

CHAPTER 19/EPILOGUE: ADVANCES IN THE
THEORY OF MACROECONOMIC
FLUCTUATIONS

Instructor: Dmytro Hryshko

TWO APPROACHES

We can summarize theories of business cycles by their view of functioning of the economy's markets.

- The real business cycle theory (RBC) postulates that the economy's markets clear continuously; prices are fully flexible and do not affect the real variables (monetary neutrality).
- New Keynesian theory emphasizes the price and/or wage stickiness in the short run. Thus, fluctuations are caused by the stickiness of the prices/wages, and nominal monetary shocks can be transmitted to the changes in the real variables.

IMPLICATIONS: RBC

- The economy's fluctuations reflect its *efficient responses* to real technological *supply shocks*. In terms of production function

$$Y_t = Z_t K_t^\alpha (E_t L_t)^{1-\alpha}$$
$$Y_t = \underbrace{Z_t E_t^{1-\alpha}}_{A_t} K_t^\alpha L_t^{1-\alpha}.$$

those shocks are realizations of the Z_t process.

- The natural rate of unemployment is fluctuating since A_t is fluctuating.
- Fiscal/monetary policies are largely ineffective.

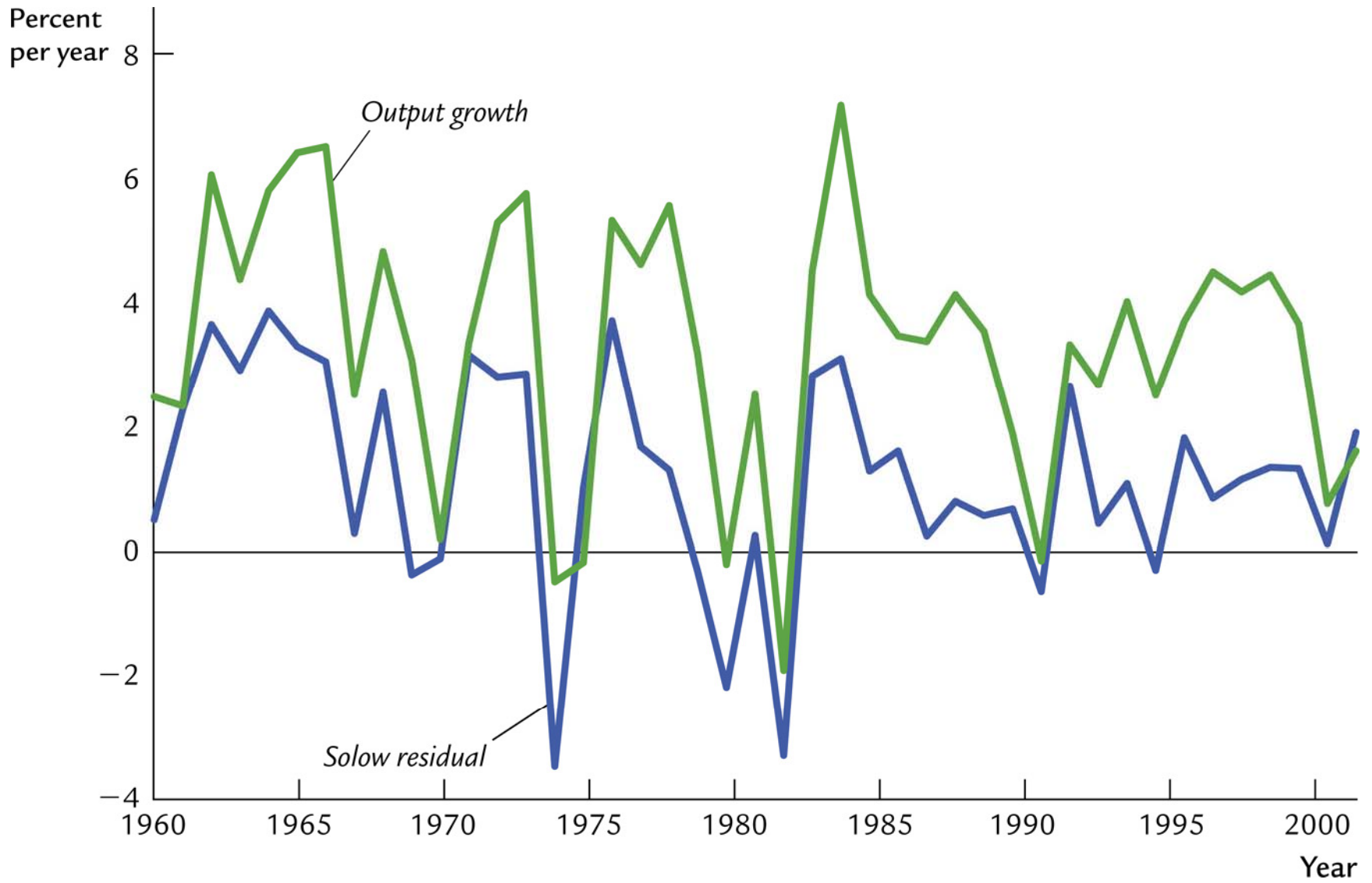


Figure 19.1 Growth in Output and the Solow Residual
 Mankiw: Macroeconomics, Sixth Edition
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IMPLICATIONS: NEW KEYNESIAN THEORIES

- Aggregate fluctuations are caused by *demand* shocks.
- Aggregate demand is identified from the *IS-LM* model.
Need to build micro-foundations for the aggregate supply and the sources of stickiness.

RBC

The parable of Robinson Crusoe. Why?

Since there is no money and all of the shocks are real. E.g.:

- Population of fish in the nearby waters suddenly rises.
- Weather shocks.
- Attacks by natives.

Changes in C , I , L (labor and, therefore, leisure), and Y are *efficient responses* to the (real) shocks.

Ex.: storm (temporary shock). $A_t \downarrow$, MPL and current wages \downarrow , cut current working hours (more leisure now), $C \downarrow$, $I \downarrow$ (since want to smooth consumption over time).

Ex.: a big school of fish in the nearby waters (temporary shock). $A_t \uparrow$, MPL and current wages \uparrow , increase working time and cut leisure time, $C \uparrow$, $I \uparrow$ (since want to smooth consumption over time).

RBC MODEL: THE INTERTEMPORAL SUBSTITUTION OF LABOR

The intertemporal substitution of labor—the willingness to reallocate work over time—should be substantial. *Not true* in micro data.

The incentive to reallocate labor between different periods is guided by the intertemporal relative wage: $\frac{W_1 \times (1+r)}{W_2}$.

Thus, shocks that cause r to increase or make W_1 temporarily high, increase work effort in period 1, and decrease the first period amount of leisure.

RBC MODEL: THE IMPORTANCE OF TECH. SHOCKS

Shocks to A_t are the main ingredient of *RBC* models, and the main source of the models' aggregate fluctuations.

Opponents: are recessions the periods of the technological regress? Also, technological shocks are not well measured, and in reality they are less pro-cyclical than the Solow residual.

Proponents: adverse shocks to the 'technology' (Solow residual) should be interpreted broadly. E.g., strict regulations, weather shocks, shocks to prices of raw materials (e.g., oil price shocks).

MONEY NEUTRALITY

Is money neutral in the short run? To answer the question, need **exogenous** shocks to money supply in order to establish the causality between money and output.

Hard to find *really* exogenous shocks...

In the data: changes in money supply *correlate* with the changes in money supply.

$$\begin{aligned} (\text{Real shocks} \Rightarrow) \quad \Delta M \not\Rightarrow \Delta Y \quad (\Leftarrow \text{Real shocks}) \quad (\text{RBC}) \\ \Delta M \Rightarrow (\text{nominal frictions: sticky wages/prices}) \Rightarrow \Delta Y \\ (\text{Keynes./Monetar.}) \end{aligned}$$

To prove that $M \Rightarrow Y$ (that is, money causes output) need to find an *exogenous* variation in M , that is, the variation *not* affected by the news of future productivity or by current real shocks.

Measurement of the TFP

Suppose $Y = AK^\alpha L^{1-\alpha}$. Then,

$$\frac{\Delta A}{A} = \frac{\Delta Y}{Y} - \left(\alpha \frac{\Delta K}{K} + (1 - \alpha) \frac{\Delta L}{L} \right).$$

Inputs are utilized with different intensity over the business cycle. Consider $Y = AK^\alpha (uL)^{1-\alpha}$, where u is the *utilization rate* of L . Then,

$$\frac{\Delta A}{A} = \frac{\Delta Y}{Y} - \left(\alpha \frac{\Delta K}{K} + (1 - \alpha) \frac{\Delta L}{L} + (1 - \alpha) \frac{\Delta u}{u} \right).$$

The TFP measure will become less *procyclical* when $\frac{\Delta u}{u} > 0$ during expansions and $\frac{\Delta u}{u} < 0$ during recessions.

New Keynesian Theories

Rationalize the stickiness of prices and wages.

- 1 Menu costs
- 2 Recessions as coordination failures
- 3 Staggering of wages and prices: individual wages and prices change frequently but at different points in time, and so aggregate prices and wages adjust sluggishly.

IS THERE A CONSENSUS ON KEY MACROECONOMIC ISSUES?

- 1 In the long run, the economy's technology and availability of the factors of production determines the well-being of its citizens.
- 2 In the short run, aggregate demand determines the amount of goods and services the economy produces, and the well-being of its citizens.
- 3 In the long run, the rate of money growth determines the rate of inflation, but it does not affect the (natural) rate of unemployment.
- 4 In the short run, policymakers face a tradeoff between inflation and unemployment.

CONSENSUS ON POLICY ISSUES?

- ➊ How to promote growth in the natural (trend) level of output?
- ➋ Stabilizing potential of discretionary fiscal policy is at best limited and the role of fiscal policy lies embedded in automatic stabilizers (problem 1, set 5; Snowdon and Vane, 2005: handout).
- ➌ Shift of focus towards monetary policy as the main tool of stabilization policy (Snowdon and Vane, 2005; Goodfriend and King, 1997).
- ➍ Stabilization policy is viewed as a game theoretic problem: policy affects expectations and therefore outcomes. Issues of policymakers' credibility are important.
- ➎ Is government budget deficit a problem?