Macroeconomics – Political Science Forlì

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Website of the course: http://macroeconomics-forli.weebly.com/

Password: macroSID2019

Exercise Lesson:
5 March
12 March
9 April
30 April
14 May
28 May

Mid-term exams:
19 March
11 April
16 May

Macroeconomics
Exercise 5
(Ch. 11, 12 and 13)

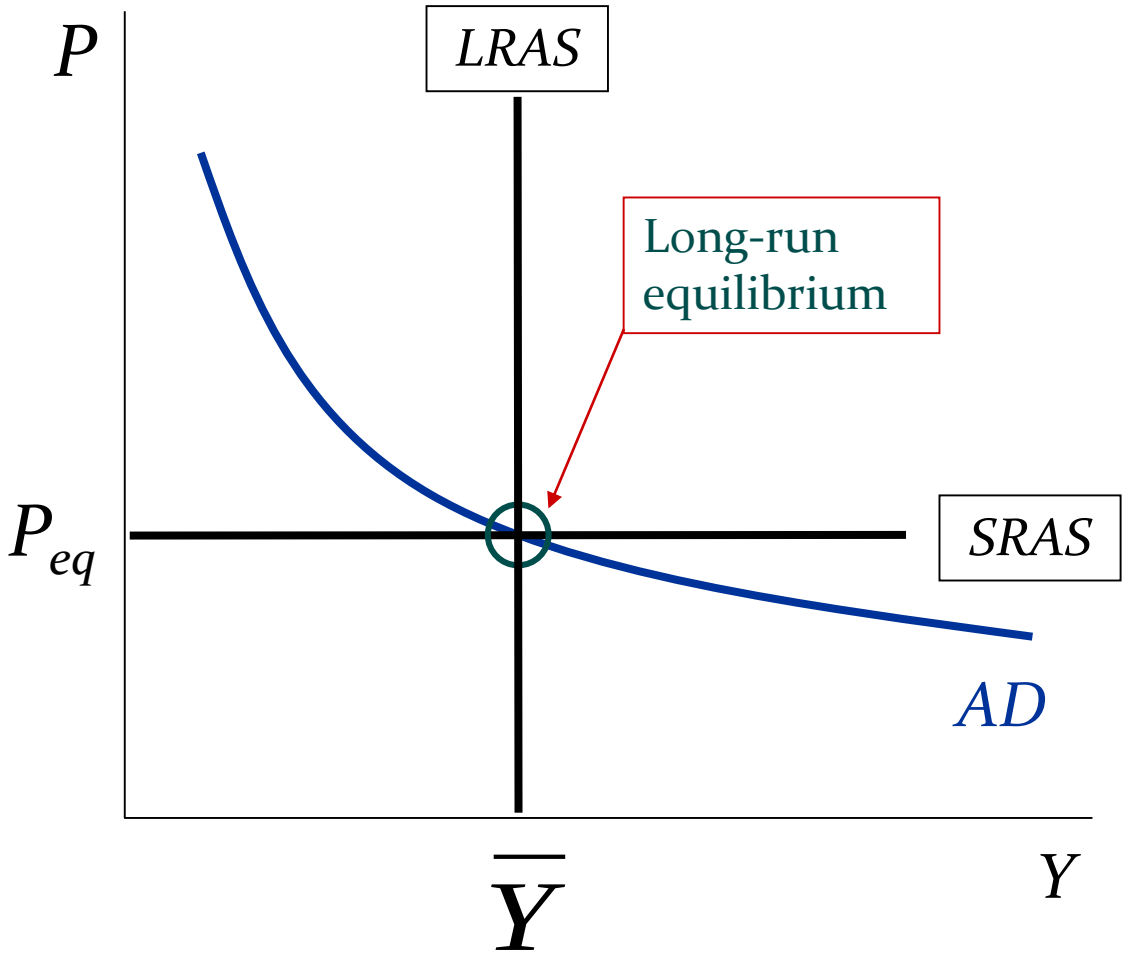
- Aggregate Demand I (Ch. 11)
- Aggregate Demand II (Ch. 12)
- The Open Economy Revisited (Ch. 13)

Ch. 11: Aggregate Demand I

Key- concepts

- Aggregate Demand and the IS-LM model
- The IS curve:
  - Keynesian Cross
  - Fiscal Policy and Multipliers
- The LM curve:
  - Theory of Liquidity Preference
  - Monetary Policy

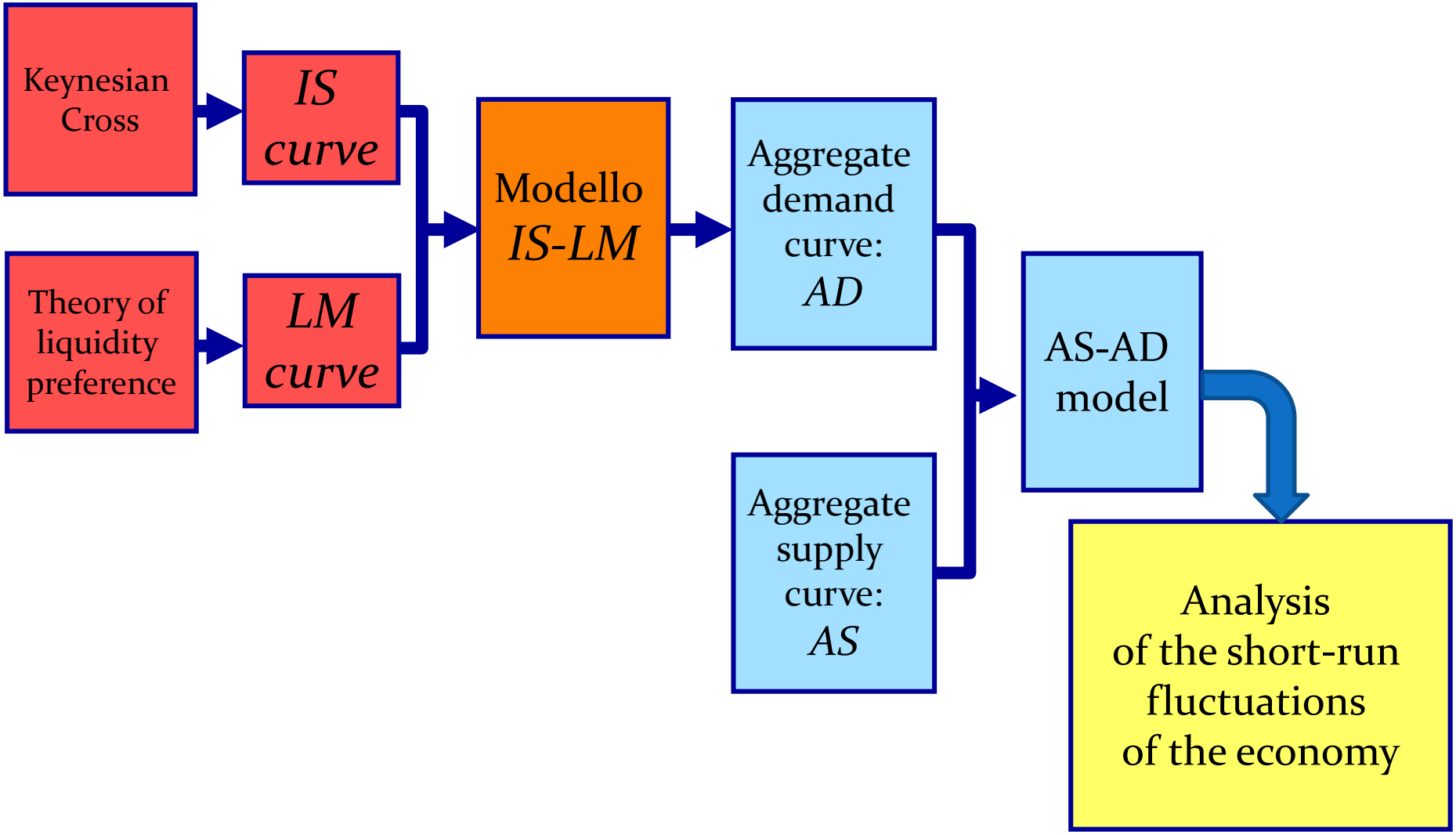
Recall: the AS-AD model (Ch. 10)



Where does the AD curve originate from?

The IS-LM model shows how it is possible to derive the AD curve in a closed economy, and how it shifts depending on shocks and policies

The IS-LM model



The IS-LM Model

- **IS curve (Investment-Saving)**

It represents different combinations between the level of the interest rate and production which represent all the possible equilibria in the market of good and services

  - It can be derived from the *Keynesian Cross*

- **LM curve (Liquidity-Money)**

It represents different combinations between the level of the interest rate and production which represent all the possible equilibria in the money market

  - It can be derived from the *Theory of liquidity preference*

The Keynesian Cross (IS curve)

- It relates actual expenditure and planned expenditure

	PLANNED EXPENDITURE	ACTUAL EXPENDITURE
Definition	The amount that firms, households and government plan to spend for purchasing goods and services	The amount actually spent by firms, households and government for purchasing goods and services
Equation	$E = C(Y - \overline{T}) + \overline{I} + \overline{G}$	$E = Y$

consumption

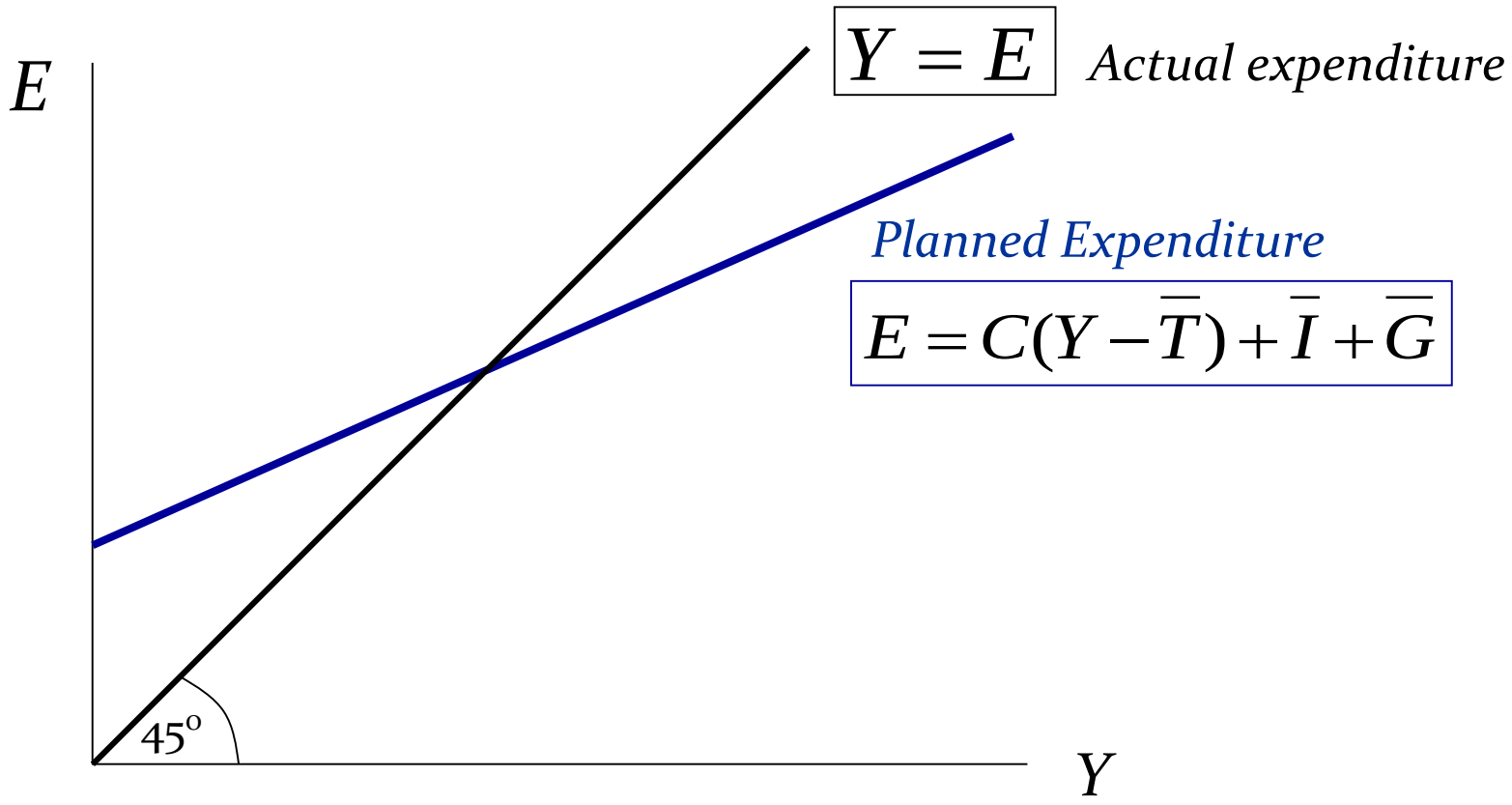
taxation
(policy variable)

investment

public spending
(policy variable)

The Keynesian Cross (IS curve)

The gap between planned and actual expenditure translates into an un-planned change in inventory (see Ch. 2)



Exercise 1

By using the graph of the Keynesian Cross, show the effect of:

a) an increase in public spending G;

b) an increase in taxation T;

c) a joint increase (and in the same amount) of spending and taxation (hint: to answer this question, derive the fiscal multipliers)

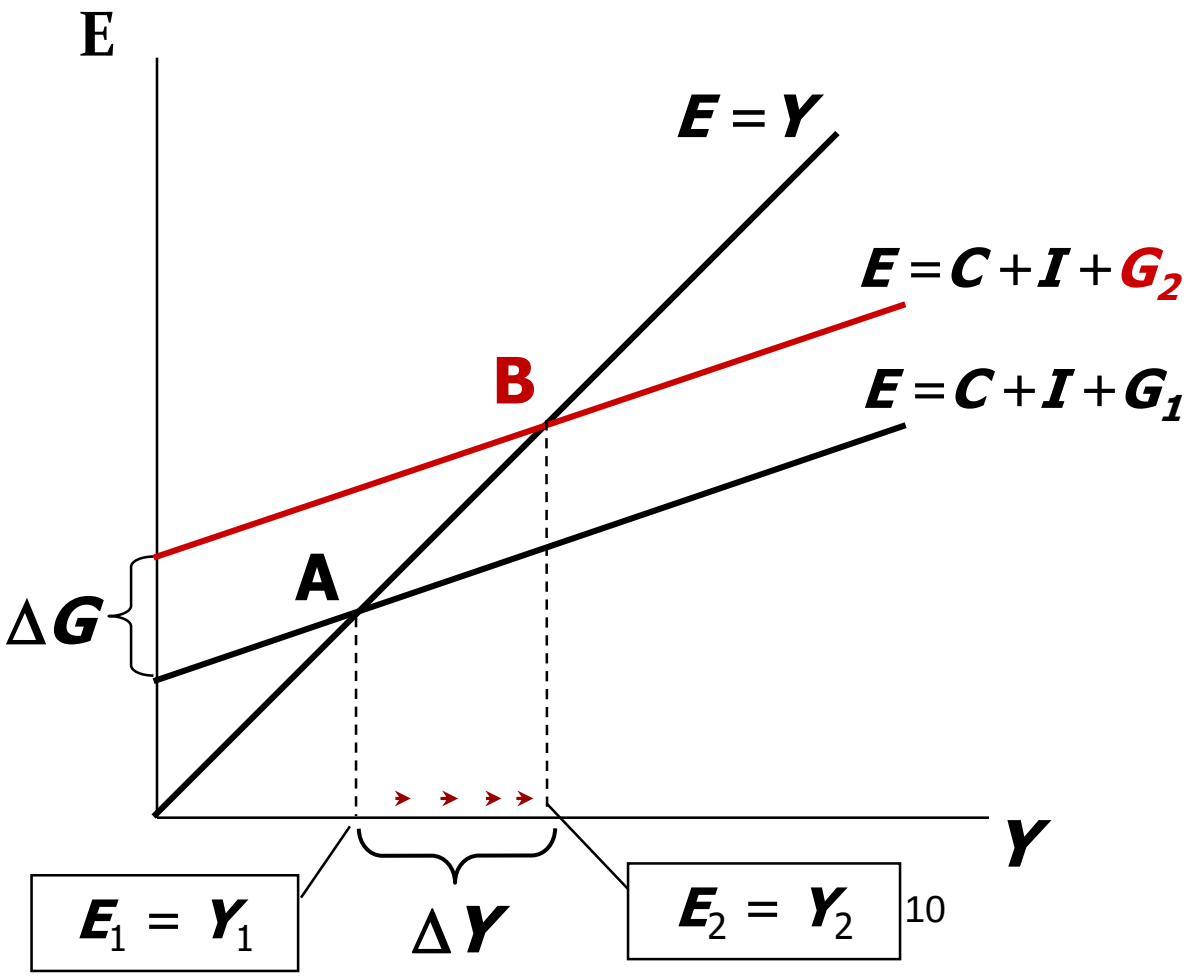
d) What happens to the equilibrium level of production if the marginal propensity to consume (namely ***c***) falls?

Ex. 1 – (a)

The initial equilibrium is represented by **A**

The rise in public spending shifts the planned expenditure upwards, by an extent equal to ΔG

Planned expenditure now exceeds actual expenditure and firms increase the volume of production ($\Delta Y > 0$) up to the point at which the new equilibrium (**B**) is attained

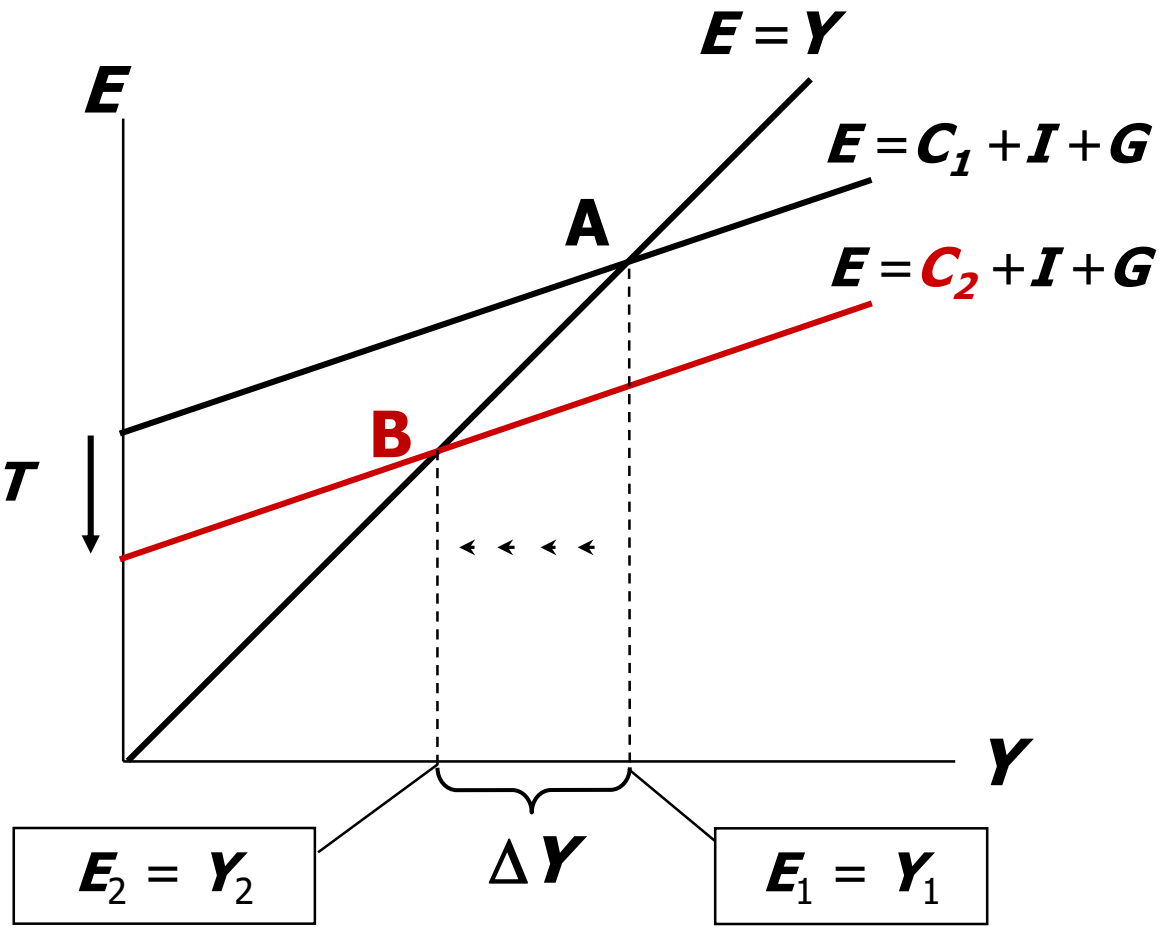


Ex. 1 – (b)

Increased taxation reduces disposable income (i.e. *Y*-*T*) and planned expenditure

$\Delta C = -\text{PMC} \times \Delta T$

Firms reduce output and income falls until the new equilibrium is reached



Ex. 1 – (c)

GDP in closed economy: $\mathbf{Y = c(Y-T) + I(r) + G}$
where $\mathbf{0 \le c \le 1}$ is the marginal propensity to consume (MPC)

$\Rightarrow$ $Y - cY = -cT + I(r) + G$

$\Rightarrow$ $(1 - c)Y = -cT + I(r) + G$

$\Rightarrow$ **IS curve :** $\mathbf{Y} = -c/(1-c)\,\mathbf{T} + 1/(1-c)\,\mathbf{I(r)} + 1/(1-c)\,\mathbf{G}$

Suppose that government changes the level of public spending ($\mathbf{\Delta G}$):

$\Rightarrow$ $\mathbf{\Delta Y} = +1/(1-c)\,\mathbf{\Delta G}$,

where $\mathbf{+1/(1-c)}>0$ is the fical policy multiplier

Ex. 1 – (c)

IS Curve: $Y = -c/(1-c)\,T + 1/(1-c)\,I(r) + 1/(1-c)\,G$

Suppose the government changes the level of taxation (ΔT):

$\Rightarrow \Delta Y = -c/(1-c)\,\Delta T$

If the decrease in taxes is in absolute value equal to the increase in public spending (i.e. $\Delta G = |-\Delta T| = \Delta X$), then:

$\Delta Y = -c/(1-c)\,\Delta T + 1/(1-c)\,\Delta G = -c/(1-c)\Delta X + 1/(1-c)\Delta X =$

$= ([1/(1-c)] - [c/(1-c)])\Delta X = [(1-c)/(1-c)]\Delta X = (1)\,\Delta X = \Delta X$

So, if the government increases public spending and finances this entirely by raising taxes, then the increase in equilibrium income is equal to the increase in public spending (and there is no multiplier effect)!

Ex. 1 – (c)

If both ***G*** and ***T*** change by the same amount, the corresponding multipliers act differently on ***Y***:

MULTIPLIER	PUBLIC SPENDING	TAXATION
Equation	$\Delta Y = +1/(1-c)\ \Delta G$	$\Delta Y = -c/(1-c)\ \Delta T$
Effect on income	positive	negative

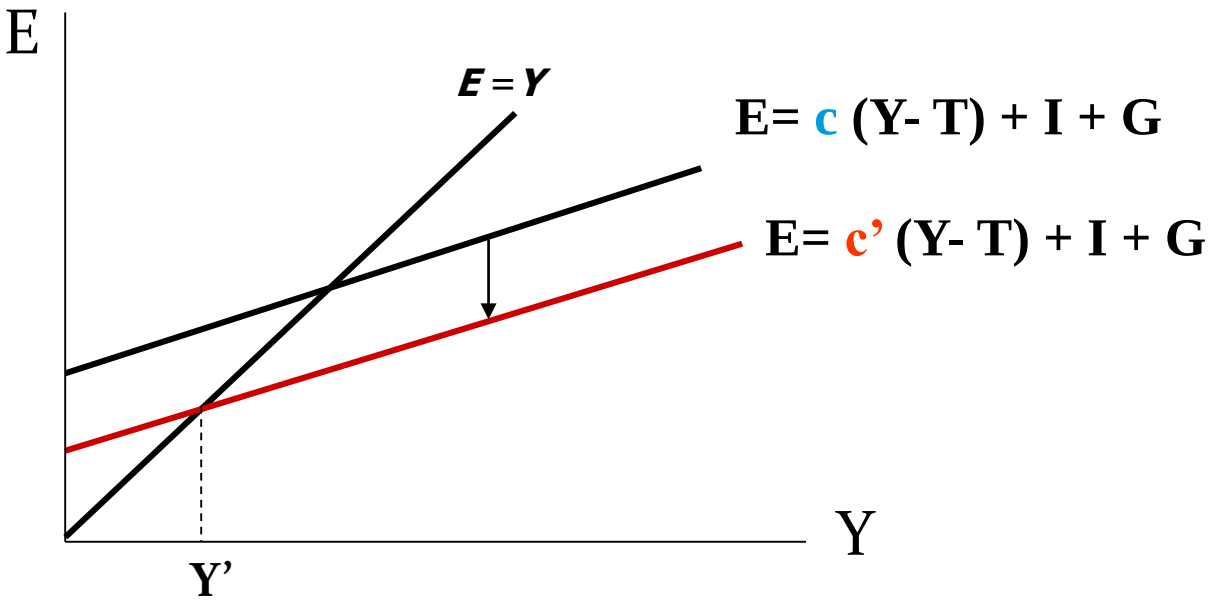
…the tax multiplier *is smaller (in absolute terms) than* the public spending multiplier:

Consumers will save a share equal to ***1-c*** of the reduction in taxes, thus the initial effect of a tax cut is lower than the initial effect of a corresponding increase in public spending

Ex. 1 – (d)

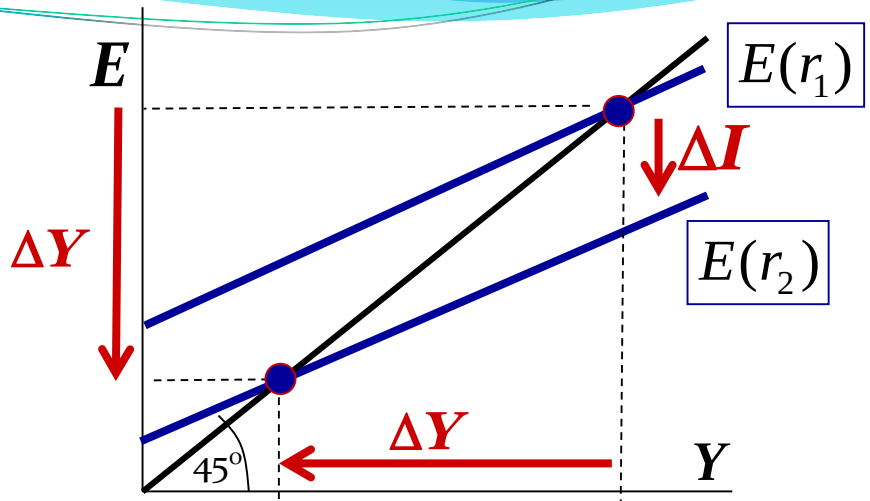
If **c** decreases, people will consume less at any level of income.

The reduction in consumption will lower the planned expenditure **E,** and therefore the equilibrium level of income: more propensity to save will reduce aggregate demand and national income, but the level of saving might be unaffected (**paradox of saving**)

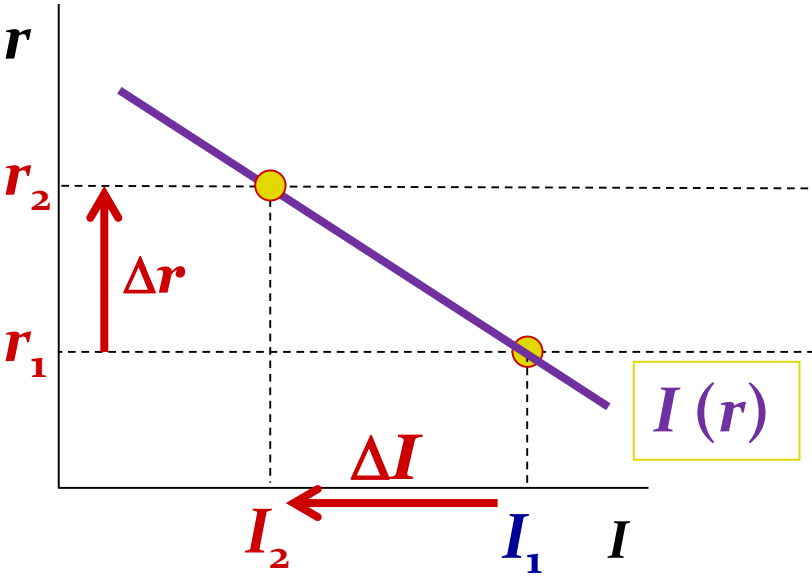


The IS curve

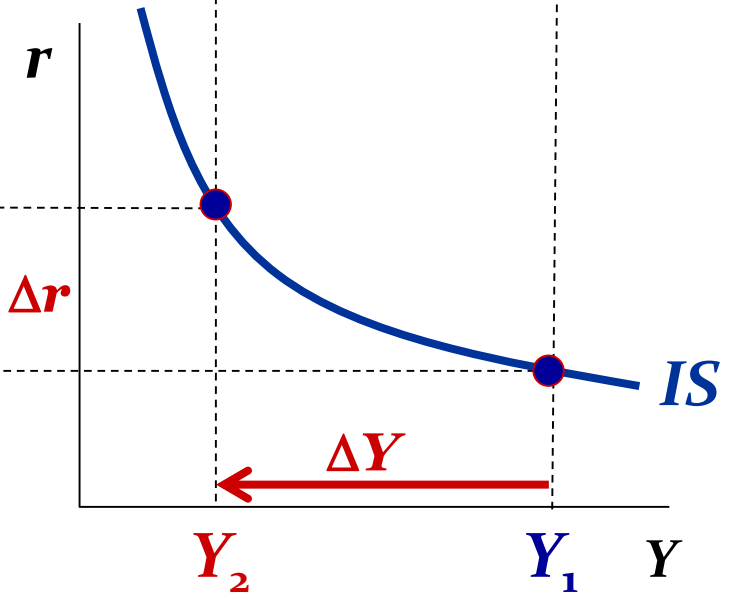
The IS curve represents all the combinations of ***r*** and ***Y*** which leads to a simultanous short-run equilibrium in the loanable funds market and in the goods market.



c) The Keynesian Cross



a) Investment function



b) The *IS* curve

Liquidity preference (LM curve)

- This theory relates money demand and supply (the quantity of money being expressed in real terms):

$$\left(\frac{M}{P}\right)^{S} = \frac{\overline{M}}{\overline{P}}$$

Real money supply is exogenously given

$$\left(\frac{M}{P}\right)^{D} = L\left(\overset{-}{r}, \overset{+}{Y}\right)$$

If the interest rate rises, carrying cash is more costly

⇩

the demand for money decreases

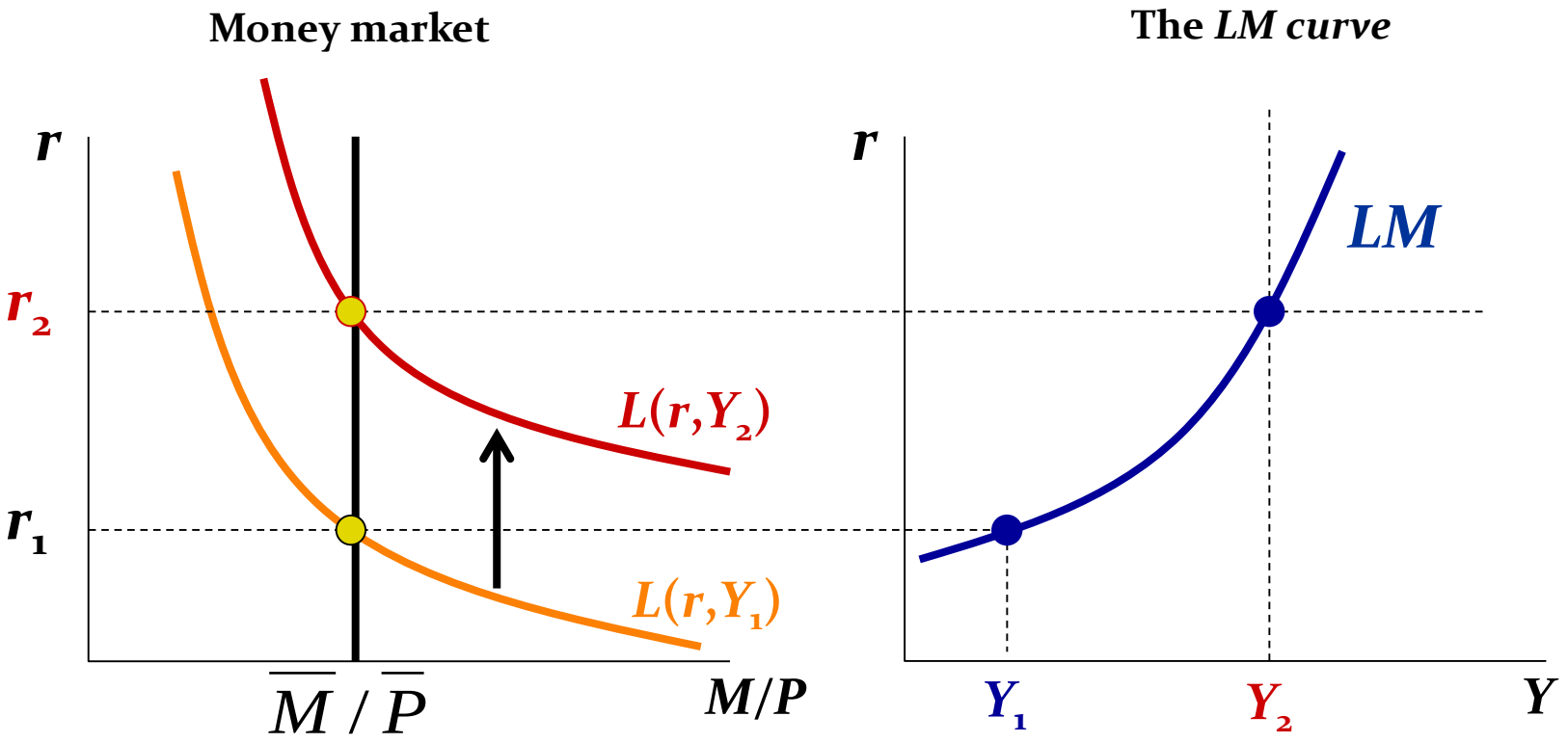
If income rises, more transactions will be made

⇩

the demand for money increases

The LM curve

The ***LM*** curve shows all the possible combinations of ***r*** and ***Y*** that represent a short-run equilibrium in the money market



Exercise 2

Suppose that the money supply is $M=1000$, and the price level is indexed by $P=2$.

a) If the demand for money is given by: $(M/P)^D = 1000 - 10000r$, what will the equilibrium interest rate be?

b) Draw the graph representing the money market and show the effects of an increase in money supply, which rises up to a new level $M' = 1200$

c) What should the level of money supply be, if the Central Bank were willing to have an equilibrium interest rate equal to $r=7\%$?

d) How would you justify the case in which the LM curve appears as a perfectly horizontal line? Draw the graph of the money market for this particular case.

Ex. 2 – (a)

To answer the question, it is sufficient to impose the equality between money demand and money supply, and then solving for *r*

$(M/P)^S = M/P = 1000/2$

$(M/P)^D = 1000 - 10000\,r$

$(M/P)^S = (M/P)^D$

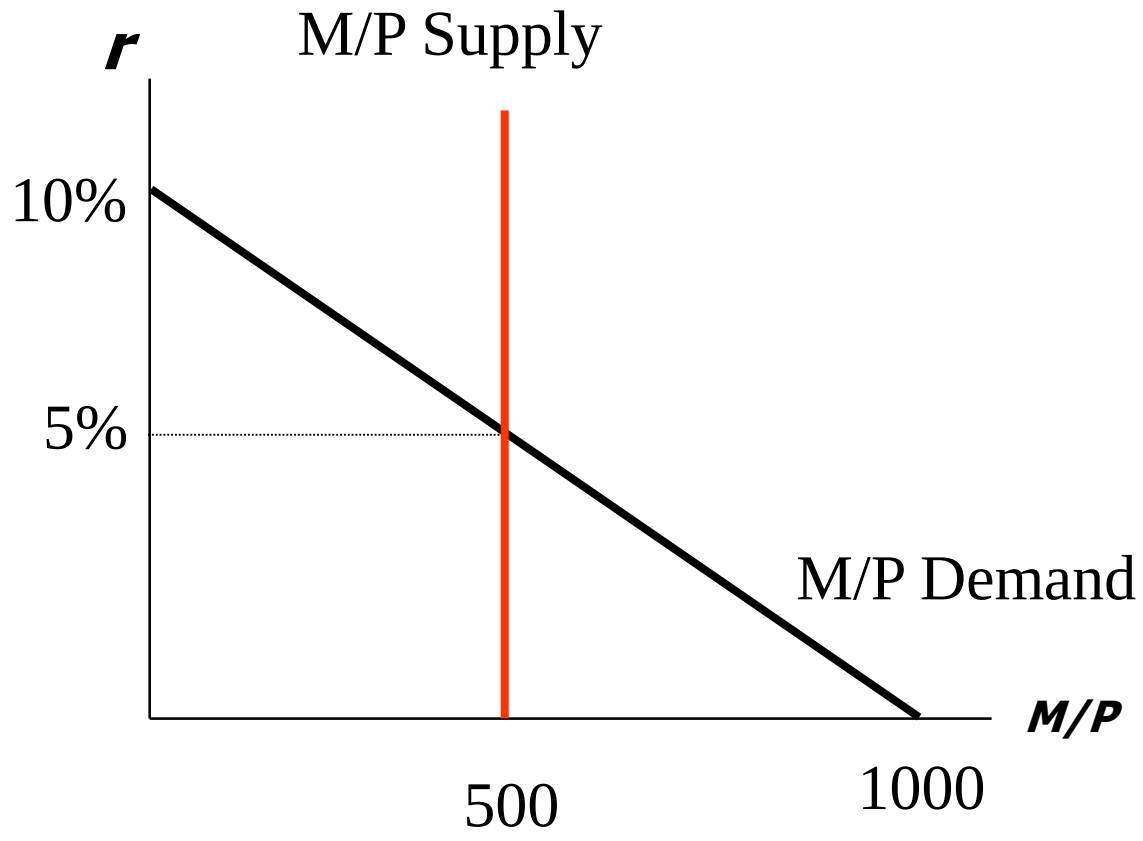
$1000/2 = 1000 - 10000\,r$

$500 = 1000 - 10000\,r$

$10000\,r = 1000 - 500$

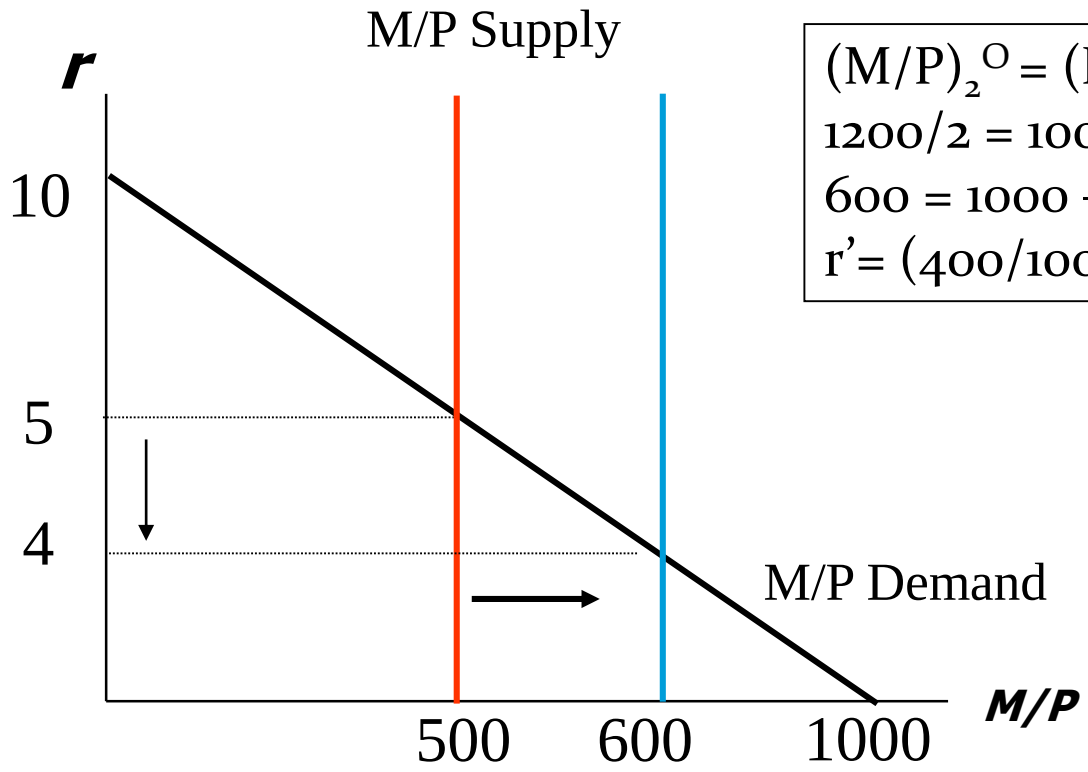
$10000\,r = 500 \quad \Rightarrow \quad \mathbf{r^e = 500/10000 = 0.05 = 5\%}$

Ex. 2 – (b)



Ex. 2 – (b)

If ***M*** is raised up to 1200, the supply curve shifts towards right



$(M/P)_2^O = (M/P)^D$

$1200/2 = 1000 - 100\ r$

$600 = 1000 - 100\ r$

$r' = (400/100) = 4$

Ex. 2 – (c)

If aimed at achieving an equilibrium interest rate equal to 7%, the Central Bank should change the level of the money supply (which is now the unknown variable in the equation).

$M/2 = 1000 - 10000 \times 0.07$

$M/2 = 1000 - 100 \times 7$

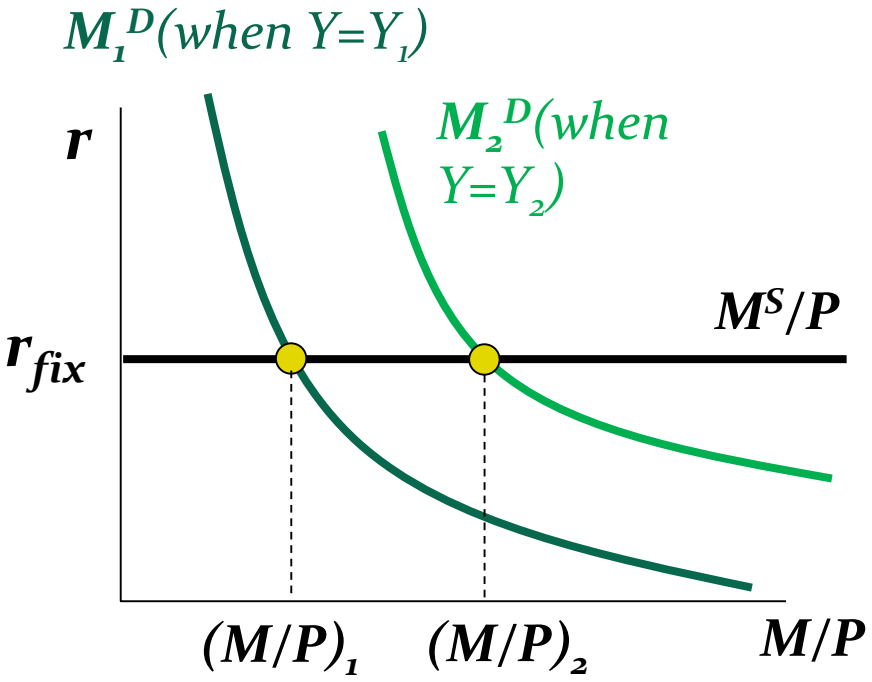
$M/2 = 300$

$M = 300 \times 2$

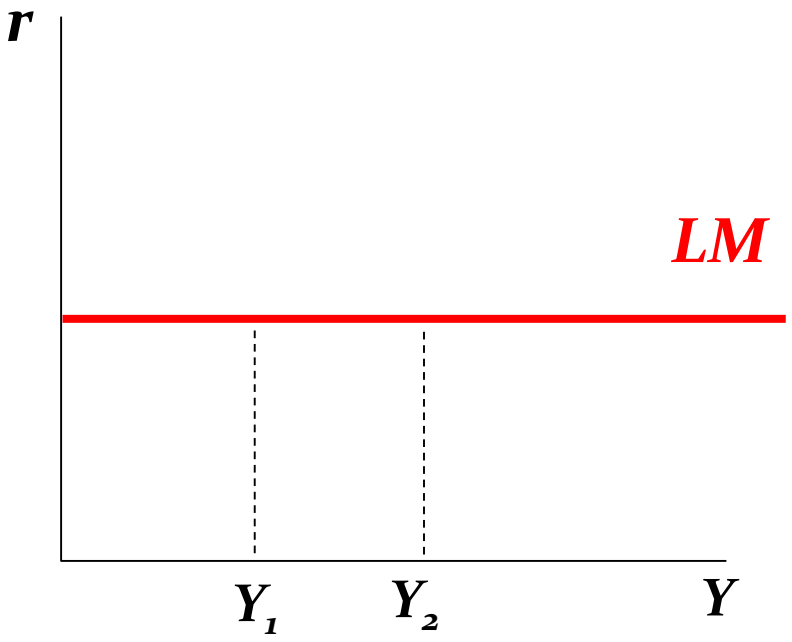
$\mathbf{M = 600}$

Ex. 2 – (d)

The LM curve is represented as a perfectly horizontal line when the Central Bank directly sets the interest rate (hence, it is willing to supply any quantity of money, in order to keep *r* constant)



Money market

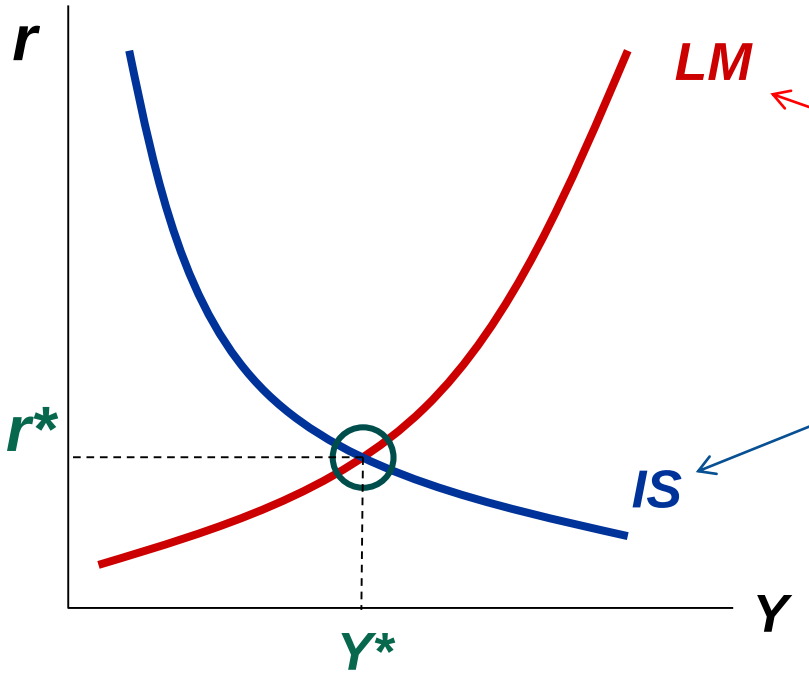


The *LM curve*

Equilibrium in the IS-LM model

The IS and the LM curves are drawn for a given level of the policy variables (fiscal policy: G and T; monetary policy: M and P)

Short-run equilibrium: ***r*** and ***Y*** are at that particular level such that the goods market and the money market are simulataneoulsy in equilibrium



$$\frac{\overline{M}}{\overline{P}} = L(r, Y)$$

With respect to policy, the shift of the LM curve depends on monetary policy

$$Y = C(Y - \overline{T}) + I(r) + \overline{G}$$

With respect to policy, the shift of the IS curve depends on fiscal policy

Exogeneous shocks and policies

The IS curve shifts..

- *because of a shock…*
  - in technology (e.g. an improvment in capital goods which lead many firms to invest in new equipment)
  - in preferences (e.g. a change in the marginal propensity to consume)
- *because of fiscal policy changes…*
  - A change in public spending (G)
  - A change in taxation (T)

The LM curve shifts

- *because of a shock…*
  - e.g. a change in the transaction velocity of money (as in case of the introduction of the ATMs)
- *because of monetary policy changes…*
  - the Central Bank changes the money supply

Multiple choice

1. The public spending multiplier allows for quantifying:

a) the horizontal shift of the *LM* curve, induced by a change in public spending.
b) the vertical shift of the *IS* curve, induced by a change in public spending.
c) the vertical shift of the *LM* curve, induced by a change in public spending.
d) the horizontal shift of the *IS* curve, induced by a change in public spending.

2. At the point of intersection between the *IS* and the *LM* curve, the markets that are simultaneously in equilibrium are..

a) the market of goods and the market of services.
b) the market of real money holdings and the market of money.
c) the market of real money holdings and the market of goods and services.
d) none of the above anwers is correct.

Ch. 12: Aggregate Demand II

Key- concepts

- The IS-LM model and short-run equilibrium:
  - effects of fiscal policy (expansionary vs. restrictive measures)
  - effects of monetary policy (expansionary vs. restrictive measures)
- Interaction between fiscal and monetary policy
- Policy instruments for the Central Bank (control of the money supply vs. control of the interest rate)
- From the IS-LM model to Aggregate Demand

Exercise 3

Consider the IS-LM model.

a) What are the effects on the economic equilibrium of a restricitive monetary policy (e.g. a reduction in M)?

b) What are the effects on the economic equilibrium of an expansionary fiscal policy (e.g. an increase in G)?

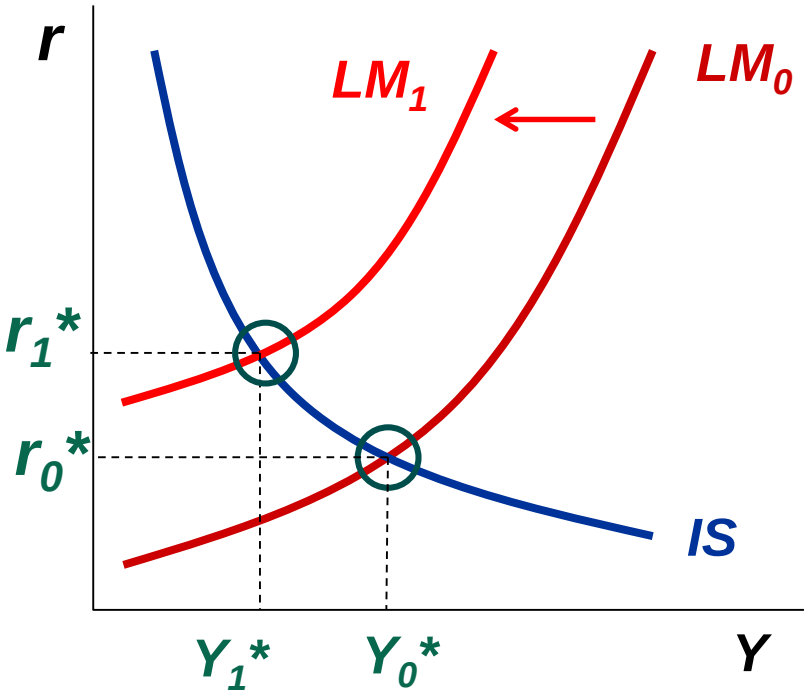
c) What combination between fiscal and monetary policy could allow for lowering the equilibrium interest without altering the level of production? What happens to the level of investment in the new equilibrium?

d) What kind of monetary policy would stabilize the level of production in the aftermath of a negative demand shock?

Ex. 3 – (a)

A reduction in money supply (**restrictive monetary policy**) shifts the LM curve towards the left

The new equilibrium is characterized by a higher level of the interest rate and a lower level of production compared to before



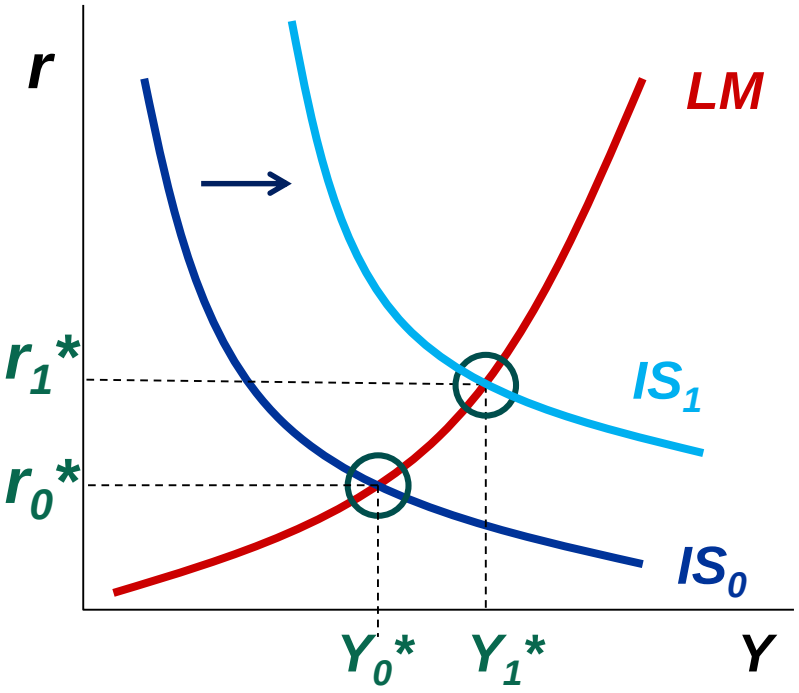
Since ***P*** is fixed, a reduction in ***M*** translates into a corresponding reduction in real money holdings (i.e. ***M/P***); this implies an increased interest rate for any level of income

Investment tends to fall; this, in turn, lowers production and income

Ex. 3 – (b)

A rise in public spending (**expansionary fiscal policy**) shifts the IS curve towards the right

The new equilibrium is characterized by a higher interest rate and a higher level of production compared to before



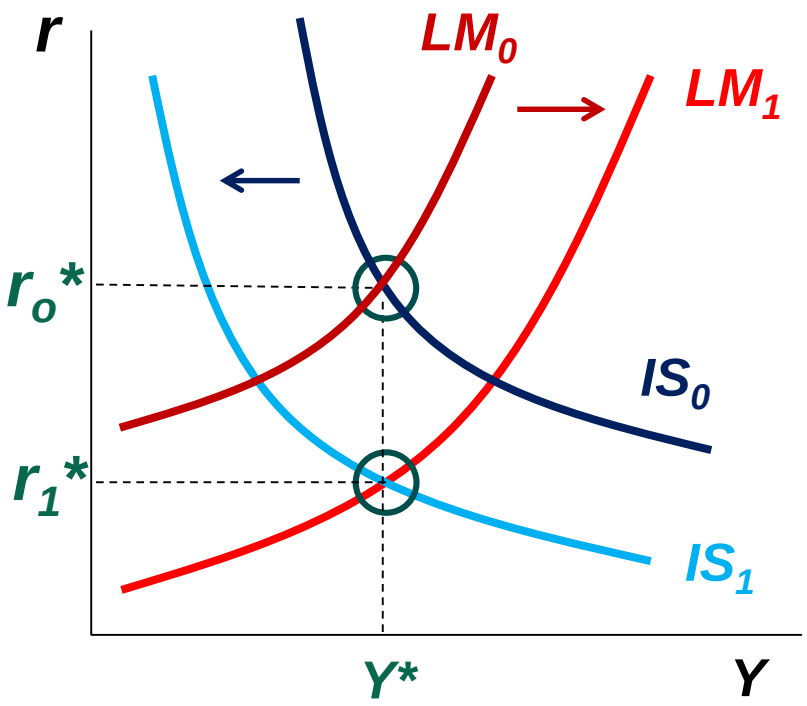
An increase in ***G*** has the effect to raise ***Y*** for any level of the interest rate

An increased production leads to a higher demand for money for any level of the interest rate… since the money supply is fixed, the interest rate rises to restore the equilibrium

Ex. 3 – (c)

To lower the equilibrium interest rate without altering the level of income…

…it is necessary to combine together an **expansionary monetary policy** and a **restrictive fiscal policy**

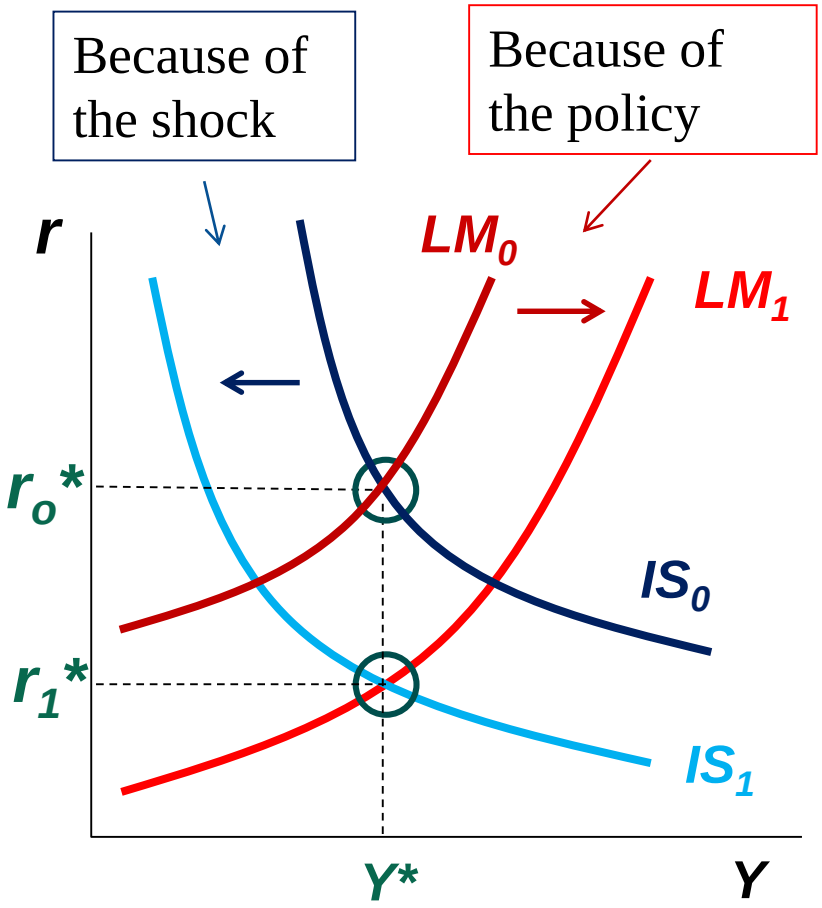


The Central Bank aims at reducing ***r*** and therefore shifts the LM curve towards right, raising money supply

To stabilize ***Y***, the IS curve has to be moved towards the left by a restrictive fiscal policy (such as a cut in ***G*** or a rise in ***T***)

Ex. 3 - (d)

A negative demand shock (e.s.: ↓MPC) shifts the IS curve towards the left, analogously to a restrictive fiscal policy



A monetary policy intervention can offset the negative effects of the shock, leaving ***Y*** unaffected.

In this case, money supply has to be raised (expansionary policy)

In the new equilibrium, ***Y*** is the same as before, whereas ***r*** has decreased even more than just after the shock

Exercise 4

In the IS-LM model, policy variables (namely ***M***, ***G*** and ***T***) are exogenous, i.e. they are directly regulated by the policy-makers.

Indeed, the Central Bank can adjust ***M*** in reply to changes in the goverment's fiscal policy and vice versa.

These interaction may alter the expected impact of each policy.

Suppose that the government raises public spending (***G***). Show what the Central Bank could do, in order to:

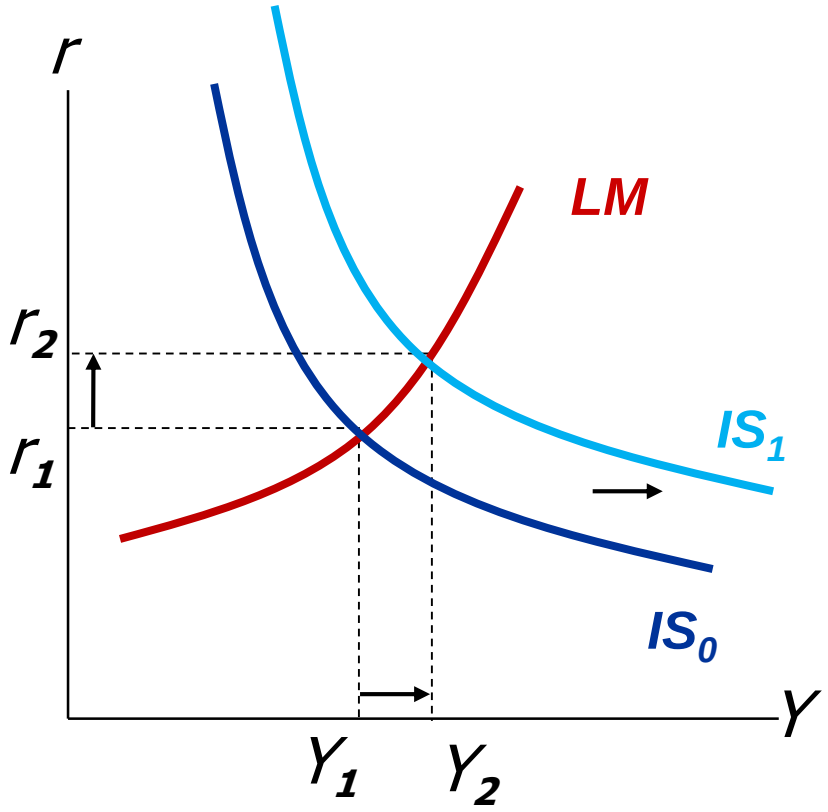
a) keep ***M*** constant;
b) keep ***r*** constant;
c) keep ***Y*** constant.

Ex. 4 – (a)

If the government raises ***G***, the *IS* curve moves towards right

If the Central Bank wants to keep **M** constant, it will do nothing; in this way it will avoid that the *LM* curve shifts

The new equilibrium is characterized by a higher ***Y*** and a higher ***r*** than before

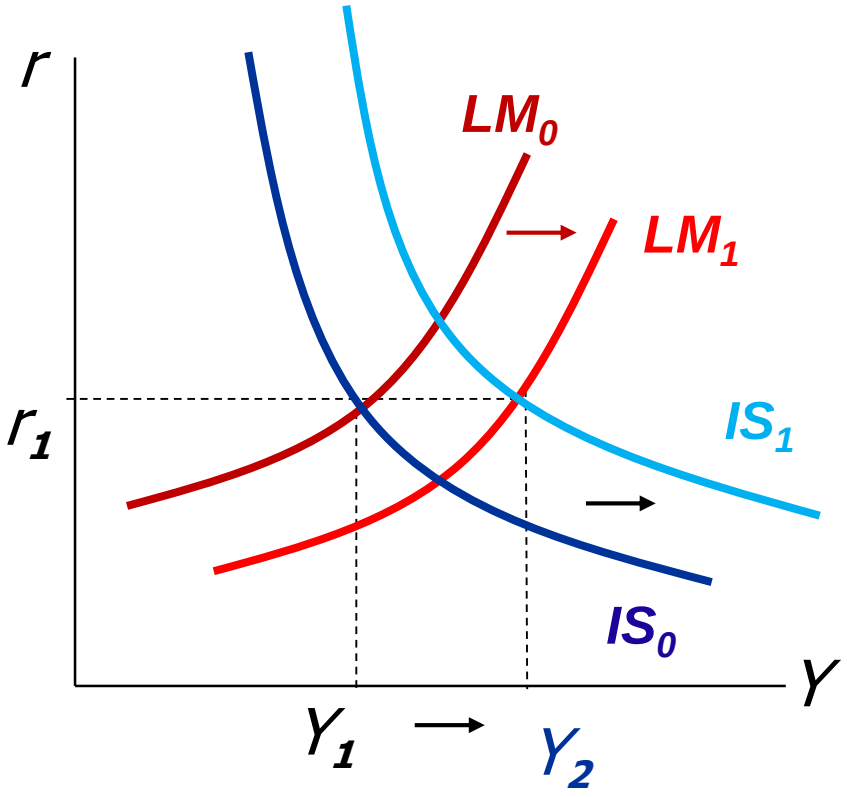


Ex. 4 – (b)

If the government raises ***G***, the *IS* curve moves towards right

If the Central Bank wants ***r*** to stay unchanged, the money supply has to be increased, so that the LM curve shifts towards the right

The new equilibrium level of ***Y*** is higher than before, while ***r*** has not changed

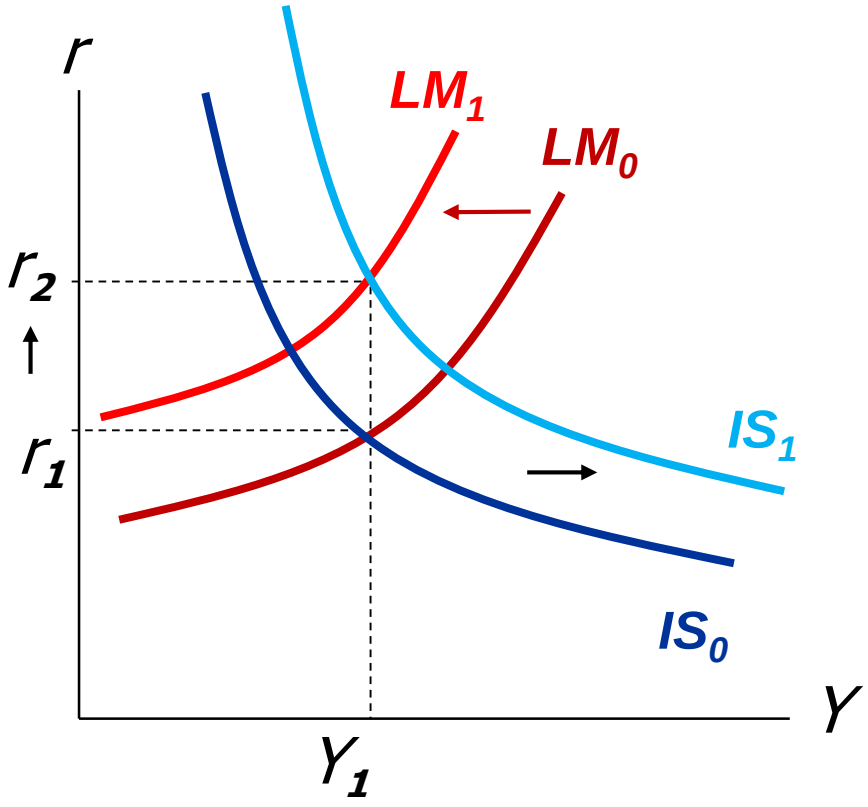


Ex. 4 – (c)

If the government raises ***G***, the *IS* curve moves towards right

To hold ***Y*** constant, the Central Bank must reduce the money supply: the restrictive monetary policy shifts the LM curve to the left

The new equilibrium level of the interest rate is higher then before, but the level of production is unchanged



IS-LM and AD

The IS-LM model assumes that prices are given and do not change: hence, it can only be used for short-run analysis

If prices adjust (as it certainly occurs in the long run), any change in P will shift the LM curve, with a subsequent change in the equilibrium level of income and production

The Aggregate Demand (AD) curve (already introduced in Ch. 10) exactly represents this relationship between P and Y

Thus it is possible to derive -graphically speaking- the AD curve starting from the IS-LM model

From IS-LM to AD

Why is the *AD* curve downward sloping?

If ***P*** rise (from P_o to P_1)

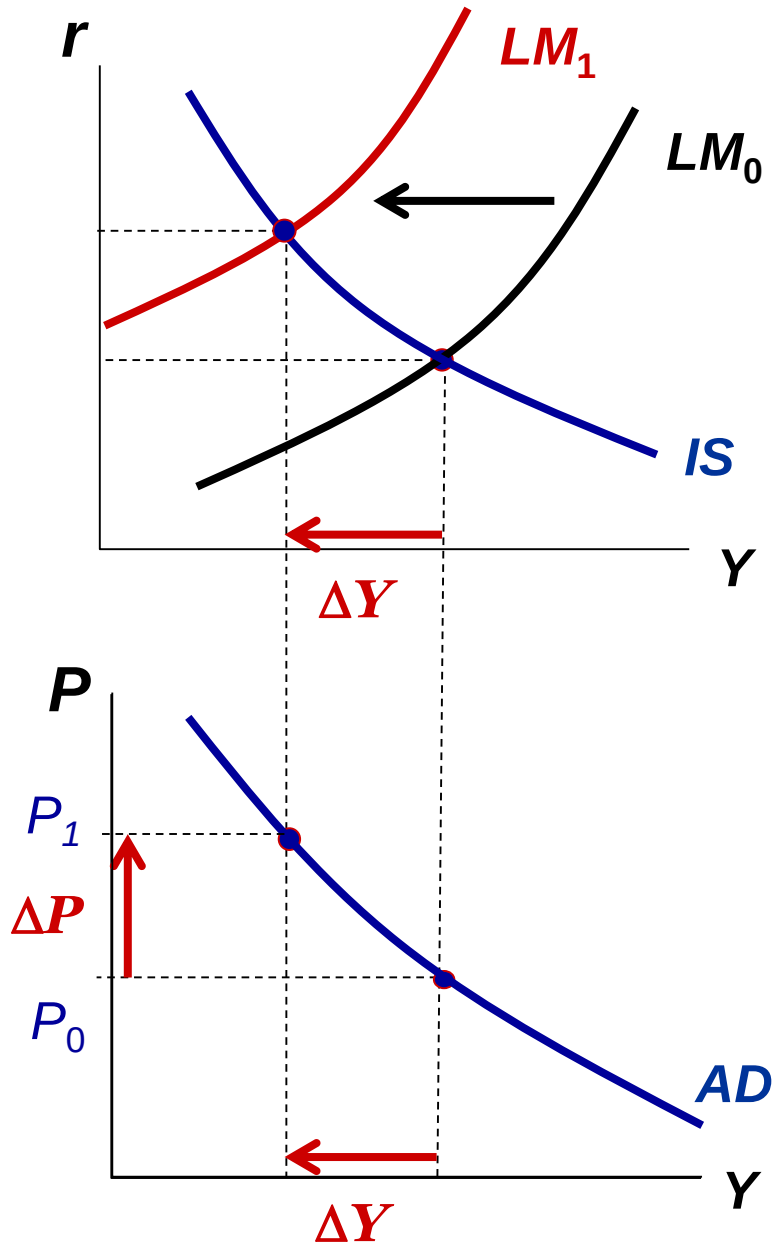
$\Rightarrow \downarrow$(M/P)

The ***LM*** curve shifts towards the left

$\Rightarrow \uparrow r$

$\Rightarrow \downarrow I$

$\Rightarrow \downarrow Y$ (prices and income/producion are inversely related)



Exercise 5

By using a double diagram IS-LM and AS-AD, describe both the short-run and the long-run effects of:

a) an increase in the money supply;

b) an increase in public spending;

c) an increase in taxation;

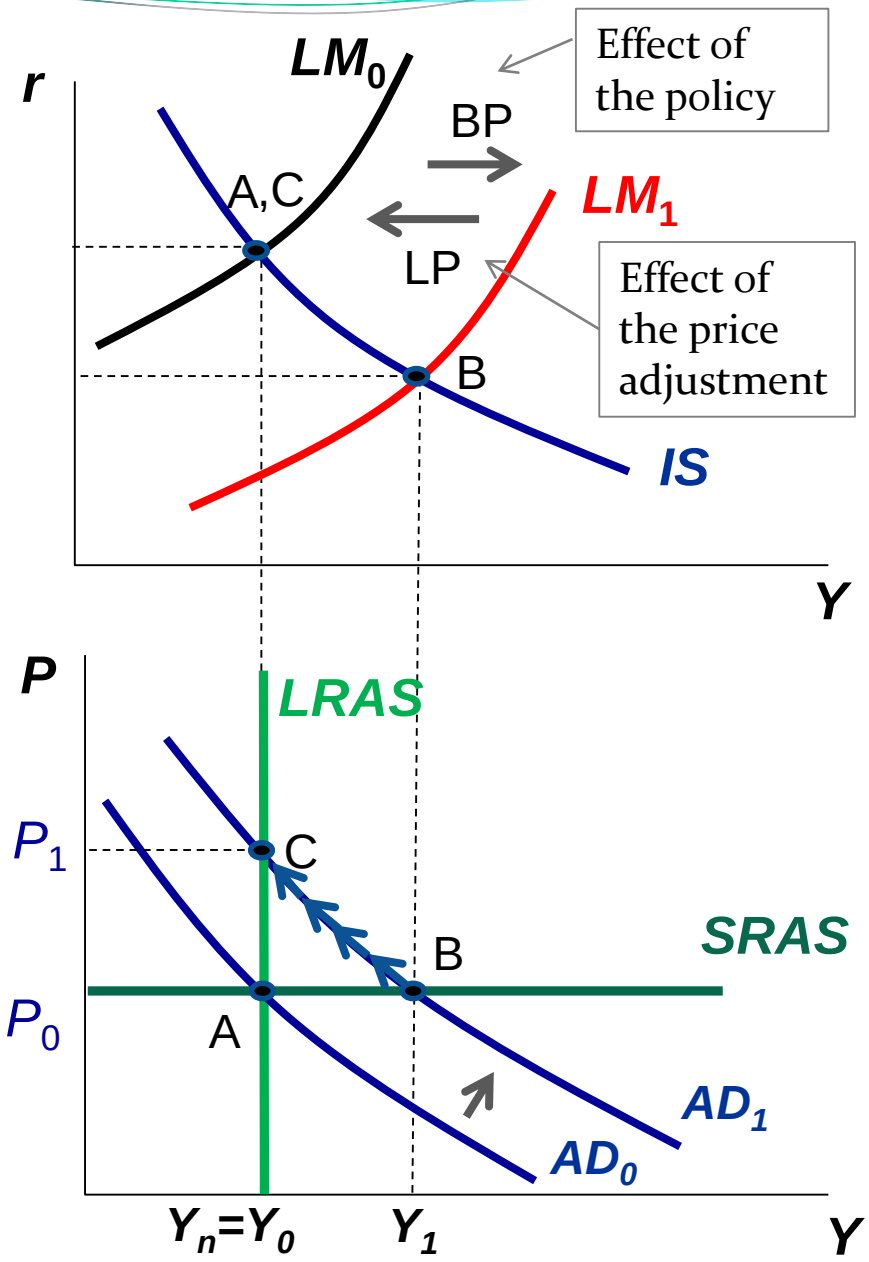
d) a decrease in taxation associated with a cut (by the same amount) in public spending

Hint: Consider the effects on national income, the interest rate, the price level, consumption, investment and real money holdings.

Ex. 5 – (a)

In the short-run (with P fixed), the **increase in M** shifts the LM curve towards the right: real money holdings increase (***M/P***), as well as production and consumption, while ***r*** falls, stimulating investment

In the long-run, a rise in ***P*** reduces real money holdings (***M/P***) which come back to their initial level. ***Y*** decreases while ***r*** increases: ***Y*** *and* ***r*** return back to their original level, as well as consumption and investment do. («**neutrality of money**»)



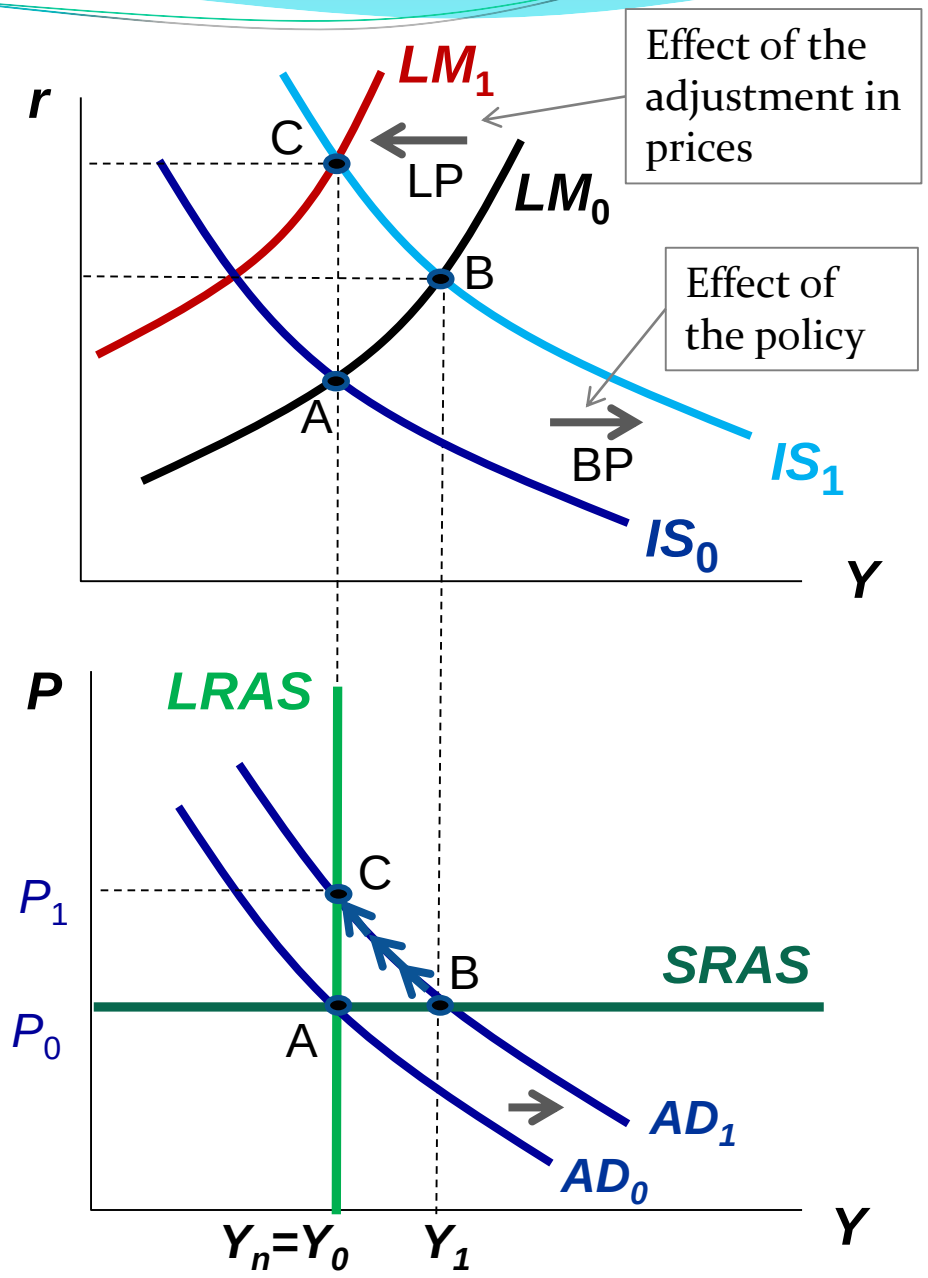
Ex. 5 – (b)

In the short-run (with P fixed), **the increase in G** shifts the IS curve towards right: ***Y*** rises (and ***C*** rises) but ***r*** also rises (hence, **I** decreases)

P is fixed, so ***M/P*** does not vary.

In the long-run, ***P*** rises, so ***M/P*** decreases and also ***Y*** reduces

This lowers consumption and induces a further decrease in ***I*** (**«crowding out » effect of public saving on investment**)

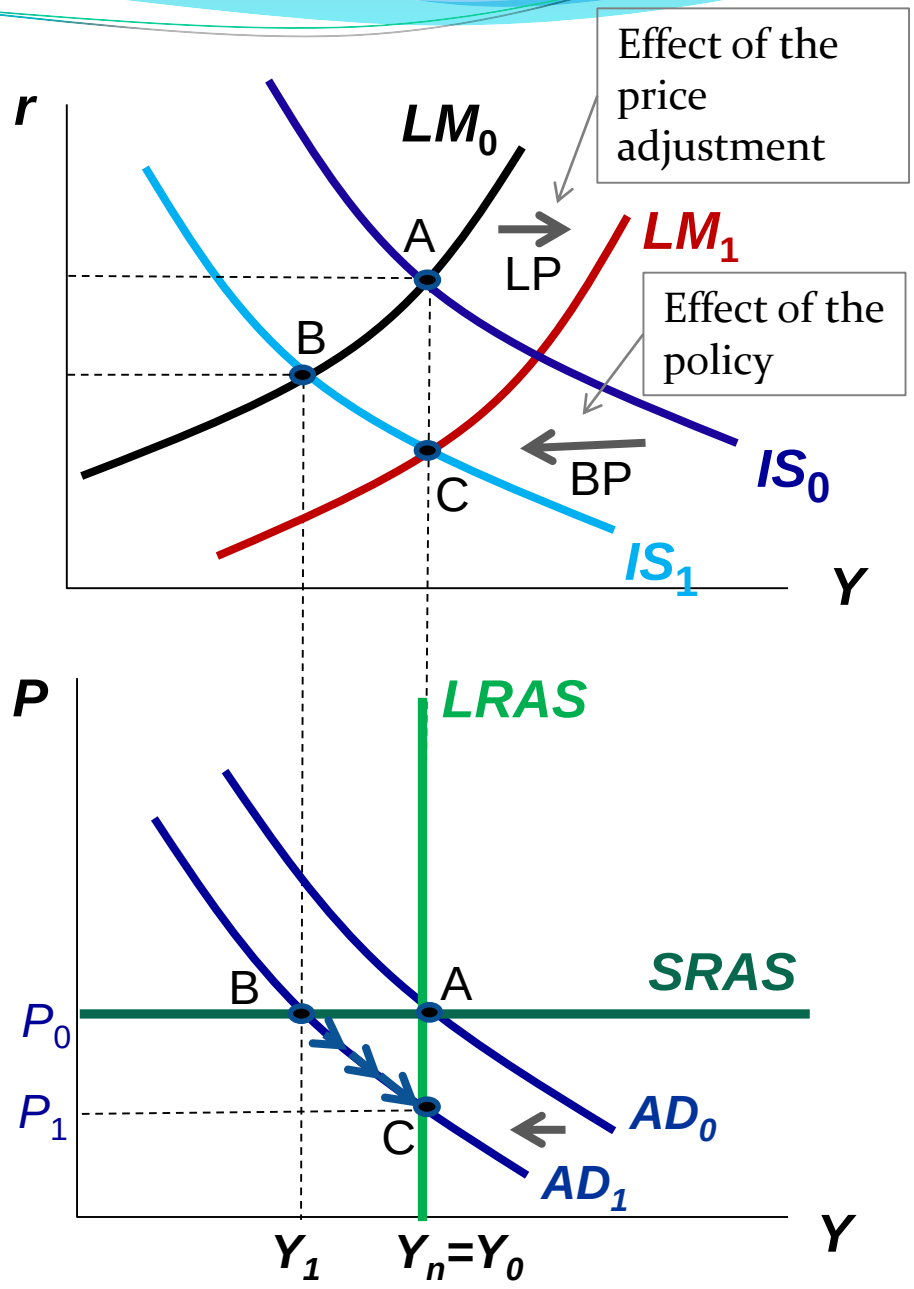


Ex. 5 – (c)

In the short-run (with ***P*** fixed), **the increase in T** shifts the IS curve towards left: consumption falls and production declines. Since ***M/P*** is fixed and ***Y*** falls, the equilibrium interest rate ***r*** falls and this enhances investment.

In the long-run, ***P*** decreases and ***M/P*** rises consequently; ***Y*** rises (so that ***C*** rises) while ***r*** further declines. ***I*** rises even more.

Y and (therefore) ***C*** come back to their original levels.



Ex. 5 – (d)

When ***G*** and ***T*** change by the same amount, national income changes by the same amount (see Exercise 1-c)

Example: if T and G are decreased by € 10 billion, then also Y is reduced by € 10 billion

The effect of the joint reduction in taxes and public spending (provided that the change is of the same amount!) leads to a new equilibrium in the goods market: ***Y*** is lower than before

Put it differently, the IS curve shifts towards the left and one observes the same effects described in the answer to the previous question (i.e. question C)

Multiple choice

3. According to the IS-LM model, what kind of policy intervention may lead to a lower equilibrium level of both the interest rate and production?

a) an expansionary monetary policy.
b) a restrictive monetary policy.
c) an expansionary fiscal policy.
d) a restrictive fiscal policy.

4. In the long-run, the effect of a restrictive monetary policy is:

a) a reduction in both the levels of prices and production.
b) a reduction in the level of prices, while production is unchanged.
c) a reduction in the level of prices and an increase in the level of production.
d) a reduction in the level of production, while prices are unaffected.

Ch. 13: The Mundell-Fleming Model

Key- concepts

- The Mundell-Fleming model (which is the IS-LM model in the open economy version):
  - changes in the IS curve (NX and aggregate income)
  - changes in the LM curve (perfect capital mobility)
- Effects of monetary, fiscal and trade policy under floating exchange rates
- Effects of monetary, fiscal and trade policy under fixed exchange rates

The Mundell-Fleming model

Assumptions:

- Small open economy
- Perfect capital mobility
- National and foreign financial assets are identical, but for the interest rate and the currency in which they are denominated

These assumptions imply that $r=r^*$ (otherwise, arbitrage!)

The IS-LM model in the open economy

- Exogenous variables: ***P, G, T, M, r(=r*)***
- Endogenous variables: ***Y, e, C, I, NX***

The IS curve in open economy

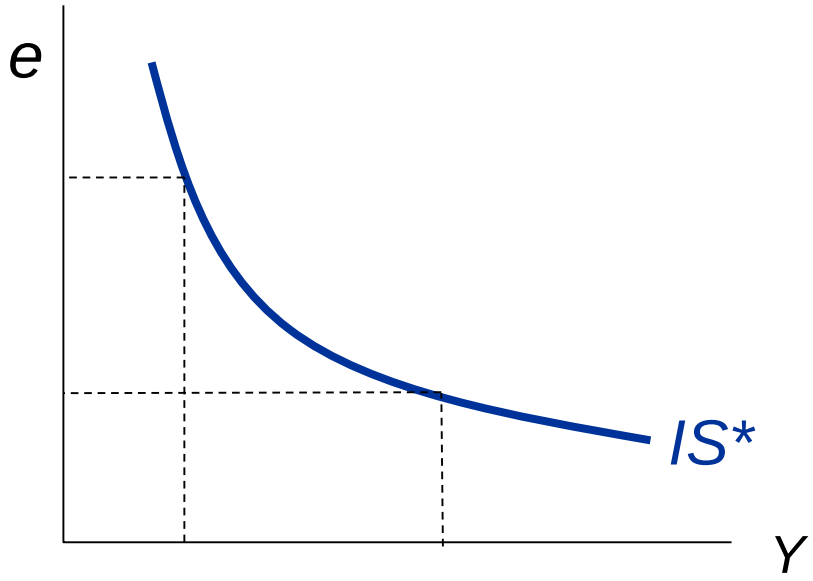
GDP in the open economy:

Y = C + I + G + NX,

where:

- **C** is a function which depends (positively) on **Y** and (negatively) on **T**
- **I** is an inverse function of ***r***
- **NX** is an inverse function of ***e***

A fall in the exchange rate ($\downarrow$ ***e***) makes national goods relatively cheaper than foreign goods



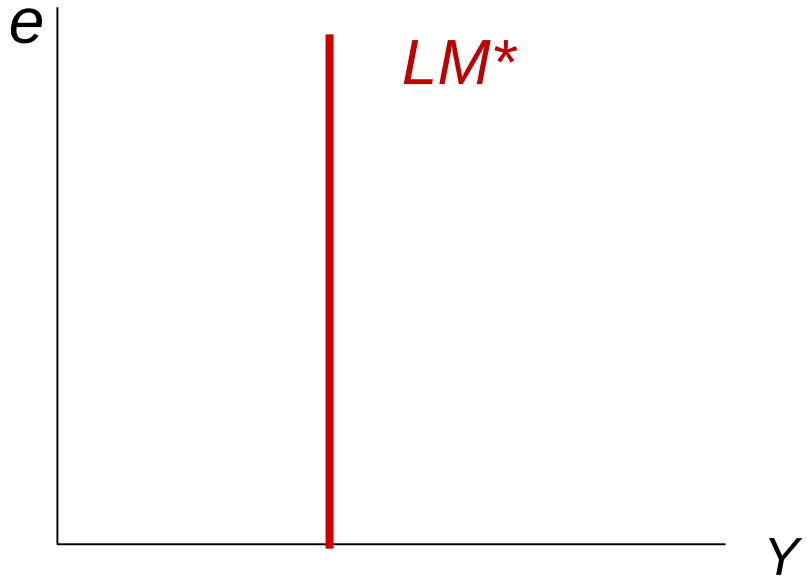
Exports rise while imports lower: ***NX*** increases and this leads to an increase in aggregate demand and therefore in production

The LM curve in open economy

The equilibrium in the market of real money holdings is achieved when demand equals supply.

The money supply (in real terms) is given by M/P and is exogenously given: it depends on the quantity of money supplied by the Central Bank, and on the level of prices, assumed as given.

The demand for money only depends on Y, since the interest rate is forced to be $r = r^*$, due to the perfect capital mobility



The LM curve is therefore represented as a perfectly vertical line: in the money market, the equilibrium does not depend on e

Floating Exchange rates

Floating Exchange Rate Regime: the exchange rate can freely (and endogenously) adjust depending on trade and financial inflows and outflows.

The exchange rate is the relative price of the currencies, which varies based on:

- the demand for national currency (against foreign currency)
- the supply of national currency (against foreign currency)

Why might one want to supply or demand foreign currency?

- purchase foreign finanancial assets (financial flows)
- purchase foreign goods (trade flows)

Fluctuation of the exchange rate

If the demand for the national currency exceeds its supply, then the price of the national curency rises: **the exchange rate increases and the national currency appreciates** (↑***e***)

A reduction in money supply is equivalent to an increase in the demand for national currency (i.e. ↑***e***)

If the demand for the national currency is lower than its supply, then the price of the national curency declines: **the exchange rate decreases and the national currency depreciates** (↓***e***)

An increase in money supply is equivalent to a reduction in the demand for national currency (i.e. ↓***e***)

Fixed Exchange Rates

In a **fixed exchange rate regime**, the Central Bank commits itself to keep the exchange rate fixed and constant over time.

To achieve this goal, the Central Bank has to continuously adjust the money supply, in such a way to neutralize any excess demand or excess supply of national currency (against foreign currency):

- If the demand for the national currency exceeds its supply, then the Central Bank has to increase the money supply
- If the demand for the national currency is lower than its supply, then the Central Bank has to decrease the money supply

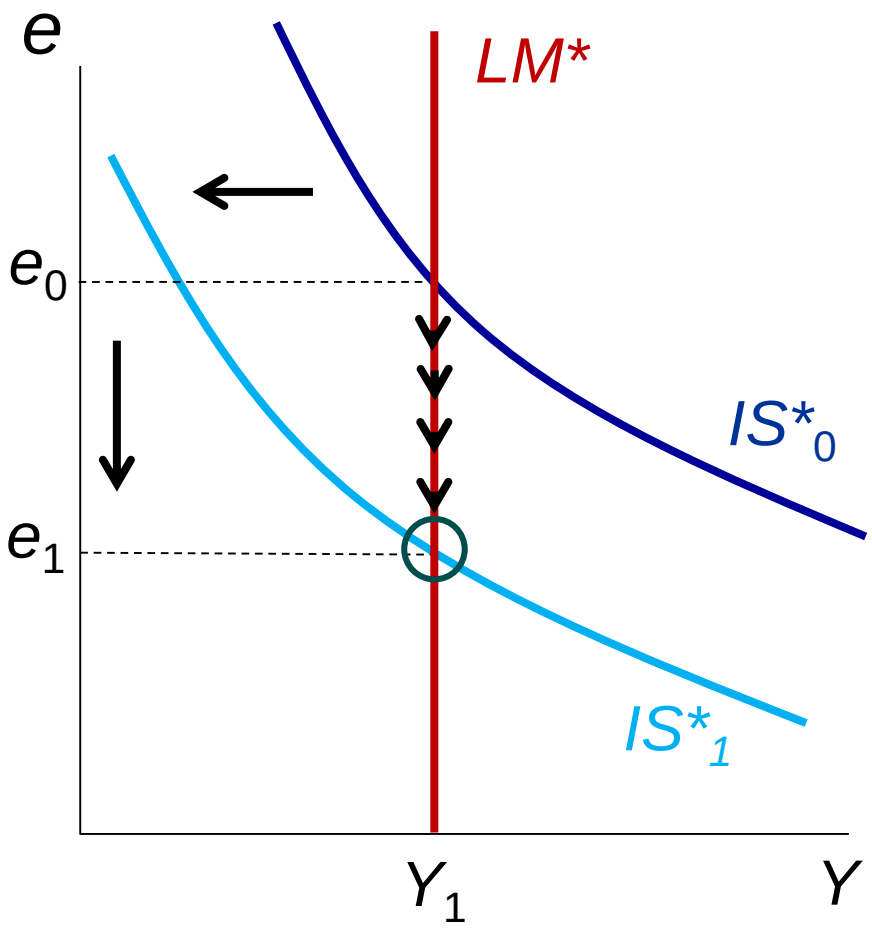
Exercise 6

A) Show the effect on the open economy equilibrium of a restrictive fiscal policy (e.g. a cut in public spending ***G***), depending on the exchange rate regime which is in place.

B) Show the effect on the open economy equilibrium of an expansionary monetary policy (e.g. an increase in money supply ***M***), depending on the exchange rate regime.

C) Show the effect on the open economy equilibrium of a protectionist trade policy (e.g. an increase in import tariffs), depending on the exchange rate regime.

Ex. 6 – (a)
↓G under floating rates

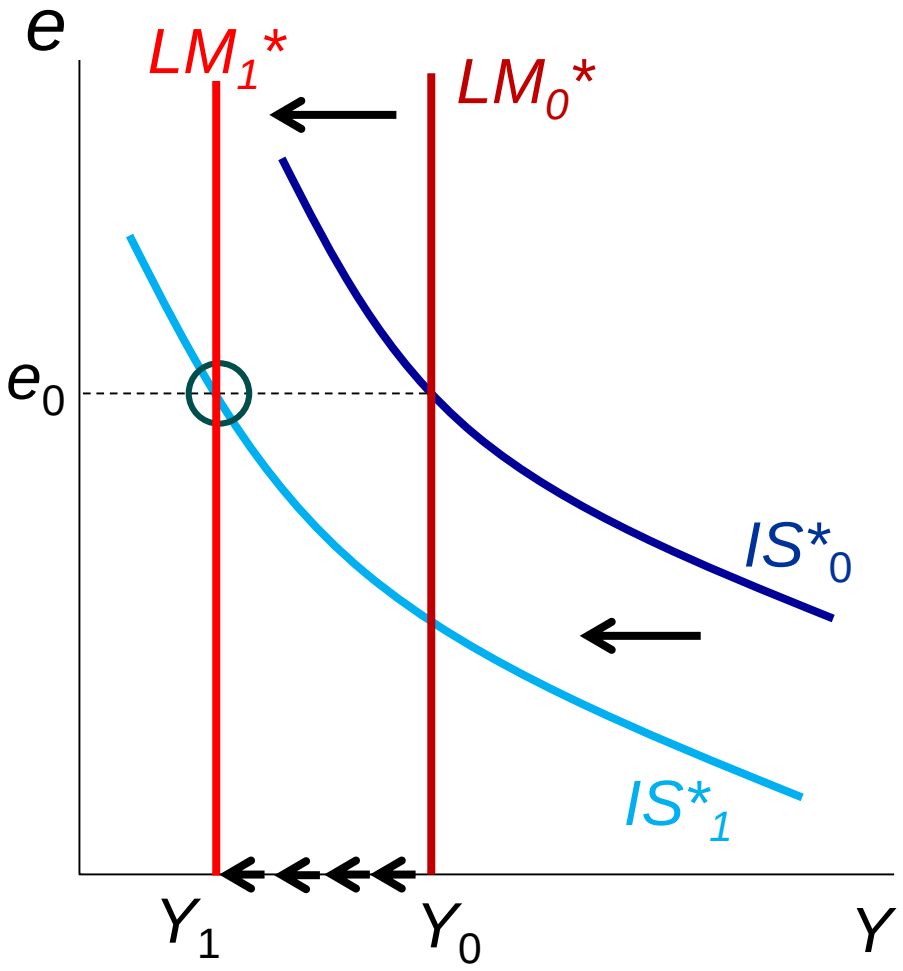


A reduction in ***G*** lowers aggregate demand: the IS* curve moves to the left ⇒ ***r*** tends to decline and this gives rise to capital outflows: foreign assets yield a higher return (= ***r****)

This outflow prevents ***r*** from falling, but the demand for the national currency falls: ↓***e***

NX rises, stimulating aggregate demand and therefore ***Y***, which comes back to its original level (**fiscal policy is ineffective!**)

Ex. 6 – (a)
↓G under fixed rates

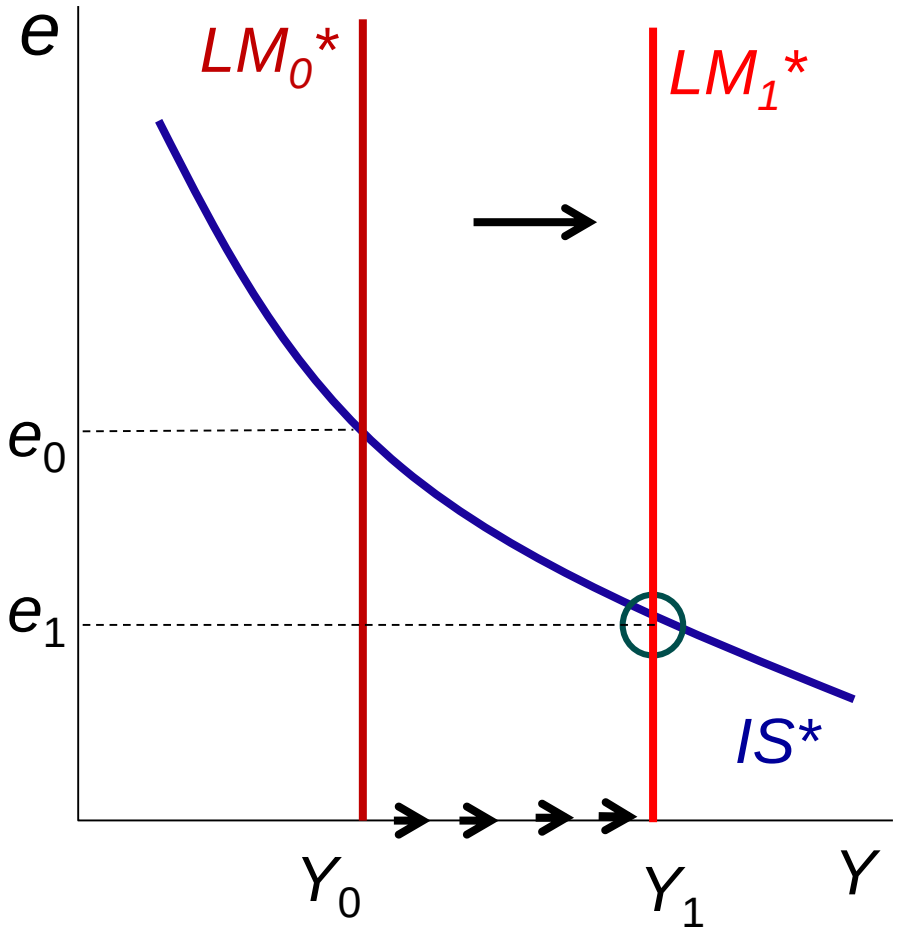


Exactly as before: $\downarrow G \Rightarrow \downarrow AD$ and the IS* curve moves to the left

This creates downward pressure on ***r*** and hence capital outflow, which reduces the demand for the national currency.

To avoid the depreciation (i.e. the fall in ***e***) the Central Bank reduces money supply ($\downarrow M$): ***e*** does not change, but M/P falls and **Y** decreases

Ex. 6 – (b)
↑M under floating rates

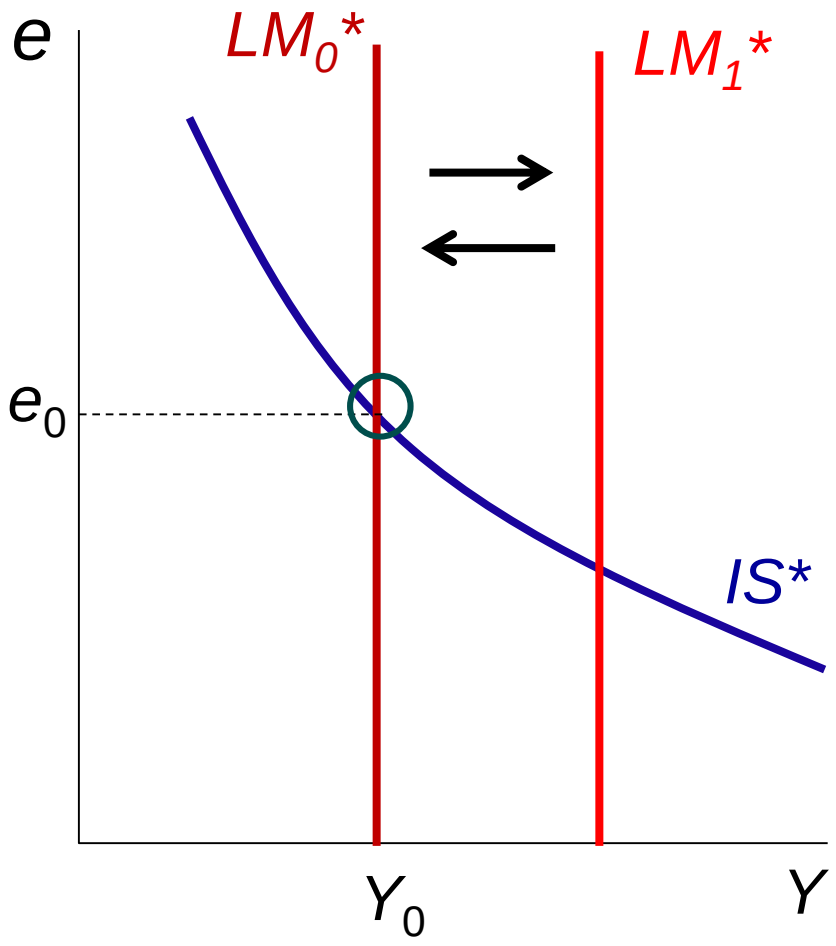


A rise in ***M*** shifts the LM* curve towards the right ⇒ ***r*** tends to decline, and this triggers capital outflow: investors want to buy foreign assets, that yield a higher return (=***r****)

This outflow prevents ***r*** from falling, but it reduces the demand for the national currency: ↓***e***

NX rise (as domestic goods are now relatively cheaper than foreign goods), stimulating ***AD*** and raising ***Y*** in a permanent way

Ex. 6 - (b)
↑M under fixed rates

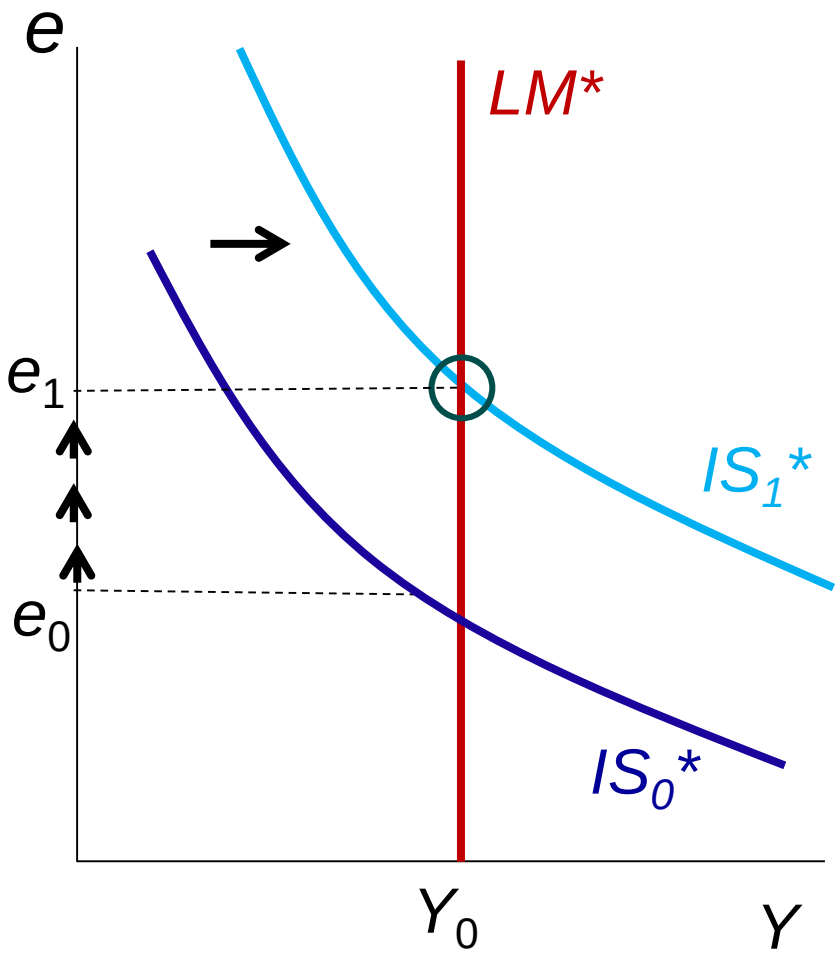


Exactly as before: ↑***M*** shifts the LM* curve towards right and creates downward pressure on ***r***, which causes capital outflow: the demand for national currency falls

To prevent depreciation (i.e. ↓***e***), the Central Bank decreases the money supply (↓***M***), doing exactly the opposite of what it has done before!

The LM* curves comes back to its original position: by fixing ***e***, the **Central Bank gives up the possibility to use monetary policy**

Ex. 6 – (c)
Tariffs under floating rates

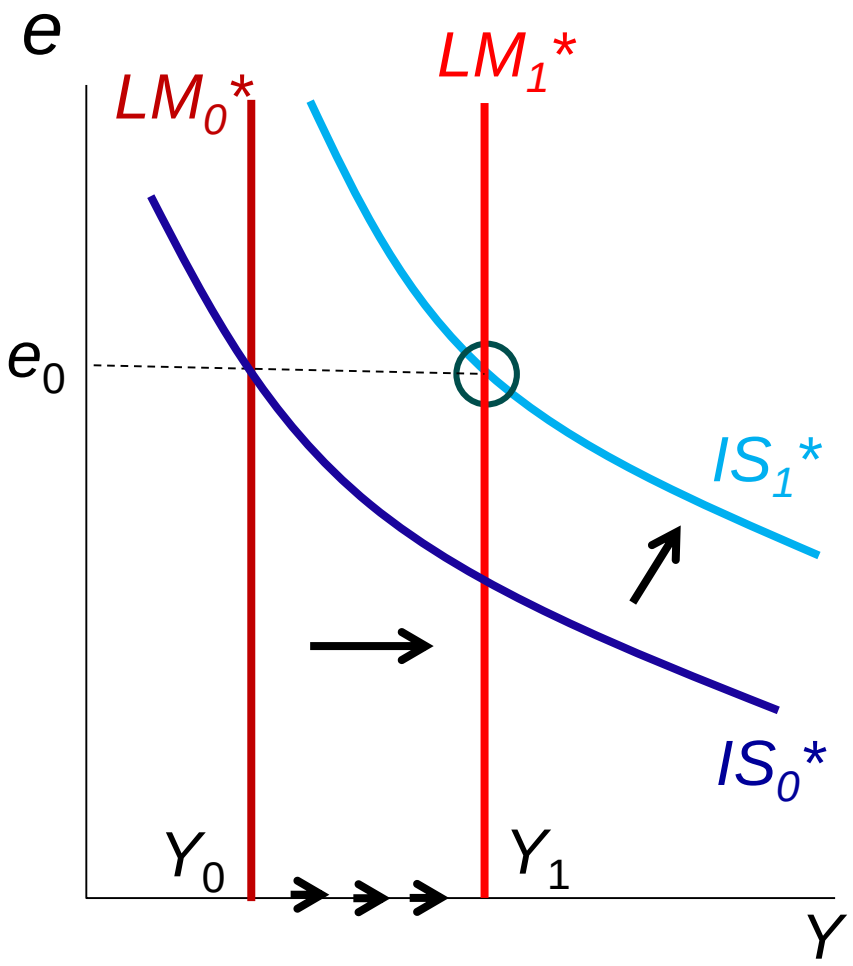


Tariffs lower imports (and raise ***NX***) for any level of ***e***: the IS* curve shifts towards the right…

Upward pressure on ***r*** causes capital inflow ⇒ because of increased demand for national currency, the exchange rate rises: ↑***e***

↓***NX*** (national goods are now relatively more expensive than foreign goods): ***AD*** falls and ***Y*** (which has increased due to the rise in net exports) comes back to its original level.

Ex. 6 – (c)
Tariffs under fixed rates



Exactly as before: tariffs reduce imports for any level of ***e***: ↑**NX** and the IS* moves to the right…

The upward pressure on ***r*** gives rise to increased capital inflow, which boosts the demand for the national currency.

To avoid appreciation (i.e. ↑***e***) the Central Bank increases the money supply, shifting the LM* curve towards the right

↑**M/P** stimulates production, which now exceeds its original level

Multiple choice

5. According to the Mundell-Fleming model, under a fixed exchange rate regime a revaluation of the national currency has the same effect as…

a) an expansionary monetary policy under floating exchange rates
b) a restrictive monetary policy under floating exchange rates
c) a restrictive fiscal policy under floating exchange rates
d) an expansionary fiscal policy under floating exchange rates

6. Under floating exchange rates, when hit by any shock, the economy tends to adjusts mainly by means of a change:

a) in aggregate demand
b) in the interest rate
c) in the exchange rate
d) in the money supply