Chapter 10: Introduction to Economic Fluctuations

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Chapter 10: Introduction to Economic Fluctuations

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   - Unemployment and Okun's law
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   - Shocks to aggregate supply

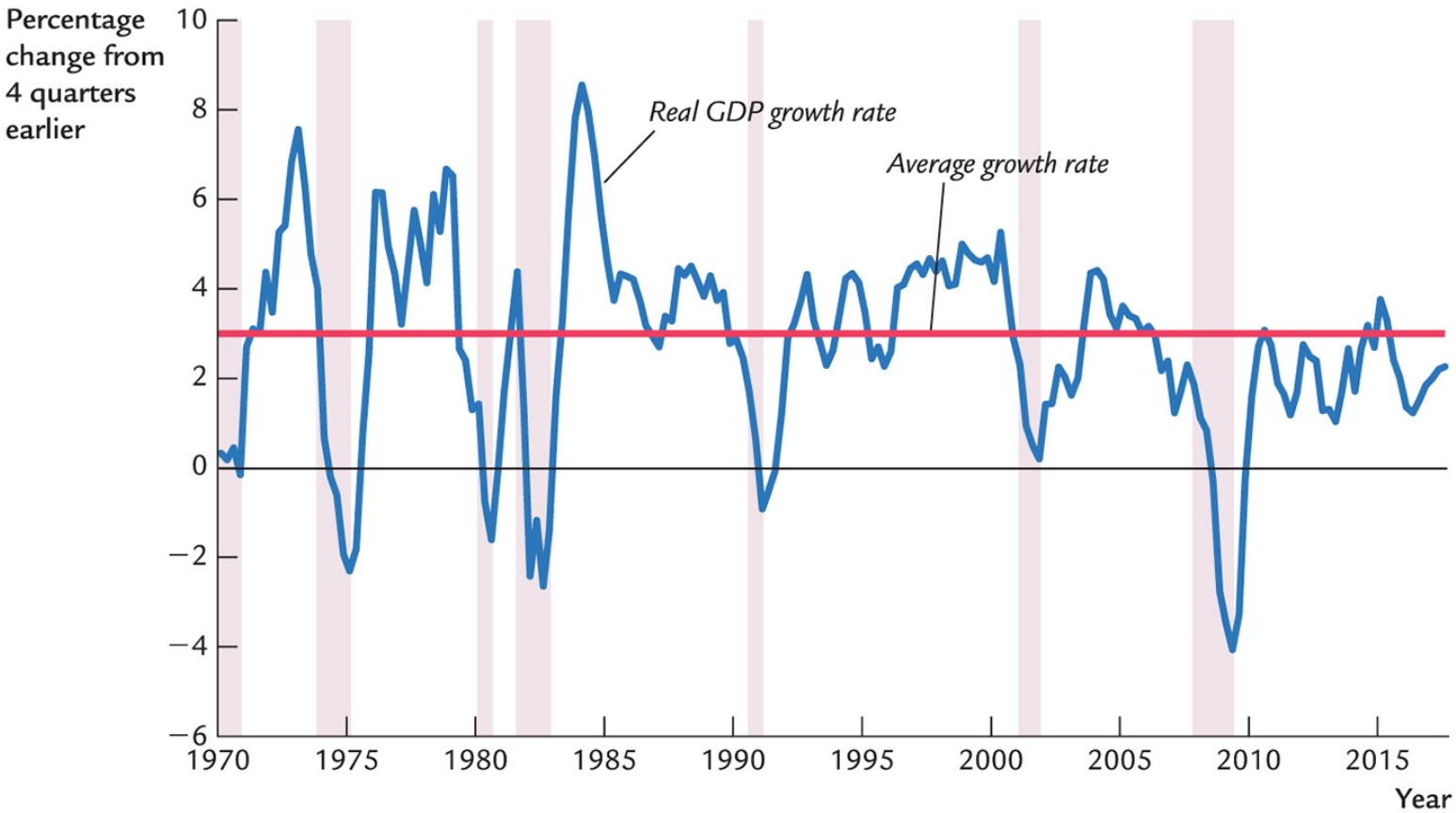
Introduction

- Business cycle: Short term fluctuations in output and employment.
- Fluctuations are not regular and not predictable, but irregular and (more or less) unpredictable.
- Questions:
  - What causes short-run fluctuations?
  - What model should we use to explain them?
  - Can policymakers avoid recessions?
  - If so, what policies and instruments should they use?

In this chapter...

1. ...we examine the data that describe short-run fluctuations.
2. ... we discuss key differences *how* economies behave in the short run and the long run.
3. ... we introduce the model of aggregate supply (AS) and aggregate demand (AD), which a lot of economists use to explain short-run fluctuations.

Real GDP growth in the US: Average about 3 %



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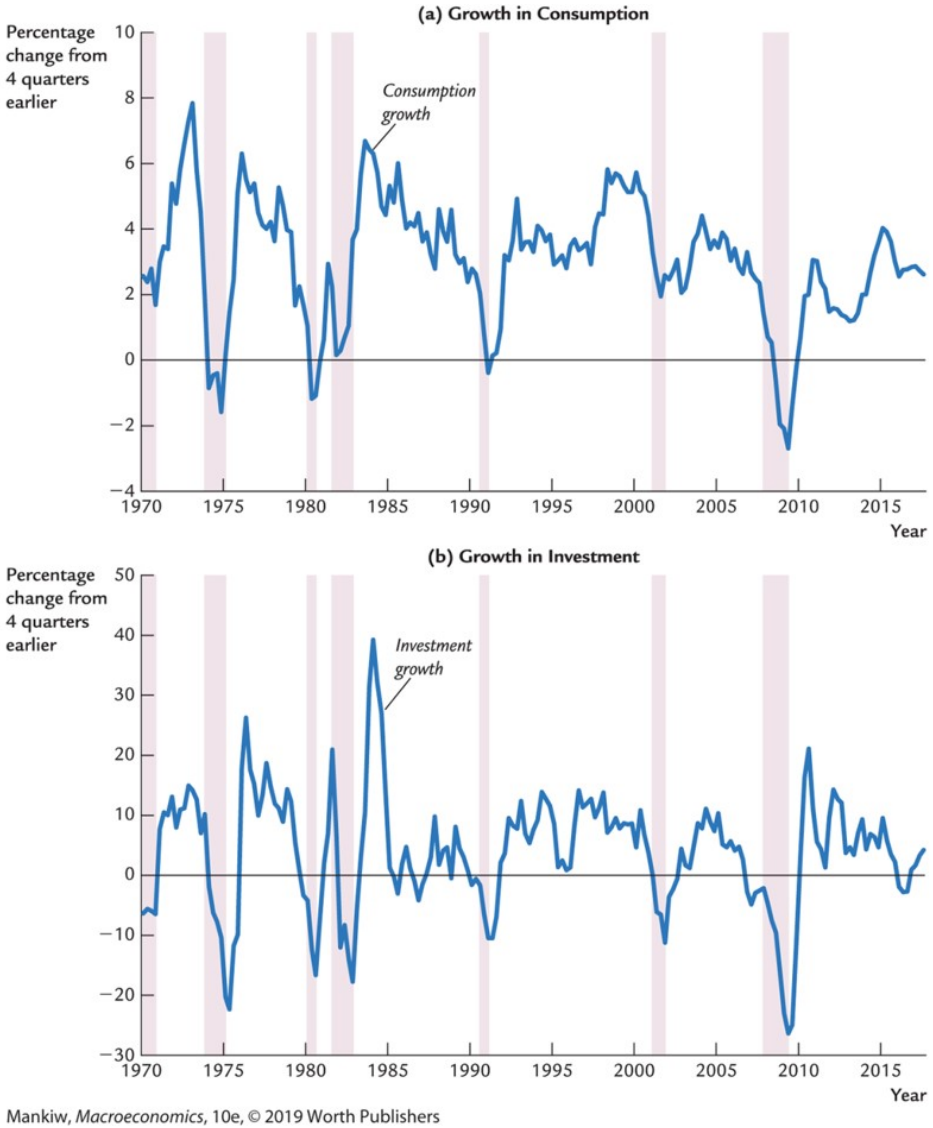
Real GDP growth in the US

- Recession: Rule of thumb: Period of
  - at least 2
  - consecutive quarters
  - of declining GDP (= growth rate of real GDP is negative)
- National Bureau of Economic Research (NBER) chooses
  - the starting date of each recession: *The peak*, and
  - the ending date of each recession: *The through*.
- Investment is far more volatile than consumption over the business cycle.

Growth in consumption and investment



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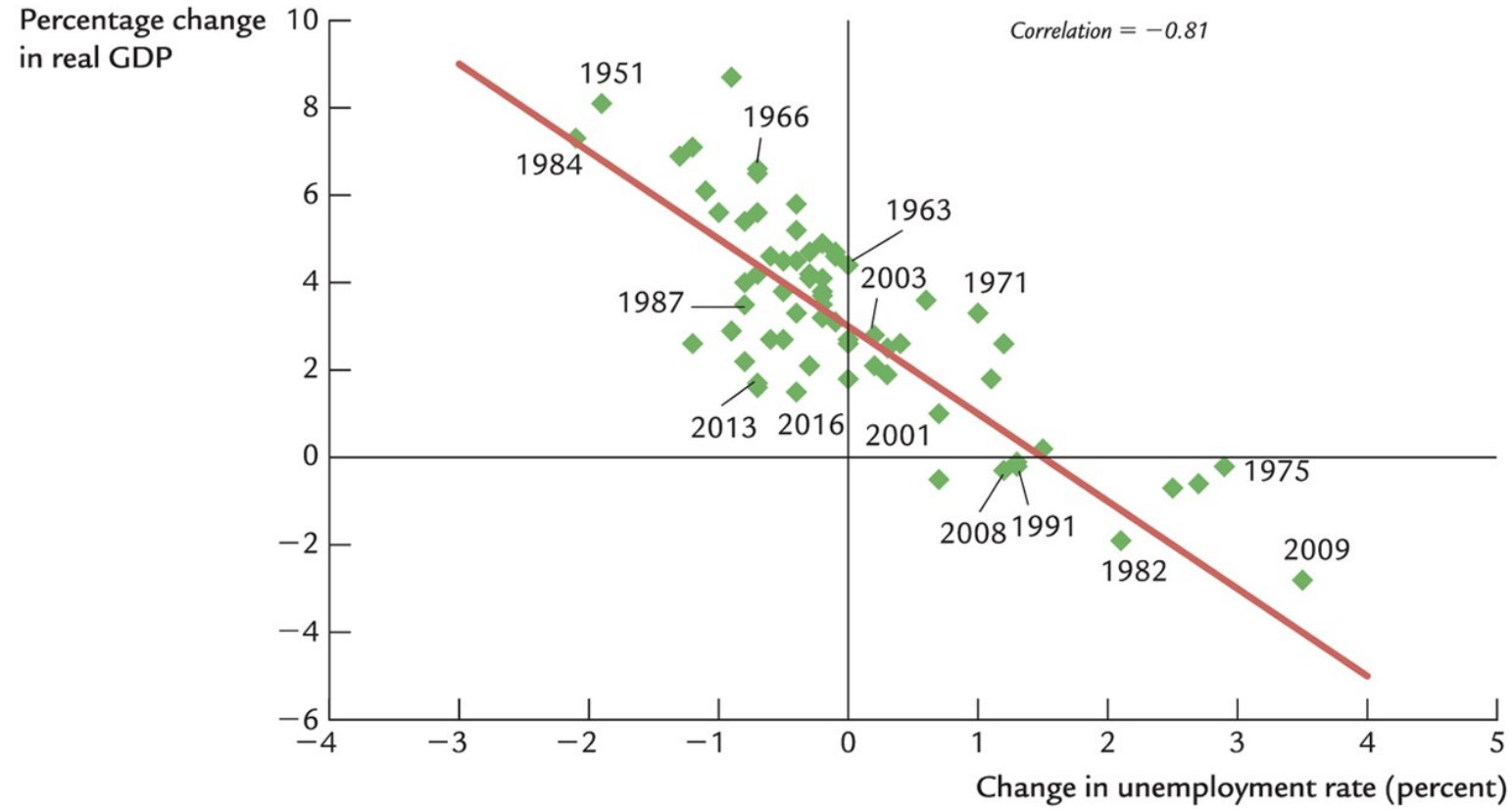
Okun's law



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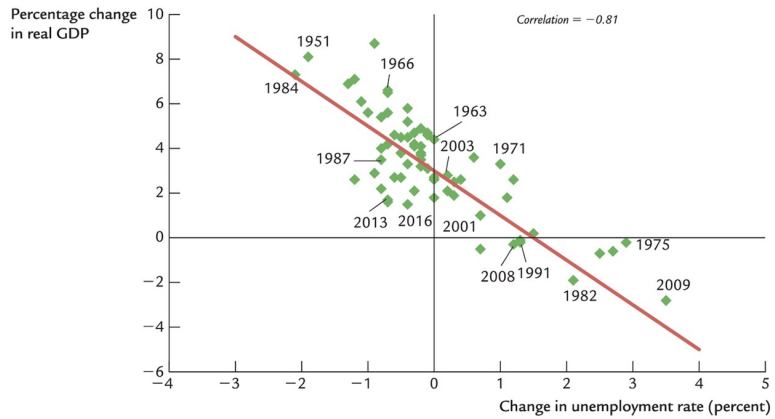
IMPORTANT: Mankiw puts *'Percentage change in real GDP '* on the vertical axis!

Okun's law

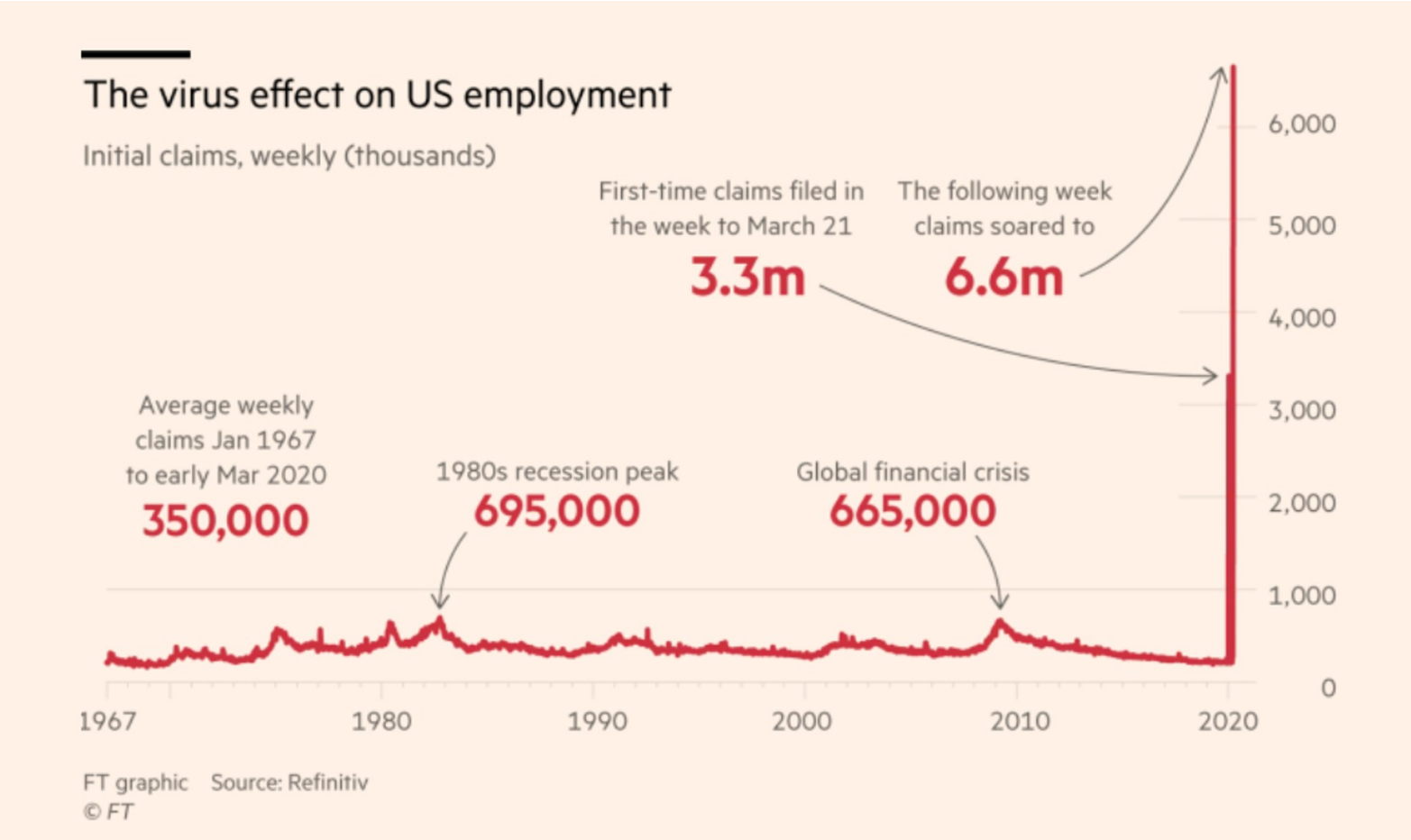


$$\%\text{ change in real GDP} = 3\,\% - 2 \cdot \text{change in the unemployment rate}$$

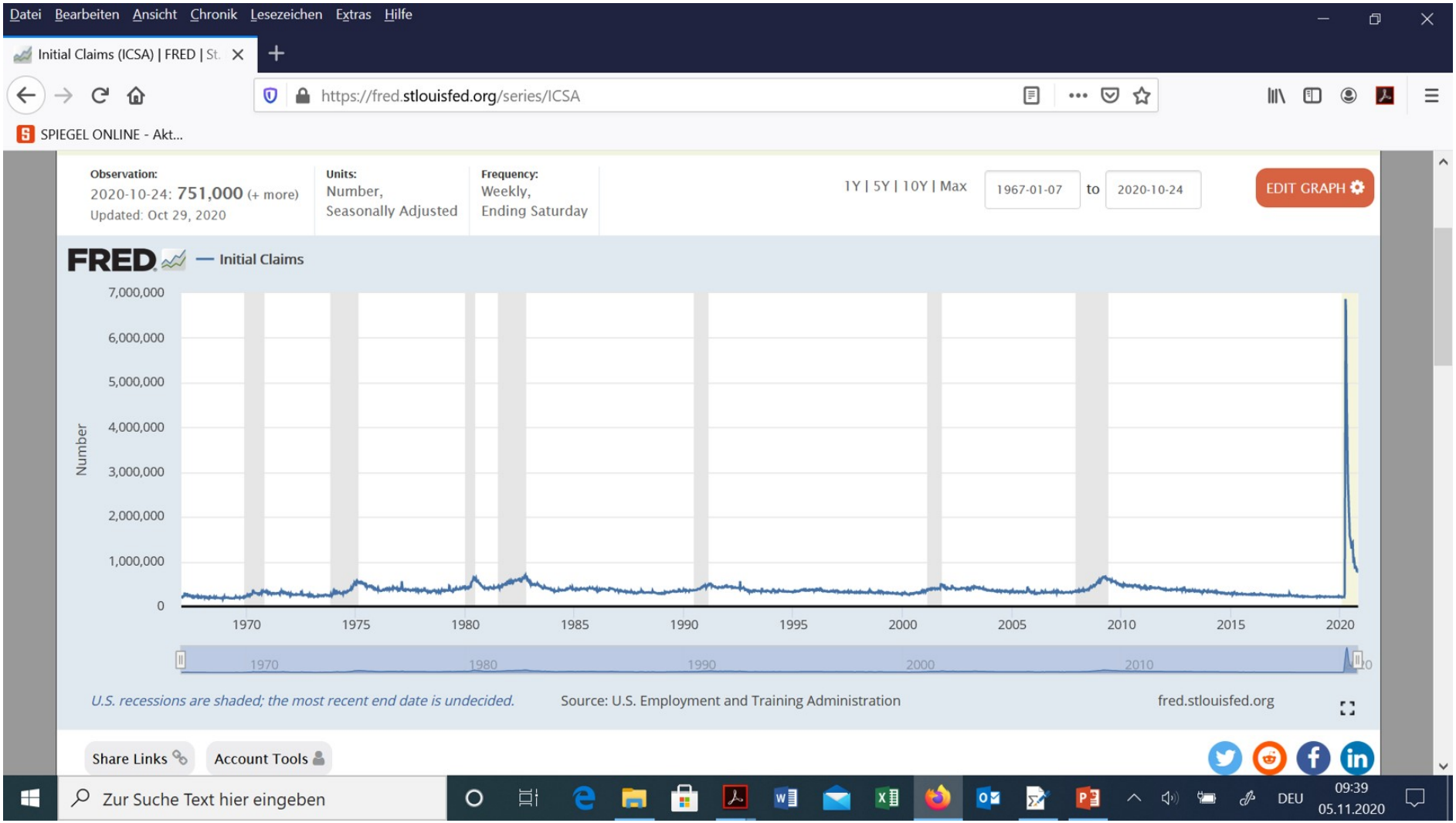
Leading indicators

- A very long list of leading indicators is presented.
- In the end: Leading indicators are far from a precise forecast of the future, as short-run economic fluctuations are largely unpredictable.
- Nonetheless it is a useful input factor...
- One example: Weekly initial claims for unemployment insurance.

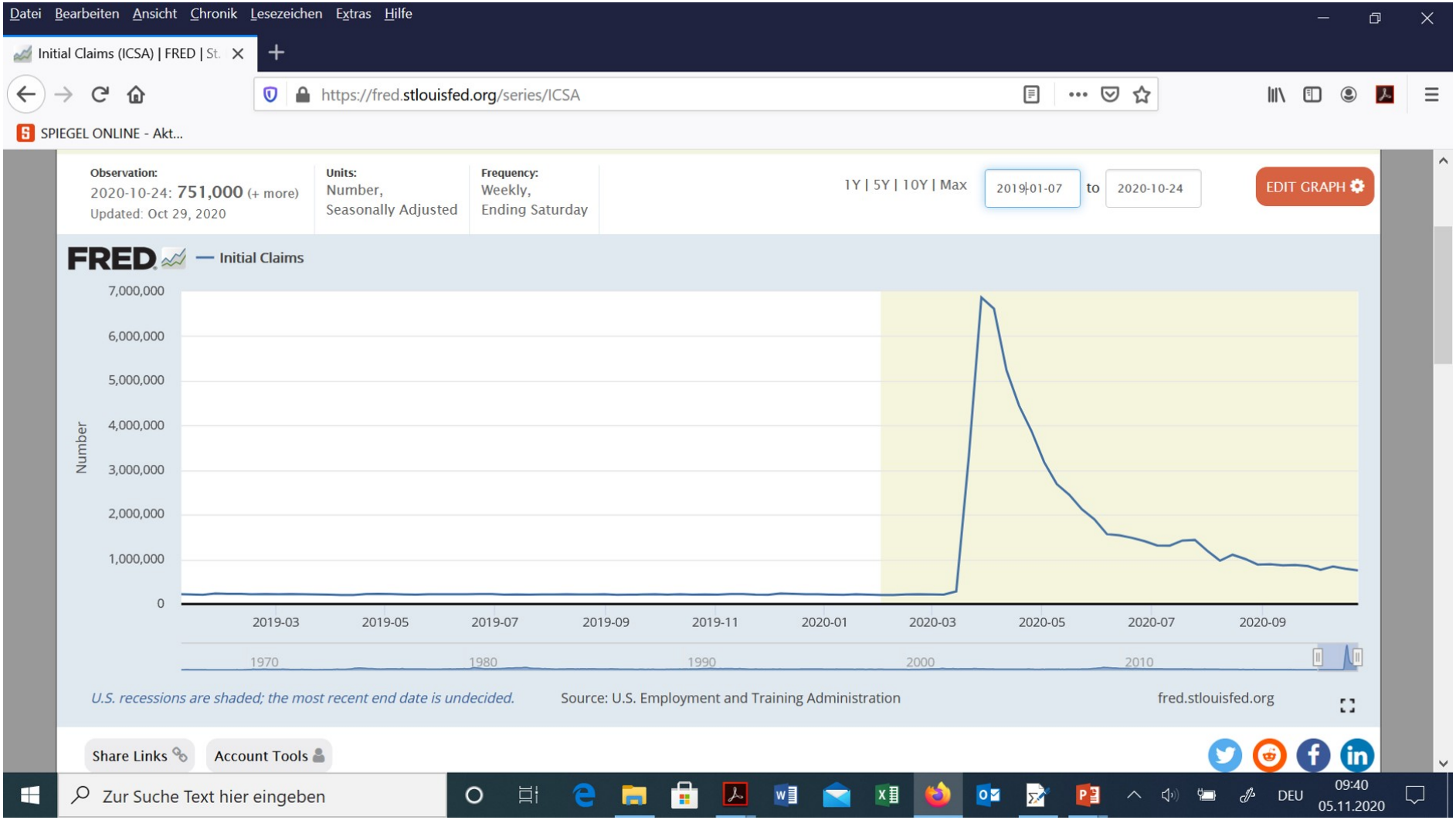
Initial claims of unemployment



Initial claims of unemployment



Initial claims of unemployment



Why one more model?

- Why do economists need different models for different time horizons?
- In the long run: Prices and nominal wages are flexible and can respond to changes in goods demand or supply.
- In the short run, prices are *"sticky"* at a predetermined level.
- Quantity theory (long run!): $M \downarrow \quad \Rightarrow \quad P \downarrow$
- But a reduction in money supply does not lead all companies to change the price tags, print new menus (=price lists), or reduce nominal wages *immediately*.

Blinder (1994): The frequency of price adjustments

How often do the prices of your most important products change in a typical year?

Frequency	Percentage of Firms
Less than once	10.2
Once	39.3
1.01 to 2	15.6
2.01 to 4	12.9
4.01 to 12	7.5
12.01 to 52	4.3
52.01 to 365	8.6
More than 365	1.6

- Perhaps different theories apply to different firms, depending on industry characteristics.
- Price stickiness may be a macroeconomics phenomenon without a single microeconomic explanation.

Blinder (1994): Theories of price stickiness

Theory and Brief Description	Percentage of Managers Who Accepted Theory
Coordination failure: Firms hold back on price changes, waiting for others to go first	60.6
Cost-based pricing with lags: Price increases are delayed until costs rise	55.5
Delivery lags, service, etc.: Firms prefer to vary other product attributes, such as delivery lags, service, and product quality	54.8
Implicit contracts: Firms tacitly agree to stabilize prices, perhaps out of "fairness" to customers	50.5
Nominal contracts: Prices are fixed by explicit contracts	35.7
Costs of price adjustment: Firms incur costs of changing prices	30.0
Procyclical elasticity: Demand curves become less elastic as they shift in	29.7
Pricing points: Certain prices (like $9.99) have special psychological significance	24.0
Inventories: Firms vary inventory stocks instead of prices	20.9
Constant marginal cost: Marginal cost is flat and markups are constant	19.7
Hierarchical delays: Bureaucratic delays slow down decisions	13.6
Judging quality by price: Firms fear customers will mistake price cuts for reductions in quality	10.0

Introduction

- Aggregate demand (AD) is the relationship between the quantity of output demanded and the aggregate price level
- In detail: Chapters 11 to 13.
- Chapter 10: We rely on the quantity equation – *to derive a simple, although incomplete,* – aggregate demand curve

$$M \cdot V = P \cdot Y \tag{1}$$

- In the long run: $M \uparrow \cdot V = P \uparrow \cdot Y$
- ~~However in the short run, prices are sticky ($\bar{P}$).~~
- ~~Which of the *other* variables adjusts in the short run?~~

Strictly mathematical matter

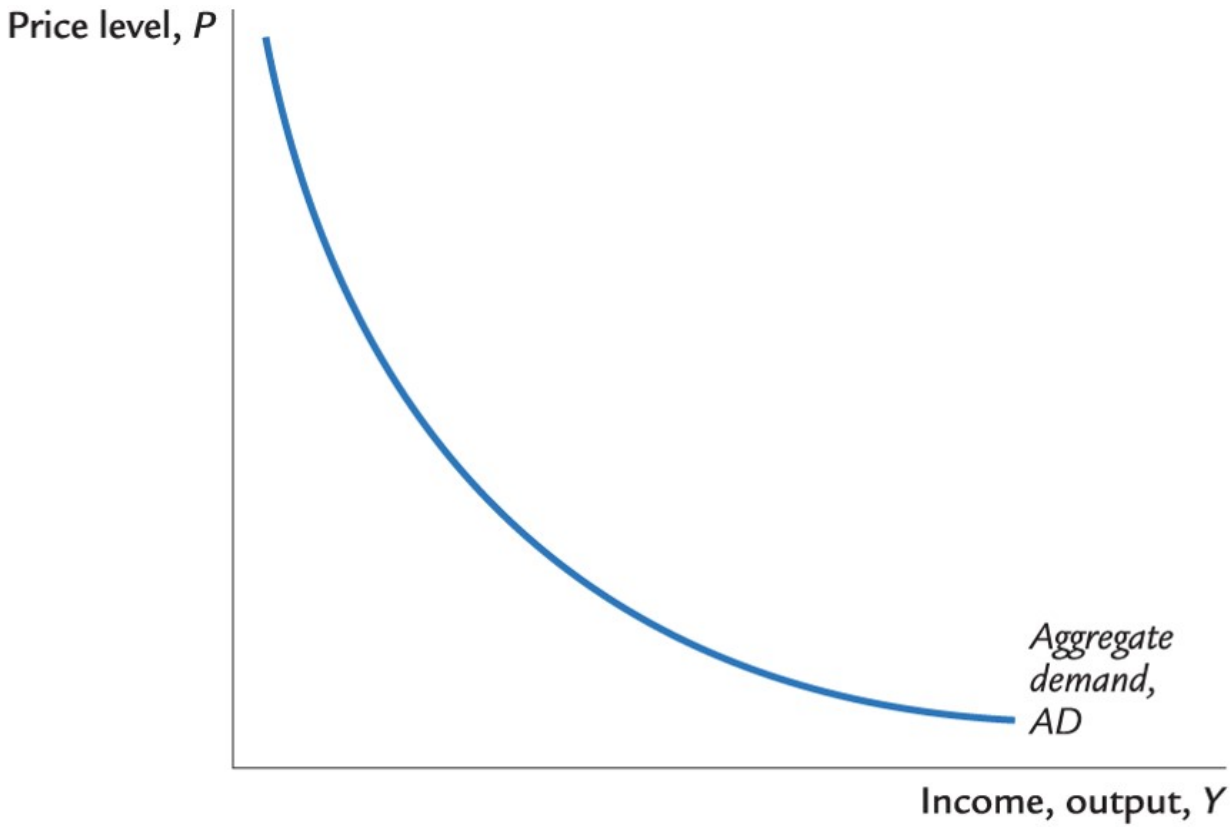
- Assumption: M and V are constant.

$$\bar{M} \cdot \bar{V} = P \cdot Y \tag{2}$$

- When the left hand side (LHS) is constant...
- the right hand side (RHS) also has to be constant ($\overline{P \cdot Y}$).
- When the price levels increases ($P \uparrow$)....
- ...Y must go down:

$$\bar{M} \cdot \bar{V} = P \uparrow \cdot Y \downarrow \tag{3}$$

The aggregate demand curve



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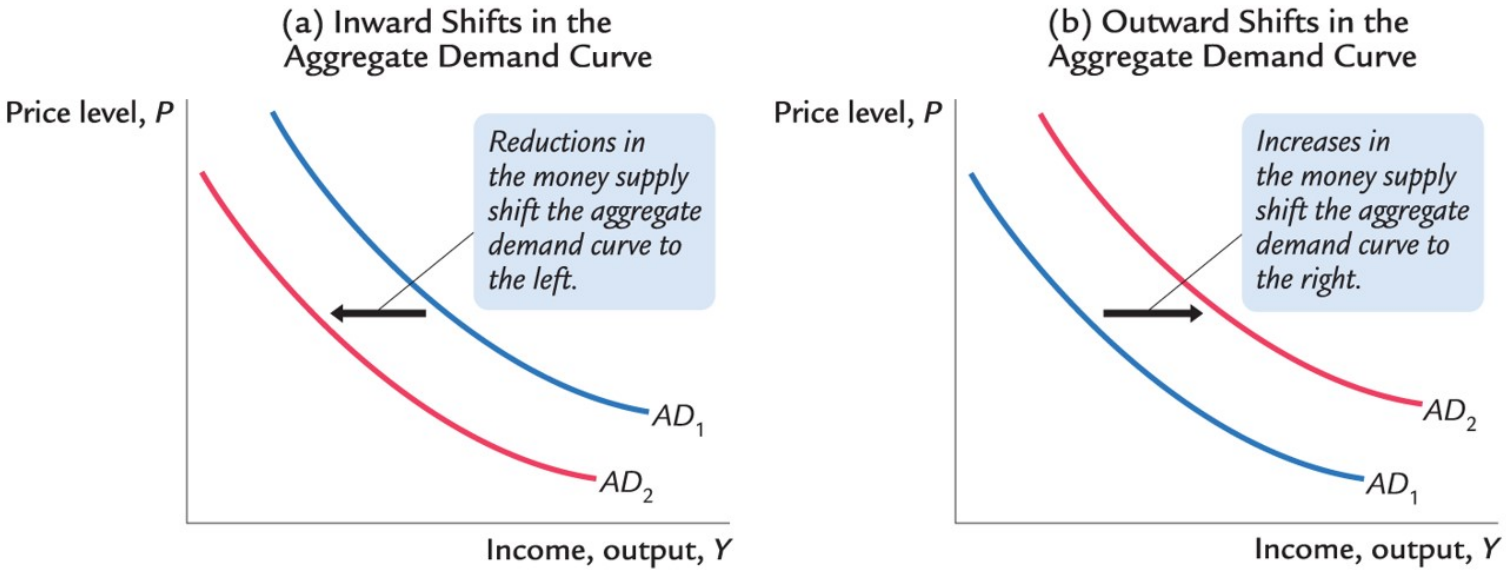
Why does AD slope downward? Economic intuition

- If the price level rises, each transaction requires more dollars, so that the number of transactions and thus, the quantity of goods and services purchased must fall.
- If the price level is lower, a given level of nominal money supply (M) allows a greater volume of transactions, which means a greater quantity of output is demanded.

Shifts in the aggregate demand curve

- Changes in money supply or
- changes in the velocity cause
- a shift of the AD curve.



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Introduction: Two AS curves

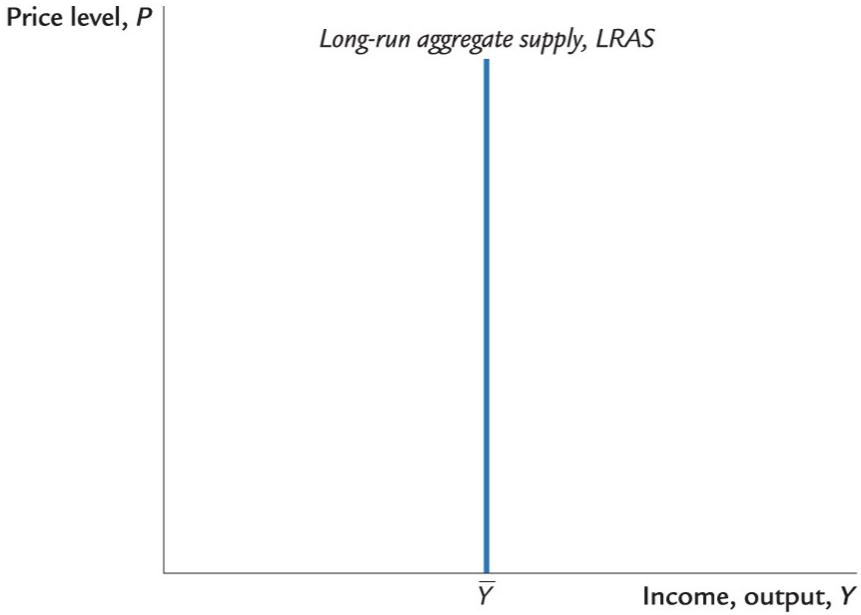
- Long-run aggregate supply curve (LRAS)
- Short-run aggregate supply curve (SRAS)

Long run: AS is a vertical line

- Long run. The classical model is valid:

$$Y = F(\bar{K}, \bar{L}) = \bar{Y} \tag{4}$$

- Does not depend on the price level!



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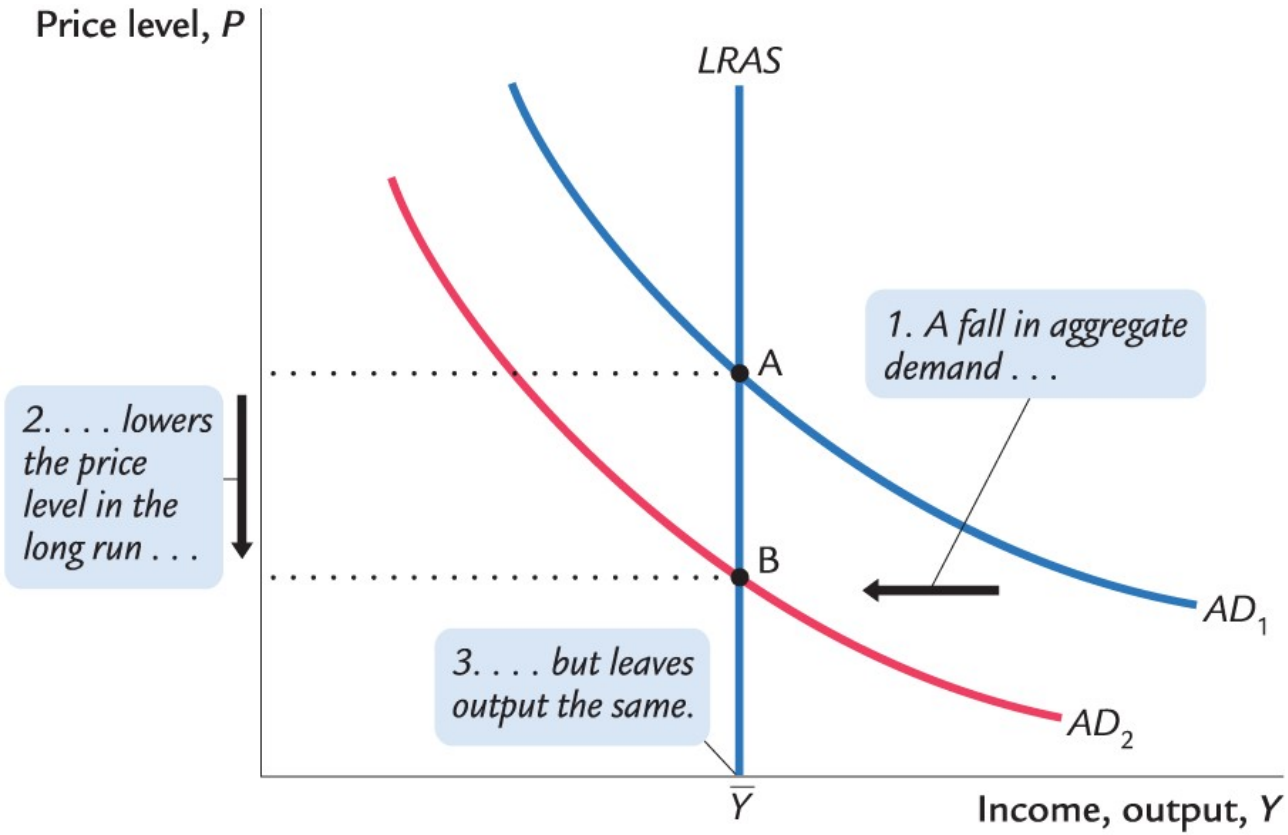
Shifts in aggregate demand in the long run



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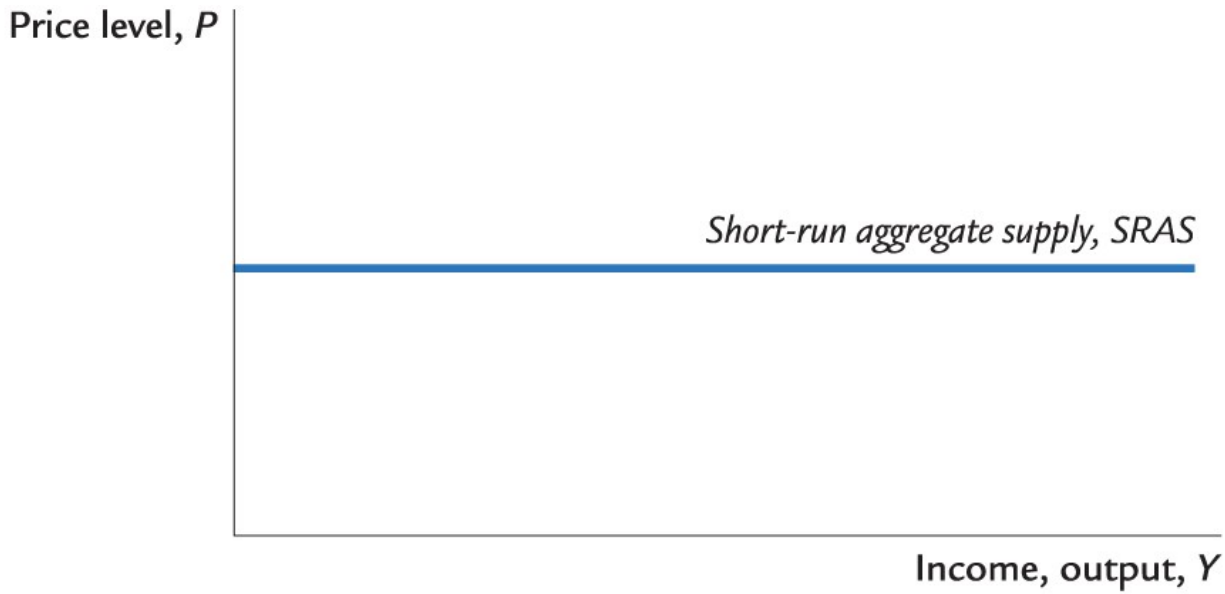
Short run aggregate supply curve

- Suppose all firms have issued price catalogs and
- it is too costly for them to issue new ones.
- All prices are stuck at the predetermined level.
- At these prices, firms are willing to sell as much as their customers are wiling to buy,
- and they hire just enough labor to produce the amount demanded.

Short run aggregate supply curve



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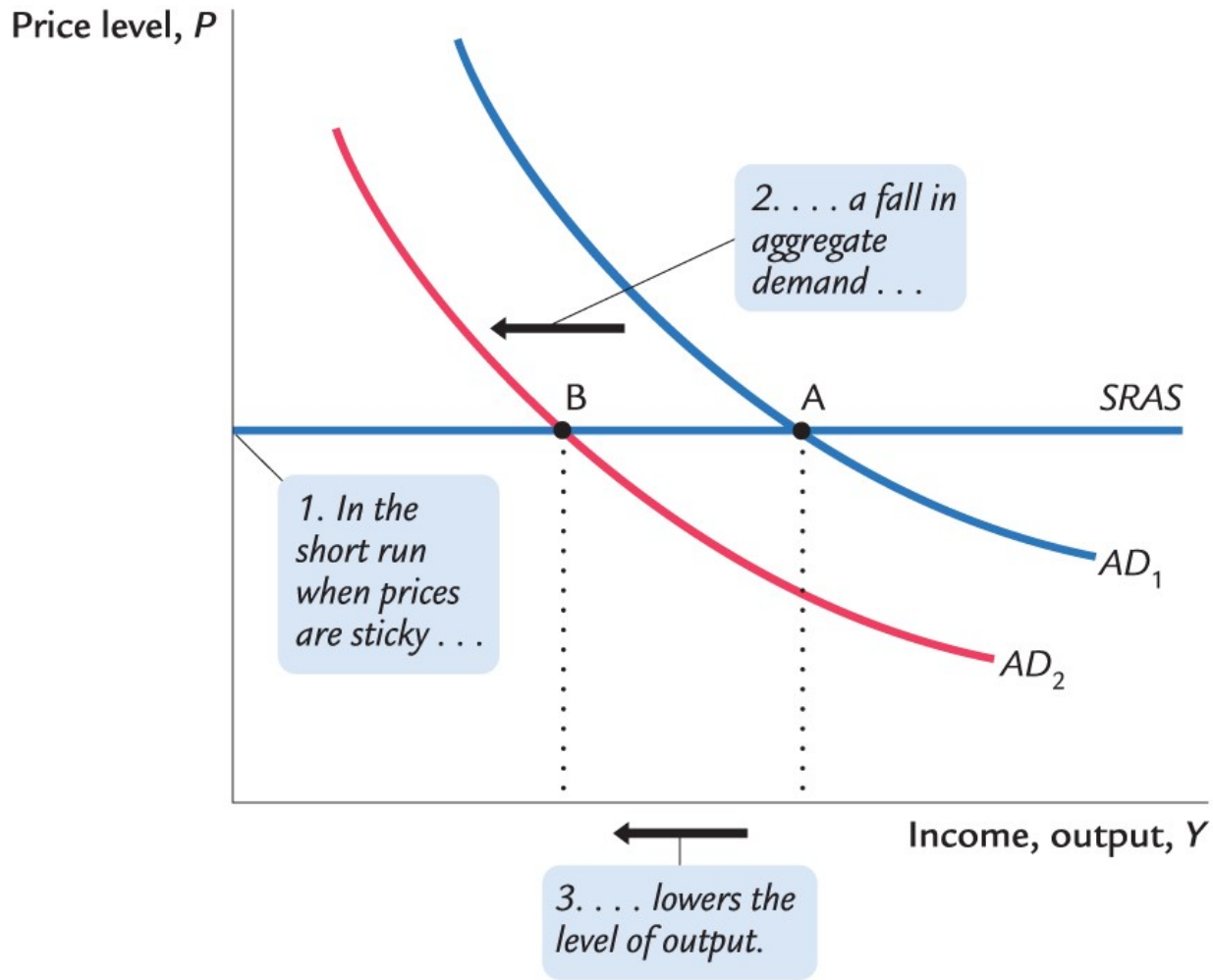
Shifts in aggregate demand in the short run



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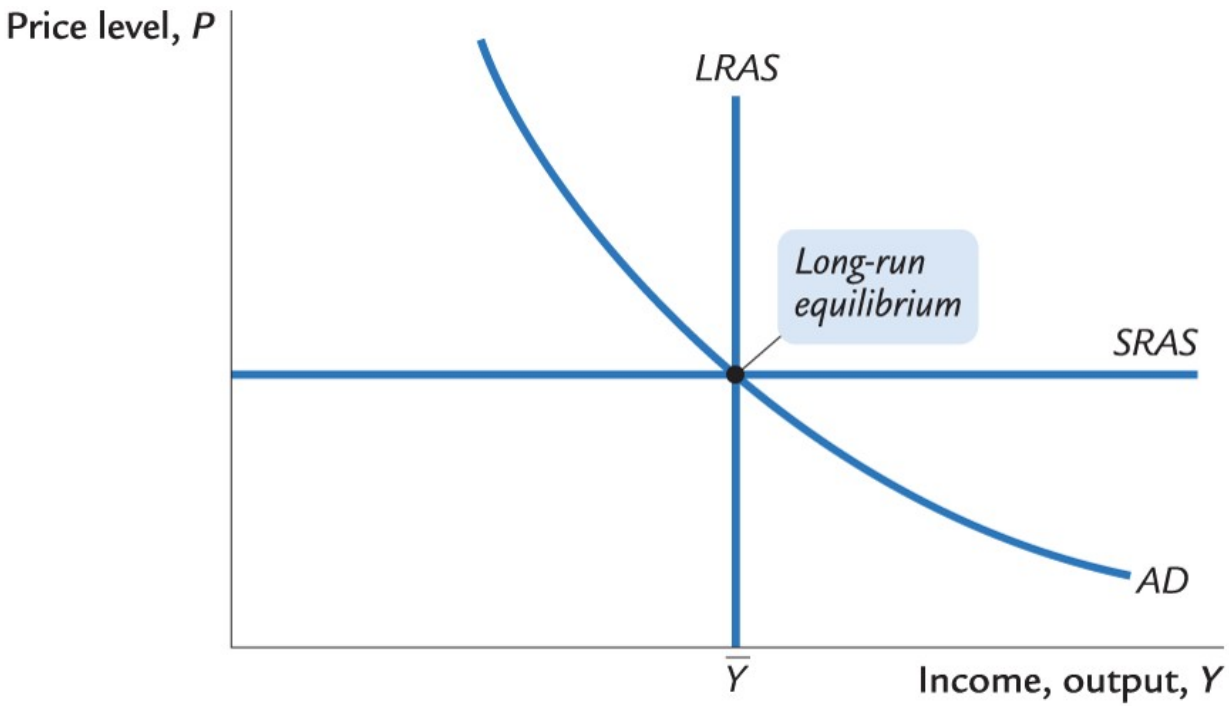
From the short to the long run

- Over long periods of time,
- prices are flexible,
- the aggregate supply curve is vertical,
- and changes in aggregate demand affect the price level
- but not the output.

- Over short periods of time,
- prices are sticky,
- the aggregate supply curve is flat,
- and changes in aggregate demand do not affect the price level
- but affect the output of goods and services.

Long-run equilibrium



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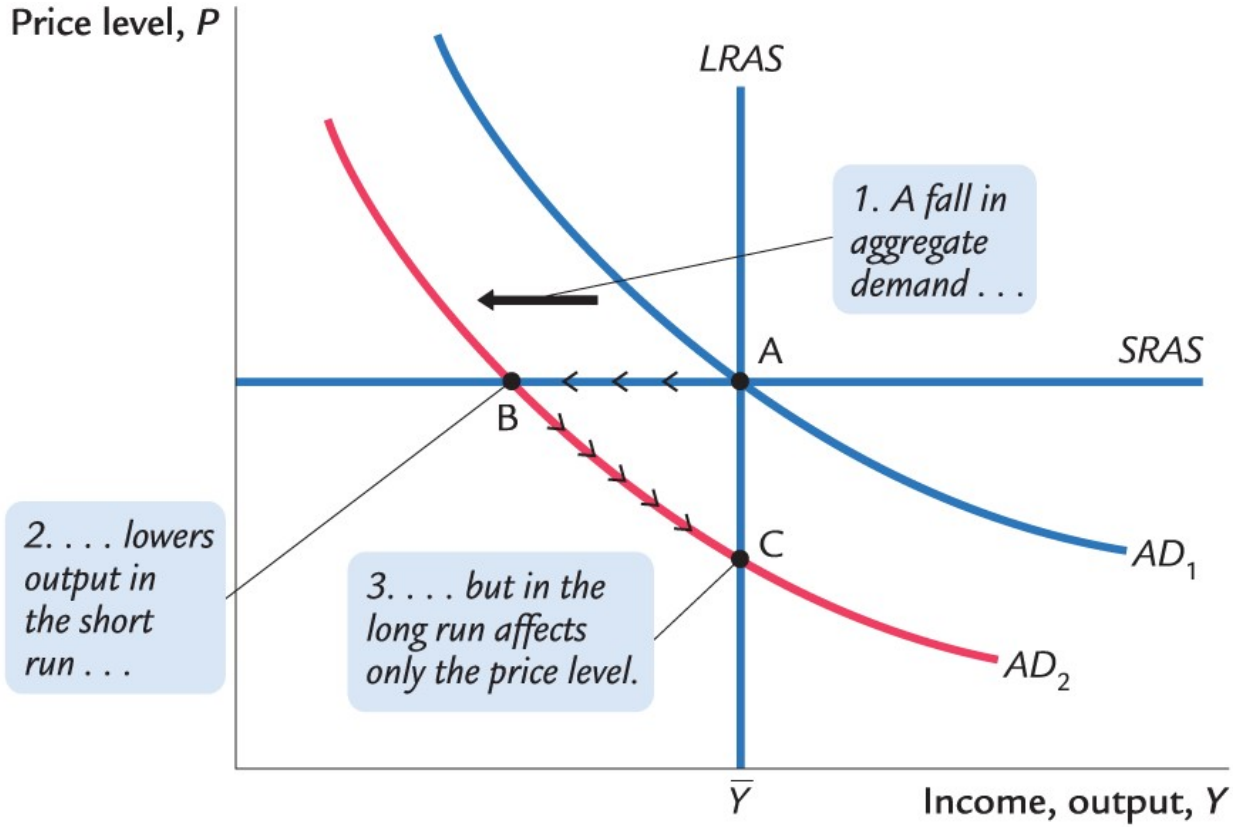
A reduction in aggregate demand



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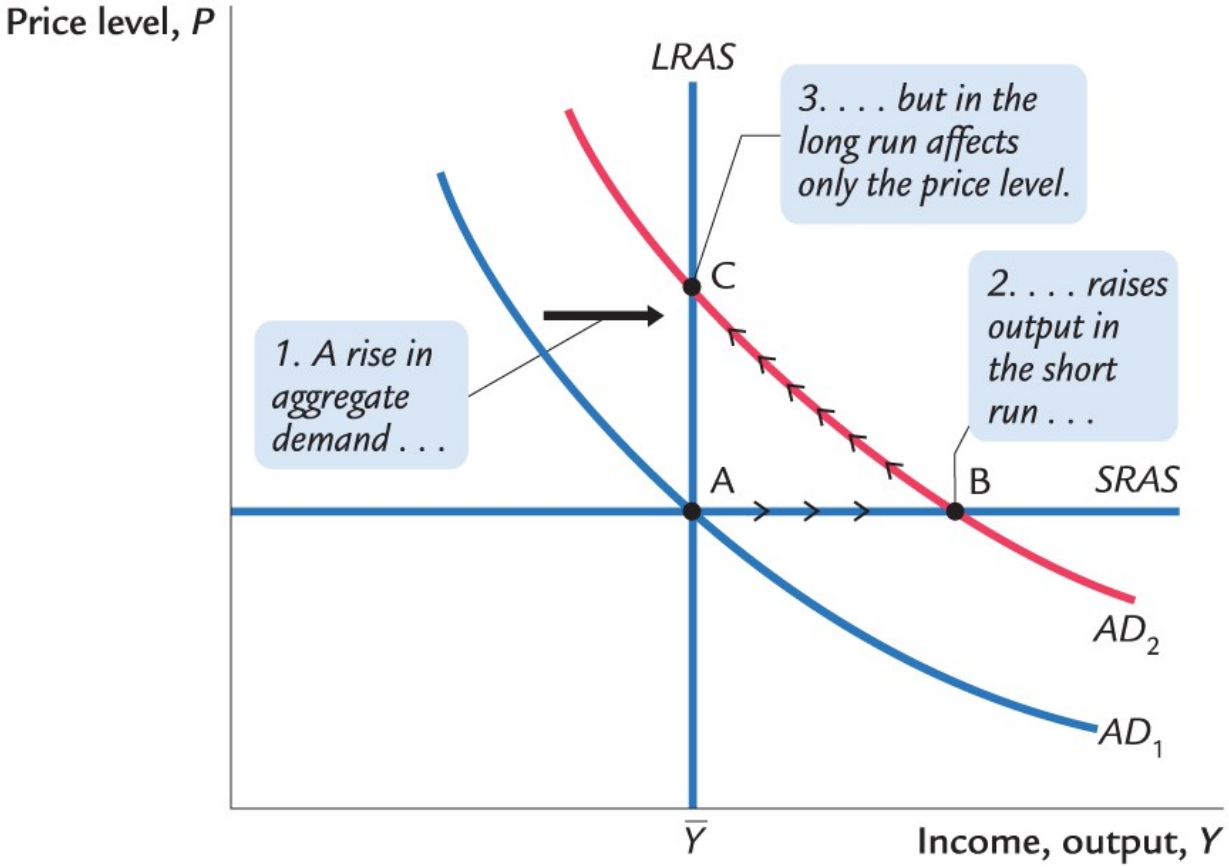
Demand shock: Velocity increases



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Supply shocks

- Bad harvest (but this is only temporary – 1 year!)
- Oil price shock (permanent or temporary?)
- Innovations change production process
- Earthquake destroys capital stock
- More aggressive labor unions.

Supply shock: Earthquake