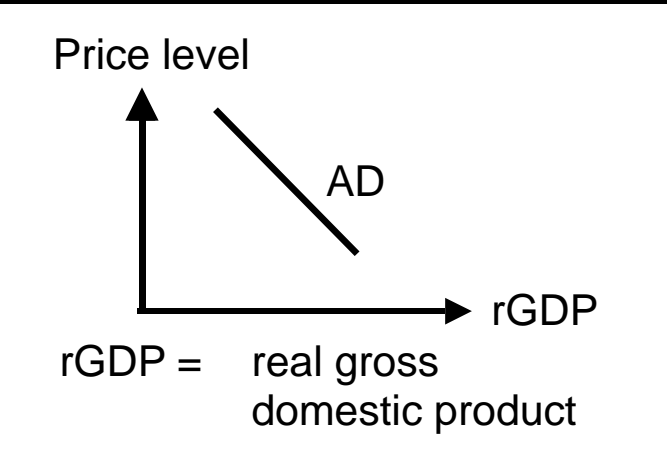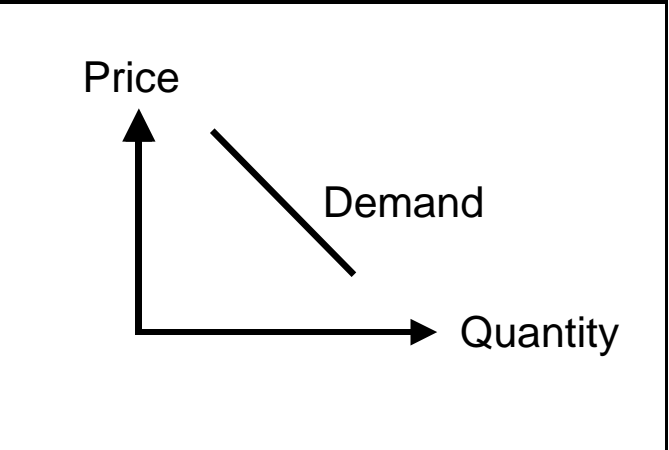# AD-AS model 1 (introduction)

1   Aggregate demand (AD)
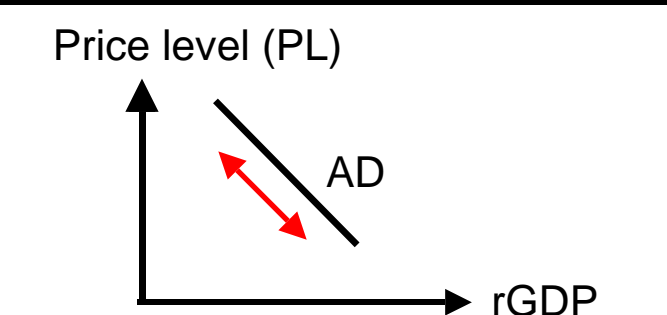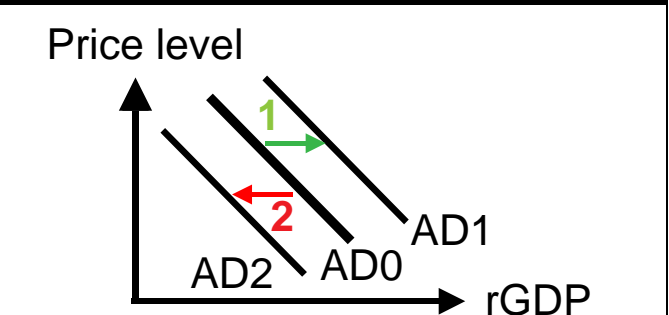
11   Aggregate demand curve vs. demand curve

Aggregate demand curve	Demand curve
Price level AD rGDP rGDP = real gross domestic product	Price Demand Quantity
AD-Curve	**Demand curve**
• refers to the whole economy	• refers to a single market (e.g. market for oranges)
• x-axis: Real GDP	• x-axis: Quantity of oranges
• y-axis: Price level	• y-axis: Price of oranges

12   AD = C + I + G + (X-M)
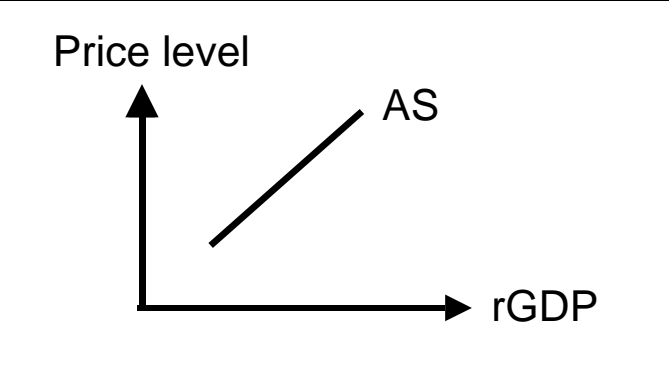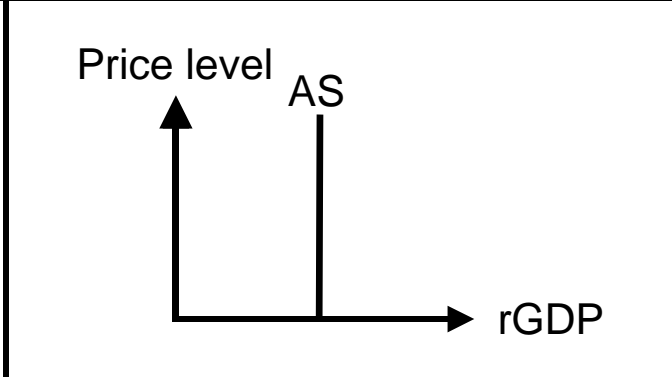
C = Consumption / I = Investment / G = Government spending /
X = Exports / M = Imports

13   Changes in AD

Movements along the AD-curve	Shifts in AD
Price level (PL) AD rGDP	Price level **1** **2** AD2 AD0 AD1 rGDP
If PL falls, then rGDP rises. If PL rises, then rGDP falls. (ceteris paribus in both cases)	Change in C,I,G,X or M: **1** Increase in AD **2** Decrease in AD

2 Aggregate supply (AS)
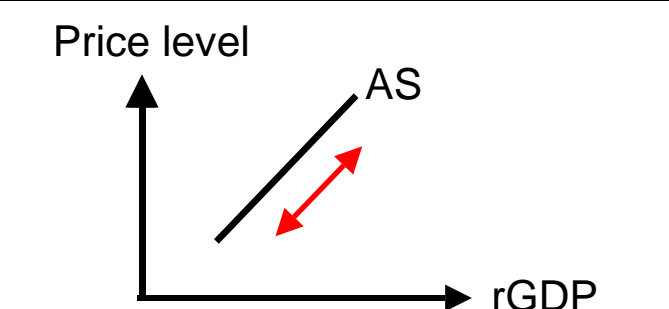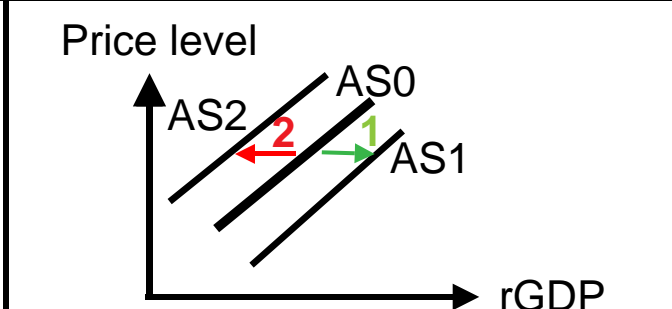
21 Short-run AS vs. long-run AS

Short-run AS (normal range)	Long-run AS
Price level — AS — rGDP	Price level — AS — rGDP
Some input prices (e.g. wages) are fixed.	All input prices have changed.

22 Short-run AS and business cycle

Price level — rGDP — ranges 1, 2, 3

1   **Depression** range; resources are **un**employed (Keynesian range).

2   **Normal** range

3   **Full-employment** range (classical range)
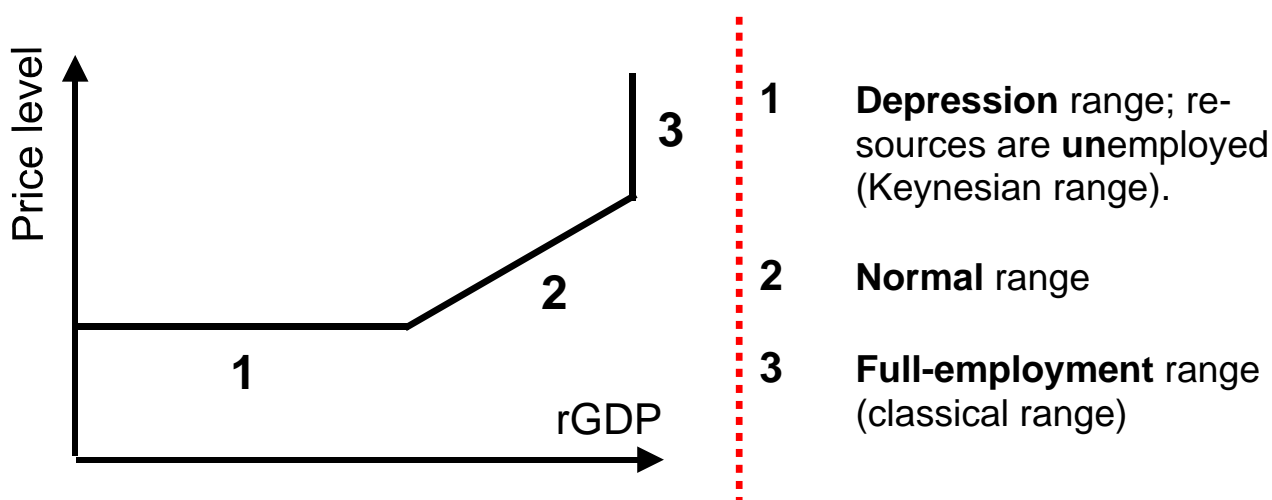
23 Changes in AS

Movements along the AS-curve	Shifts in AS
Price level — AS — rGDP	Price level — AS2, AS0, AS1 — rGDP
If PL falls, then rGDP falls, too. If PL rises, then rGDP rises, too. (ceteris paribus in both cases)	Change input factors: **1** Increase in AS (e.g. higher productivity) **2** Decrease in AS (e.g. less capital)

3   Macroeconomic equilibrium

31   Equilibrium in general

A macroeconomic equilibrium exists where rGDP demanded equals rGDP supplied. At this point, both rGDP and price level are determined.

Macroecomic equilibrium	Short-run eq (equilibrium) equals long-run eq
Price level AS PL* AD rGDP rGDP*	Price level LRAS SRAS PL* AD rGDP rGDP* SRAS = Short-run aggregate supply LRAS = Long-run aggregate supply
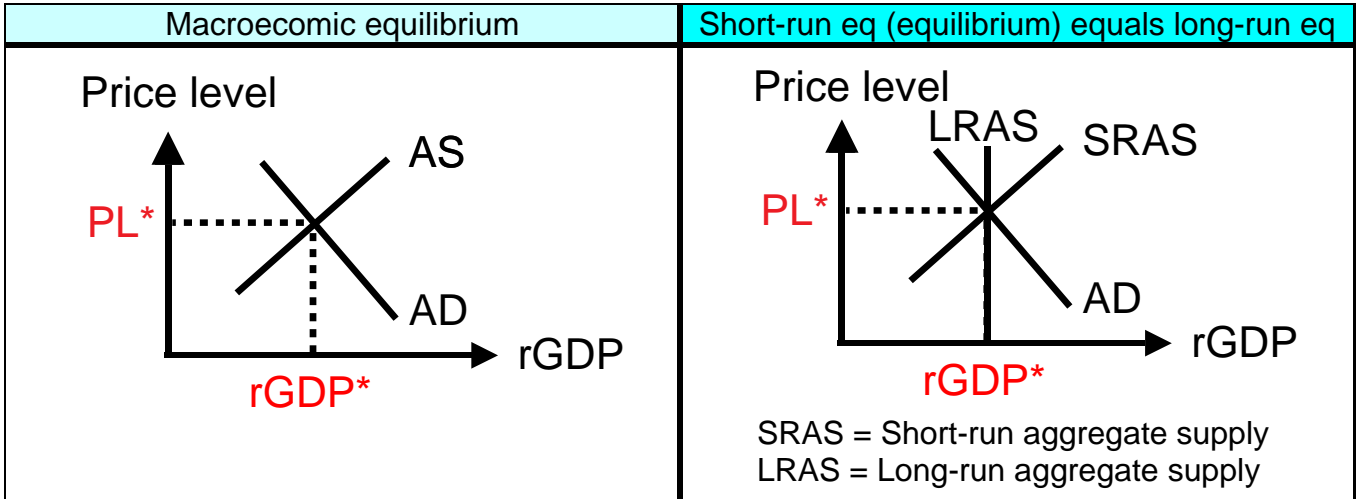
32   Examples of new equilibria

Shift in AD (e.g. rise in consumption)	Shift in AS (e.g. rise in productivity)
Price level AS AD2 AD1 rGDP	Price level AS1 AS2 AD rGDP
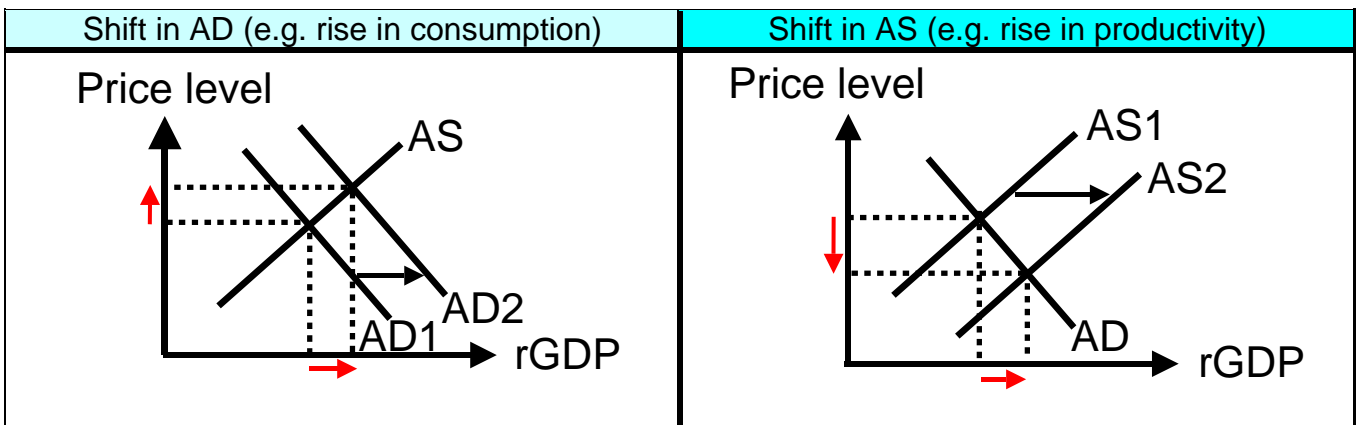
33   Gaps between the short-run equilibrium and the long-run situation

Recessionary gap	Inflationary gap
Price level LRAS SRAS PL* ↔ gap AD rGDP rGDP*	Price level LRAS SRAS PL* ↔ gap AD rGDP rGDP*
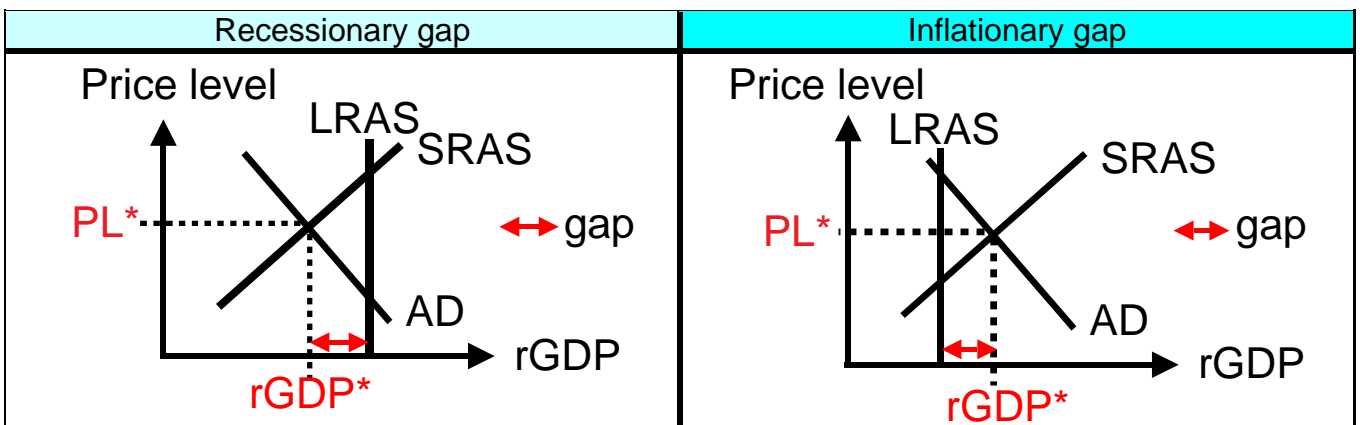
AD-AS model 2 (applications)

1 Fiscal policy

The main instruments of the fiscal policy are government spending or taxes. Both have primarily an effect on aggregate demand (AD).

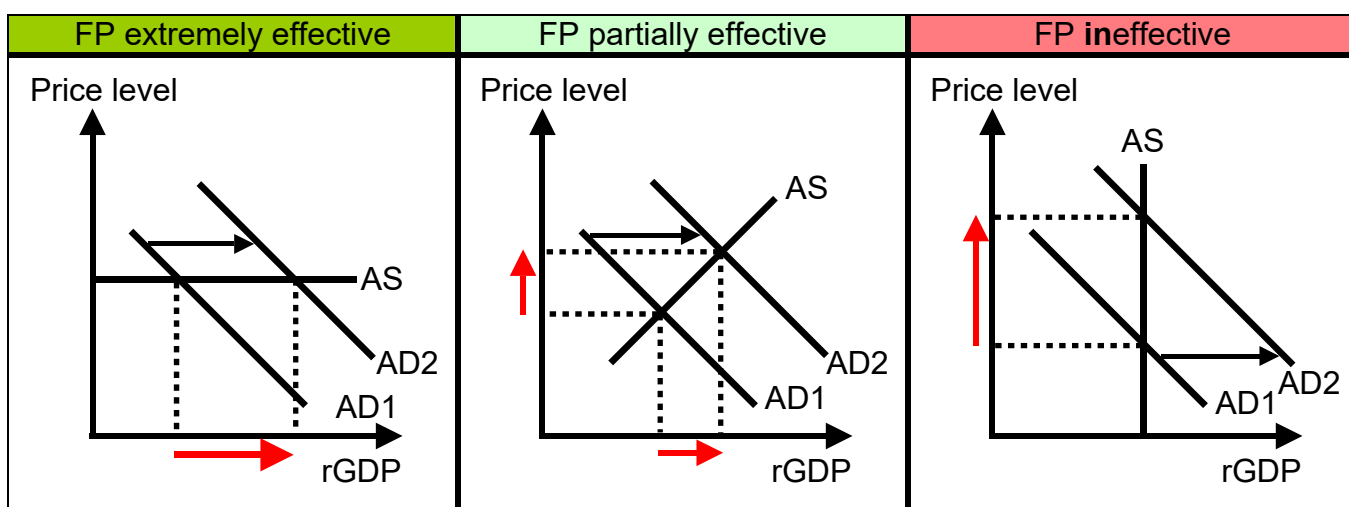### 11 Effectiveness (with regard to changes in real gross domestic product, rGDP)

The effectiveness of the fiscal policy (FP) depends on the slope of the aggregate supply (AS).

FP extremely effective	FP partially effective	FP **in**effective

12 Business cycle and fiscal policy

Expansionary fiscal policy	Contractionary fiscal policy
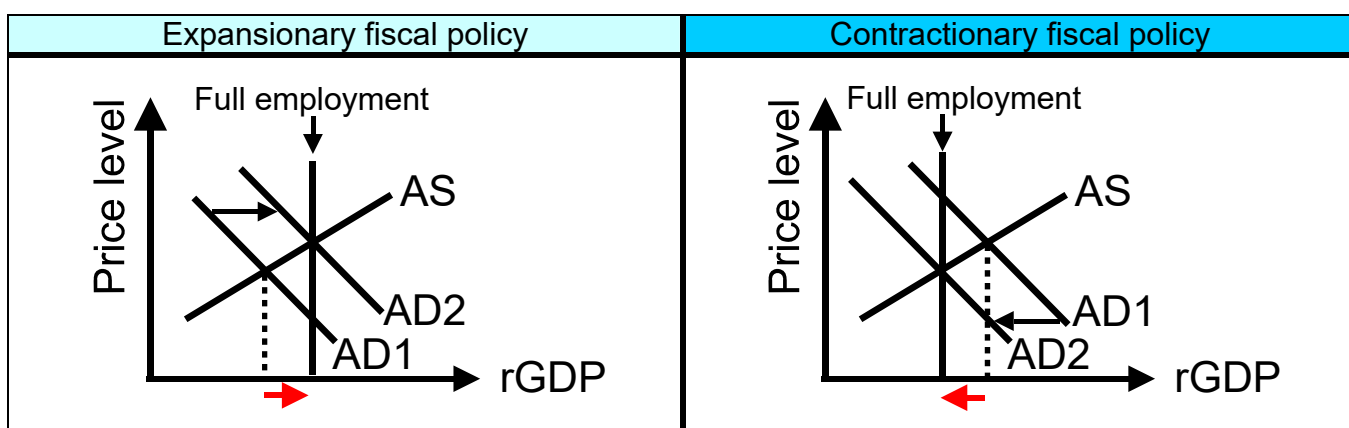
2 Monetary policy

The monetary policy has an indirect effect on AD and on rGDP, namely via the interest-rate mechanism. We assume that rGDP should be expanded in order to fight recession.
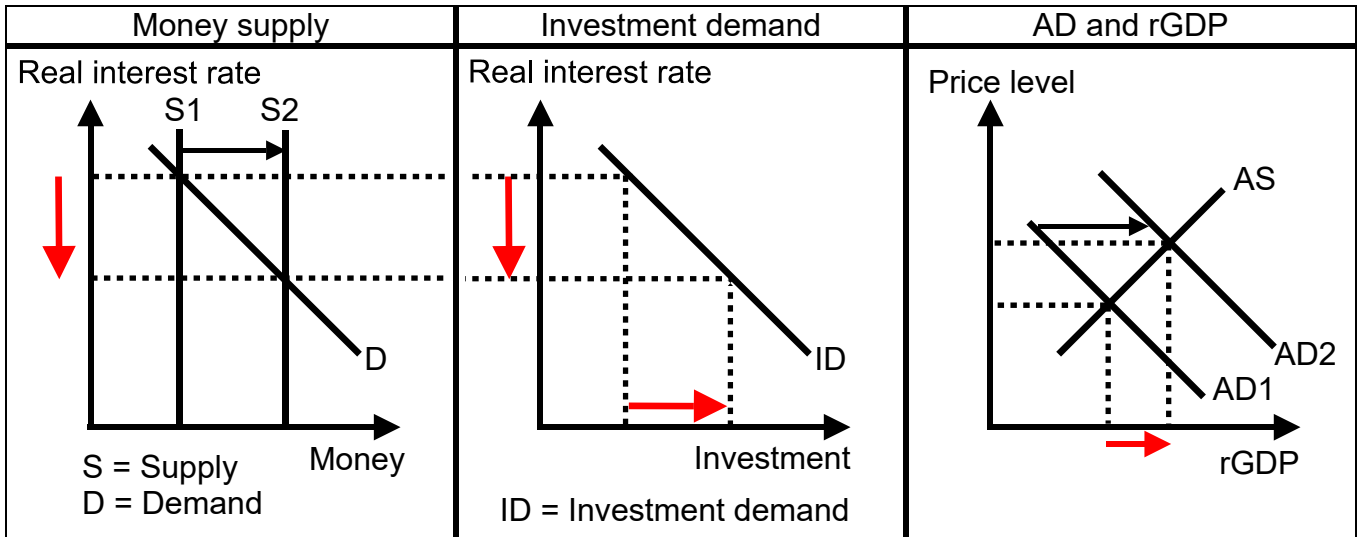
Monetary policy and AD:

Money supply	Investment demand	AD and rGDP

Real interest rate   S1   S2

D

S = Supply   Money
D = Demand

Real interest rate

ID

Investment

ID = Investment demand

Price level

AS

AD2

AD1

rGDP

3 Supply-side policies

Supply-side policies have an influence on AS and on rGDP, for example by means of regulation or of subsidies.

Price level

AS1

AS2

AD
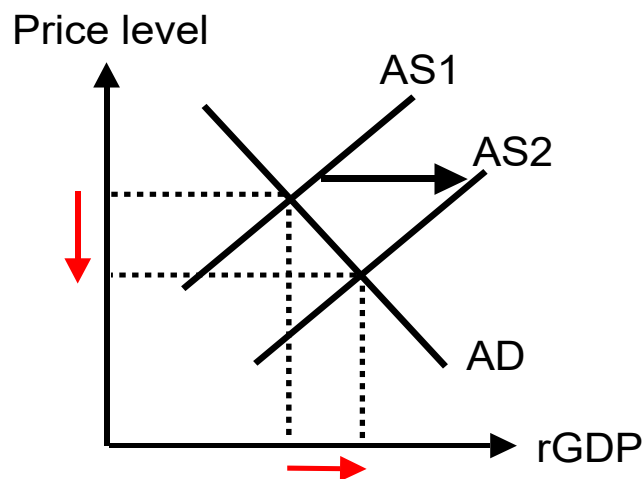
rGDP

4   Inflation

Inflation can take place by a shift in AD or in AS.

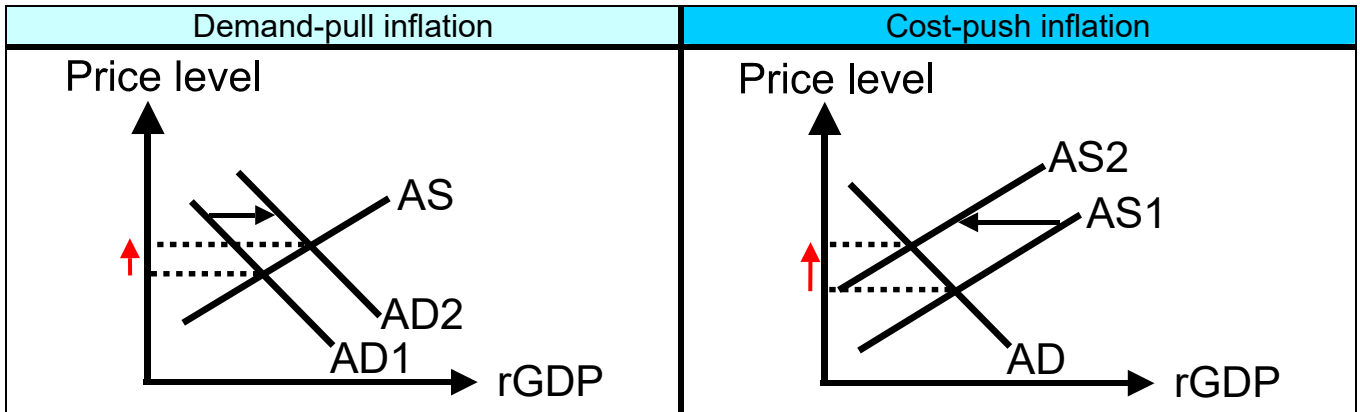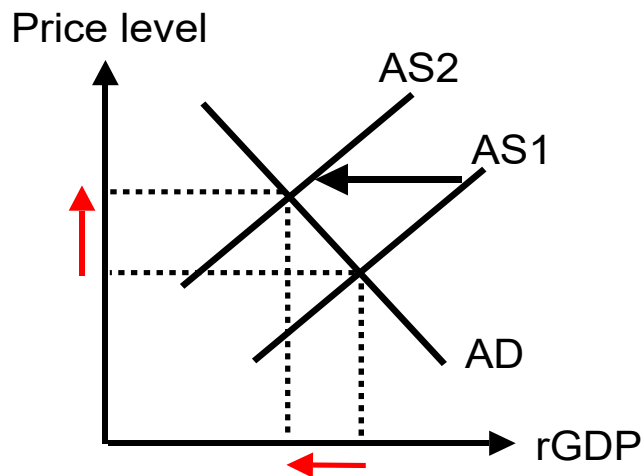| Demand-pull inflation	Cost-push inflation
Price level AS AD2 AD1 rGDP	Price level AS2 AS1 AD rGDP

5   Stagflation

Stagflation is the combination of inflation and stagnation (recession); therefore, the price level rises and rGDP falls.

Price level

AS2

AS1

AD

rGDP

6   Economic growth

The long-run AS and the AD shift to the right when economic growth takes place.

	In order for the additional production to be absorbed by the market at an unchanged price level, AD must also shift.	
Price level AS1 AS2 AD rGDP		Price level AS1 AS2 AD2 AD1 rGDP
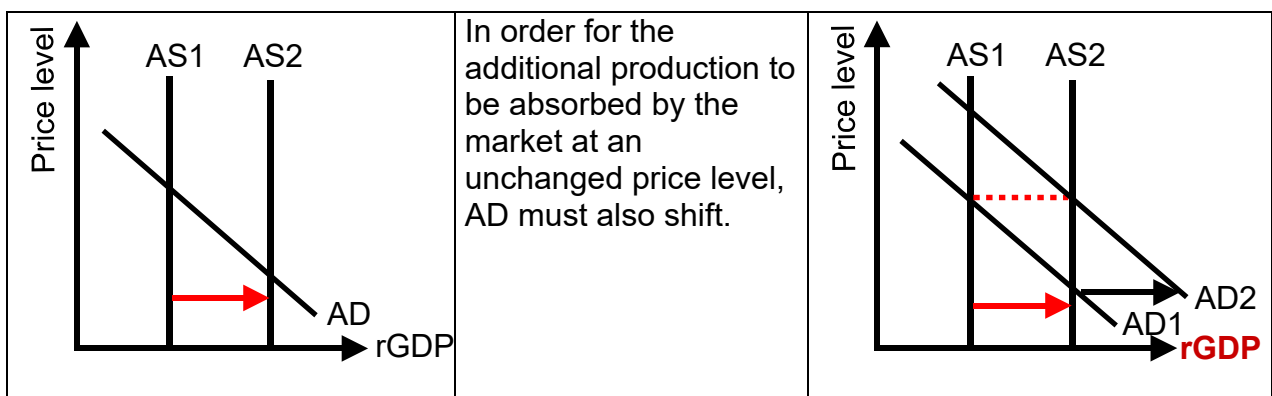
AD-AS model 3 (supply and demand shock)

AS = Aggregate supply
PL = Price level

AD = Aggegate demand = C + I + G + (X-M)
rGDP = real gross domestic product

1   Shocks are unexpected events that have a significant impact on AD and AS.

2   Overview

	Types of shock	Impact	Example
a	Positive supply shock (considered advantageous)	AS shifts to the right (PL -, rGDP +)	On 9.3.2020,the oil price fell by 30 %.
b	Negative supply shock (considered disadvantageous)	AS shifts to the left (PL +, rGDP -)	Oil crisis 1973
c	Positive demand shock (considered advantageous)	AD shifts to the right (PL +, rGDP +)	Unexpected and significant stock market boom
d	Negative demand shock (considered disadvantageous)	AD shifts to the left (PL -, rGDP -)	New York 9/11

3   Types of shock, represented graphically
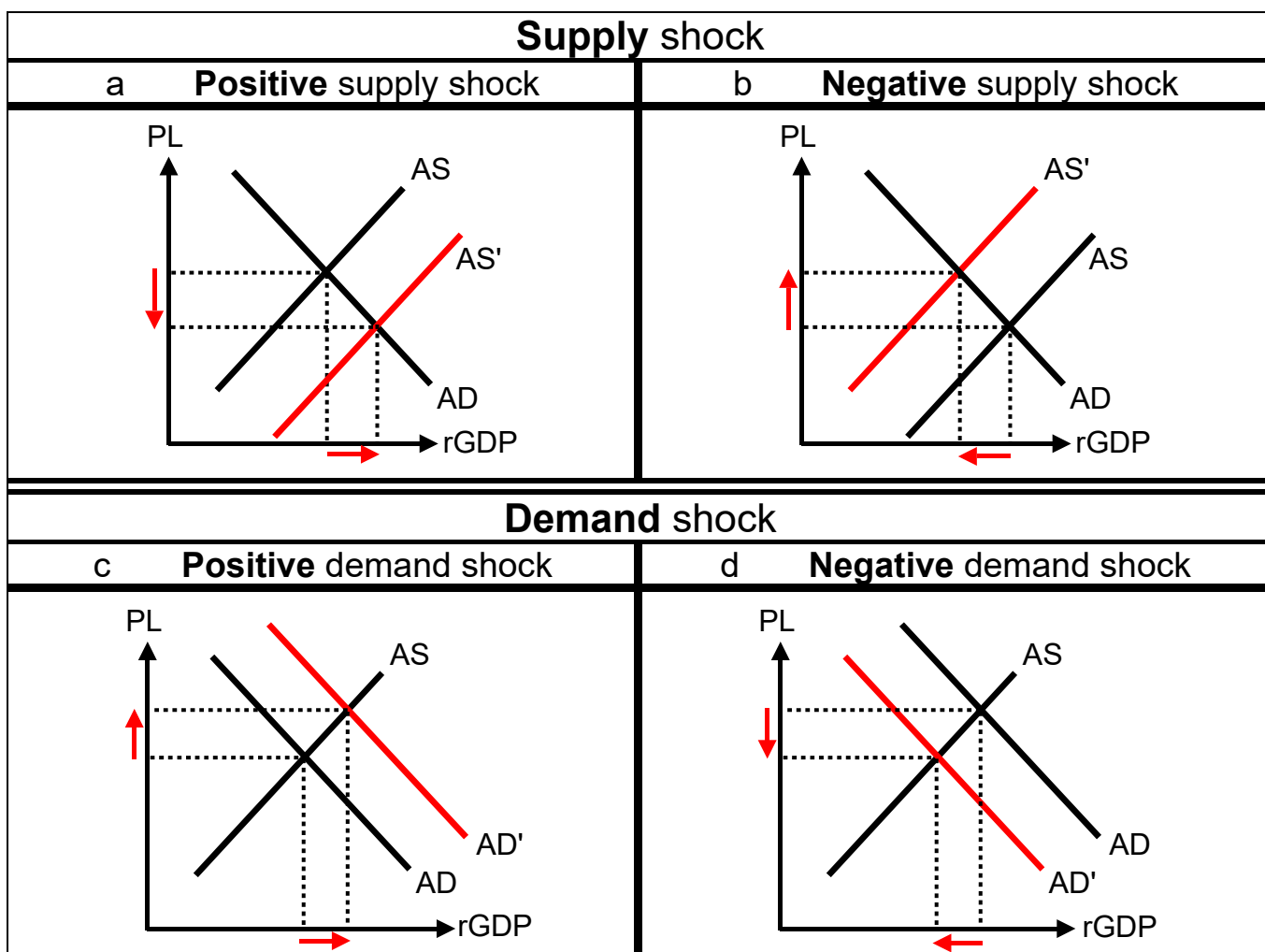
4   Example of application

4.1   The are events that have an impact on both AD and AS.

Example: Coronovirus pandemic 2020

- Negative supply shock: Decline in production due to an interruption of supply chains

- Negative demand shock: Decline in consumption due to fear, uncertainty, government intervention
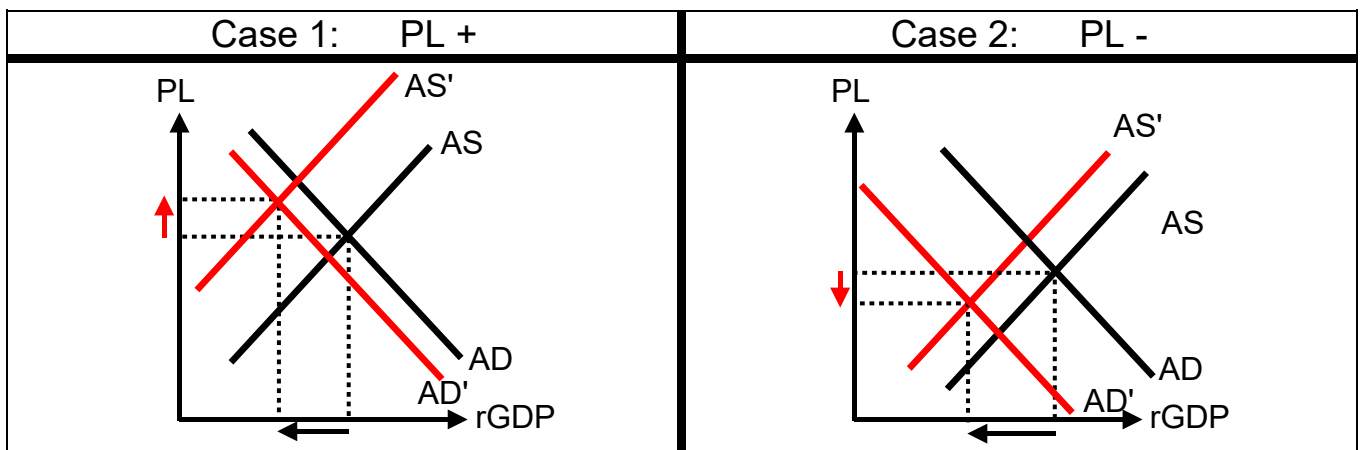
4.2   Impacts:

- Negative supply shock
  AS shifts to the left: PL +   rGDP -

+ - Negative demand shock
  AD shifts to the left: PL -   rGDP -

  Cumulative impact   **PL + or PL - or**   **rGDP -**
                                       PL unchanged *

* Whether PL rises, falls or stays the same, depends on the extent to which AD and AS shift.

4.3   **Cumulative impact, graphically represented**:   PL + and PL -

Case 1: PL +	Case 2: PL -

Case 1 shows **stagflation** → Combination of inflation (PL +) and recession (rGDP -).

AD-AS model 4 (equilibria)

AS = Aggregate supply
PL = Price level
LRAS = Long-run AS

AD = Aggregate demand = C + I + G + (X-M)
rGDP = real gross domestic product
SRAS = Short-run AS

1 Equilibria

11 **Long-run** equilibrium	12 **Short-run** equilibrium
Three variables (LRAS, SRAS, AD) meet at point A.	Only two variables (SRAS, AD) meet at point B.

2 Example I: Shift of the AD curve to the right
(due to a rise in consumption)

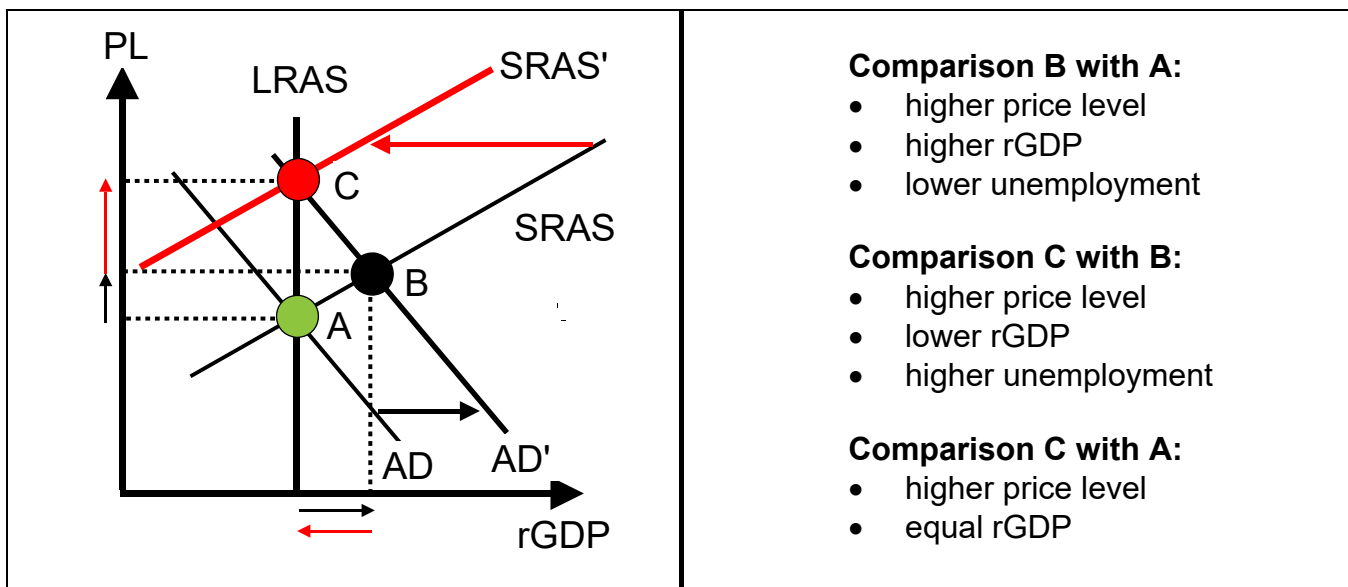## 21 Short-run equilibrium

	Comparison B with A: • higher price level • higher rGDP • lower unemployment

2   Return to a long-run equilibrium

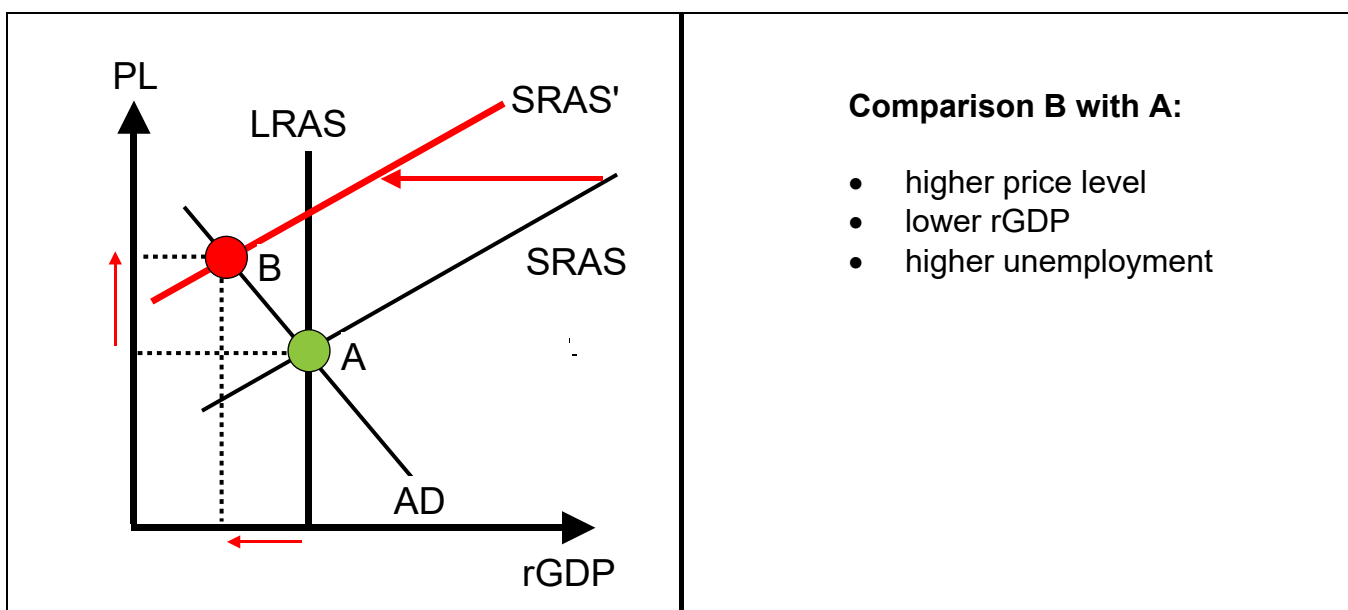A return to a long-run equilibrium can be achieved by a shift of the SRAS curve or the AD curve.

The SRAS curve shifts to the left if the production costs more, e.g. due to higher wages. If this happens with delay, the fiscal policy (government spending, taxes) could ensure that the AD curve shifts to the left until the point A (not shown below).

Now we assume that workers get higher wages, which will bring about a shift of the SRAS curve to the left:

Comparison B with A:
- higher price level
- higher rGDP
- lower unemployment

Comparison C with B:
- higher price level
- lower rGDP
- higher unemployment

Comparison C with A:
- higher price level
- equal rGDP

3   Example II: Shift of the SRAS curve to the left
(due to higher production costs)

31   Short-run equilibrium

Comparison B with A:
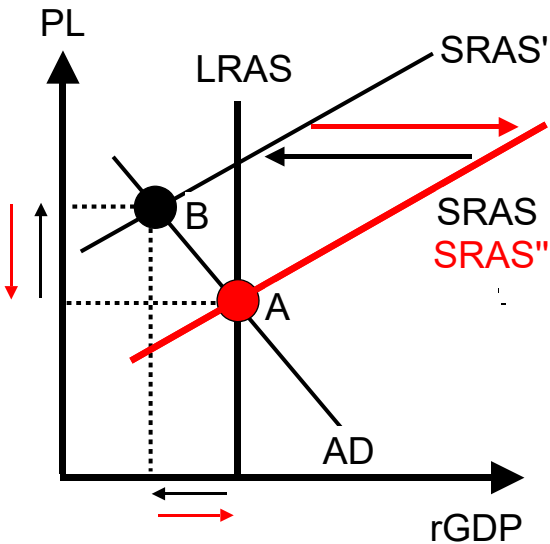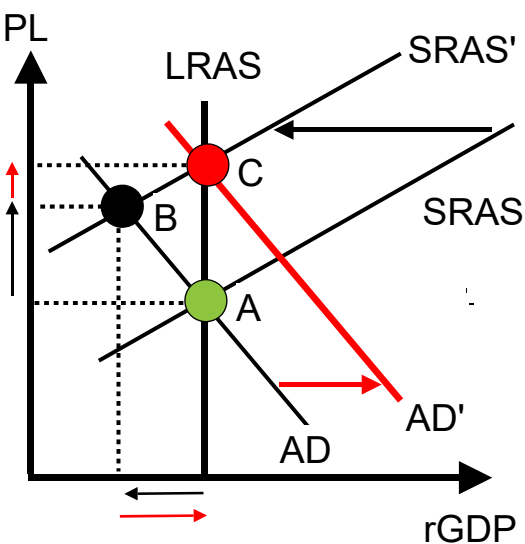
- higher price level
- lower rGDP
- higher unemployment

32 Return to a long-run equilibrium

A return to a long-run equilibrium can again be brought about by a shift of the SRAS curve or the AD curve.

A shift of the SRAS curve to the right happens if the production costs less (e.g. due to lower input prices, especially lower wages). In this case, the input prices must be **flexible** (321).

However, if the input prices are **rigid**, the SRAS curve does not shift to the right. In this case, the AD curve is shifted to the right by the fiscal policy (increases in government spending or tax cuts) (322).

321 Input prices are **flexible.**	322 Input prices are **rigid.**

Comparison B with A:
- higher price level
- lower rGDP
- higher unemployment

Comparison A with B:
- lower price level
- higher rGDP
- lower unemployment

Comparison B with A:
- higher price level
- lower rGDP
- higher unemployment

Comparison C with B:
- higher price level
- higher rGDP
- lower unemployment

Comparison C with A:
- higher price level
- equal rGDP