduction, Expectations, and Output

Adding the LM curve

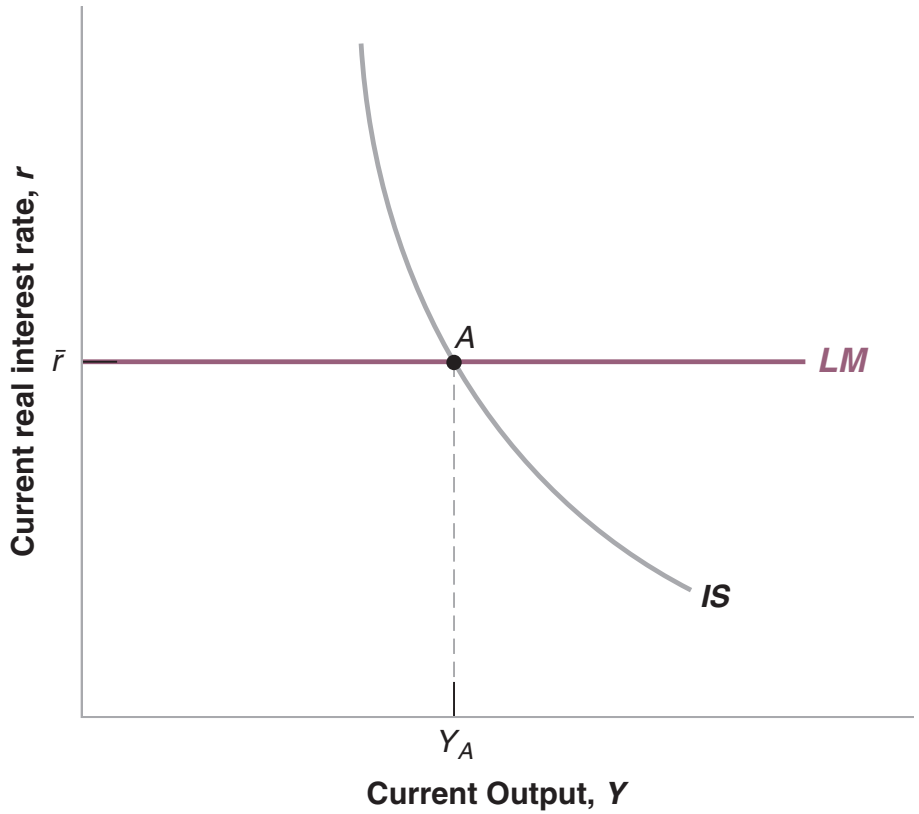
- The Fed affects directly the current real interest rate (r), so the LM curve is a horizontal line at $\bar{r}$:

$$Y = A\left(Y, T, r, Y'^{e}, T'^{e}, r'^{e}\right)$$
$$r = \bar{r}$$

- The effects of monetary policy depends on its effects on expectations:
  - If a monetary expansion leads to changes in expectations of future interest rates and output, then the policy effect on output may be large.
  - But if expectations remain unchanged, the policy effects on output will be limited.

Monetary Policy Revisited

The IS curve is steeply downward sloping. Other things being equal, a change in the current interest rate **has a smaller effect on output**. Given the current real interest rate set by the central bank, $\bar{r}$, the equilibrium is at point A.



Monetary Policy Revisited

- However, this is not all.
- As the Fed lowers the current real policy rate, financial markets now anticipate lower interest rates in the future as well:

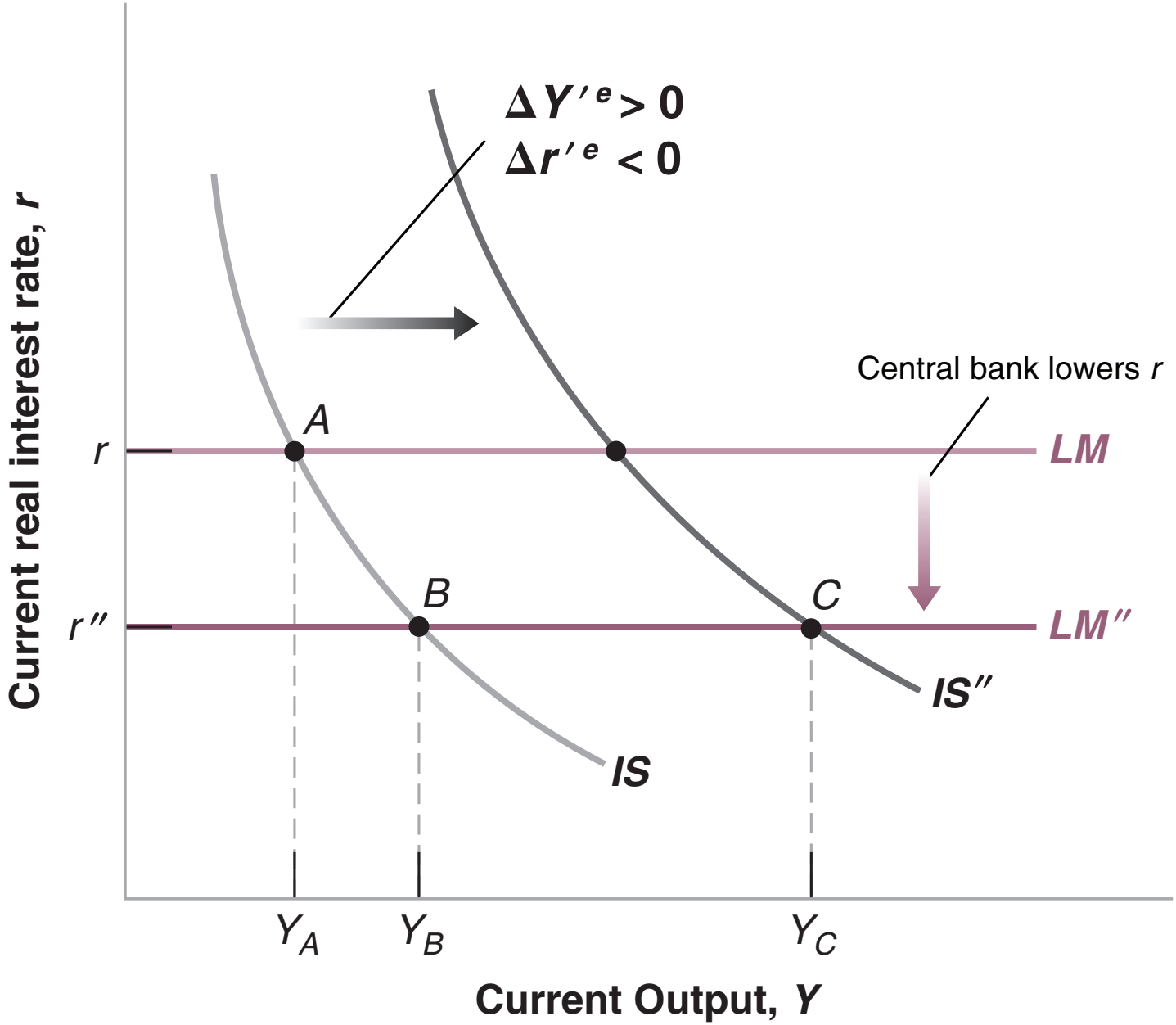
$$\Delta r'^{e} < 0.$$

- They might also anticipate a higher future output stimulated by this lower future interest rate:

$$\Delta Y'^{e} > 0.$$

- Therefore, whenever the (LM) curve moves, the (IS) curve is likely to move as well.
- Introducing expectations makes the analysis of monetary policy much **more challenging**.

The Effects of an Expansionary Monetary Policy



The Effects of a Deficit Reduction on Current Output

- According to some economists, deficit reduction may actually lead to increases in output.
- This is a strong **anti-Keynesian result**.
- However, this argument had an important influence, among some economists and many policymakers in Europe.
- For example, Jean-Claude Trichet, then president of the European Central Bank, said in September 2010:

  "[Fiscal consolidation] is a prerequisite for maintaining confidence in the credibility of governments' fiscal targets. Positive effects on confidence can compensate for the reduction in demand stemming from fiscal consolidation, when fiscal adjustment strategies are perceived as credible, ambitious and focused on the expenditure side. The conditions for such positive effects are particularly favourable in the current environment of macroeconomic uncertainty."

How does this work?

- Remember the conclusions we reached in "the core" about the effects of a deficit reduction:
  1. In the short run, a reduction in the budget deficit, unless it is offset by a monetary expansion, leads to lower private spending and to a contraction in output.
  2. In the long run, a lower budget deficit implies higher saving and higher investment.
  3. Higher investment translates into higher capital and thus higher output.
- For these economists, lower interest rates brought above by lower deficits will decrease expectations of future interest rates:

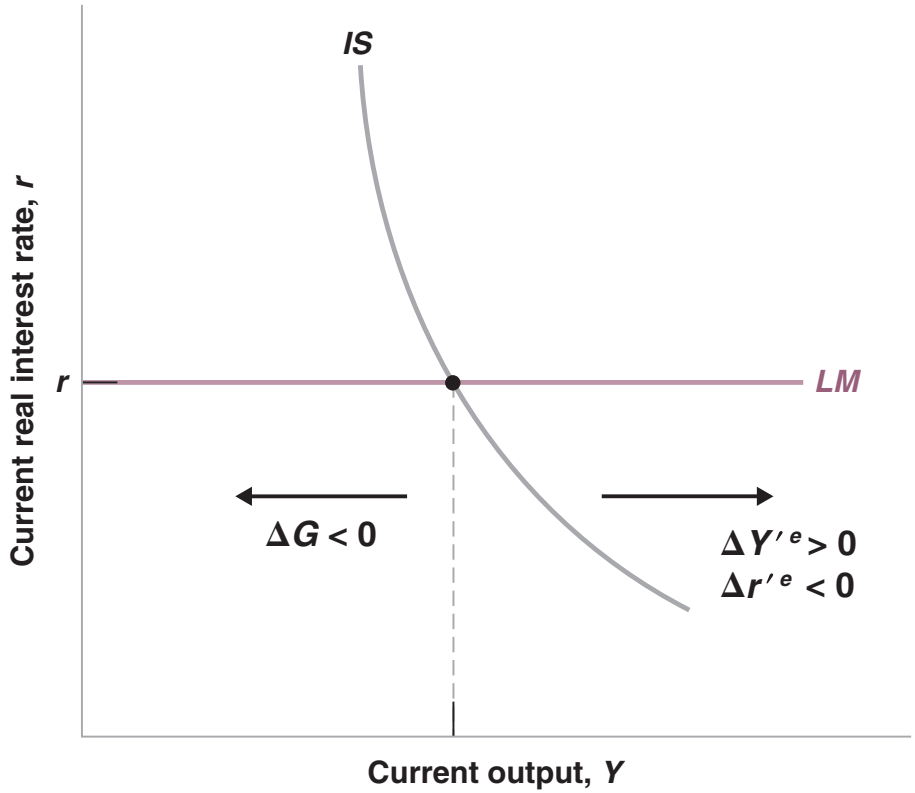
$$\Delta r'^{e} < 0$$

- Similarly, it will boost GDP in the future, through higher investment, thus:

$$\Delta Y'^{e} > 0.$$

The Effects of a Deficit Reduction on Current Output

According to this theory, when account is taken of its effect on expectations, the decrease in government spending need not lead to a decrease in output.



The Effects of a Deficit Reduction on Current Output

- According to these economists, the net effects of the three shifts in the IS curve depends on:
  - Timing
    - ★ Credibly **backloading** the deficit reduction program toward the future, with small cuts today and larger cuts in the future, is more likely to lead to an increase in output.
    - ★ The program's **credibility** (the perceived probability that the government will do what it has promised when the time comes to it) decreases when the government announces the need for painful cuts in spending, and then leaving them to the future.
  - Composition
    - ★ If some government spending programs are perceived as "wasteful," cutting these programs today will allow the government to cut taxes in the future.
    - ★ Expectations of lower future taxes and lower distortions could induce firms to invest today, thus raising output in the short run.

The Effects of a Deficit Reduction on Current Output

- Again, according to these economists, the net effects of the three shifts in the IS curve also depend on:
  - The Initial Situation: If government debt is increasing fast, then a credible deficit reduction program is more likely to increase output in the short run, as the program announcement may well reassure the people that the government has regained control of its budget.
  - Monetary Policy: Even if monetary policy cannot fully offset the effect of an adverse shift in the IS curve, a decrease in the policy rate can help reduce the adverse effects of the shift on output.

The Example of Ireland, a poster child for "Expansionary Austerity"

- In 1982, Ireland started a deficit reduction program that focused on tax increases but did not change what people saw as too large a role of government in the economy, resulting in high deficits and low GDP growth.
- In 1987, Ireland's deficit reduction program with a focus on **cuts in spending and tax reform** apparently had a positive impact on expectations, resulted in higher output growth.

Table 1 Fiscal and Other Macroeconomic Indicators in Ireland, 1981 to 1984, and 1986 to 1989

		1981	1982	1983	1984	1986	1987	1988	1989
1	Budget deficit (% of GDP)	−13.0	−13.4	−11.4	−9.5	−10.7	−8.6	−4.5	−1.8
2	Output growth rate (%)	3.3	2.3	−0.2	4.4	−0.4	4.7	5.2	5.8
3	Unemployment rate (%)	9.5	11.0	13.5	15.0	16.1	16.9	16.3	15.1
4	Household saving rate (% of disposable income)	17.9	19.6	18.1	18.4	15.7	12.9	11.0	12.6

Source: OECD Economic Outlook, June 1998.

What are multipliers equal to?

- Views about the fiscal multipliers now differ markedly – by fiscal multipliers, we mean the net effects of fiscal consolidation once direct and expectation effects are taken into account:

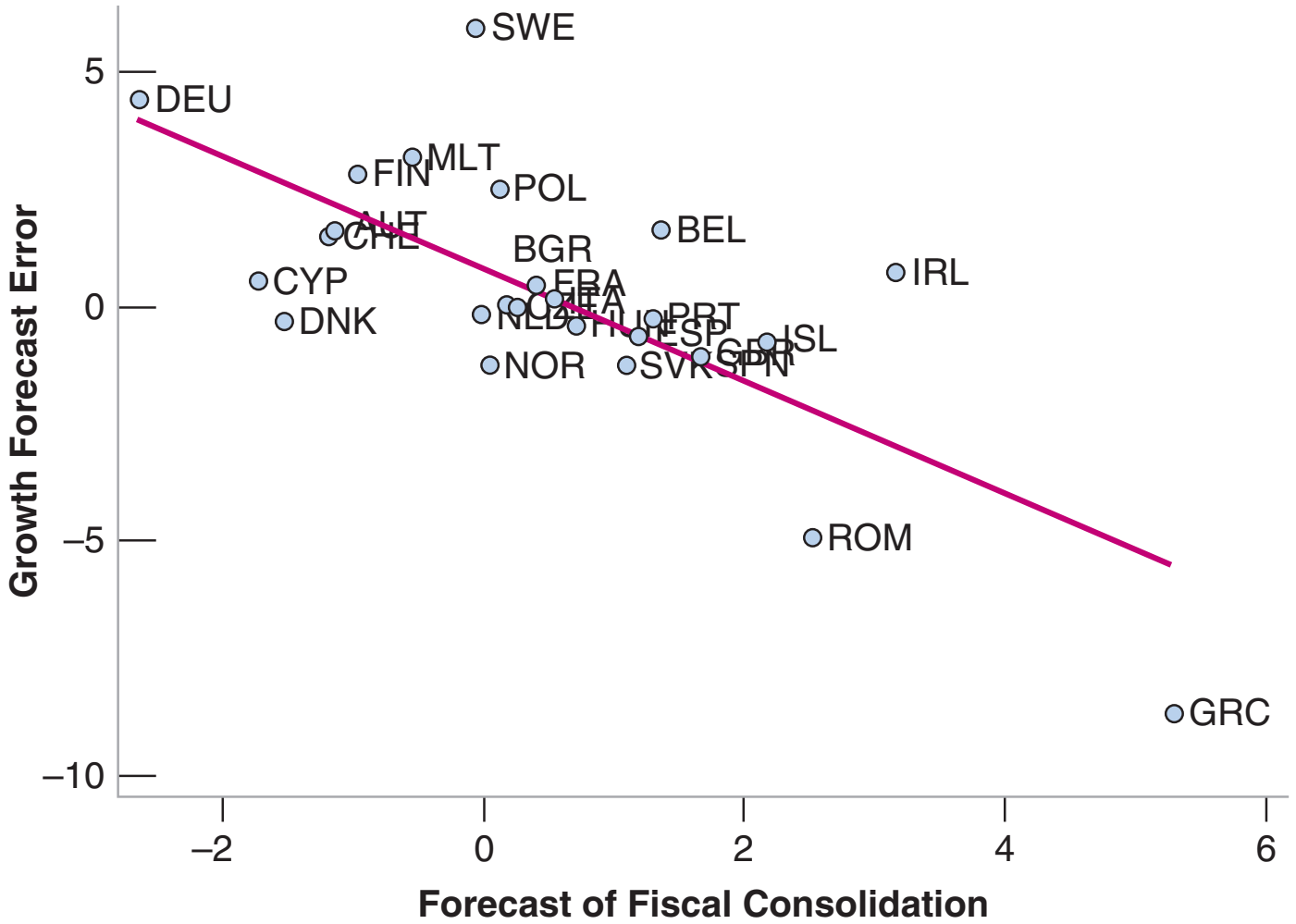
  1. Those in favor of strong fiscal consolidation argue that fiscal multipliers are likely to be **negative**, and thus smaller deficits would lead to an increase in output. They believe in expansionary austerity, and in anti-keynesian effects of larger government deficits.
  2. Those against strong fiscal consolidation argue that fiscal multipliers are likely to be **positive and possibly large**, thus smaller deficits would lead to a decrease in output. They believe in traditional Keynesian analysis, and believe that the effects on expectations are likely to be muted.

- The financial crisis offered a laboratory to test these two competing hypotheses.

Tentative conclusions

- With the benefit of hindsight, critics of the "expectations" theory have been proved **right**. (notably Paul Krugman)
- The IMF recognized that multipliers were higher than what it had assumed when evaluating the foreseeable impacts of austerity programs.
- As many large changes in G and T, a larger amount of evidence accumulated, showing that the net effect of fiscal consolidation was indeed contractionary.
- For example, Blanchard and Leigh (2013) showed that European countries with stronger fiscal consolidations in 2010 and 2011 had larger negative growth forecast errors.

Growth Forecast Errors and Fiscal Consolidation in Europe, 2010–2011 (Blanchard and Leigh (2013))



Suggested Readings / Exercises

Chapters 14-15-16, *Macroeconomics*, 7th Edition, Olivier Blanchard.
Chapter 24, *Macroeconomics*, 7th Edition, Olivier Blanchard.
✎ Giavazzi, Francesco, and Marco Pagano. "Can Severe Fiscal Contractions Be Expansionary? Tales of Two Small European Countries." NBER Macroeconomics Annual 5 (January 1, 1990): 75–111. Link
✎ Alesina, Alberto, Roberto Perotti, Francesco Giavazzi, and Tryphon Kollintzas. "Fiscal Expansions and Adjustments in OECD Countries." Economic Policy 10, no. 21 (1995): 207–48. Link
✎ Leigh, Daniel, Pete Devries, Charles Freedman, Jaime Guajardo, Douglas Laxton, and Andrea Pescatori. "Will It Hurt? Macroeconomic Effects of Fiscal Consolidation." World Economic Outlook 93 (2010): 124. Link
Cutting edge, *The Economist*, September 30, 2010. Link

Bibliography I

Blanchard, Olivier J., *Macroeconomics*, Pearson Education, 2017.

__ **and Daniel Leigh**, "Growth Forecast Errors and Fiscal Multipliers," *American Economic Review*, May 2013, *103* (3), 117–120.

Lucas, Robert E. and Thomas J. Sargent, "After Keynesian Macroeconomics," in "Federal Reserve Bank of Boston" 1978, pp. 49–72.