European Macroeconomics

III. Policy implications of the two paradigms

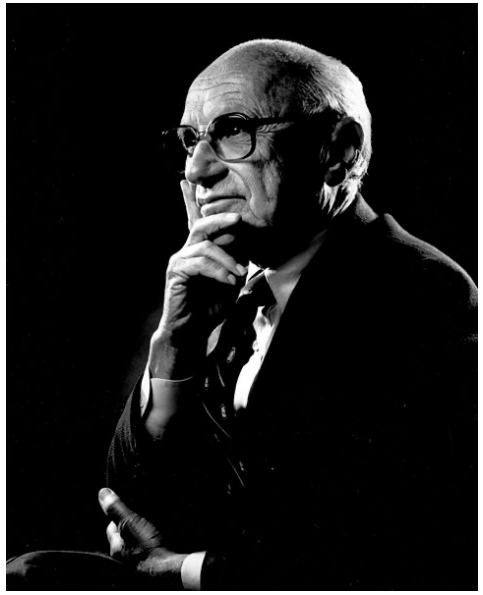
Lecture 4

3. Explaining inflation

Lecture 6

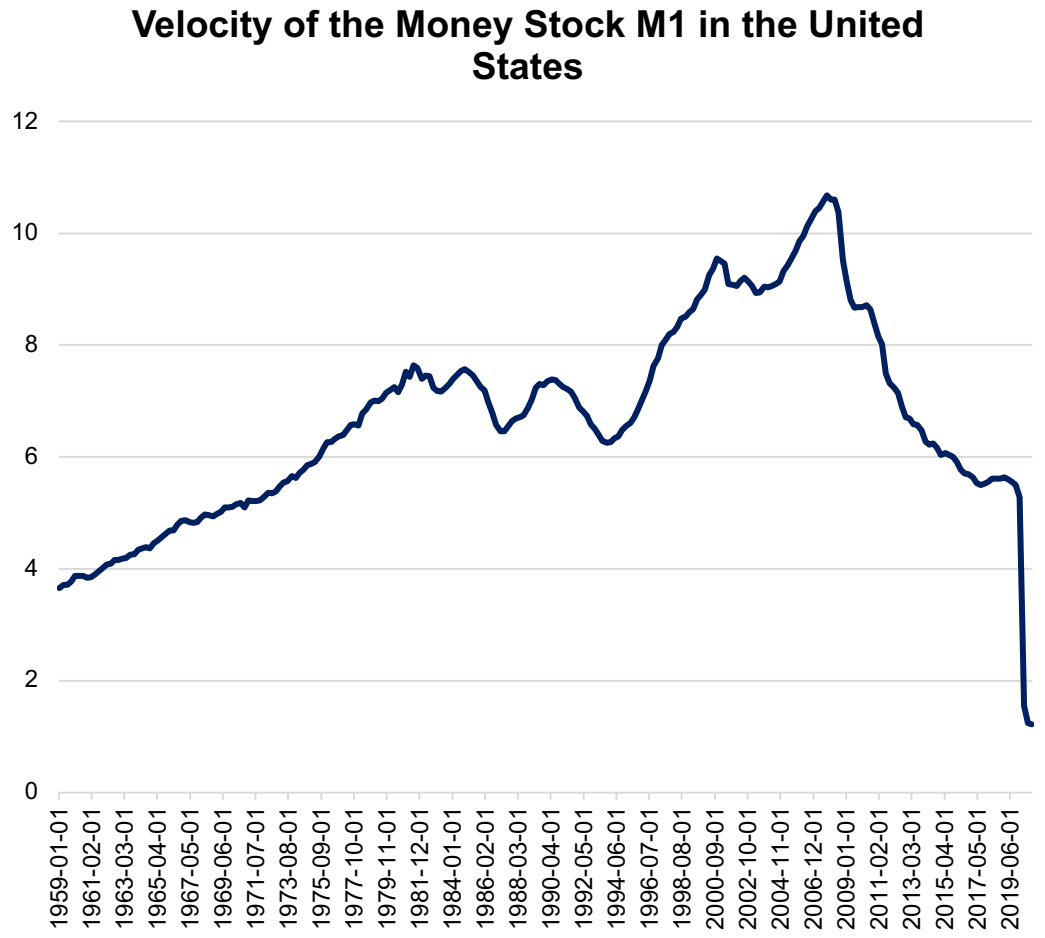
The classical view

Milton Friedman
1912-2006

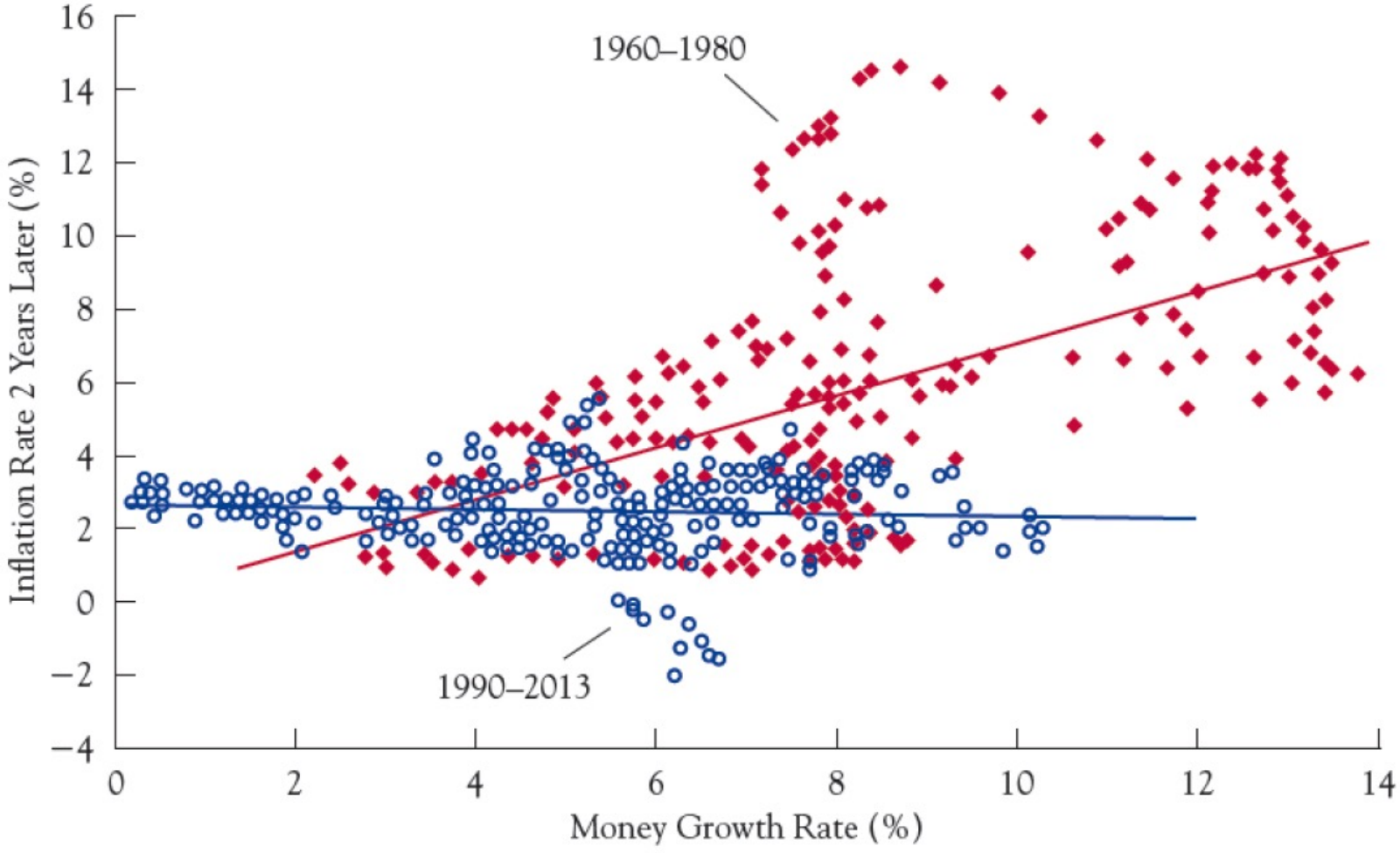


- Milton Friedman: "Inflation is always and everywhere a monetary phenomenon."
- $M\overline{V} = \mathrm{P}\overline{Y}$

- With a constant velocity of money (V) and a constant real output (Y), there is portionate relation between the money stock (M) and the price level (P)

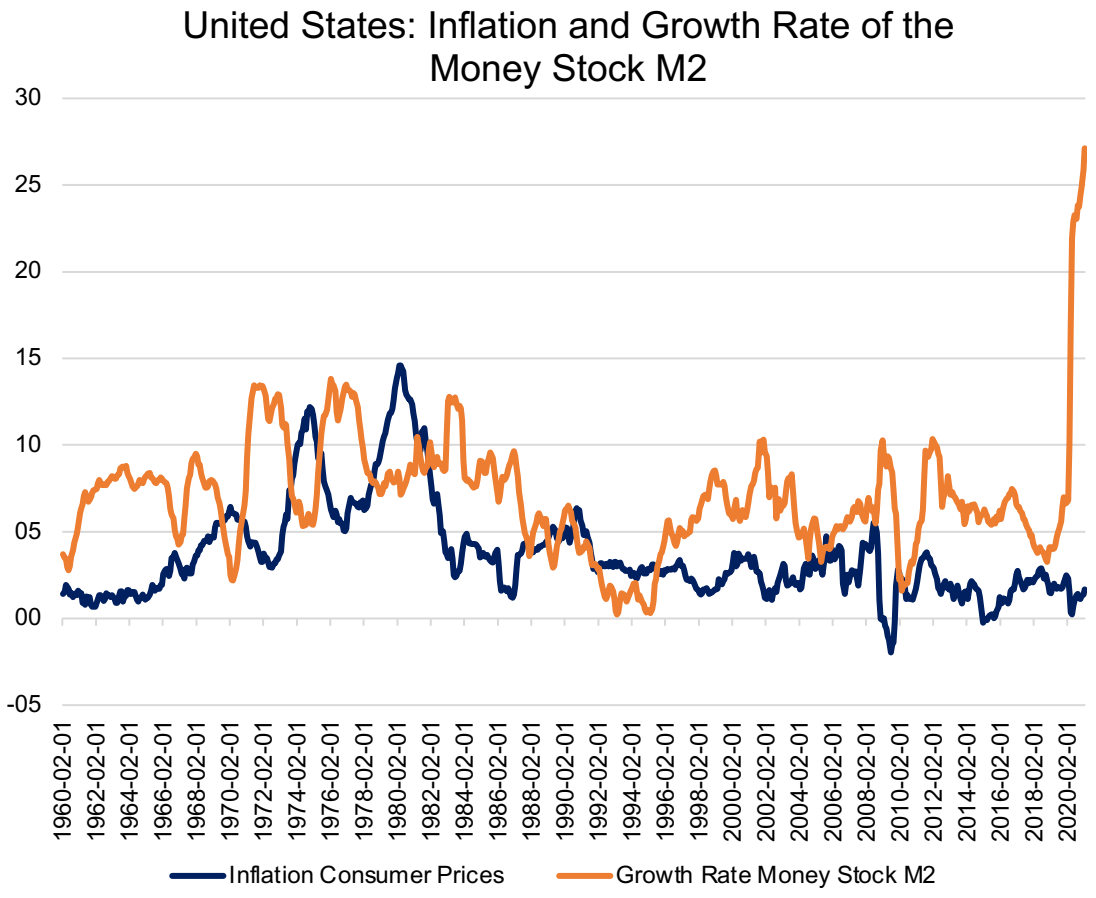


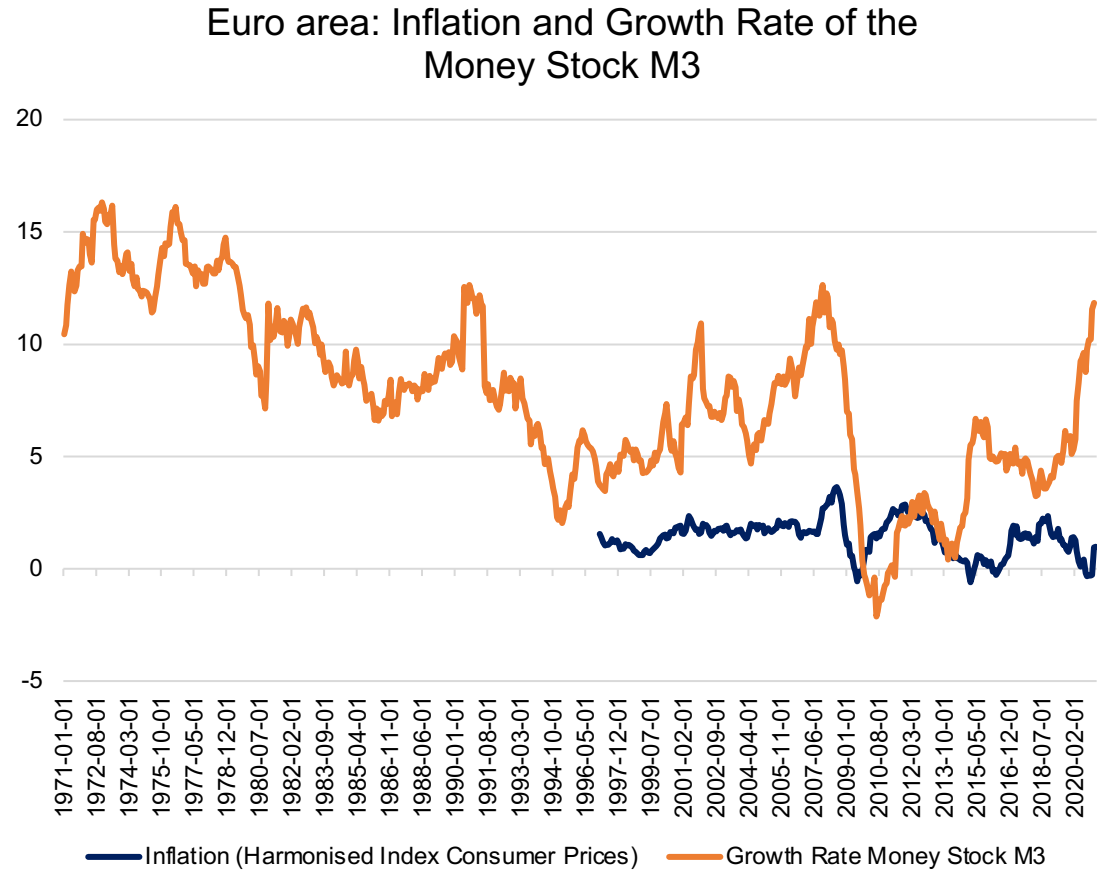
Money Growth and Inflation



Source: https://www.researchgate.net/publication/291822240_International_Banking_and_Trade_Financing/link/56a64ffe08ae6c437c1ae9d8/download

Is inflation always a monetary phenomenon?





Why does more money not necessarily lead to inflation?

- The Quantity Theory assumes that money is only used as a **means of payment**. Thus, an increase in the money stock implies that people plan to purchase more goods.
- In reality, money (i.e. cash and bank deposits) is not only used as a means of payment but also as a (very secure) **store of value**. Thus, if people get wealthier they hold more money as a part of their portfolio
- With **low interest rates** money can be relatively attractive as a store of value for less liquid assets (i.e. bonds).

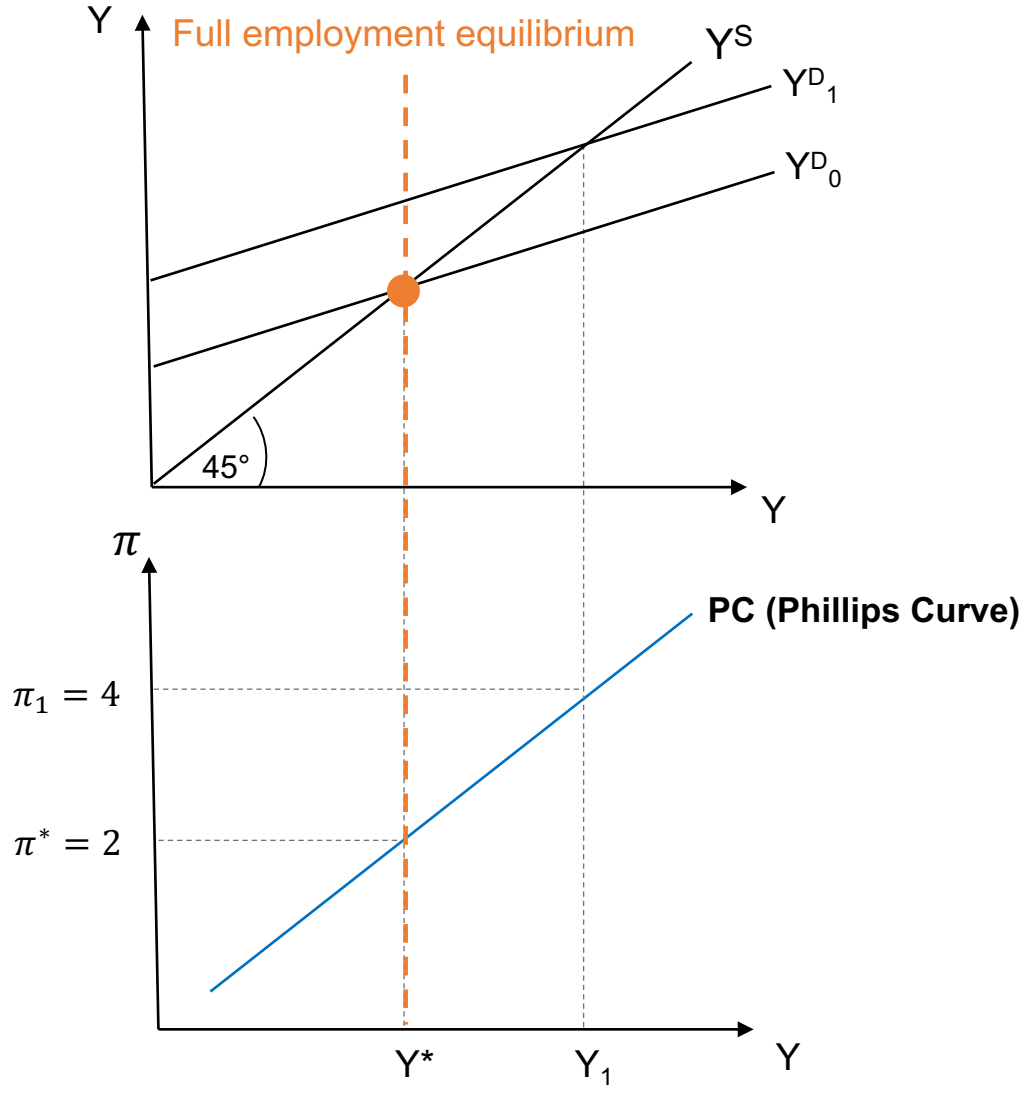
The Keynesian view: Inflation is determined by aggregate demand and aggregate supply

- **Components of aggregate demand**:
  - Private consumption:
    - determined by wages and employment,
    - government transfers and taxes,
    - saving (which, in contrast to the assumption of the classical model, is not responsive to interest rates)
  - Investment:
    - determined by interest rates and expected demand
  - Government consumption
    - determined by policital-economy considerations: austerity after the financial crisis, very generous government spending in the United States since the COVID pandemic

- **Higher aggregate demand leads to higher equilibrium income**

The Keynesian view: Inflation is determined by aggregate demand and aggregate supply

- **Supply-side determinants of inflation**
  - Labour market: With a higher equilibrium income, unemployment declines and wages will rise faster
  - Capacity utilization (output gap)
  - Energy prices and raw material prices
- **Equilibrium income and inflation level**: With a higher level of equilibrium output, wages and prices on energy markets increase
- This **Phillips Curve** shows the relationship between equilibrium income and inflation



The „Phillips Curve“

- The rate of **unemployment** is a main determinant of **wage increases** (original Phillips curve)
- Wages determine **labour costs** of the firms which are a main determinant of prices and **inflation**
- But **inflation expectations** also play an important role in wage negotiations
- Thus, inflation (π) is determined by the unemployment rate (or more broadly the **output gap**, y) and the **expected inflation** rate (π^e).
- Expectations augmented Phillips curve:

$$\pi = \pi^e + y$$

The original Phillips Curve

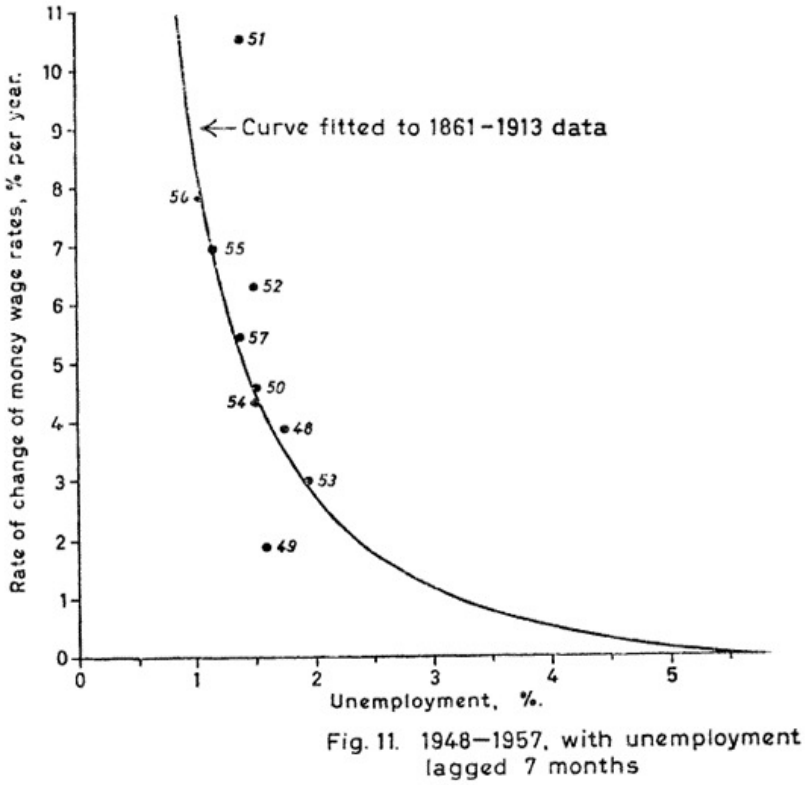


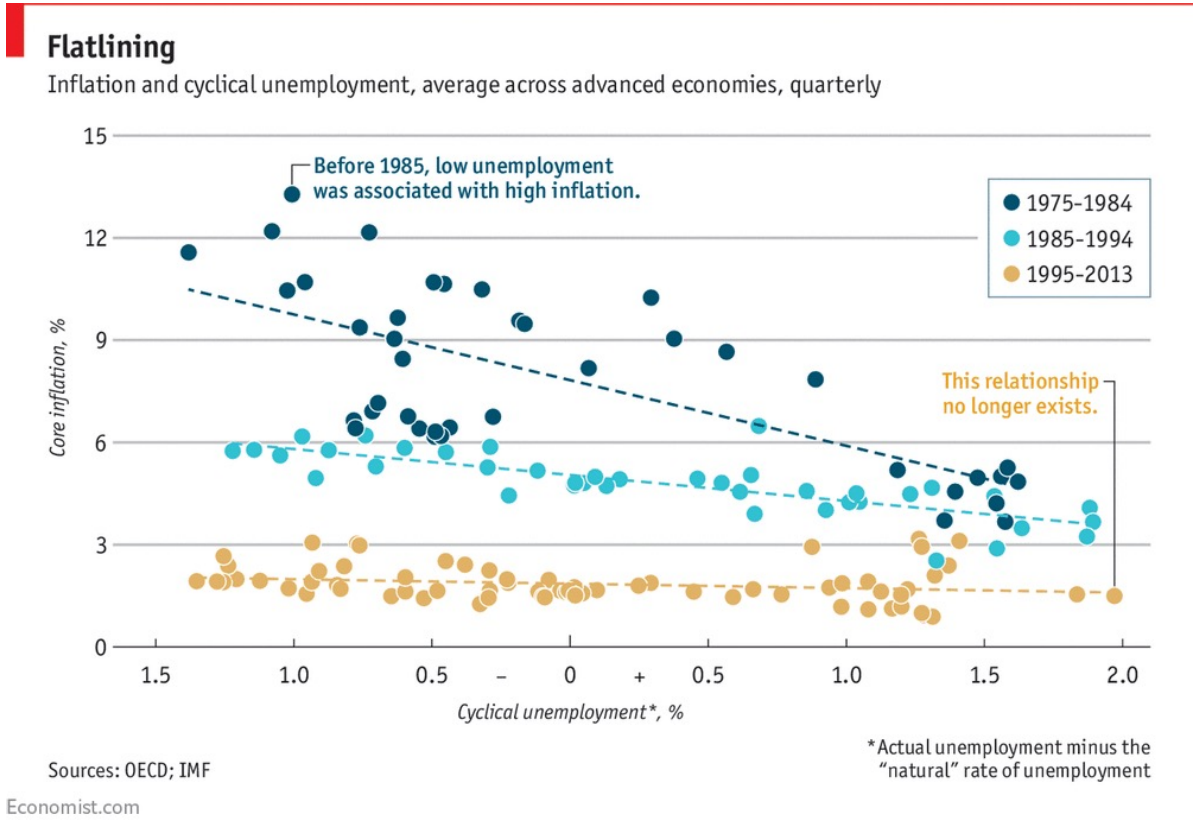
Fig. 11. 1948–1957, with unemployment lagged 7 months

Source: A.W. Phillips (1958), The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861-1957, Economica, Economica New Series, Vol. 25, No. 100 (Nov., 1958), pp. 283-299

The flattening of the Phillips Curve in the last decade

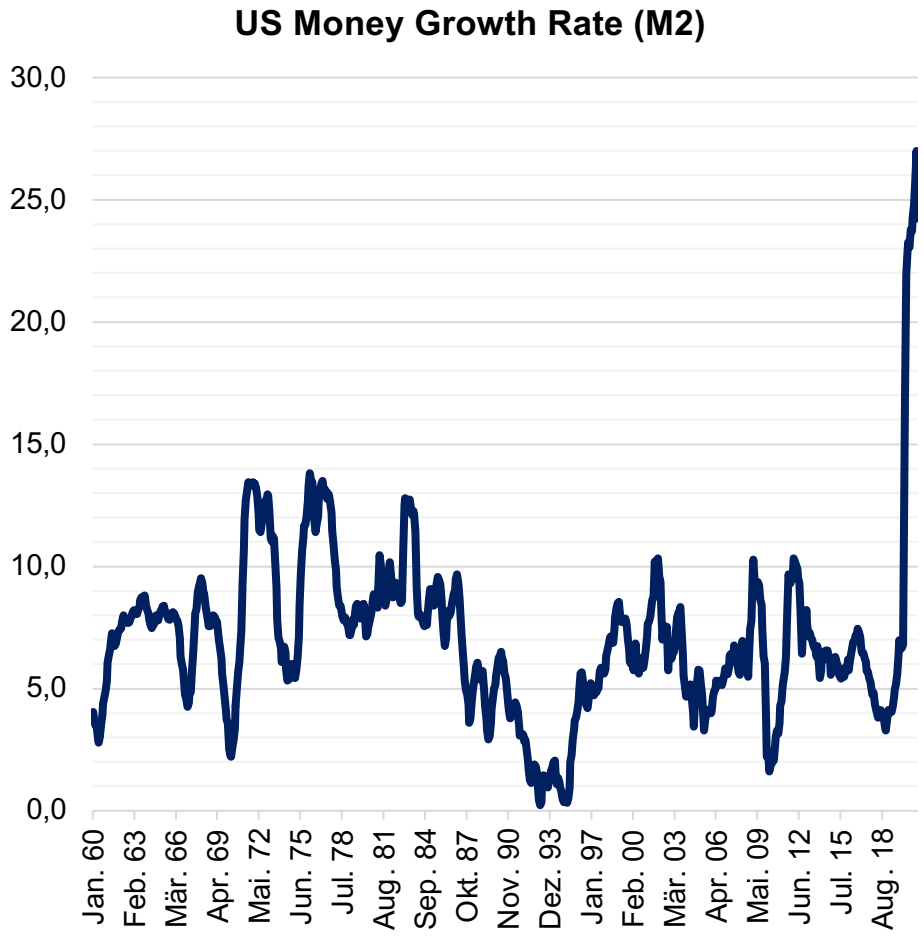
Explanations:

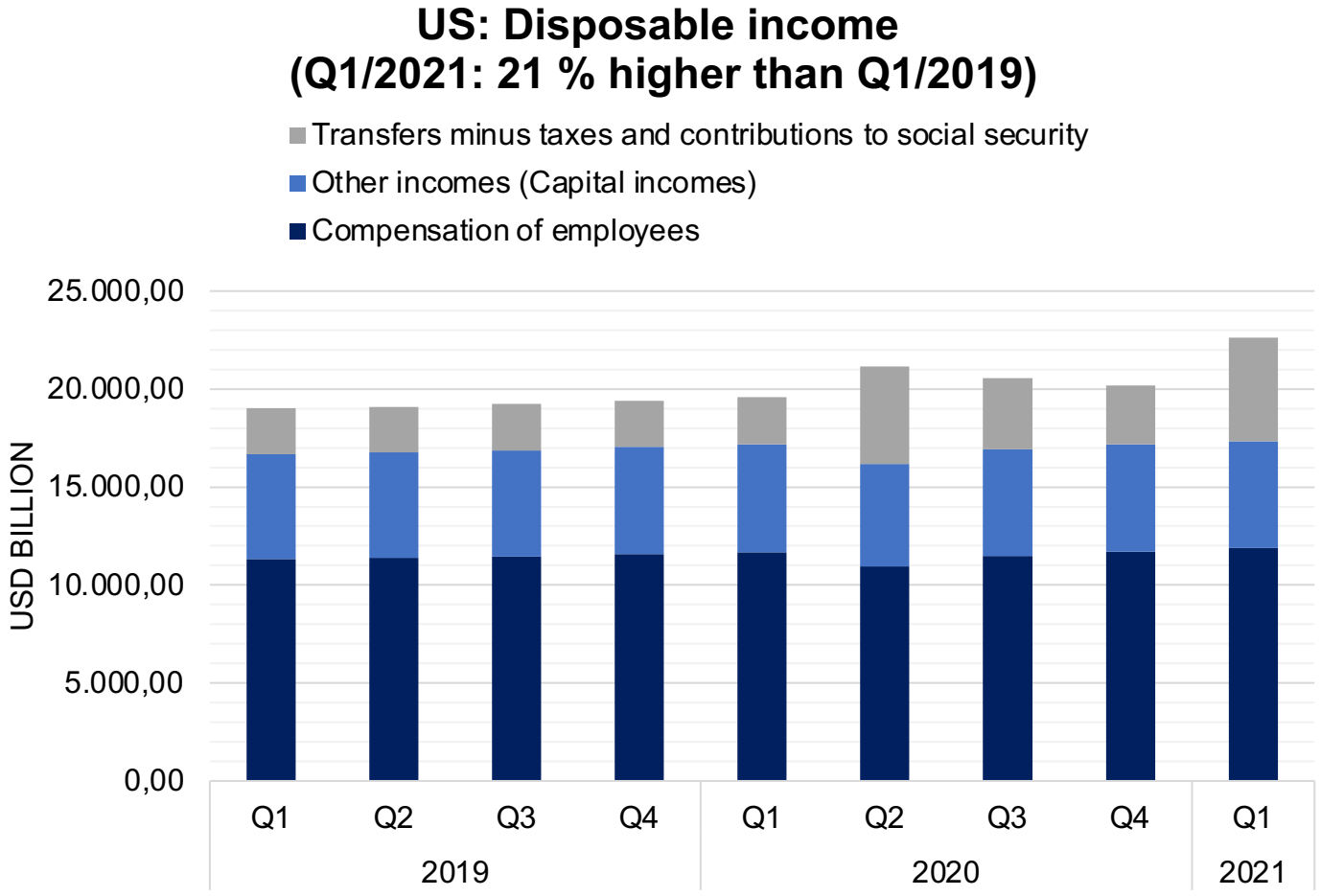
- **Power of trade unions** is weakening, as the share of workers in manufacturing decline, and the workers in the service sector increases
- Constant downward wage pressure due to
  - competition with low-wage **emerging market economies**
  - **digitalization** and **robotization** of manufacturing



Source: https://www.economist.com/graphic-detail/2017/11/01/the-phillips-curve-may-be-broken-for-good

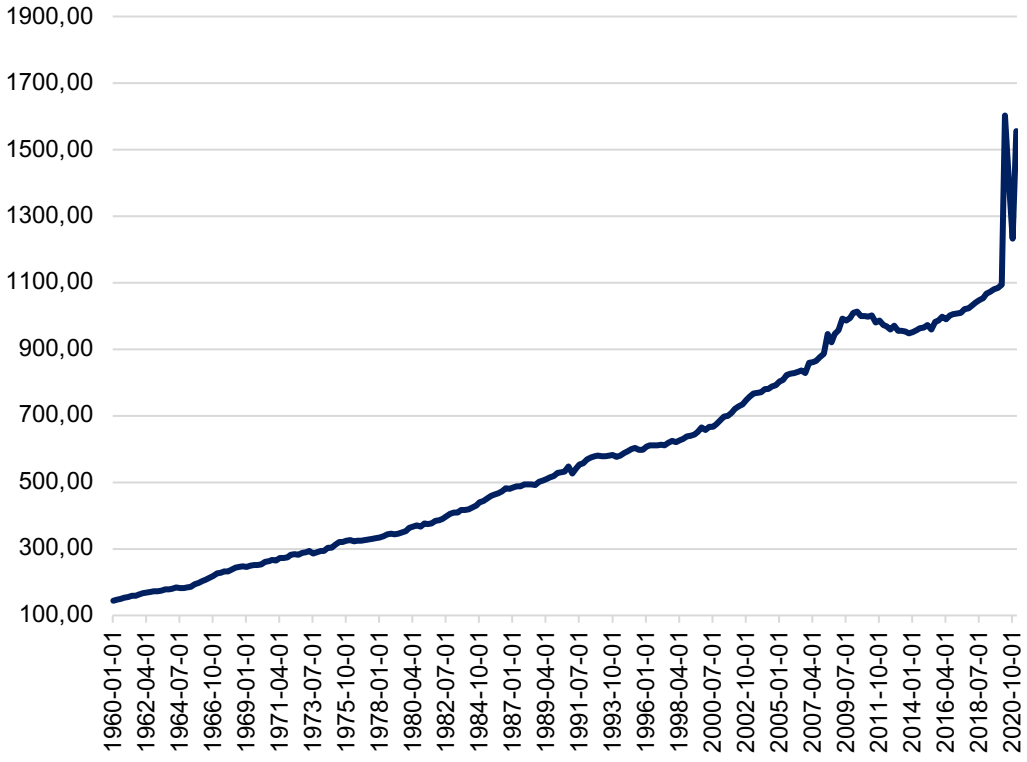
Will the inflation rate in the United States increase?



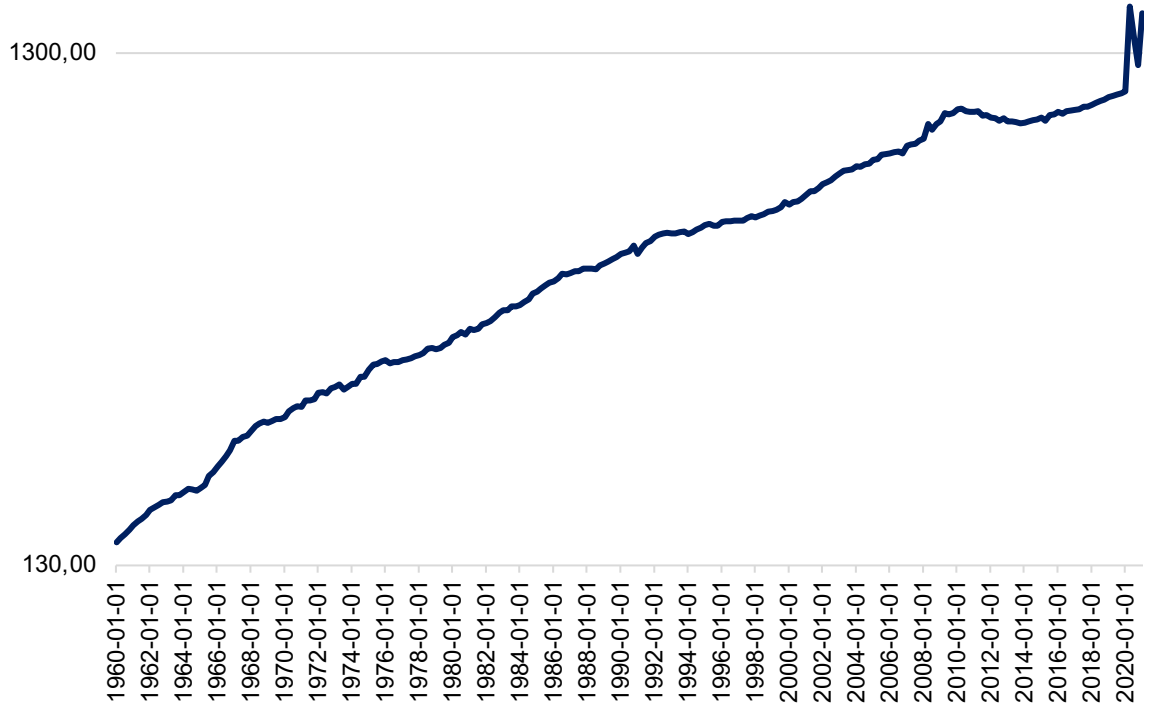


US government expenditures: After stagnation in the 2010s, a strong increase with the pandemic

Real Government spending US (billions USD, quarterly)

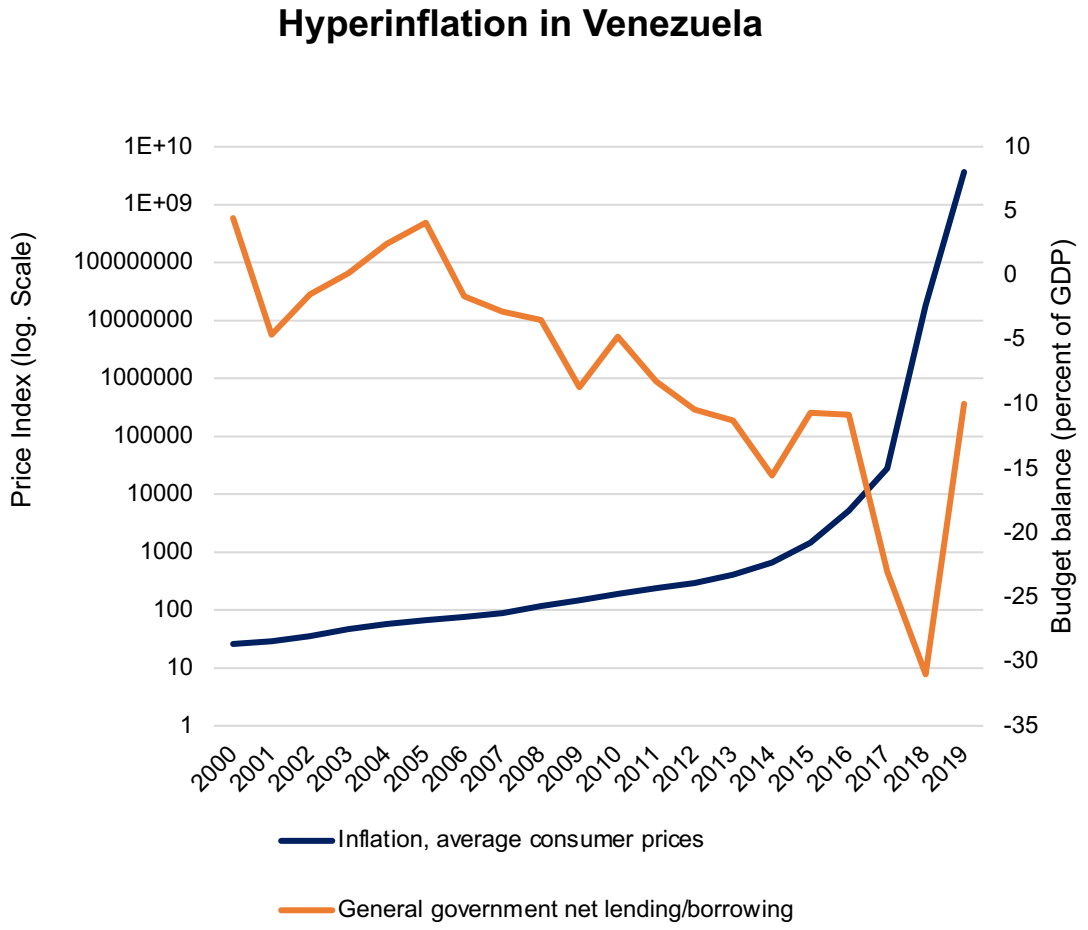


Real Government spending US on a logarithmic scale (billions USD, quarterly)



Where the Keynesian model meets the classical model: Excessive government deficits lead to high inflation

- The government finances private expenditures with high deficits that exceed the supply of goods and services
- The government deficit is financed by the central bank
- Prices increase
- In small economy the **exchange depreciaties** leading to additional inflationary pressure
- If people fear strong inflation, the **velocity of money can increase** strongly
- The parallel processes of depreciation and an increasing velocity of money can lead to **hyperinflation**



4. The incompatibility of the two worlds

The neoclassical synthesis

Paul Samuelson (1955)

"In recent years 90 per cent of American Economists have stopped being 'Keynesian economists' or 'anti-Keynesian economists'. Instead they have worked toward a synthesis of whatever is valuable in older economics and in modern theories of income determination. The result might be called neo-classical economics and is accepted in its broad outlines by all but about 5 per cent of extreme left wing and right wingwriters."

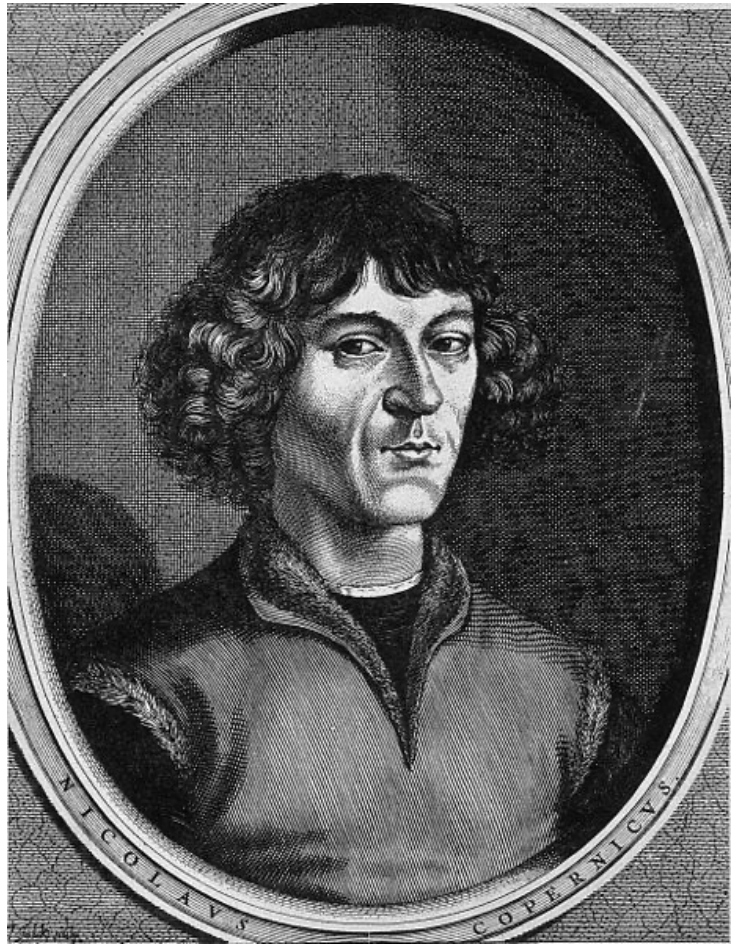
Source: Olivier Blanchard, URL: https://economics.mit.edu/files/677

Source: https://www.biz-architect.com/free_trade_and_samuelson.htm

Paul Samuelson
1915-2009

Different paradigms

Claudius Ptolemäus
* 100 AC



Source: Nicolaus Copernicus. Reproduction of line engraving after J. Falck. on Wellcome Library Catalogue

Nikolaus Copernicus
1473-1553

The fundamental differences in the **mechanics** of the paradigm of the real analysis and the paradigm of the monetary analysis (1)

Real analyis	Monetary analysis
Funds in intertemporal exchange	
All-purpose good (APG)	Money: sight deposits held with banks
Financing	
Provision of the APG by the saving of households (abandonment of consumption)	Provision of money balances by banks or by buyers of bonds on the capital market (abandonment of liquidity)
Saving and investment	
Saving of households generates investment	Investment generates income and thus enables the saving of households

The fundamental differences in the **mechanics** of the paradigm of the real analysis and the paradigm of the monetary analysis (2)

Real analyis	Monetary analysis
Banks	
▪ Pure intermediaries of funds and unable to produce the APG ▪ Deposits create loans	▪ The only manufacturer of funds ▪ Loans create deposits
Financial markets	
▪ Intermediation by financial markets not different from intermediation by banks ▪ Financial markets channel funds from savers abandoning consumption to investors financing new investment	▪ Intermediation by financial markets different from intermediation by banks ▪ Financial markets channel funds from lenders abandoning liquidity to borrowers who often do not finance new investment
Central bank	
A powerless institution with no influence on interest rates, only on price level	A powerful institution that determines the nominal interest rate

The fundamental differences in the **mechanics** of the paradigm of the real analysis and the paradigm of the monetary analysis (3)

Real analyis	Monetary analysis
Interest rate	
▪ Real phenomenon ▪ Real rate: units of the APG tomorrow relative to one unit of the APG today	▪ Monetary phenomenon ▪ Nominal rate: units of money tomorrow relative to one unit of money today
Flow of funds	
One-directional from savers to investors	Circular from banks and investors to savers and back to investors

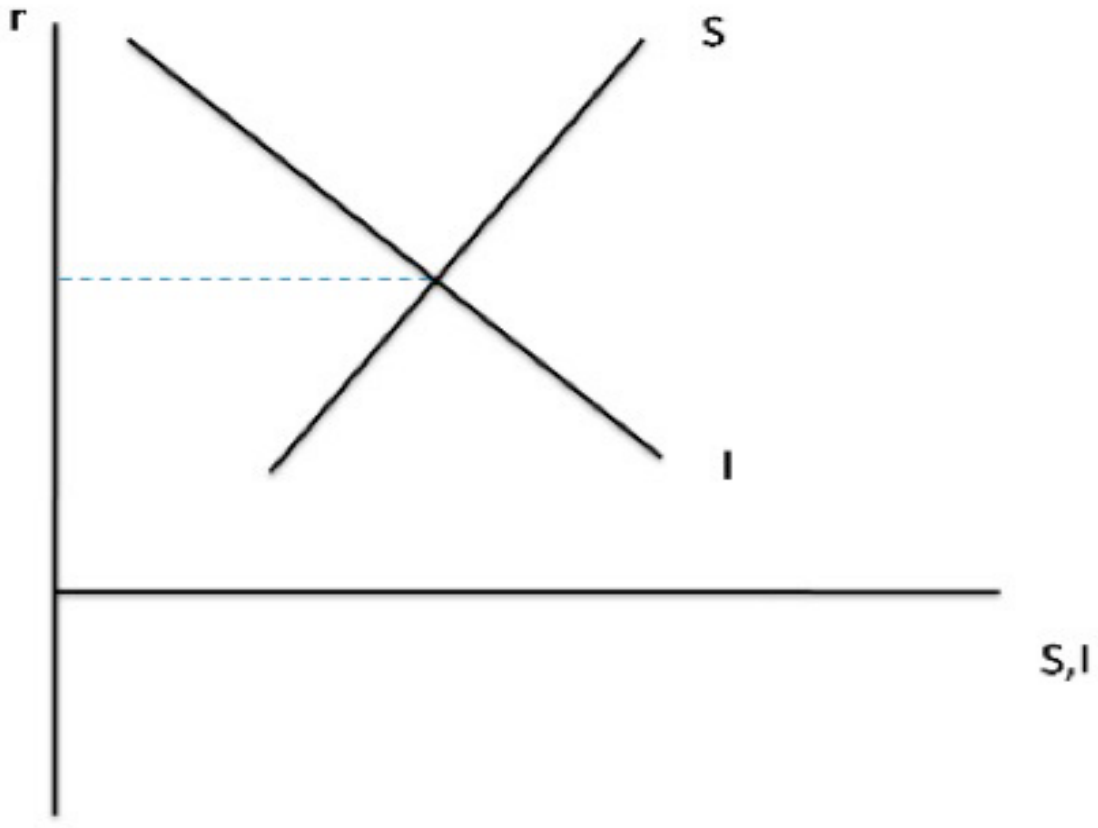
Are the two models compatible?

- Many economists assume that the
  - Classical model describes the **long-run** with **flexible prices**
  - Keynesian model describes the **short-run** with **rigid prices**
- But the mechanisms of the two models **differ fundamentally**, and it is not clear why they should change their direction when we move from the short-run to the long run
- Many economists even believe that the two models are **identical**

Paul Krugman: Mr Keynes and the moderns

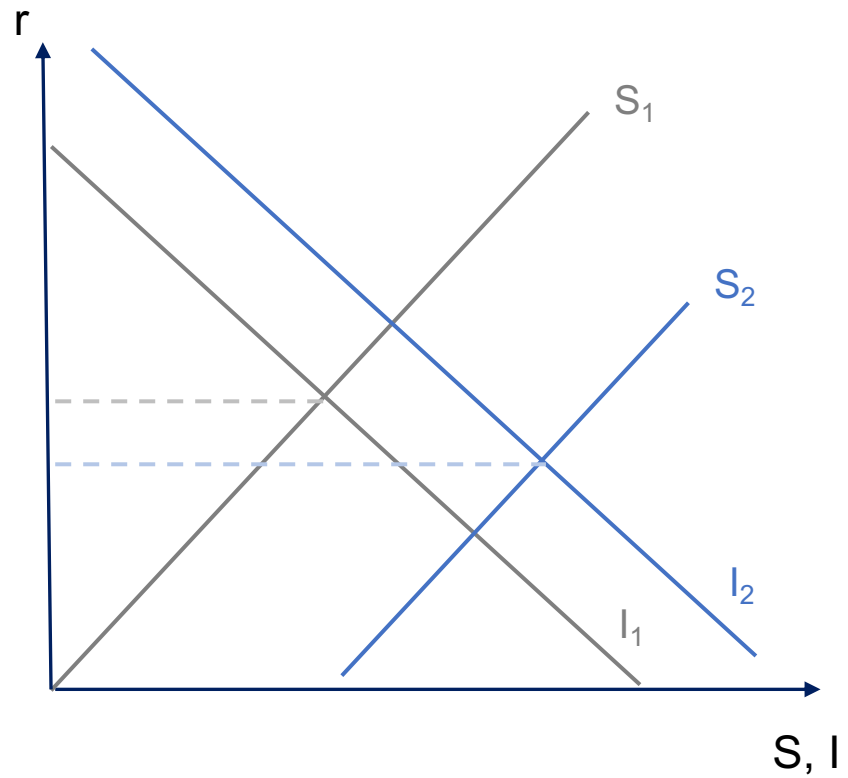
(VoxEU, 21 June 2011 http://voxeu.org/article/mr-keynes-and-moderns)

- "We're having to relearn the seeming paradox of liquidity-preference versus loanable-funds models of interest rates."
- The natural inclination of practical men (…) is to think of the interest rate as being determined by the supply and demand for loanable funds, as in Figure 2.

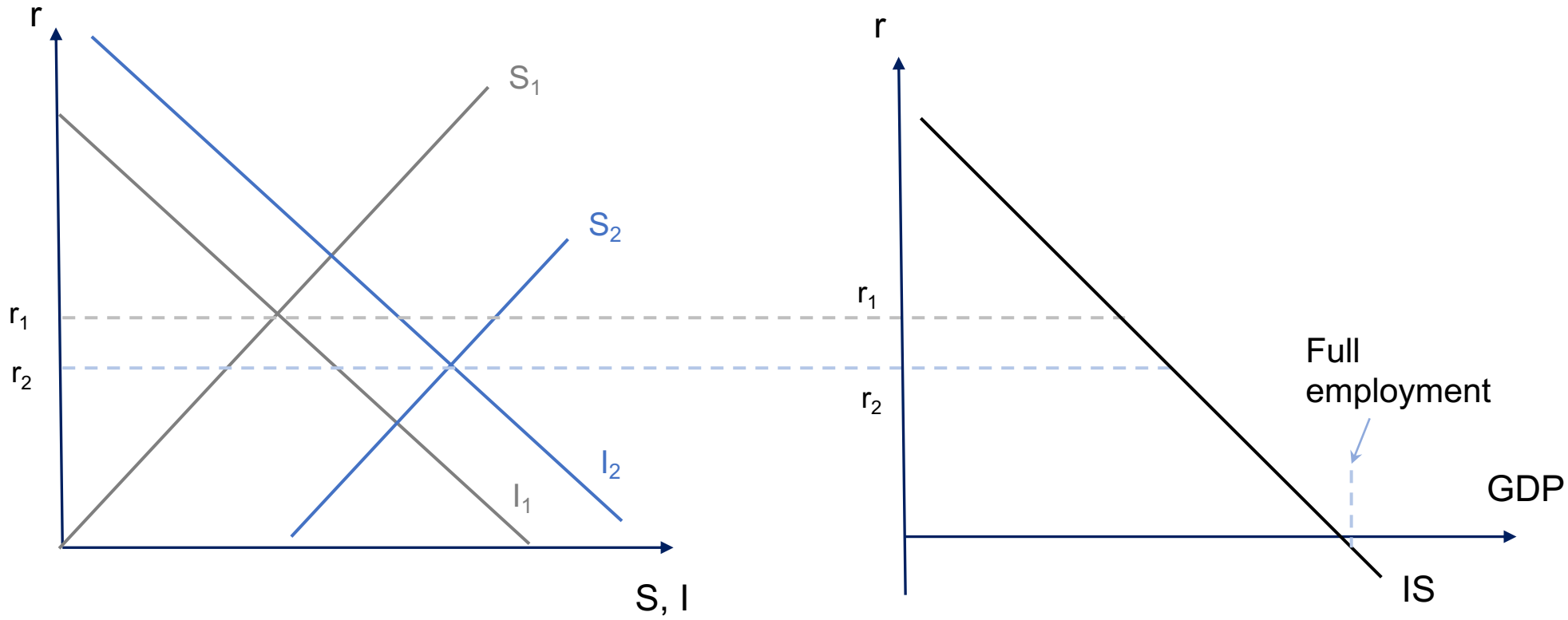


Krugman‘s attempt to combine the two models : Mr Keynes and the moderns (VoxEU, 21 June 2011 http://voxeu.org/article/mr-keynes-and-moderns)

“We imagine that a rise in GDP shifts the savings schedule out from S1 to S2, also shifts the investment schedule, and, as drawn, reduces the equilibrium interest rate in the market for loanable funds”

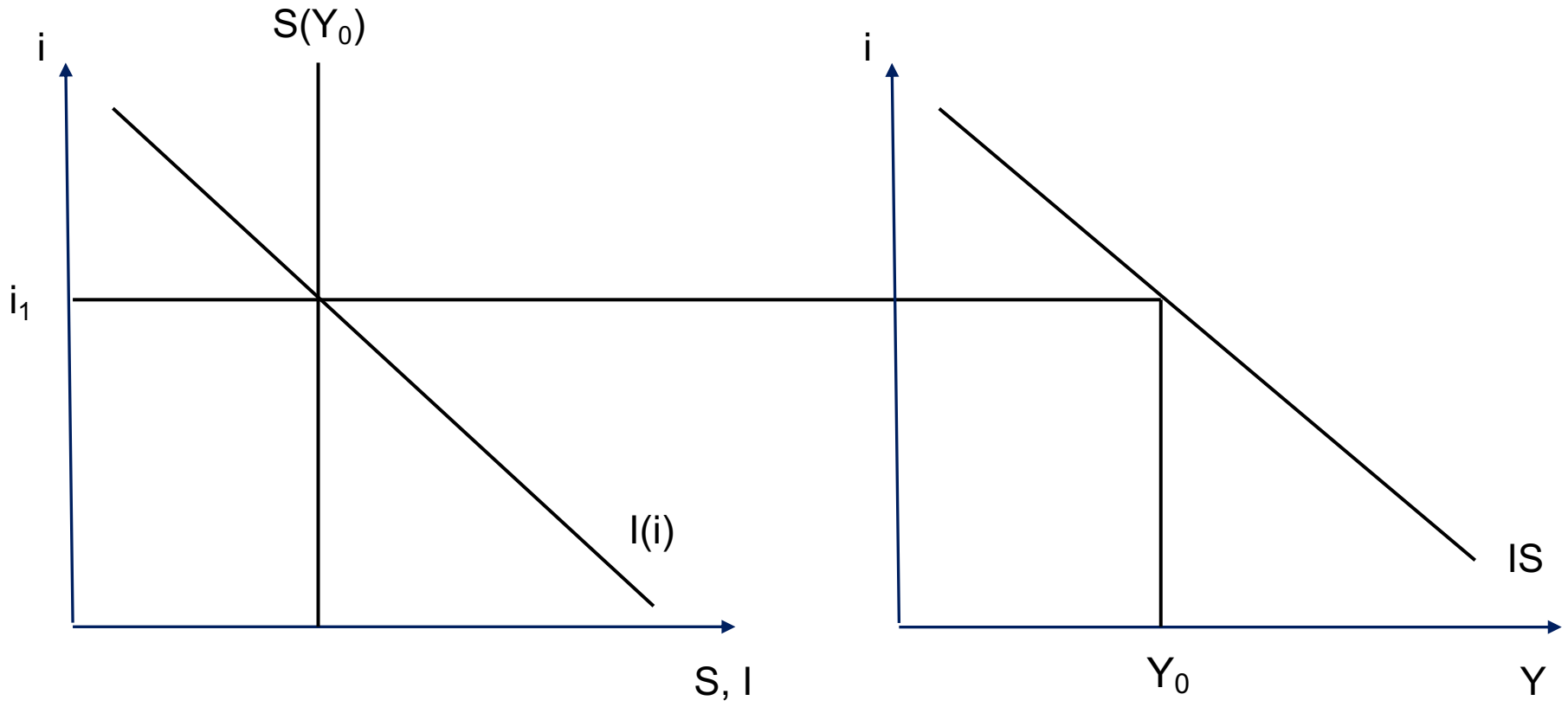


Krugman‘s attempt to combine the two models

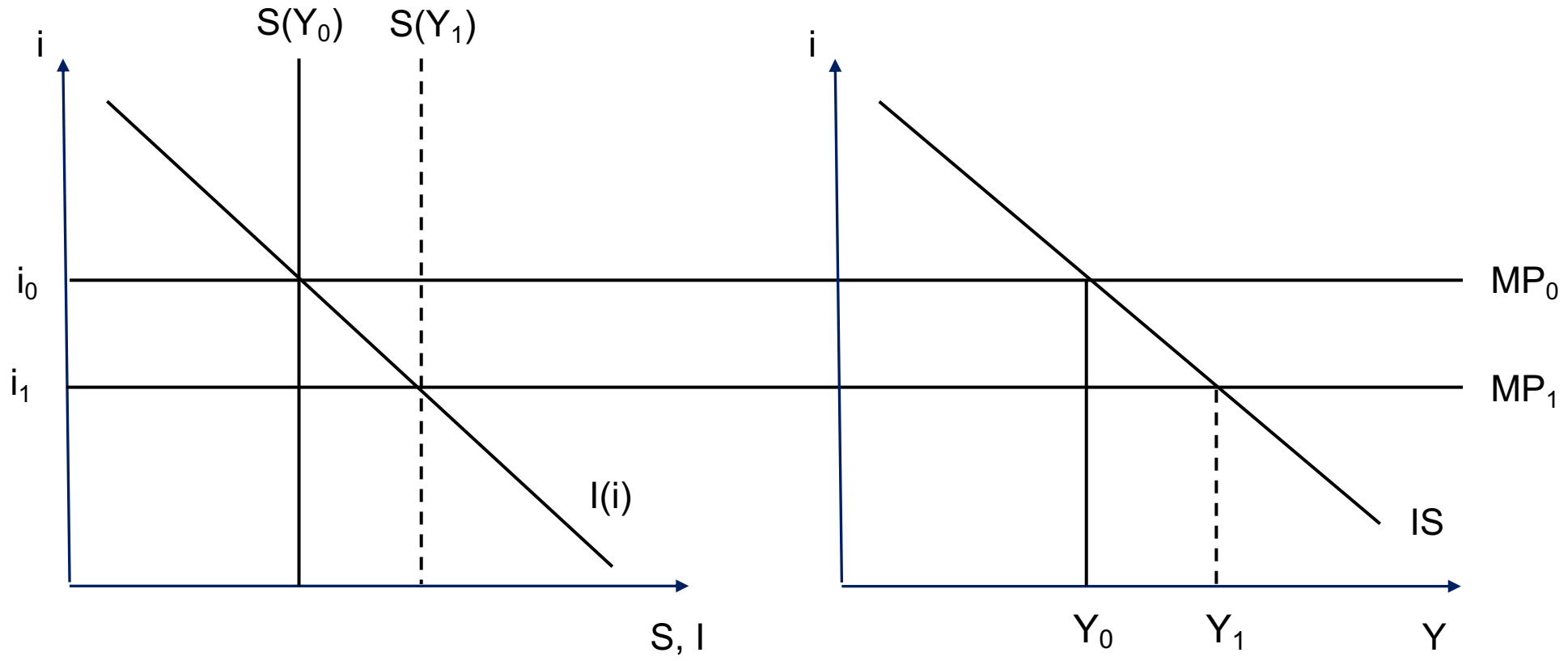


“As Hicks told us – and as Keynes himself says in Chapter 14 – what the supply and demand for funds really give us is a schedule telling us what the level of income will be for a given rate of interest. That is, it gives us the IS curve of Figure 5; this tells us where the central bank must set the interest rate so as to achieve a given level of output and employment”

The correct relationship between the I and S curves in the Keynesian model and IS; interest rate determined by the central bank



For a shift in income, the central bank must reduce the interest rate. The investment schedule does not shift



Why the two worlds are incompatible

- Krugman starts with the I/S-diagram of the classical model which pretends to represent the financial market
- With arbitary shifts of the I-curve and S-curve, he then derives the IS-curve as goods market equilibrium from a seemingly financial market equilibrium
- With different shifts of the I-curve and the S-curve, an upward-sloping IS-curve could be derived
- The interest rate of the classical model is a commodity interest rate, the interest rate of the monetary model is a money interest rate