Aggregate Demand and Aggregate Supply

Kumar Chandrakamal

Charles University, Prague

April 10, 2024, Principles of Economics II

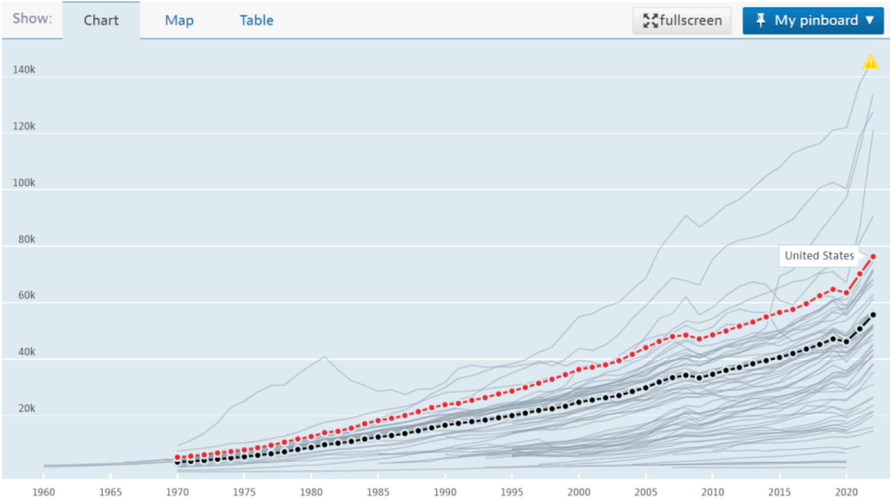
Aggregate Demand

- ***What is Aggregate Demand (AD)?***
    - Relationship to GDP (Quantitative)
    - Y= C+I+G+(X-M)
    - Relationship to microeconomic demand and supply
- ***GDP (growth) per annum***
    - Expansion v contraction
    - Fluctuation- but expected increase on average

Economic Fluctuations- 3 key facts

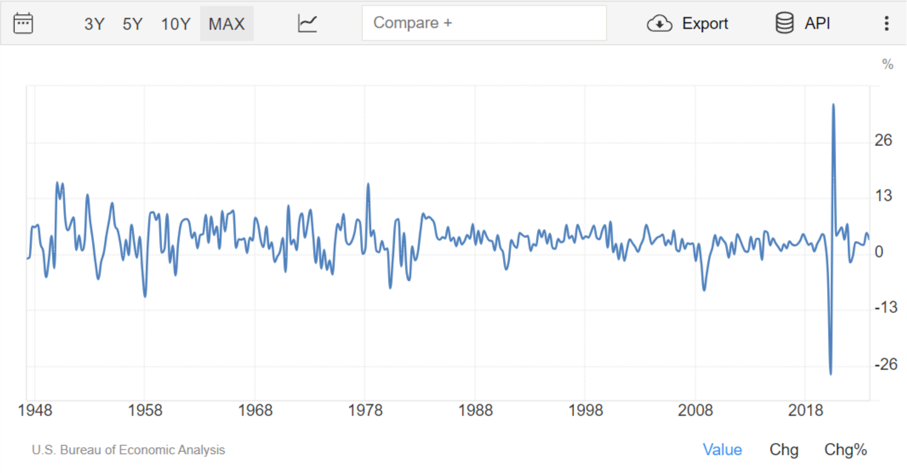
- ***Irregular and unpredictable***
  - Business Cycle misnomer
- ***Macroeconomic quantities fluctuate together***
  - Real GDP, income, profits, consumer spending, investment, production, retail sales, home sales
- ***As output ↓, unemployment ↑***
  - Firms produce smaller quantity of goods & services -> workers laid off
  - Output here refers to the GDP directly, often also known as the national output

United States GDP level- USD per capita

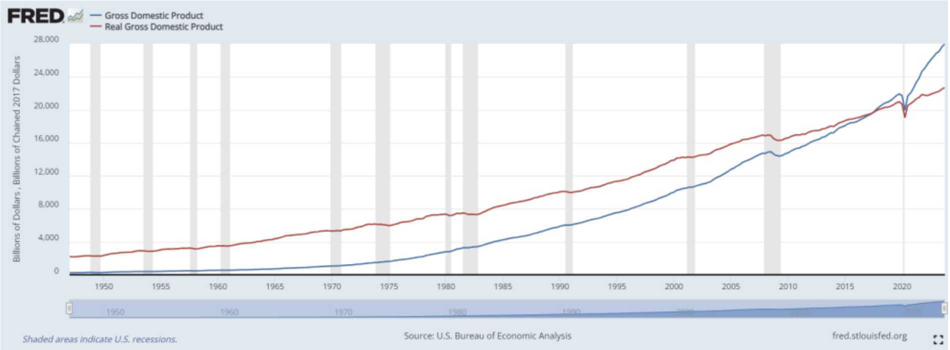


Source: https://data.oecd.org/gdp/gross-domestic-product-gdp.htm

United States GDP growth

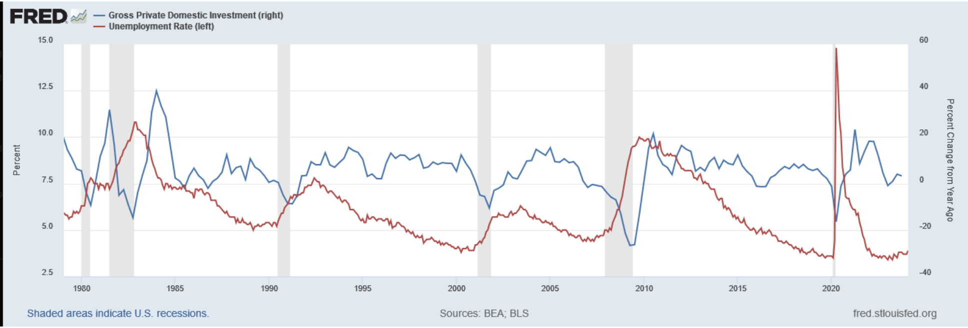


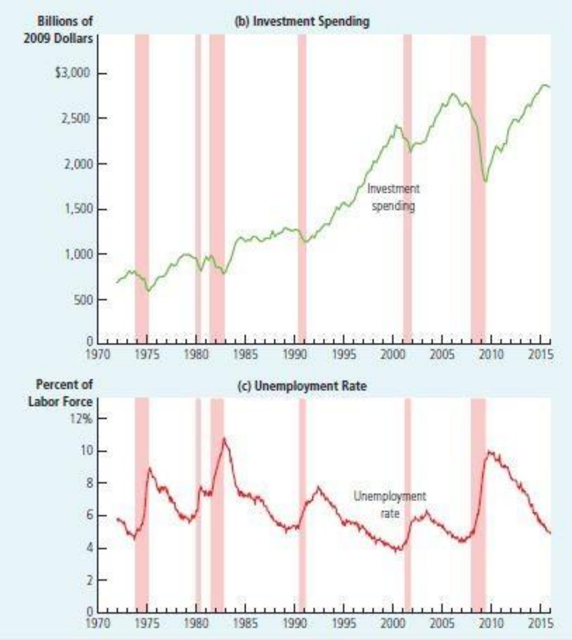
Source: https://tradingeconomics.com/united-states/gdp-growth



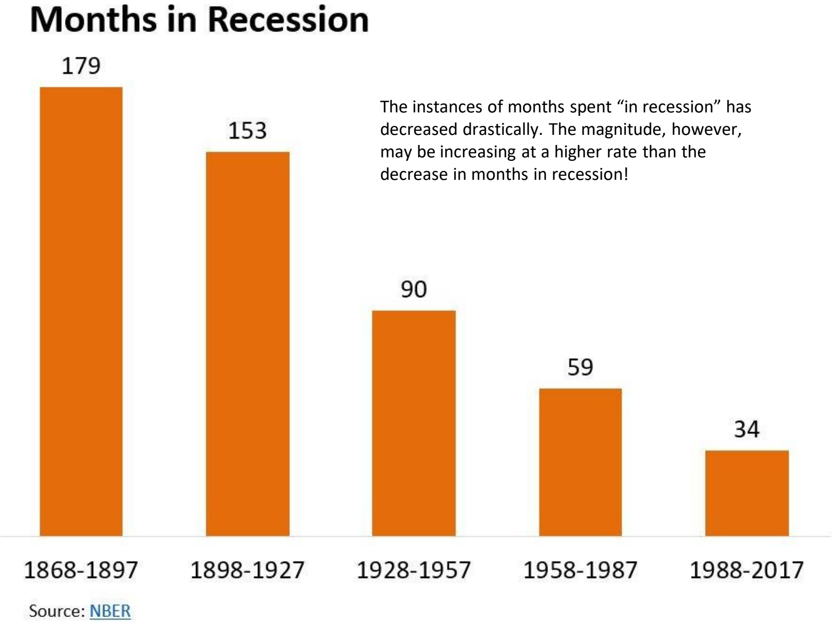
Source: https://fred.stlouisfed.org/series/GDP#0

Domestic investment versus unemployment rate




(b) Investment Spending
Billions of 2009 Dollars
$3,000
2,500
2,000
1,500
1,000
500
0
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
Investment spending
(c) Unemployment Rate
Percent of Labor Force
12%
10
8
6
4
2
0
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
Unemployment rate

Impact of Corona-crisis: US unemployment rate



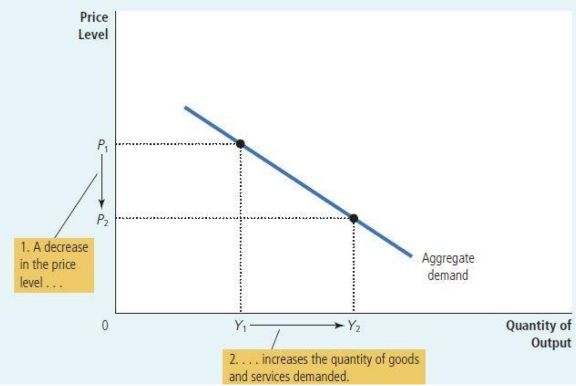
The instances of months spent "in recession" has decreased drastically. The magnitude, however, may be increasing at a higher rate than the decrease in months in recession!

Aggregate Demand

Aggregate = Total

- Aggregate Demand (AD) is the sum of the demand for all goods and services in the economy. It can also be seen as the quantity of real GDP demanded at different price levels.
  - ***(AD) = C + I + G + (X – M)***
- Consumption (C)
- Investments (I)
- Government Purchases (G)
- Net Exports (X-M) = if X bigger than M = greater demand, M bigger than X = lower demand

AD Curve



Price
Level
P_1
P_2
1. A decrease
in the price
level . . .
0
Y_1
Y_2
Aggregate
demand
Quantity of
Output
2. . . . increases the quantity of goods
and services demanded.

3 Reasons why the AD curve is downward sloping

- 1. Wealth Effect
- 2. Interest Rate Effect
- 3. International Trade Effect

1. Wealth Effect

- A decrease in the price level raises the real value of money and makes consumers wealthier, which in turn encourages them to spend more: *"real value" here refers to the purchasing power of money*
- The increase in consumer spending means a larger quantity of goods and services demanded.

2. Interest Rate Effect

- A lower price level reduces the interest rate, encourages greater spending on investment goods, and thereby increases the quantity of goods and services demanded.
- Conversely, a higher price level raises the interest rate, discourages investment spending, and decreases the quantity of goods and services demanded.

3. International Trade Effect

- When a fall in the U.S. price level causes U.S. interest rates to fall, the real value of the dollar declines in foreign exchange markets. This depreciation stimulates U.S. net exports and thereby increases the quantity of goods and services demanded from abroad.
- The fall in domestic price-level will make some exports cheaper and eventually net exports will rise, in other words, it positively impacts on AD.

- A fall in the price level can prompt central banks to decrease interest rates- to stimulate borrowing and spending.

Overall Effect on AD

INCREASES IN AGGREGATE DEMAND (RIGHTWARD SHIFT)	DECREASES IN AGGREGATE DEMAND (LEFTWARD SHIFT)
Consumption (*C*)	Consumption (*C*)
— lower personal taxes	— higher personal taxes
— a rise in consumer confidence	— a fall in consumer confidence
— greater stock market wealth	— reduced stock market wealth
— an increase in transfer payments	— a reduction in transfer payments
Investment (*I*)	Investment (*I*)
— lower real interest rates	— higher real interest rates
— optimistic business forecasts	— pessimistic business forecasts
— lower business taxes	— higher business taxes
Government purchases (*G*)	Government purchases (*G*)
— an increase in government purchases	— a reduction in government purchases
Net exports ($X - M$)	Net exports ($X - M$)
— income increases abroad, which will likely increase the sale of domestic goods (exports)	— income falls abroad, which leads to a reduction in the sale of domestic goods (exports)

The Aggregate Supply (AS) Curve

- The aggregate supply curve represents how much RGDP suppliers will be willing to produce at different price levels.

Short-run aggregate supply (SRAS)

- A period when output can change in response to supply and demand, but input prices have not yet been able to adjust.

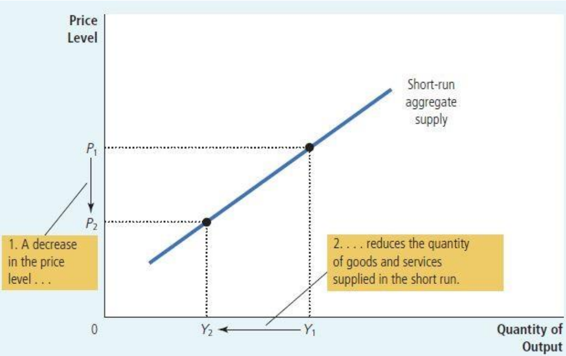


FIGURE 6

The Short-Run Aggregate-Supply Curve In the short run, a fall in the price level from P_1 to P_2 reduces the quantity of output supplied from Y_1 to Y_2. This positive relationship could be due to sticky wages, sticky prices, or misperceptions. Over time, wages, prices, and perceptions adjust, so this positive relationship is only temporary.

Short-run aggregate supply (SRAS)

Why would producers be willing to supply more output just because the price level increases?

- 1. Profit Effect (+Sticky Wages):
  - To many firms, input costs like wages and rents are relatively constant in the short run.
  - So when the price level rises, output prices rise relative to input prices (costs), raising producers' short-run profit margins.
  - If the price level falls (output prices), then producers' profits tend to fall then, producers find it more difficult to cover their input costs, and thus, will reduce their level of output.

Short-run aggregate supply (SRAS)

- 2. Misperception Effect:
  - If a producer sees the price of his output rising and thinks that only the relative price of his output is rising (i.e., that his product is becoming more valuable in real terms), he will supply more.
  - It might be that it was not just for his goods that prices were rising; the prices of many other goods and services could also be rising at the same time as a result of an increase in the price level.
  - In this case, the producer was fooled into supplying more based on his short-run misperception of relative prices.

Long-run aggregate supply (LRAS)

- A period long enough for the prices of outputs and all inputs to fully adjust to changes in the economy.

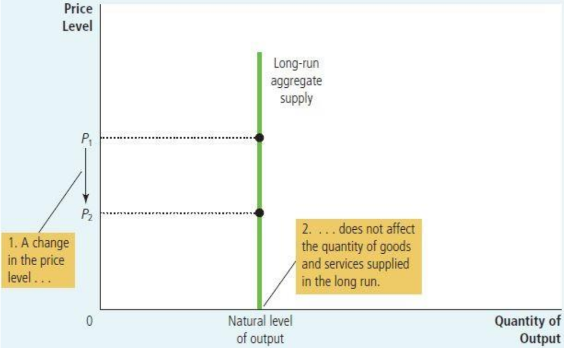


FIGURE 4

The Long-Run Aggregate-Supply Curve In the long run, the quantity of output supplied depends on the economy's quantities of labor, capital, and natural resources and on the technology for turning these inputs into output. Because the quantity supplied does not depend on the overall price level, the long-run aggregate-supply curve is vertical at the natural level of output.

Long-Run Aggregate Supply

Why is the Long-Run Aggregate Supply Curve ***Vertical*?**

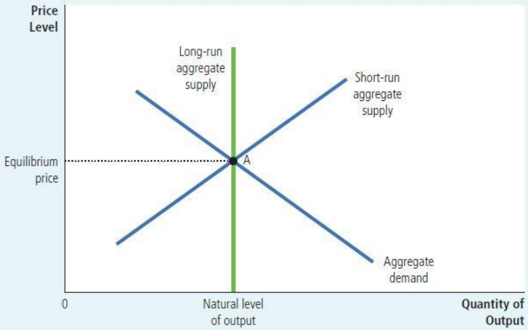
- Along the short-run aggregate supply curve, we assume that wages and other input prices are constant. However,
  - This is not the case in the long run, which is a period long enough for the price of all inputs to fully adjust to changes in the economy.
  - the prices of outputs and the price of inputs are changing: a 10 percent increase in the price of goods and services is matched by a 10 percent increase in the price of inputs.

Long-Run Equilibrium

The vertical LRAS curve will always be positioned at the natural rate of output, where all resources are fully employed.

FIGURE 7

The Long-Run Equilibrium
The long-run equilibrium of the economy is found where the aggregate-demand curve crosses the long-run aggregate-supply curve (point A). When the economy reaches this long-run equilibrium, the expected price level will have adjusted to equal the actual price level. As a result, the short-run aggregate-supply curve crosses this point as well.

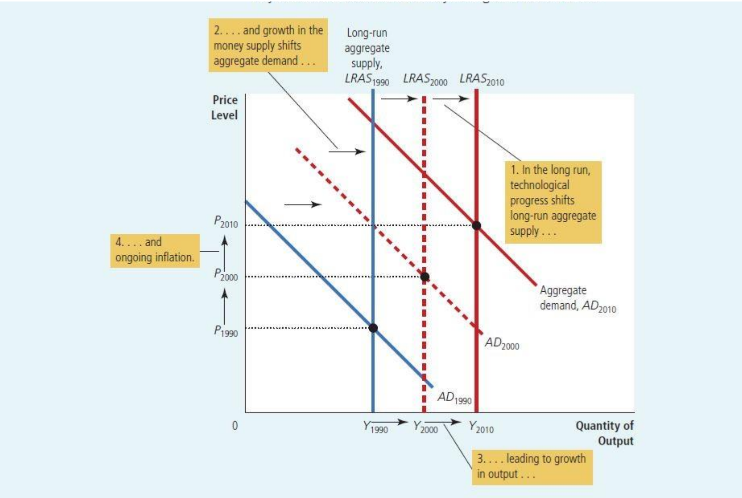


Shifts in LRAS

Any change in the quantity of any factor of production available (capital, land, labor or technology) can cause a shift in both the long-run and short-run aggregate supply curves.

- 1.Capital Stock (+human capital)
- 2.Technology and Entrepreneurship
- 3.Land (Natural Resources)
- 4.Labor Force: Japan (aging population, shrinking workforce) v China (booming population and labour force)
- 5.Government Regulations

Shifts in LRAS curve..



[redacted] Factors That May Shift the Aggregate Supply

An Increase in Aggregate Supply (Rightward Shift)

Lower costs
- lower wages
- other input prices fall

Government policy
- tax cuts
- deregulation
- lower trade barriers

Economic growth
- improvements in human and physical capital
- technological advances
- an increase in labor

Favorable weather

A Decrease in Aggregate Supply (Leftward Shift)

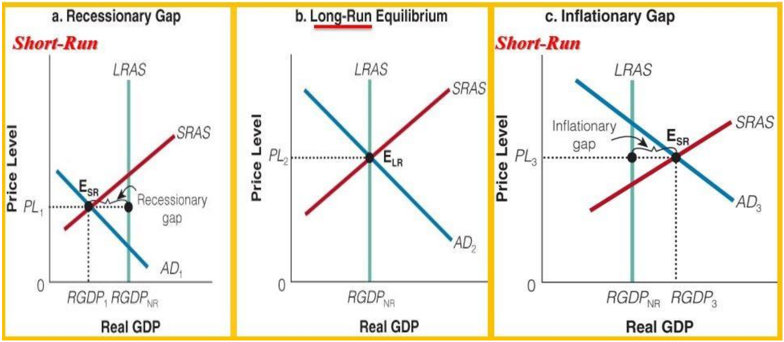
Higher costs
- higher wages
- other input prices rise

Government policy
- overregulation
- waste and inefficiency
- higher trade barriers
- stagnation
- a decline in labor productivity
- capital deterioration

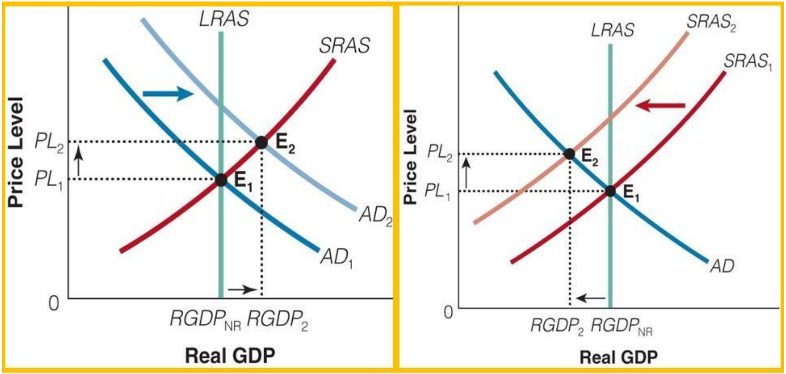
Unfavorable weather
Natural disasters and war

These factors can shift the short-run aggregate supply curve, the long-run aggregate supply curve, or both, depending on whether the effects are temporary or permanent.

Recessionary and Inflationary Gaps



Demand-Pull Inflation and Cost-Push Inflation



- Stagflation (stagnation+inflation): Lower Growth and Higher Prices

Summary

To sum up, this story about shifts in aggregate demand has three important lessons:

- In the short run, shifts in aggregate demand cause fluctuations in the economy's output of goods and services.
- In the long run, shifts in aggregate demand affect the overall price level but
- Because policymakers influence aggregate demand, they can potentially mitigate the severity of economic fluctuations.
- The short run aggregate supply curve is upward sloping due to the profit-effect and the misperception effect.
- The long run aggregate supply curve is vertical and can be shifted outwards through increases in factors of production

Thank you!

Kumar Chandrakamal

Institute of Economic Studies, Charles University

42041225@fsv.cuni.cz