

Dr. Stephan Seiter  
Universität Hohenheim

## Economics

### Syllabus

#### Preliminary Remarks

- The lecture covers macroeconomics. The following book will be used as a textbook.

Mankiw, N.G. (2002)  
Macroeconomics  
5<sup>th</sup> edition  
New York: Worth Publishers  
ISBN 0-7167-5237-9  
Code: MAC

- Another interesting book by the same author is

Mankiw, N.G. (2000)  
Principles of Economics  
3<sup>rd</sup> edition  
Fort Worth et al: Harcourt College Publishers  
ISBN 0-03-025951-7  
Code: POE

- These books are also useful for the topics covered in the 5<sup>th</sup> and 6<sup>th</sup> semester.
- Reading the relevant chapters is strongly recommended. All figures used during the lecture are included in the textbooks. Transparencies can be found also on <http://www.stephan-seiter.de/vwa/macro.html>
- All students are expected to write a paper dealing with the topics of one section (2-9) and to present parts of it (length: 8-10 pages). For the presentation, students should work together in teams up to 4 members (not more). The presentation will take place in the last session. Each group will have 15 minutes for the presentation.
- **Papers are due on November 13, 2006.** Please send it as a PDF-file to [macro@seiterlectures.com](mailto:macro@seiterlectures.com).
- At the end of the class you have to pass a test (45 minutes) that will refer to the lecture and the relevant chapters of the textbook.
- Composition of the grade you will receive:      paper 50%  
   test 50%

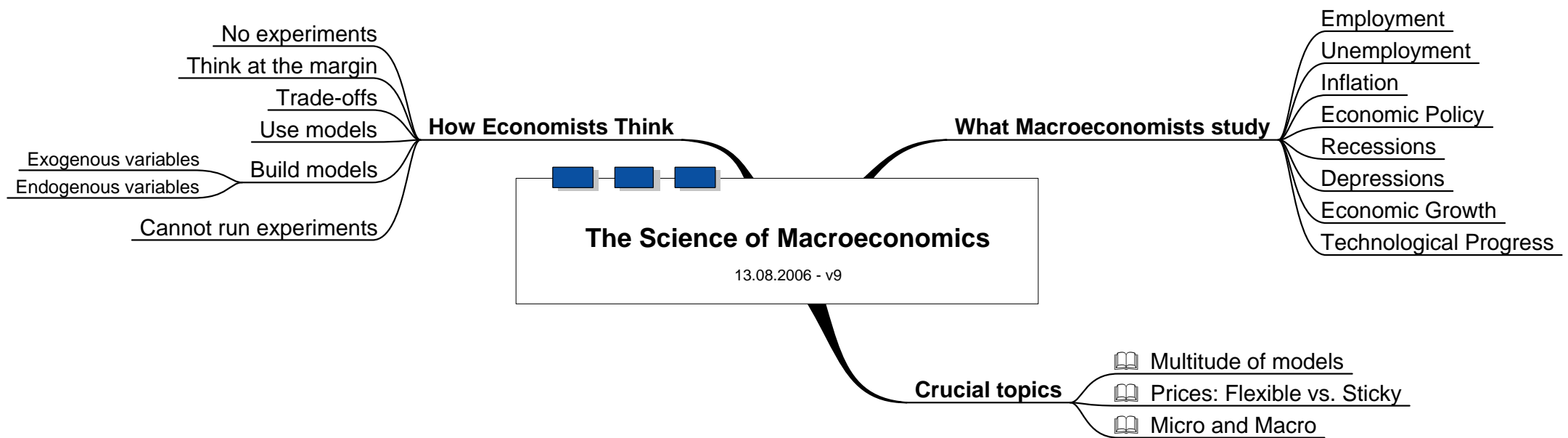
#### Contact:

- E-Mail: [macro@seiterlectures.com](mailto:macro@seiterlectures.com).

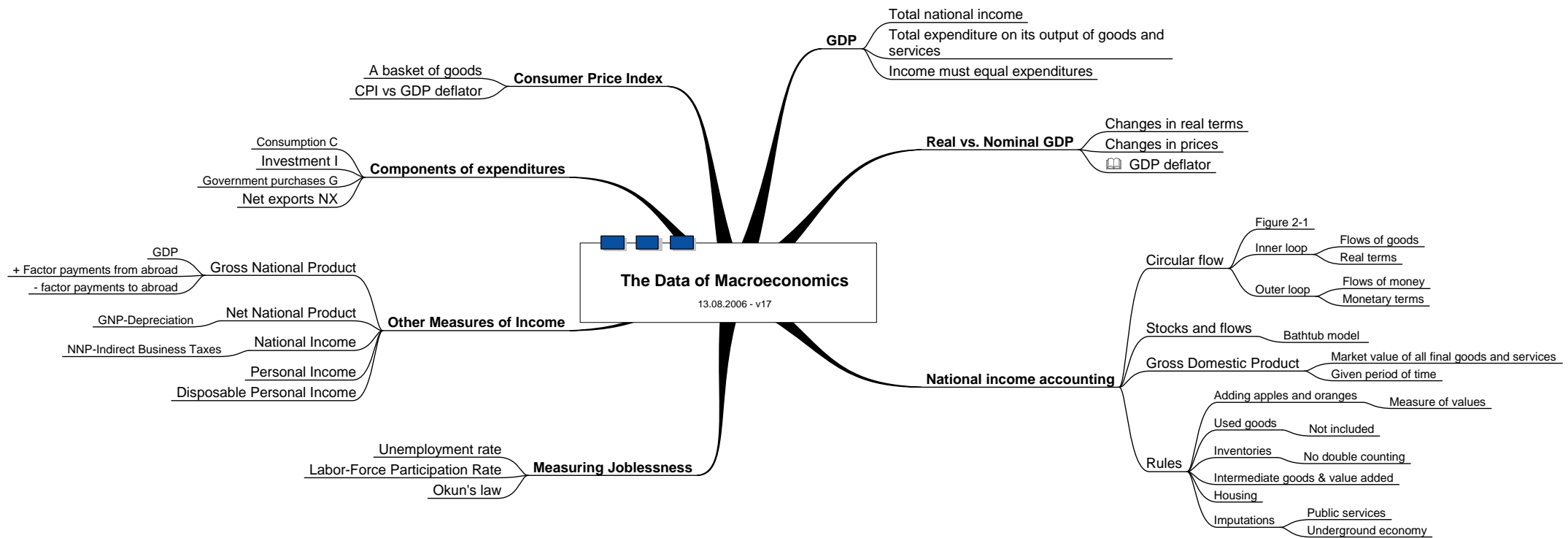
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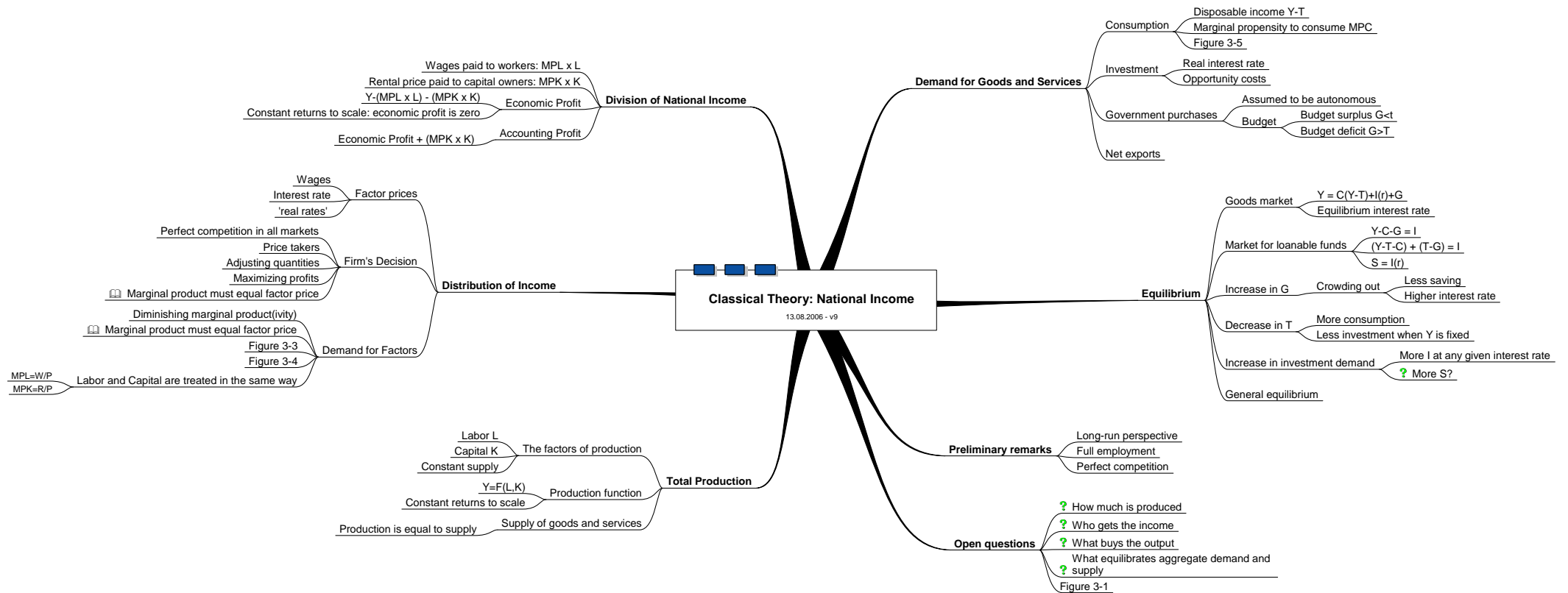
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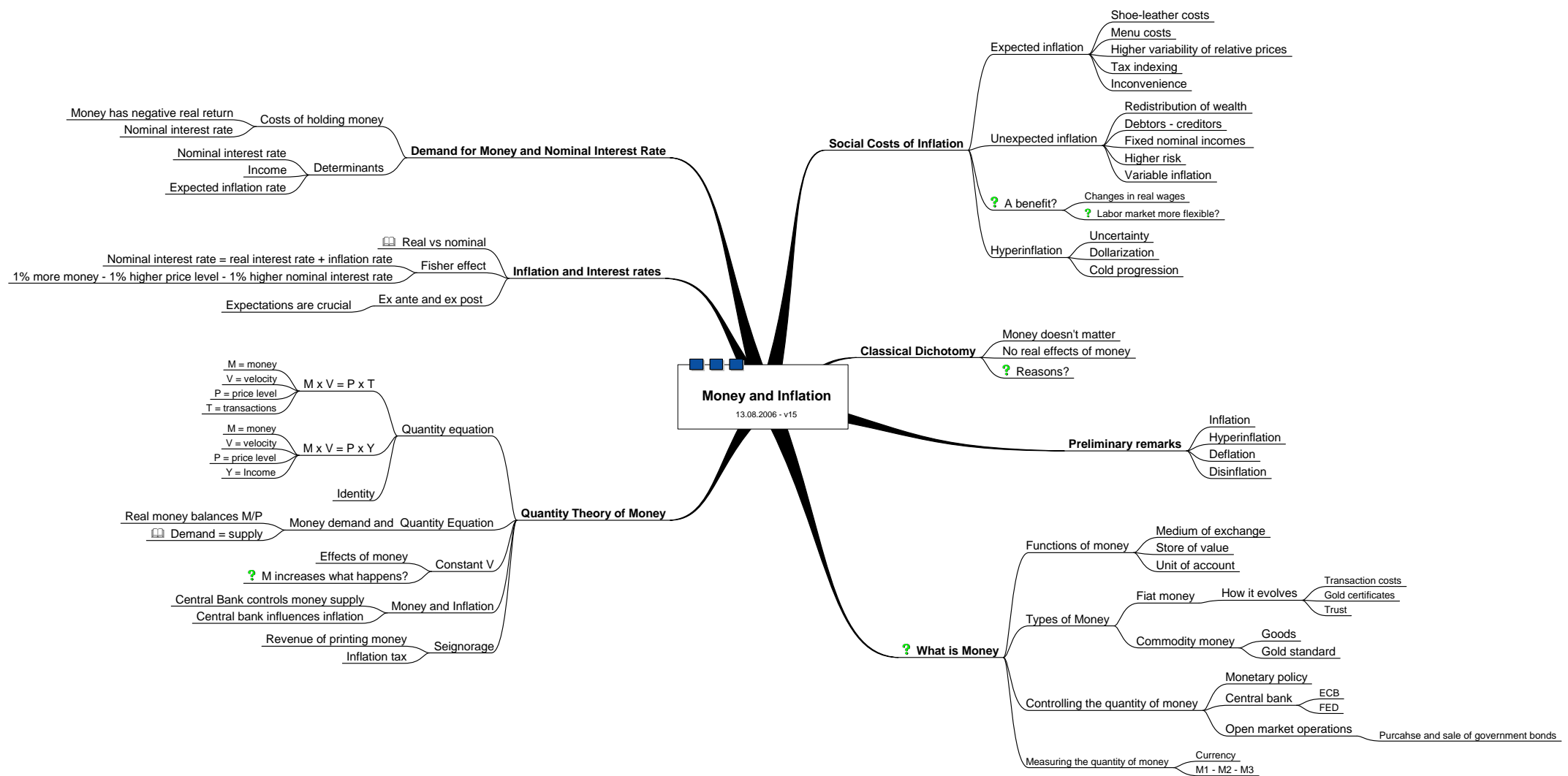
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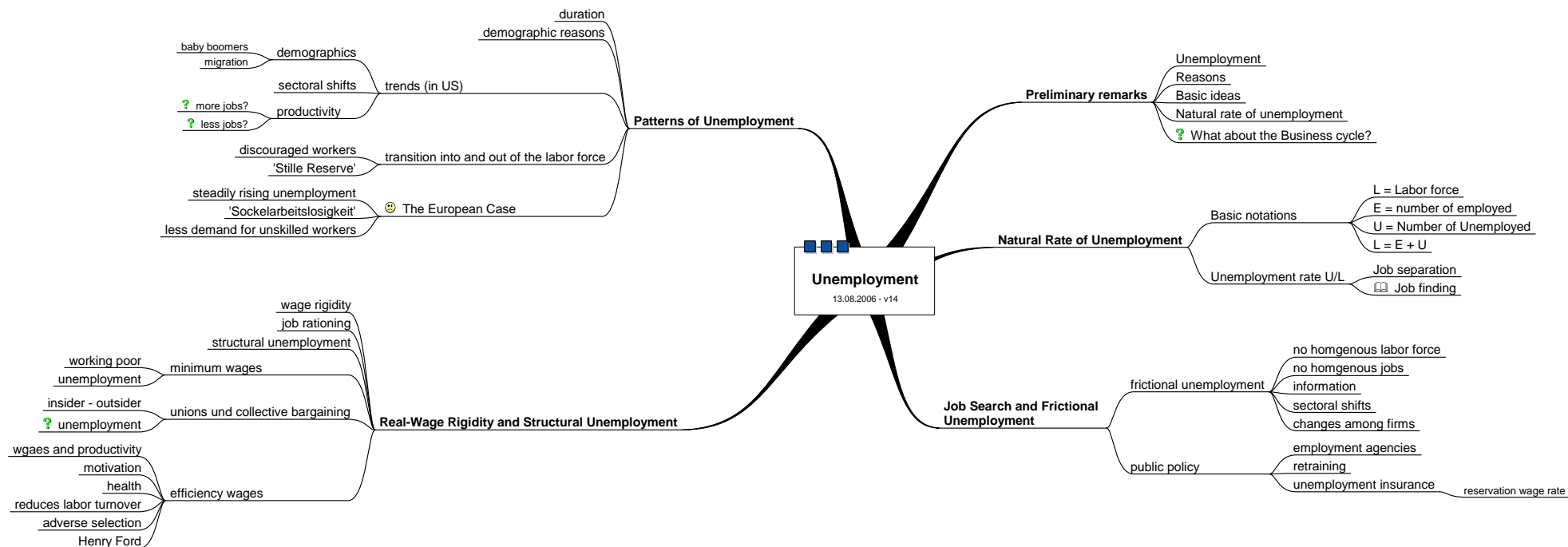
The Data of Macroeconomics.mmp - 13.08.2006 - Stephan Seiter -



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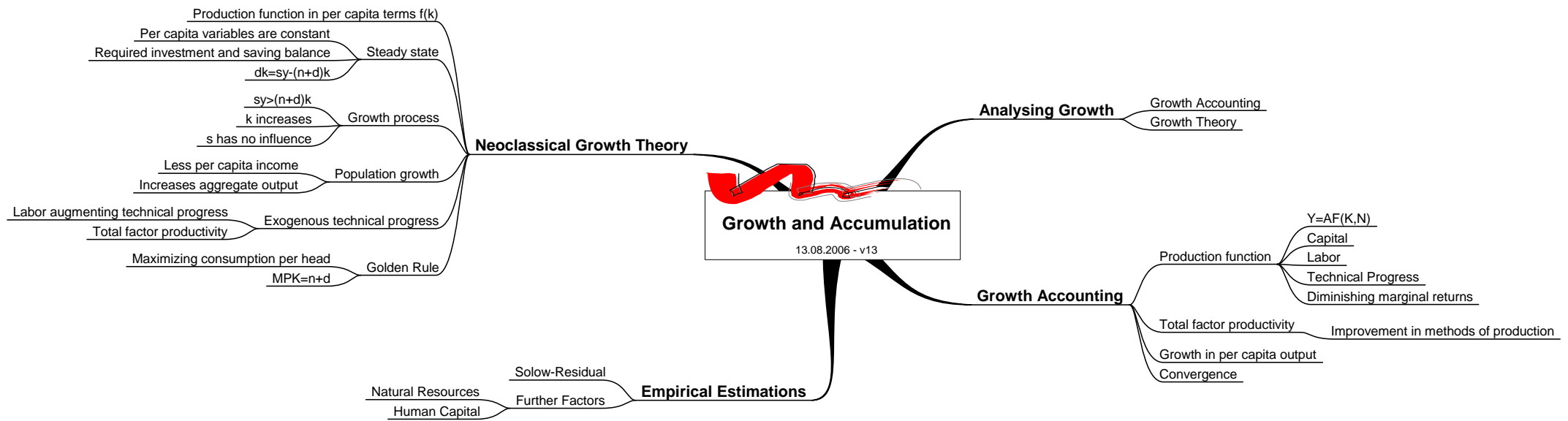


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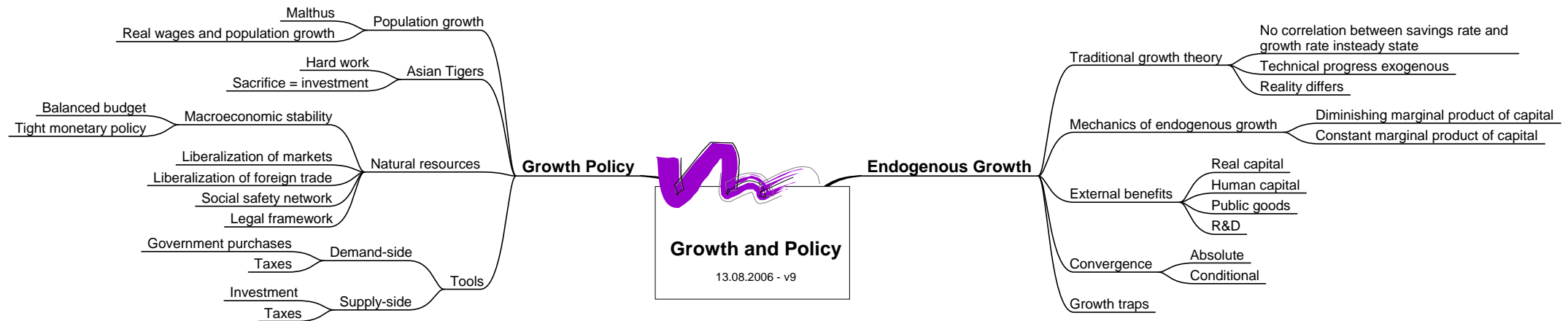


Unemployment.mmp - 13.08.2006 - Dr. Stephan Seiter -





Growth and Accumulation.mmp - 13.08.2006 - Dr. Stephan Seiter -



Growth and Policy.mmp - 13.08.2006 - Dr. Stephan Seiter

# The IS-LM-Model: Basics

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## Goods Market

- Preliminary remarks: Time
  - Short run
    - Demand determines output
    - Productive capacity is constant
    - Prices are constant
  - Medium run
    - Supply side is relevant
    - Productive capacity is constant, but fully used.
    - Prices are variable.

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## Goods Market

- Preliminary remarks: Time
  - Long run
    - Productive capacity is variable
    - Technological progress
    - Prices are flexible

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## Goods Market

- Demand
  - Consumption C
  - Investment I
  - Government purchases G
  - Net exports X-IM

$$\Rightarrow E \equiv C+I+G+X-IM$$

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## Goods Market

- Aggregate demand
  - Assumption:
    - One good
    - Price level is constant
    - Closed economy:  $E \equiv C+I+G$

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## Goods Market

- Consumption function
$$C = C(Y_D) \quad \text{mit} \quad Y_D = Y - T + Tr$$
  - Consumption depends on the current income

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## Goods Market

- Consumption function  $C = c_0 + c'Y_D$ 
  - Autonomous consumption  $c_0$ 
    - Independent of income
  - Marginal propensity to consume MPC
    - How does consumption change, when income is changed by 1 unit.

$$c' = \frac{dC}{dY_D}$$

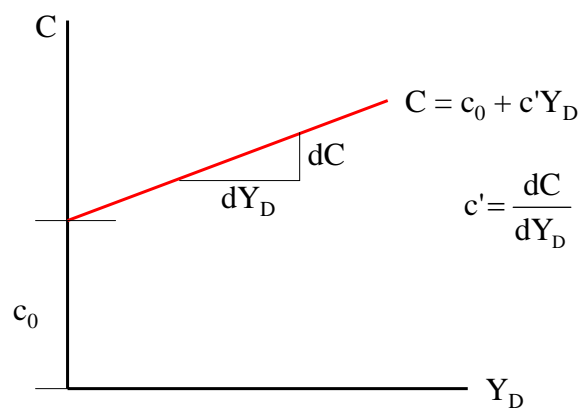
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## Goods Market

- Consumption function  $C = c_0 + c'Y_D$



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## Goods Market

- Investment
  - Investment is exogenously given.
  - Investment is autonomous

$$I = \bar{I}$$

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## Goods Market

- Government purchases  $G$ 
  - Exogenous
  - Different scenarios:  $G = T$ ,  $G > T$ ,  $G < T$
  - Fiscal policy

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## Goods Market

- Equilibrium in the Goods Market

- Demand

$$E = c_0 + c'(Y - T + Tr) + \bar{I} + G$$

- Supply Y

- Income is equal to production

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## Goods Market

- Equilibrium

- Demand = Supply

$$Y = E$$

$$Y = c_0 + c'(Y - T + Tr) + \bar{I} + G$$

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## Goods Market

- Equilibrium

- Algebra

$$Y = c_0 + c'(Y - T + Tr) + \bar{I} + G$$

$$Y = c_0 + c'Y - c'T + c'Tr + \bar{I} + G$$

$$(1 - c')Y = c_0 - c'T + c'Tr + \bar{I} + G$$

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## Goods Market

- Equilibrium

- Algebra

$$Y = \frac{1}{1 - c'}(c_0 - c'T + c'Tr + \bar{I} + G)$$

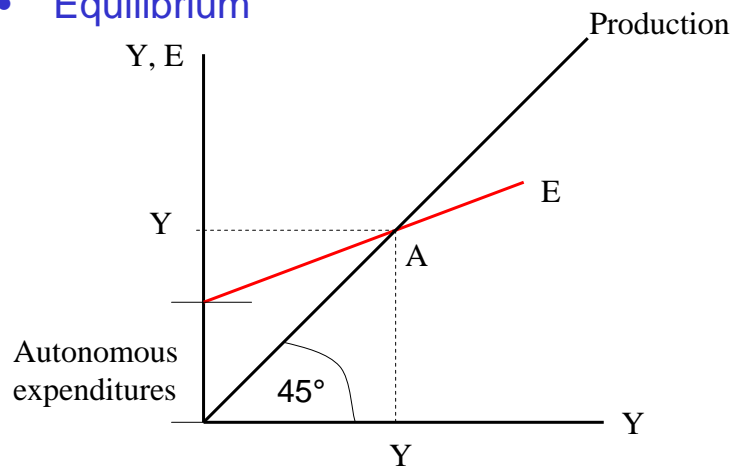
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## Goods Market

- Equilibrium



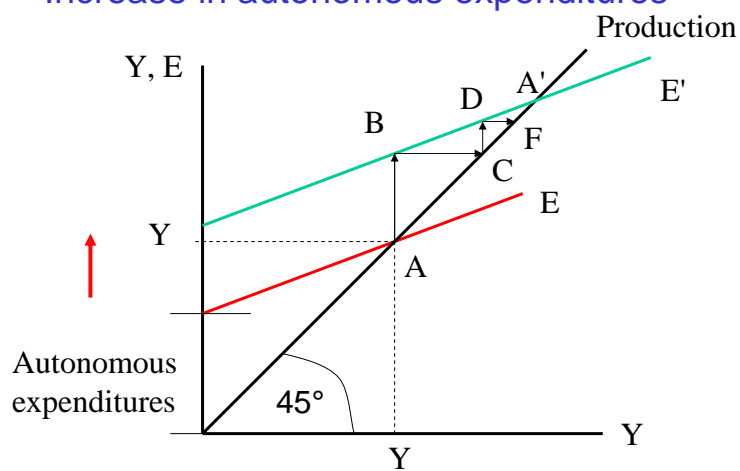
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## Goods Market

- Increase in autonomous expenditures



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## Goods Market

- Multiplier

- Increase in autonomous expenditures
- Shift of demand curve  $E \Rightarrow E'$
- Firms will adjust production.
- Income rises, so does consumption.
- This leads to more demand.
- Process ends in  $A'$

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## Goods Market

### Multiplier

$$\frac{1}{1 - c'}$$

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## Goods Market

- IS Curve

- Starting point: 45°-Keynesianism
- We assumed autonomous investment
- What are consequences of investment that depends on the interest rate ( $r$ )?
- Demand depends on the interest rate.
- Changes in the interest rate will change demand.
- Demand curve shifts.

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## Goods Market

- IS Curve

- Demand function:

$$E = c_0 + c'(Y - T + Tr) + I(r) + G \quad \text{mit} \quad \frac{dI}{dr} < 0$$

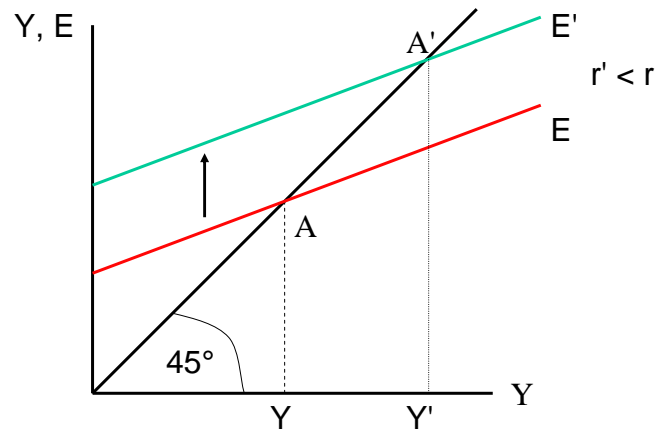
- Increase in the interest rate lowers investment and aggregate demand.
- A new equilibrium in the goods market exists.

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IS Curve: Graphs

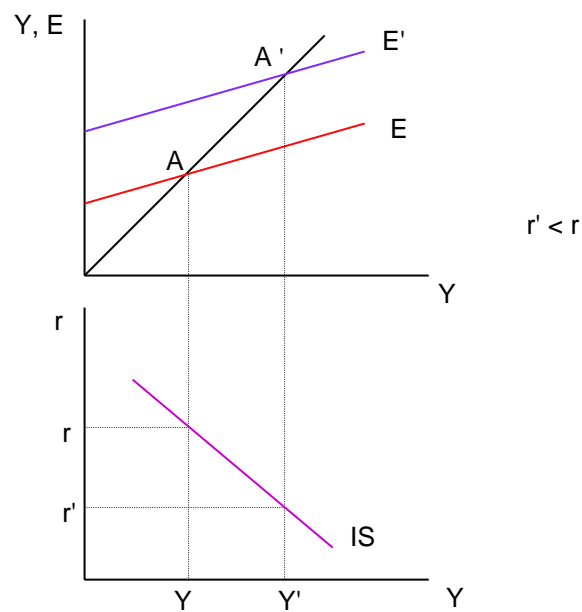


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IS Curve: Graphs



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## Goods Market

- IS Curve

- Position:
  - Changes in autonomous demand shift IS-Curve.
  - E.g. more government purchases
- Slope
  - Marginal propensity to save  $s'$
  - Slope of investment function  $i'$

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## Money Market

- Demand for Money

- Transaction  $L_T$
- Speculation  $L_S$
- Caution  $L_V$

$$\Rightarrow L = L_T + L_S + L_V$$

- Determinants
  - Income
  - Interest rate

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# Money Market

- Equilibrium

- Money supply = Money demand

$$\Rightarrow M^S = M^D = L_T + L_S$$

- Equilibrium is characterized by income and interest rate.

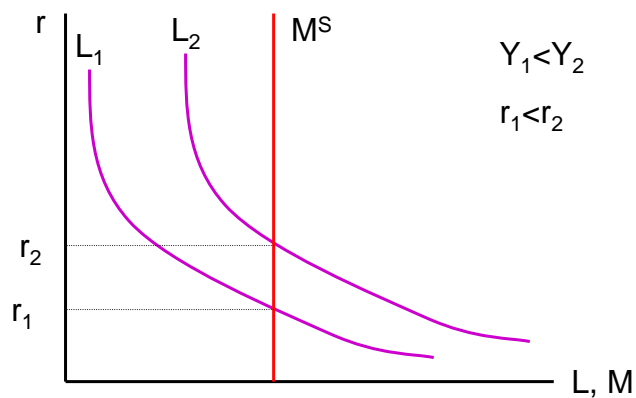
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# Money Market

- Equilibrium



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# Money Market

- LM Curve

- Starting point: Equilibrium in the money market
- Real Money Balances  $M/P$  are relevant.
- Condition:

$$\frac{M}{P} = L_T(Y) + L_S(r)$$

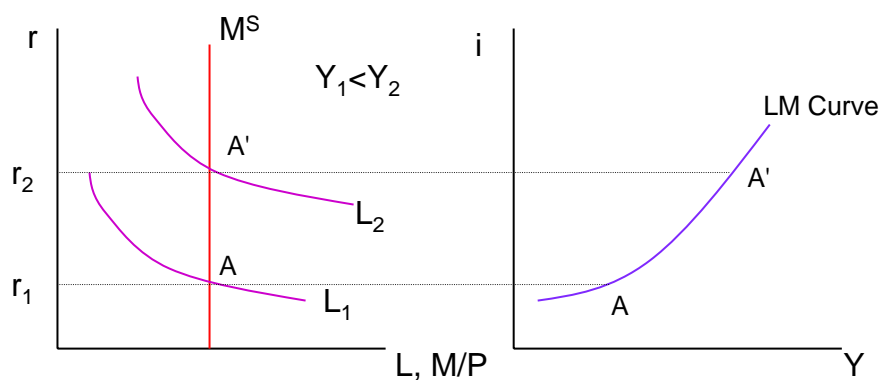
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# Money Market

- LM Curve



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# Money Market

- LM Curve

- Position

- Changes in real money balances shifts LM curve
    - Changes in nominal money supply  $M$
    - Changes in the price level  $P$

- Slope

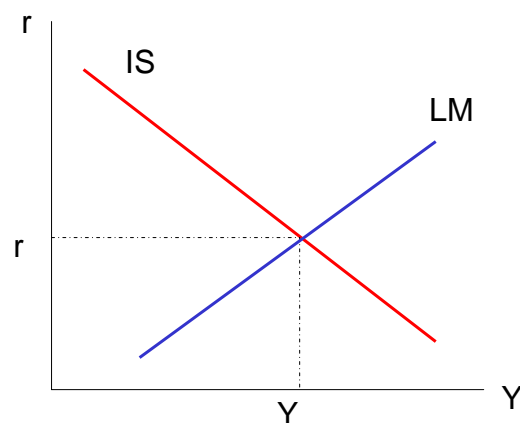
- Cash coefficient  $k$
    - Liquidity preference  $l'$

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# IS-LM-Model



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## IS-LM-Model

1. Fiscal Policy
2. Monetary Policy
3. Shocks
4. Aggregate Demand

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## Fiscal policy and the IS Curve

- Starting points:
  - Government expenditures
  - Taxes
- Question:
  - How does this change the equilibrium income?

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## Fiscal policy and the IS Curve

- Increase in G:
  - Assumption: Interest rate is constant  
 $G \uparrow \rightarrow E \uparrow \rightarrow \text{Production} \uparrow \rightarrow Y \uparrow \rightarrow C \uparrow \rightarrow \dots$
  - Multiplier sets in:

$$dY = \frac{1}{1-c'} dG$$

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## Fiscal policy and the IS Curve

- Increase in G:
  - Interest rate is not constant, since M is constant.
  - Changes in the money market, when  $Y \uparrow$ :  
 $L_T \uparrow \rightarrow \text{Bonds-D} \uparrow \rightarrow BP \downarrow \rightarrow r \uparrow \rightarrow L_S \downarrow$
  - Increasing interest rates lead to less investment.

"crowding-out"

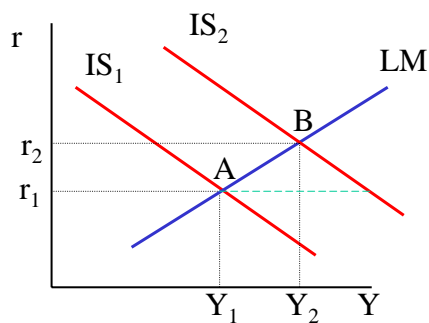
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## Fiscal policy and the IS Curve

- Increase in  $G$



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## Fiscal policy and the IS Curve

- Changes in  $T$ 
  - Shift also IS Curve
  - Multiplier is smaller.
- Thus:
  - Money market can reduce the effects of fiscal policy.

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## Monetary Policy and the LM Curve

- Change in the money supply
- Increase in  $M$  (Assumption:  $Y$  constant):  
 $M \uparrow \rightarrow M > L_T + L_S \rightarrow \text{Bonds-}D \uparrow \rightarrow BP \uparrow \rightarrow r \downarrow \rightarrow L_S \uparrow$
- Falling interest rate leads to more investment, and  $Y$  increases, too.
- There will be a feedback on the money market.

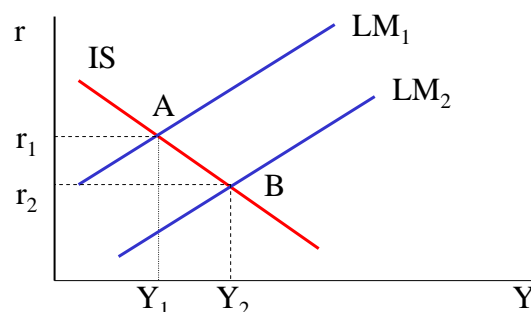
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## Monetary Policy and the LM Curve

- Increase in  $M$ :



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## Fiscal policy and Monetary policy

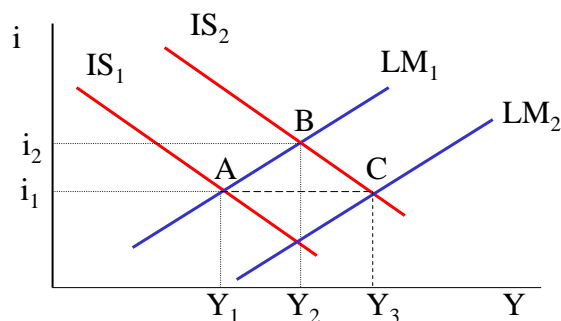
- **Conclusions:**
  - Money and Goods Market are closely related.
  - Economic policy has an influence on both markets.
  - spillover- and feedback-effects are relevant.

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## Policy-Mix



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## IS-LM-Model: Shocks

- IS Curve
  - Animal spirits
  - Consumers' confidence
  - Shifts of the IS Curve
- LM Curve
  - Exogenous increase in the demand for money
  - Shifts of the LM Curve

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## Aggregate Demand

- IS-LM-Model
  - Assumption: Price level  $P$  is constant.
  - Real money supply does only change when  $M$  changes
  - What are the consequences of a falling/increasing price level?

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# Aggregate Demand

- Price level flexible:

$$P \downarrow \rightarrow \frac{M}{P} \uparrow$$

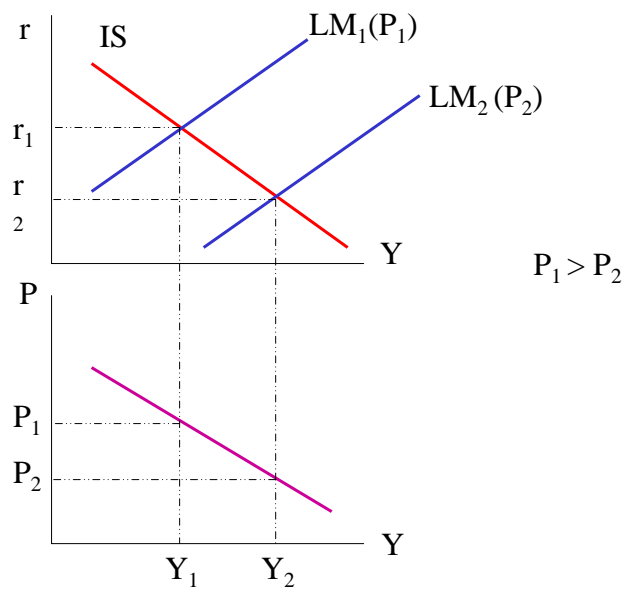
- As  $P$  falls, real money supply increases.
- LM Curve moves along the IS Curve.

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IS-LM and Aggregate Demand



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## Aggregate Demand

- Aggregate Demand shows all combinations of price level und income, that lead to a simultaneous equilibrium in the money and the goods market.