# Teaching Macroeconomics after the Crisis: What have we learnt?

Peter Bofinger

Universität Würzburg

Nothing

Survey by Gärtner et al. (2011)

- Are these topics and models included in your institution's mandatory macro courses?

Finding the right trail head is important

Axel Leijonhufvud (2011, p.1)

- "The IS-LM model which originated as an attempt to formalize the verbal economics of Keynes, led after years of debate to the seemingly inescapable conclusion that unemployment had to be due to the downward inflexibility of money wages. This old neoclassical synthesis thus casts Keynesian economics as a stable system with a "friction", rather than a theory of an economy harboring dangerous instabilities."

Flaws of the IS/LM-AS/AD model

- Logical inconsistencies: 2 supply curves (45°-lien, AS-curve), 2 demand curves (aggregate demand in income/expenditure model, AD-curve)

- No analytical explanation of involuntary unemployment

- No analysis of fiscal and monetary policy on the basis of loss functions

- No systematic analysis of shocks

- No zero-bound of interest rates: deflation is stabilizing

IS/LM-AS/AD: a world of inconsistencies
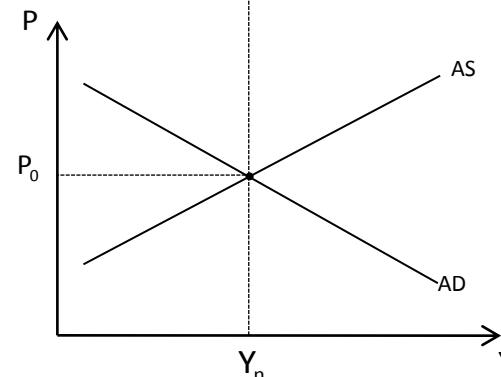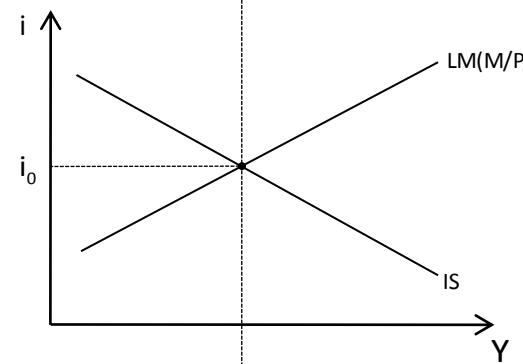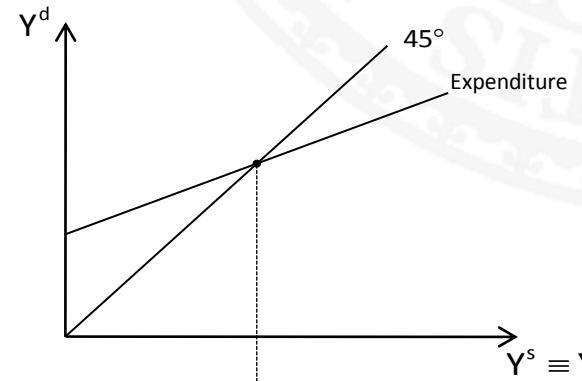
Reinterpretation

- 45°-line (income/expenditure): Keynesian short-term supply curve

- Expenditure-line (income/expenditure): aggregate demand curve

- IS-Curve (IS): Demand equals supply curve

- LM-Curve (LM): Interest rate line for monetary targeting

- AD-Curve (AD): Monetary policy rule for monetary targeting

- AS-Curve (AS): Phillips-Curve for the price level

The re-interpreted model in comparison

IS-LM / AS-AD

Macro 2.0
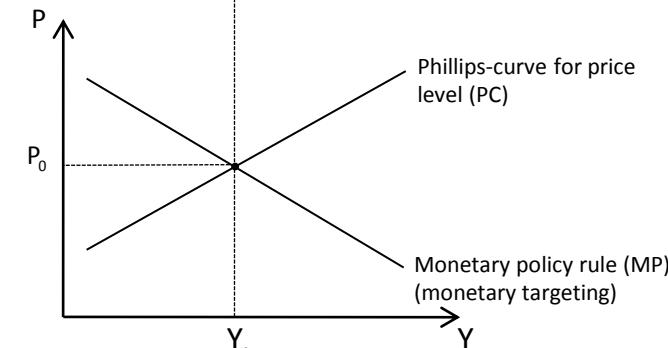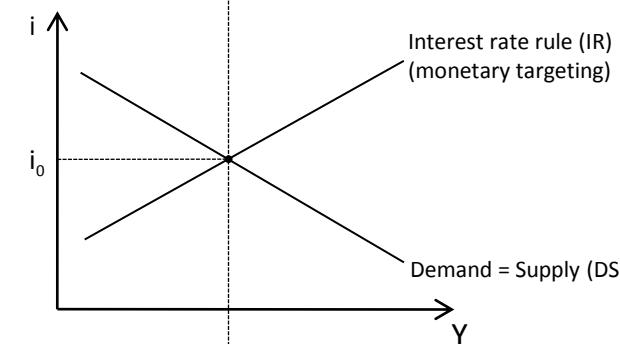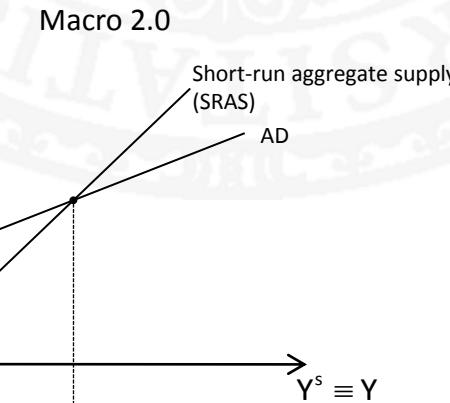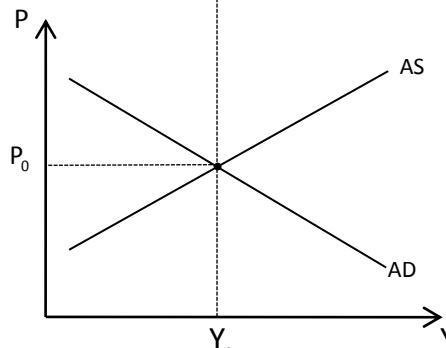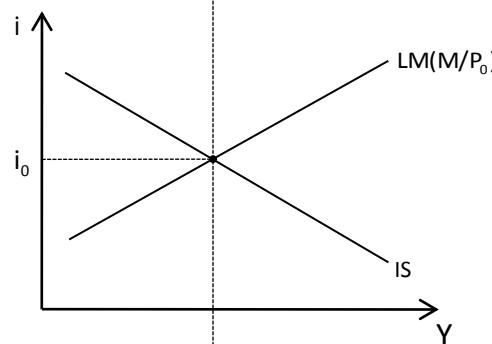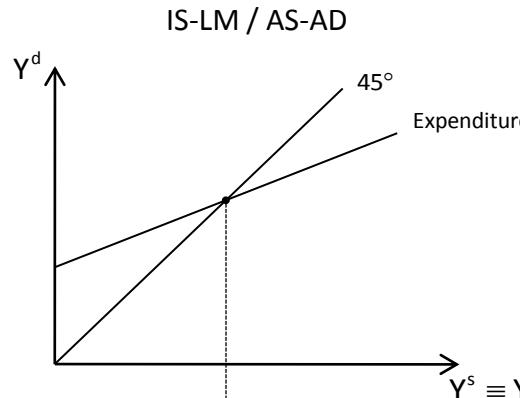
Cyclical unemployment in the reinterpretation
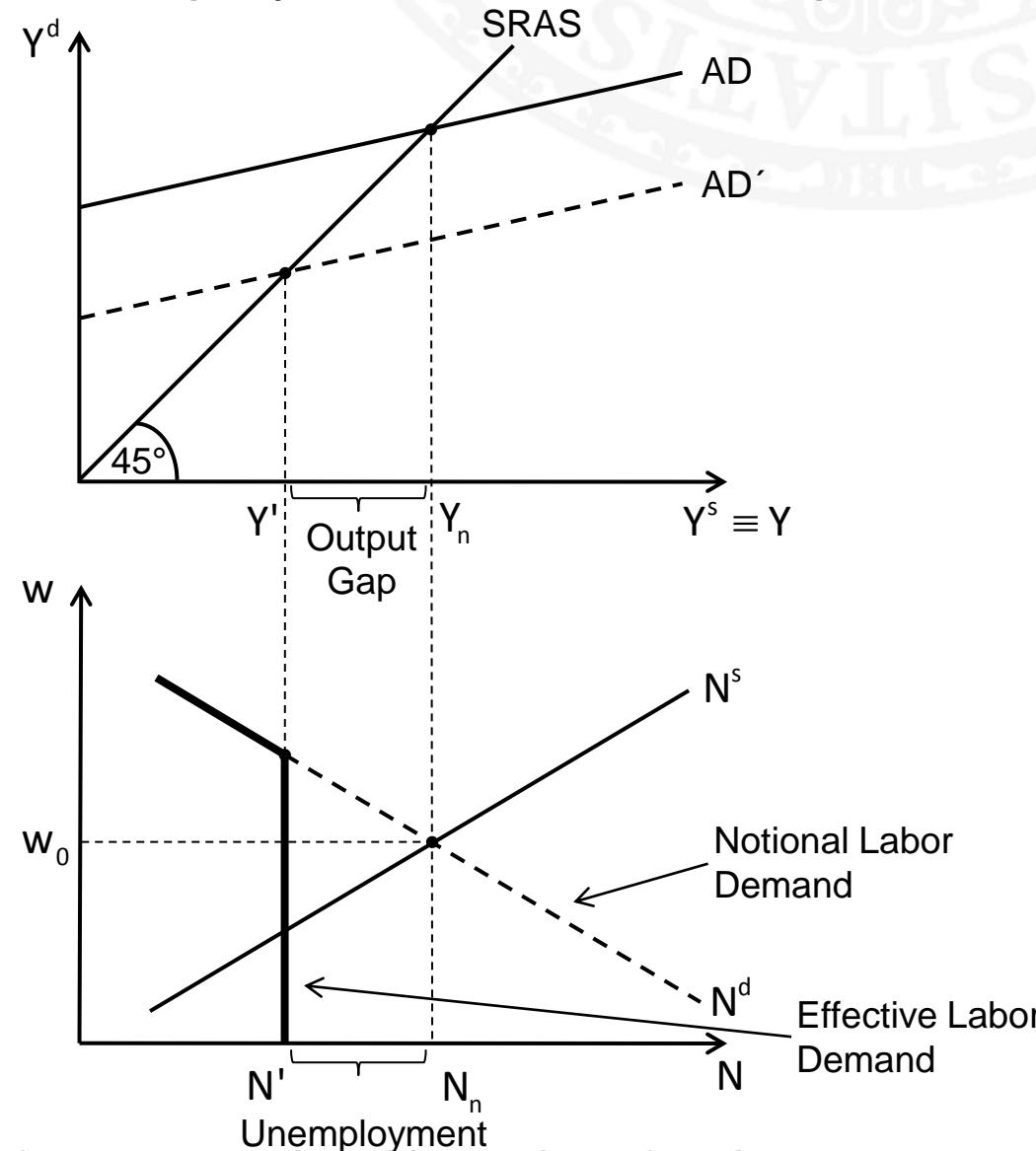
The destabilizing effect of monetary policy in standard textbooks
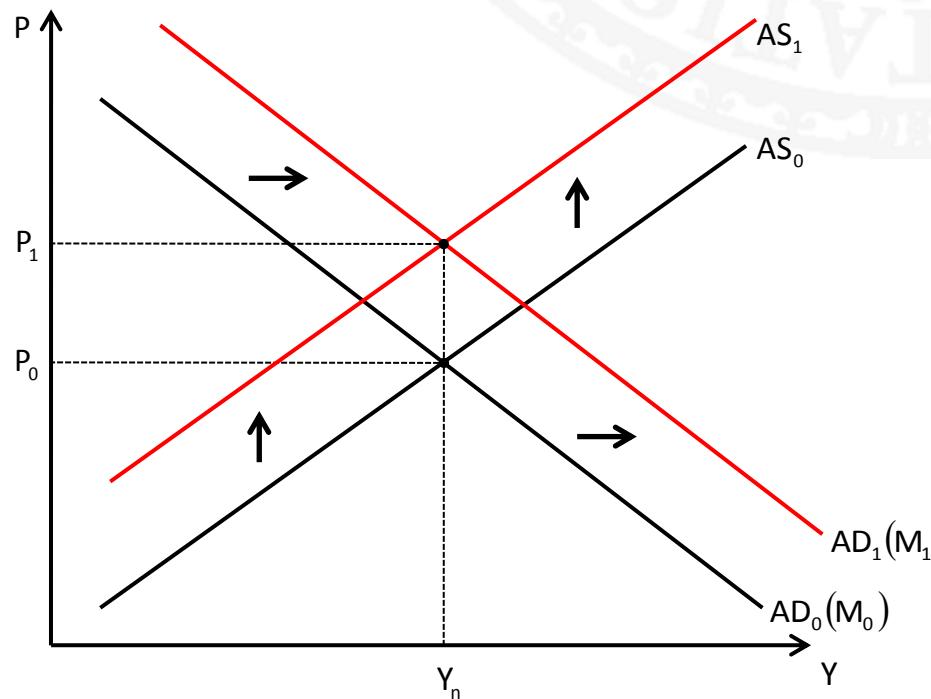
- Expansionary monetary policy shifts AD-curve to the right
- This leads to higher inflation expectations (AS-curve shifts upwards)
- Monetary expansion has no permanent output effect → only price level changes from P_0 to P_1

➢ **Problem:**
Monetary policy guided by a loss-function (e.g. $L=(P-P_0)^2+\lambda(Y-Y_0)^2$) would have no incentive to do such a monetary expansion!

The stabilising effect of monetary policy after a demand shock
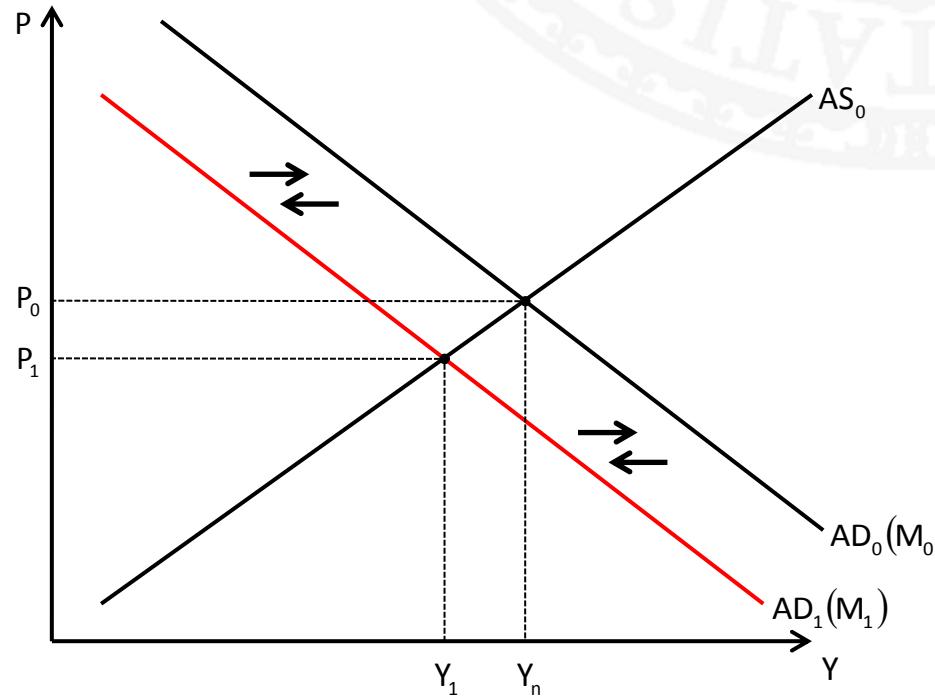

- Negative demand shock moves AD-curve to the left
- For a central bank (characterized through a loss-function) P_1/Y_1 implies a loss

➢ **Implications for monetary policy:**
  – Central bank perfectly compensates the demand shock by increasing the money supply from M_0 to M_1 (P_1/Y_1 is reached)
  – Demand shock causes no trade-off for the monetary authority

Deflation as a self-stabilizing mechanism

- "Even without action by policy makers, the recession will remedy itself over a period of time. (…) Even though the wave of pessimism has reduced aggregate demand, the price level has fallen sufficiently (…) to offset the shift in aggregate demand." (Mankiw and Taylor, 2010, p.714).

Deflation in the standard model
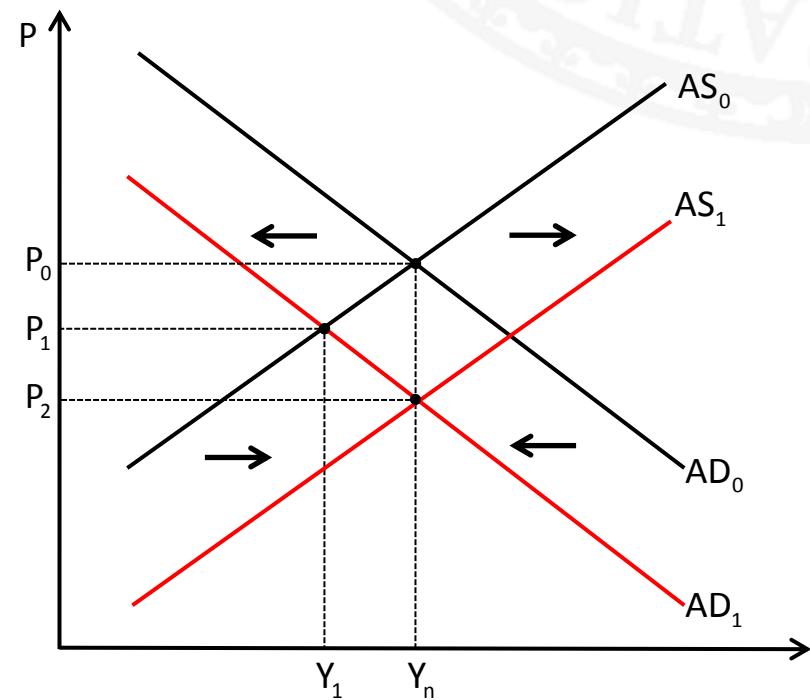
- Negative demand shock moves AD-curve to the left
- Downward adjustment of price expectations shifts AS-curve to the right

➢ **Implications in the standard model:**
The deflationary tendency is a desirable phenomenon which helps to stabilize the output level (Y_1 to Y_n) following a negative demand shock without policy intervention

Severe demand shock and the zero lower bound
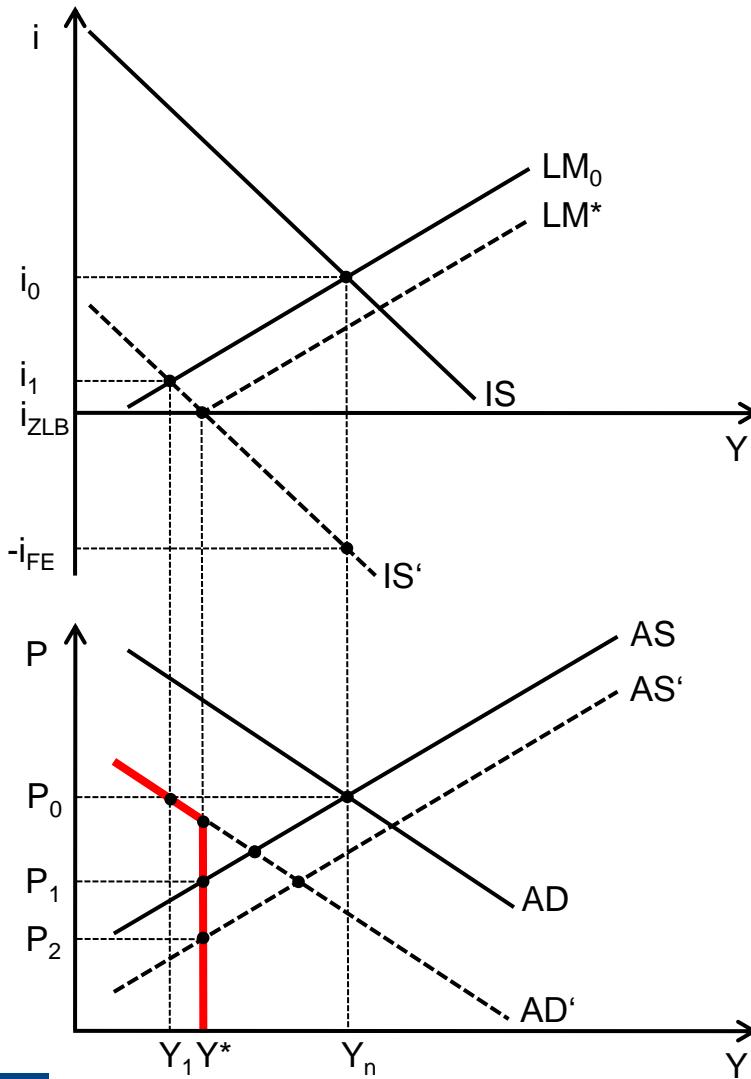
- Strong negative demand shock shifts IS&AD-curve sharply to the left

- Output level with full employment Y_n would require a negative nominal interest rate $-i_{FE}$

- Maximum output level Y^* is fully restricted by the binding zero lower bound

- AD-curve is kinked

- Deflation (downward shift of AS-curve) only has an impact on the price level (P_1 to P_2) but does not influence the output level which remains at Y^*

15

More flaws

- IS-LM/AS-AD: Central bank targets the price level with the instrument of the money stock

- Reality: Central bank targets the inflation rate with the instrument of the interest rate

An alternative approach: The BMW-model

- Only 3 simple equations needed:

  ➤ IS-Curve

  $$y = a - br + \varepsilon_1$$

  ➤ (New Keynesian) Phillips-Curve

 $$\pi = \pi_0 + dy + \varepsilon_2$$

  ➤ Loss-function (Central bank)

  $$L = (\pi - \pi_0)^2 + \lambda y^2$$
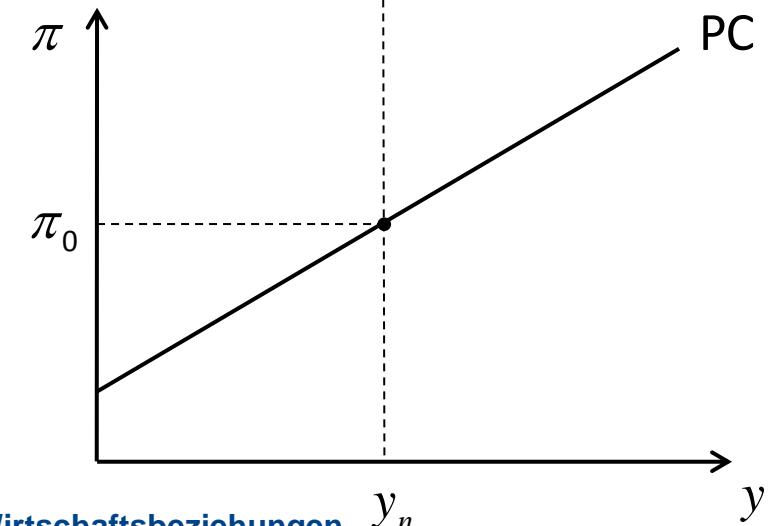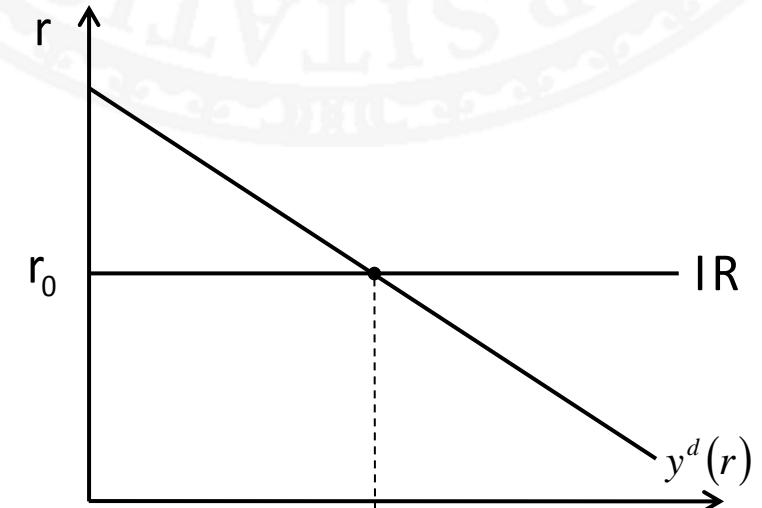
BMW-Model: Demand Shock

- Negative demand shock shifts IS-curve to the left

- If the central bank does not react (r_0 stays constant) the shock causes a negative output-gap (y_1) and a lower inflation rate (π_1)

- If the central bank reacts with lowering the interest rate then the old equilibrium can be reached again
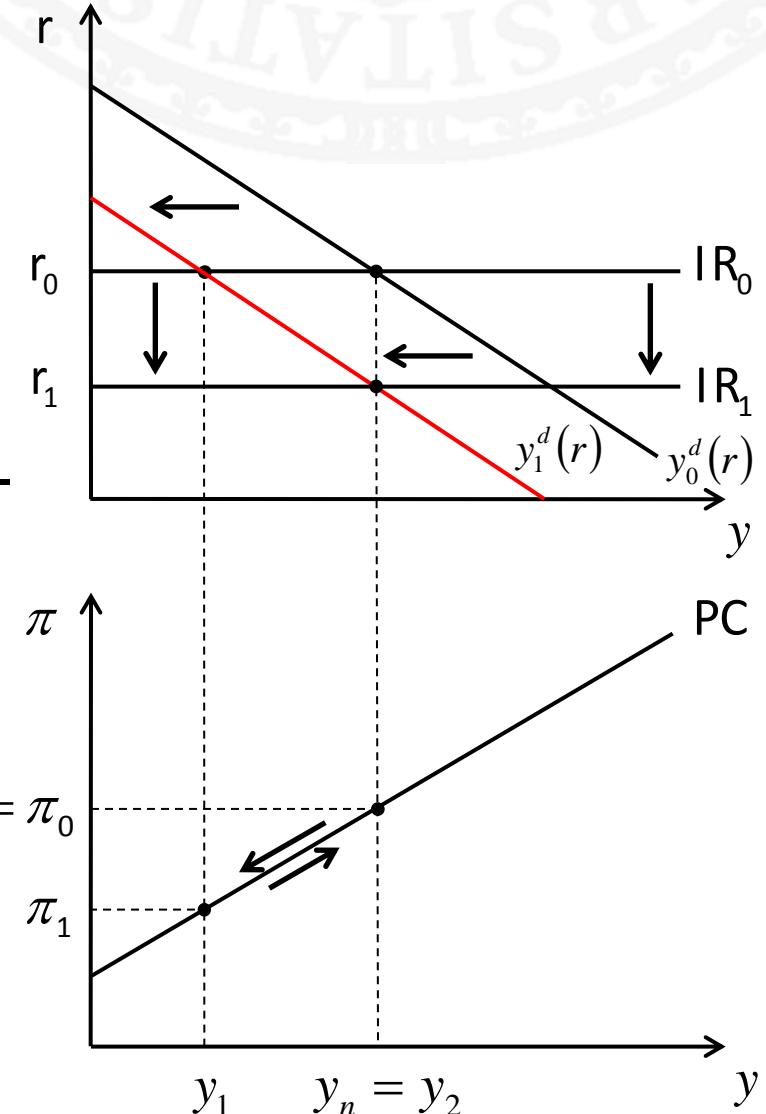
Useful applications

- Taylor rule

- Time inconsisteny problem

- Open economy macroeconomics

Other areas for new macroeconomc teaching

- Loanable funds theory: Banks as intermediaries of a given stock of savings

- Reality: Banks create loans and thereby create deposits and savings

- The process of money supply by the central bank (price-theoretic money supply model, Bofinger, 2001)

Implications of the flawed introductory approach for advanced models (DSGE)

- No involuntary unemplyoment
- No co-ordination problem between saving and investment plans
- No role for banks

Summary

- Basic macroeconomic models create the illusion of a self-stabilzing mechanism

- Last decade: Belief in „great moderation"

- Today: Underestimation of negative demand effects of fiscal consolidation

Literature

- Peter Bofinger, Eric Mayer and Timo Wollmershäuser, "The BMW Model: A New Framework for Teaching Monetary Economics", The Journal of Economic Education, vol. 37, no. 1, pp. 98-117, 2006.

- Peter Bofinger, "Teaching Macroeconomis after the crisis", Würzburg Economic Papers, Dezember 2011.

- Peter Bofinger, „Monetary policy: Goals, institutions, strategies, and instruments", Oxford University Press 2001.