History of Economic Thought I
5：Ⅱ．The Birth of a New Science (4) The Classical Monetary, Trade and Macro Theories

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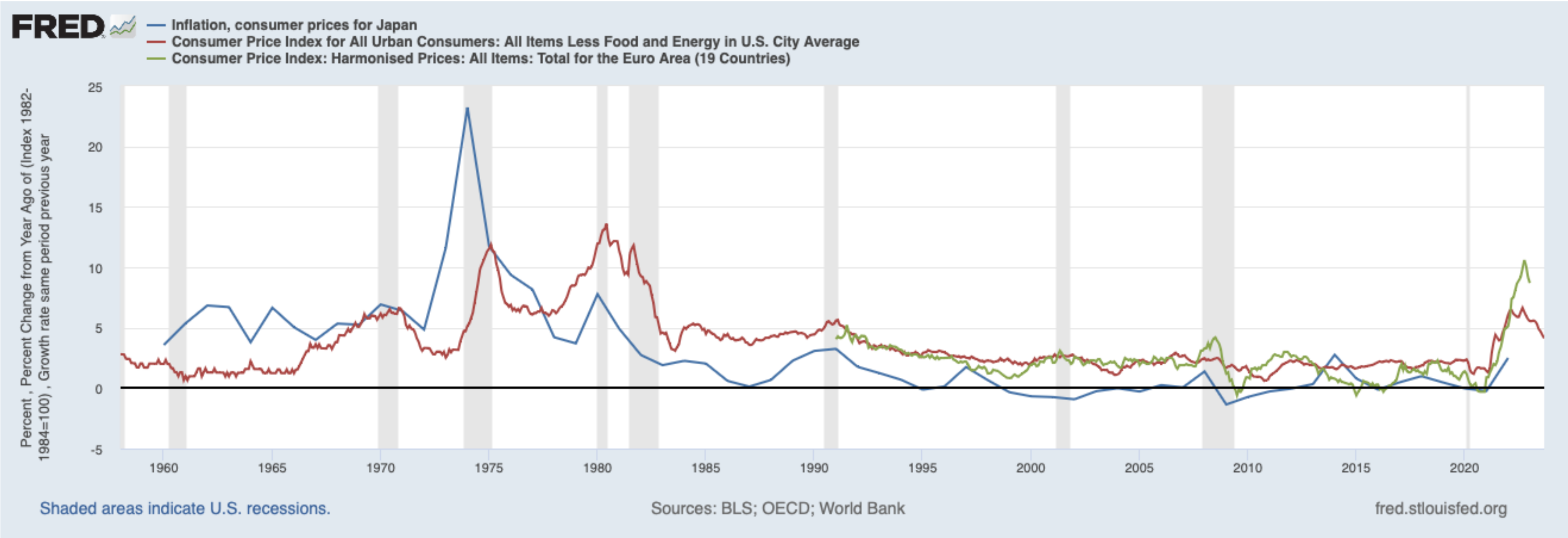
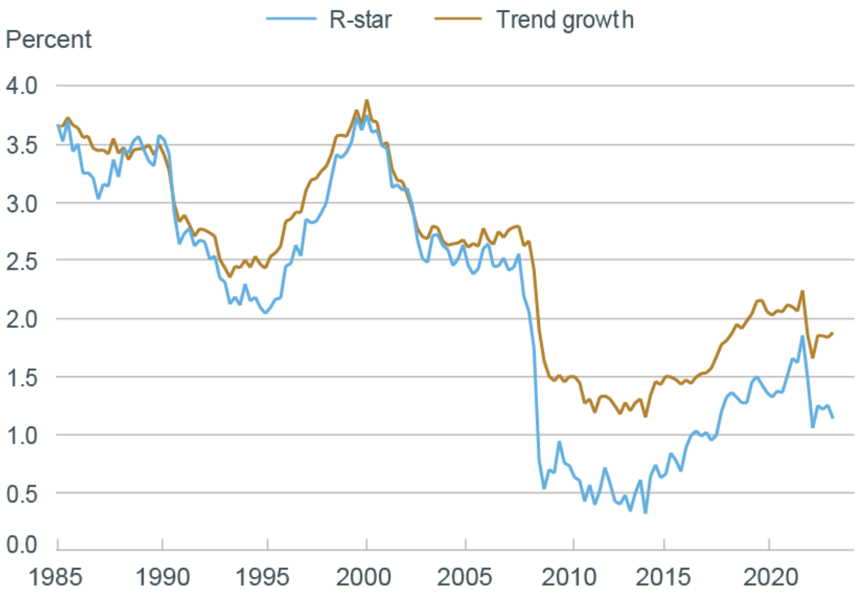
Key Messages for Today's Lecture

- Classical economists on
- 1. Monetary theory
- 2. Trade theory
- 3. Machinery and Macro

Inflation and Deflation, Who is to blame?

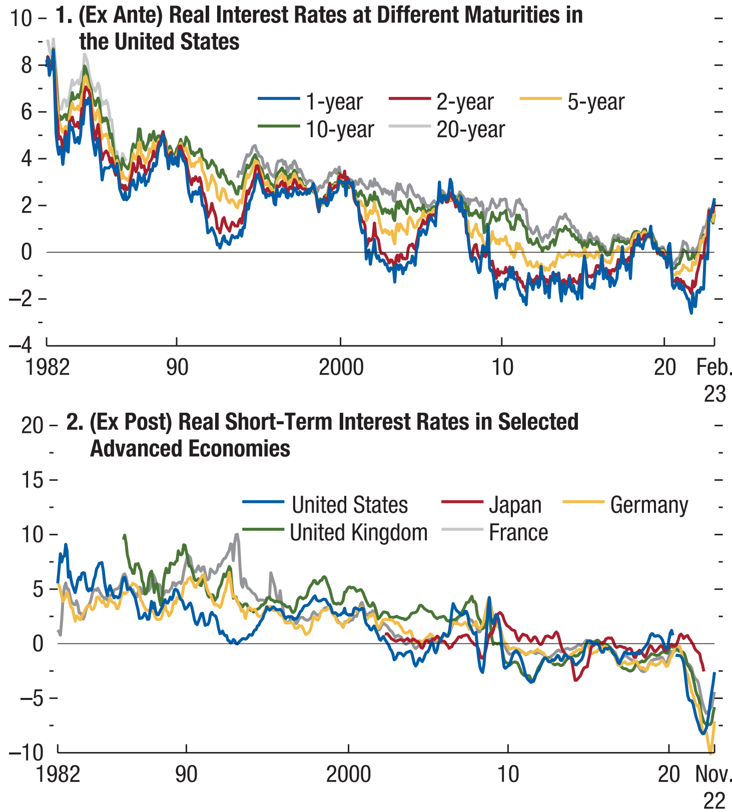


Natural, or neutral interest rate



Source: Laubach and Williams (2003).
Note: We plot estimates of the natural rate of interest (r-star) along with those for the trend growth rate of the U.S. economy, a source of change driving r-star.

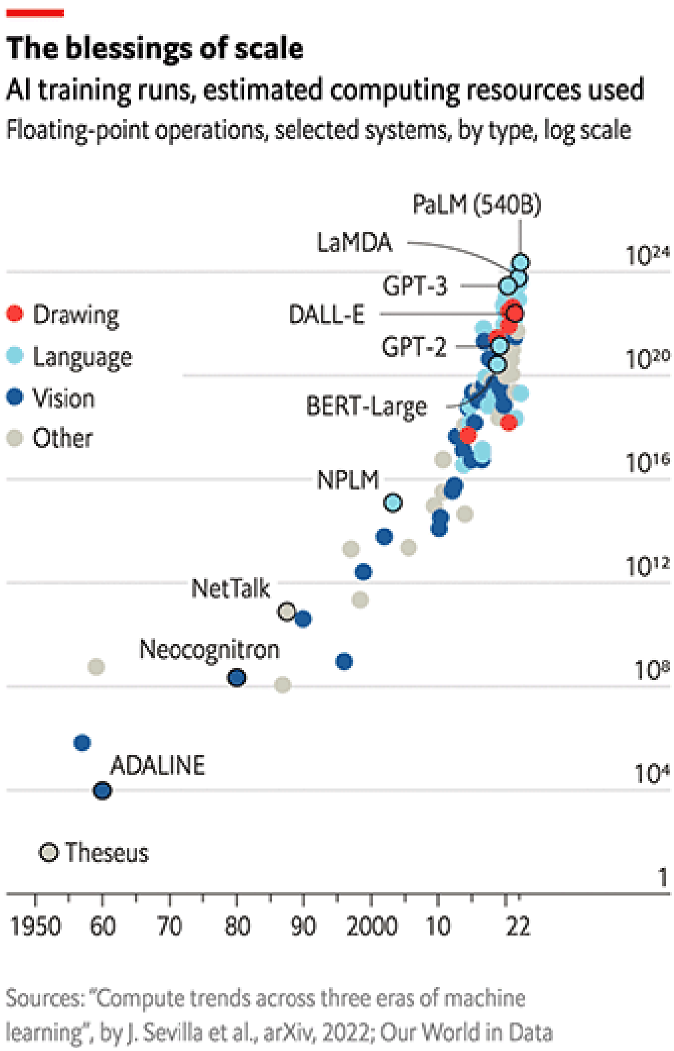
Figure 2.1. Real Interest Rate Trends
(Percent)

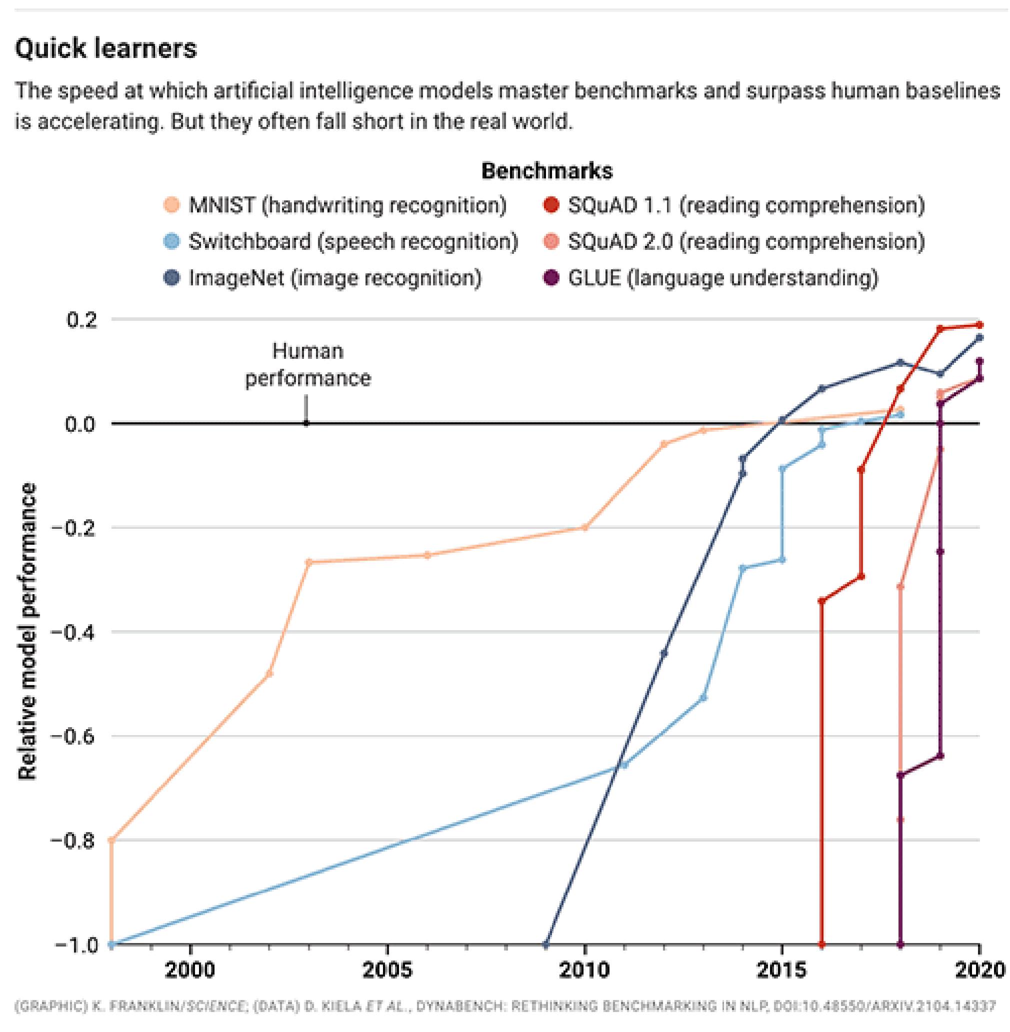


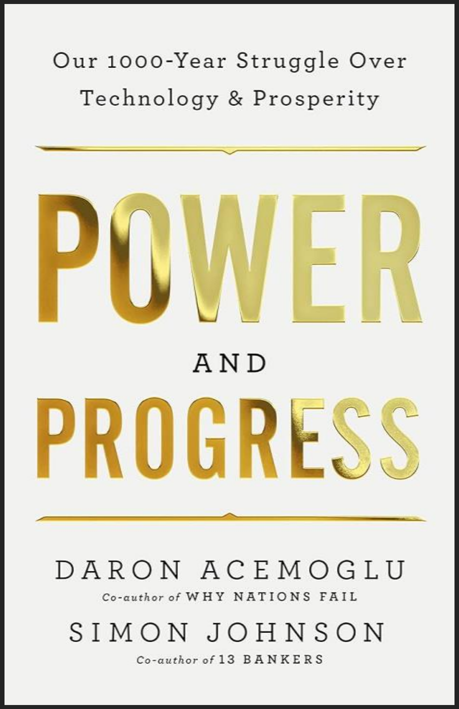
Sources: Federal Reserve Economic Data; and IMF staff calculations.
Note: In panel 1, the real interest rates are computed as the difference between the US Treasury rate at each horizon and the Cleveland Federal Reserve measure of inflation expectations over the same horizon. In panel 2, the real interest rates are the difference between the three-month interbank rates and the average of the realized inflation measured by the consumer price index in the next three months for each country. Japan's three-month interbank rates are spliced with rates for certificates of deposit from 1979 to 2002. Online Annex 2.1 provides details on data sources and calculations for the figure.

Free Trade or Protectionism

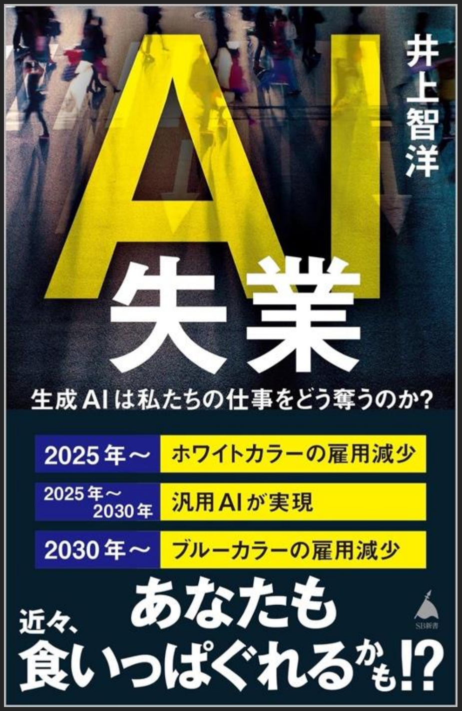
The Rise of AI https://www.sequoiacap.com/article/generative-ai-a-creative-new-world/





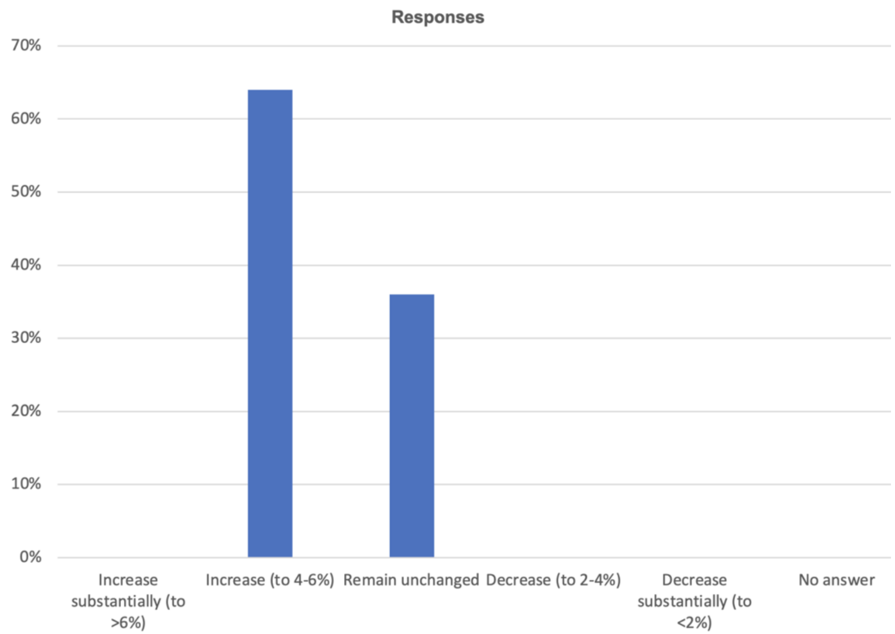


Will AI Make People Unemployed ?

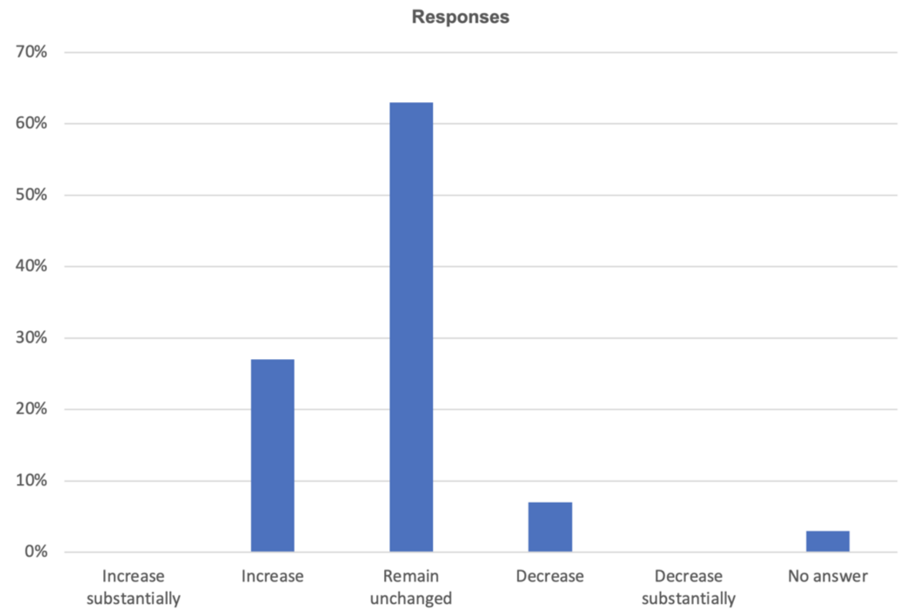


Impacts of AI on the Economy and Jobs: https://cepr.org/voxeu/columns/impact-artificial-intelligence-growth-and-employment

Question 1: What will be the implications of recent developments in AI on global economic growth, as they mature over the upcoming decade?



Question 2: What will be the implications of recent developments in AI on unemployment in high-income countries over the upcoming decade?



Historical Background

- Continental Blockade（1806-1813）: Corn-Laws Debate after 1815
- Suspension of convertibility（1797ー1821）: the Bullionist controversy
- The beginning of continued economic growth, the industrial revolution: the Machinery question

International monetary system

- UK: From bimetallism to gold standard
- 1717 : UK adopted de facto gold standard
  - Sir Isaac Newton
- Other countries: Bimetallism

The Financial System in England

- Different systems in Scotland and Ireland
- No central bank as we know it
- Three-tier system
  - Bank of England (BOE)
    - Private bank with monopoly right to issue paper currency in London
  - City banks
    - Holds BOE paper money as asset
  - Country banks
    - Issuing Paper money in countries
    - Loans from city banks

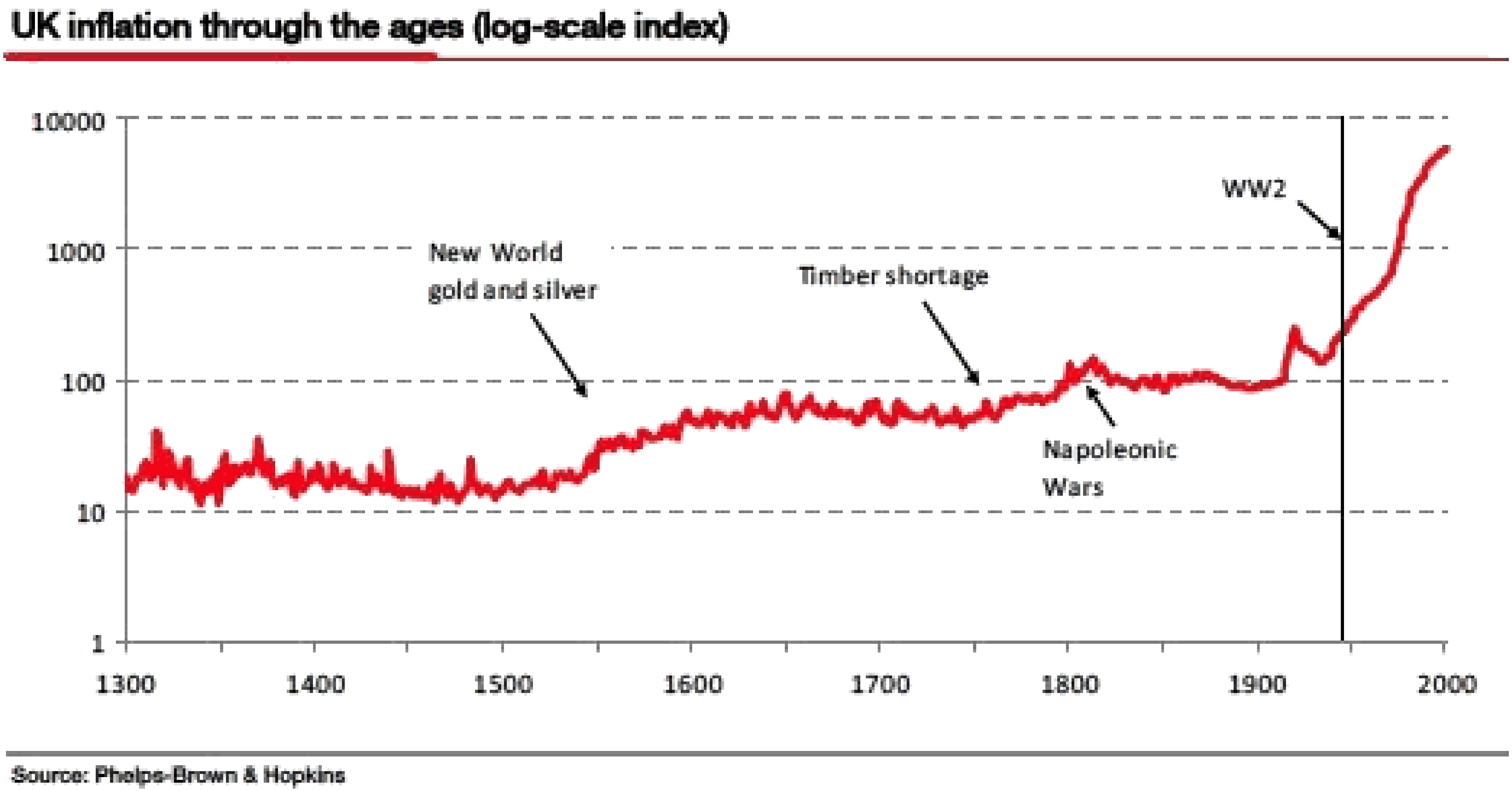
Adjustment under the Gold Standard (GS)

- Market rate of interest＜Profit rate⇒Gold reserves↓ ⇒Market rate↑
- Financial panic
  - Gold flows out internally and externally (internal drain and external drain)
    - Rush to safe asset, converting paper money to gold and hold⇒Money↓ ⇒ Credit↓
- What happens if GS is suspended?
  - Cannot rely on Smith's *Wealth of Nations*

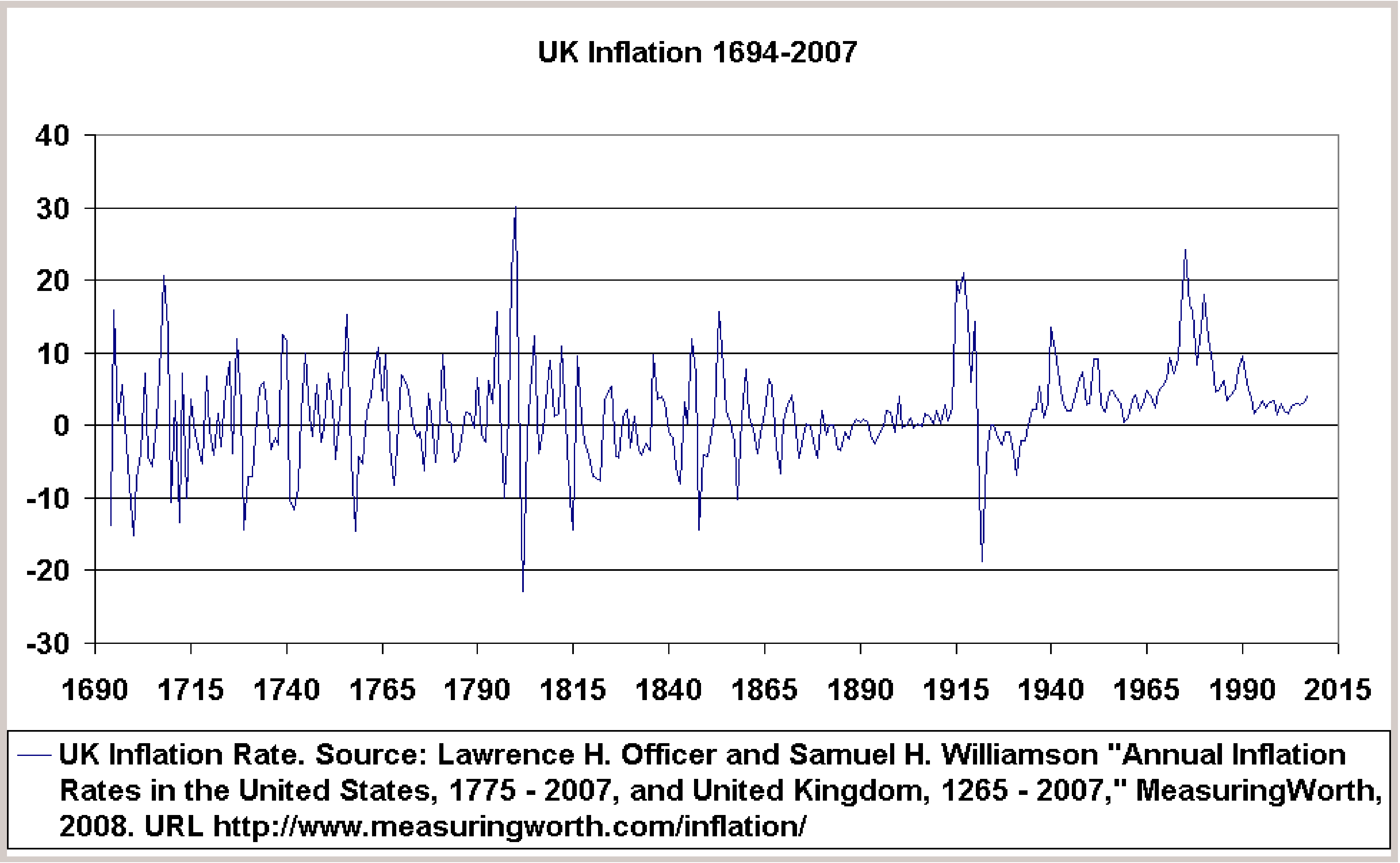
Revolutionary and Napoleonic Wars⇒Suspension of Convertibility

- Dec. 1796：French Fleet off the coast
- Jan. 1797：Rumors of French army invading UK
  - Internal drain of Guinea gold coins
- Feb.18: Farmers in New Castle fire-sold cattles, rushed to banks to convert paper currency
- Feb.20: Banks in New Castle Suspension of convertibility
  - Other country banks asked the BOE to help, BOE’s gold reserves declined
- Feb.21: Another rumor of impending French invasion
- Feb.23: Banks in New Castle stopped operation
- Feb.25: A small band of French army came. Repelled.
- Feb. 26:Royal edict to suspend convertibility

UK Inflation from 1300



UK Inflation：1694—2007



The Bullionist Controversy

- Inflation after the suspension of the GS
- Issue 1: What are the causes of inflation?⇒BOE is to blame
- Issue 2: Should return to the Gold Standard?
  - Return (Bullionists) vs Oppositions (Anti-Bullionists)
  - Eminent Bullionists：Thornton and Ricardo
- Issue 3: How to return to the GS? Old or New parity?

Three Phases

- １：１７９８－１８０３
  - From suspension to Thornton's book
- ２：１８０８－１８１２
  - *The Bullion Report*
- ３：１８１２　—１８２１
  - Napoleon's retreat from Moscow to the resumption

What did they see to judge the price movements?

- No price index
- Price index
  - William Fleetwood, *Chronicon Preciosum: or An Account of English Money, the Price of Corn and Other Commodities, for the Last 600 Years* (London, 1707)
  - W.S. Jevons put into practice: *A Serious Fall in the Value of Gold* (1863)
- Three information
  - ①Prices of particular commodities   e.g. wheat
  - ②The price of pound sterling exchange bills at Hamburg and Amsterdam under the Silver Standard
  - ③Pound price of gold bullion

Phase I

Bullionists

- Three measures：agricultural goods prices↑, Bullion price↑, exchange rate↓
- Walter Boyd, 1801
- １）Overissue of BOE notes as a common cause
- ２）Its purpose was to purchase government debt
- ３）Inflation is impossible without the suspension of convertibility

Anti-Bullionists

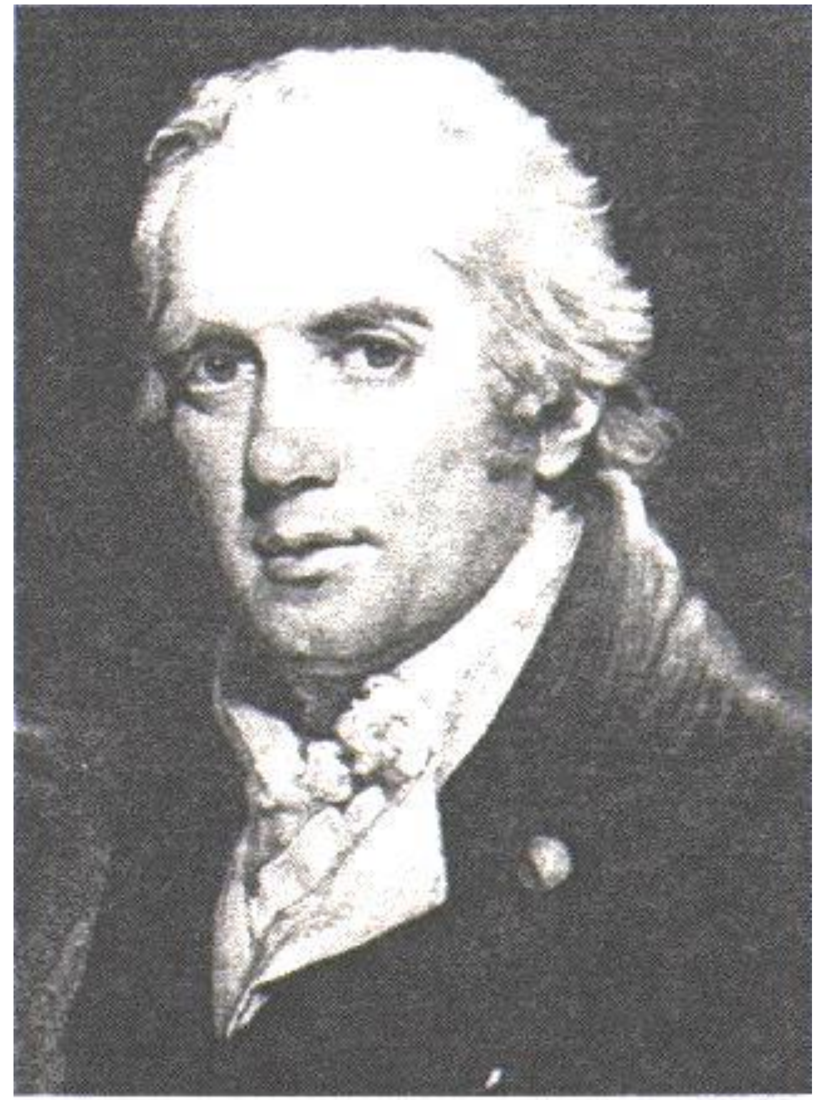
- Defending BOE
- １）Bad harvests and outflow of funds to support war expenses
  - Cost-push
  - “transfer problem”
- ２）Any overissue of notes, if any, is country banks’ responsibility
- ３）Real bills doctrine

Real Bills Doctrine

- Adam Smith as Origin
  - “The excessive circulation was caused by overtrading kingdom, was the original cause of this excessive circulation of paper money. A bank ought not to advance more than the amount which merchants would otherwise have to keep by them in cash of any kind, is not either the whole capital with which he trades, or even any considerable part of that capital; but that part of it only, which he would otherwise be obliged to keep by him unemployed, and in ready money for answering occasional demands. If the paper money which the bank advances never exceeds this value, it can never exceed the value of the gold and silver, which would necessarily circulate in the country if there was no paper money; it can never exceed the quantity which the circulation of the country can easily absorb and employ. When a bank discounts to a merchant a real bill of exchange drawn. by a real creditor upon a real debtor, and which, as soon as it becomes due, is really paid by that debtor; it only advances to him a part of the value which he would otherwise be obliged to keep by him unemployed and in ready money for answering occasional demands. ” (WN, Book II, Chapter II)
  - Smith referred to one bank, and under GS
- For Anti-bullionists
  - ①Operating principle of BOE
  - ②Applies for off the GS environment
- Attractive for other central banks during monetary disturbances
  - German Reichsbank under hyperinflation, Fed during the Great Depression, BOJ during Japan’s Great Stagnation?

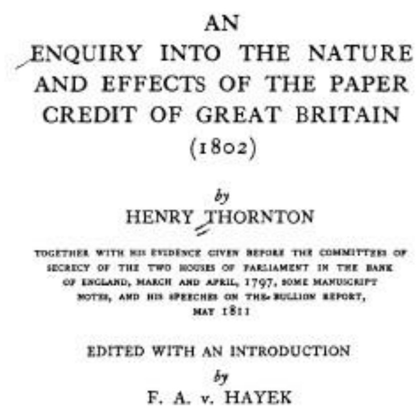
Classical Monetary Theory

- Henry Thornton 1760-1815
- Banker, philanthropist, abolitionist
  - William Wilberforce
- *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain*(1802)
- One of the best monetary theorists in the history of economics



An Enquiry into the Nature and Effects of the Paper Credit of Great Britain(1802)

- The best work on monetary economics before Wicksell's *Interest and Prices*（1898）
- Bullionist in theory, but defended BOE
- "transfer problem"：agree with anti-bullionists
  - Bad harvest, transfer payment⇒Trade deficit⇒exchange rate ↓
  - Should allow it if temporary
  - Should not contract money（pp.118-9）
  - With a plenty of reserves in normal time, and lend to domestic borrowers freely


AN
ENQUIRY INTO THE NATURE
AND EFFECTS OF THE PAPER
CREDIT OF GREAT BRITAIN
(1802)

by
HENRY THORNTON

TOGETHER WITH HIS EVIDENCE GIVEN BEFORE THE COMMITTEES OF SECRECY OF THE TWO HOUSES OF PARLIAMENT IN THE BANK OF ENGLAND, MARCH AND APRIL, 1797, SOME MANUSCRIPT NOTES, AND HIS SPEECHES ON THE BULLION REPORT, MAY 1811

EDITED WITH AN INTRODUCTION
by
F. A. v. HAYEK

Against Real Bills Doctrine

- Real Bills Doctrine does not discuss what determines demand for funds
  - "In order to ascertain how far the desire of obtaining loans at the bank may be expected at any time to be carried, we must enquire into the subject of the quantum of profit likely to be derived from borrowing there under the existing circumstances. This is to be judged of by considering two points: the amount, first of interest to be paid on the sum borrowed; and, secondly, of the mercantile or other gain to be obtained by the employment of the borrowed capital" (pp.253-4)
- People should respond to incentives

BOE Should Be Central Bank

- Two interest rate model
  - Compare what you pay to borrow (market rate of interest) and what you get by borrowing (commercial profit rate)
  - Interest rate＞Profit rate⇒Loans↓⇒Deflation
  - Interest rate＜ Profit rate ⇒Loans↑⇒Inflation
    - Distinction between real and nominal rates later (pp. 335-36)
- BOE can set market interest rate, and thus the price level
- Also, BOE is ”lender of last resort”
- BOE is and should be a central bank

Impacts on Production and Employment

- Sudden changes in money and credit→economic fluctuations
- In recession, merchants and manufacturers rush to sell their products to get money, also they are reluctant to purchase
  - "the manufacturer, on account of the unusual scarcity of money, may even, though the selling price of his article should be profitable, be absolutely compelled by necessity to slacken, if not suspend, his operations." (p. 118)
- Deflation affects employment
  - "very diminution in the *price* of manufactures which is supposed to cause them to be exported, may also, if carried very far, produce a suspension of the labour of those who fabricate them. The masters naturally turn off their hands when they find their article selling exceedingly ill. It is true, that if we could suppose the diminution of bank paper to produce permanently a diminution in the value of all articles whatsoever, and a diminution, as it would then be fair that it should do, in the rate of wages also, the encouragement to future manufactures would be the same, though there would be a loss on the stock in hand. The tendency, however, of a very great and sudden reduction of the accustomed number of bank notes, is to create an *unusual* and *temporary* distress, and a fall of price arising from that distress. But a fall arising from temporary distress, will be attended probably with no correspondent fall in the rate of wages; for the fall of price, and the distress, will be understood to be temporary, and the rate of wages, we know, is not so variable as the price of goods. There is reason, therefore, to fear that the unnatural and extraordinary low price* arising from the sort of distress of which we now speak, would occasion much discouragement of the fabrication of manufactures." (pp. 118-19)
- Rigidities of nominal wage contract cf. Hume
  - "a great diminution of notes prevents much of that industry of the country which had been exerted from being so productive as it would otherwise be. When a time either of multiplied failures, or even of much disappointment in the expected means of effecting payments arises, plans of commerce and manufacture, as well as of general improvement of every kind, which had been entered upon, are changed or suspended, and part of the labour which had been bestowed proves, therefore, to have been thrown away. If, for instance, expensive machinery had been erected, under an expectation of regular employment for it, a pressing want of the means of effecting payments may cause that machinery to stand idle. The goods which ought to form part of the assortment of the factor or the shopkeeper, and to be occupying their premises, are loading the warehouse of the manufacturer, and, perhaps, are suffering damage by too long detention. On the other hand, some sales are forced; and thus the goods prepared for one market, and best suited to it, are sold at another. There cease, at such a time, to be that regularity and exactness in proportioning and adapting the supply to the consumption, and that dispatch in bringing every article from the hands of the fabricator into actual use, which are some of the great means of rendering industry productive, and of adding to the general substance of a country. Every great and sudden check given to paper credit not only operates as a check to industry, but leads also to much of this misapplication of it. (pp. 119-21)

What should be the guiding principle of BOE?

- “to limit the total amount of paper issued, and to resort for this purpose, whenever the temptation to borrow is strong, to some effectual principle of restriction; in no case, however, materially to diminish the sum in circulation, but to let it vibrate only within certain limits; to afford a slow and cautious extension of it, as the general trade of the kingdom enlarges itself; to allow of some special, though temporary encrease in the event of any extraordinary alarm or difficulty, as the best means of preventing a great demand at home for guineas; and to lean to the side of diminution, in the case of gold going abroad, and the general exchanges continuing long unfavourable; this seems to be the true policy of the directors of an institution circumstanced like that of the Bank of England”（p.259）.
- Constant Monetary Growth Rule cf. Milton Friedman

Phase II

- 1809：Another round of rapid exchange rate depreciation
- Ricardo, “High Price of Bullion”（1810—11）
- High price of gold=inflation. BOE is to blame.
- Suspension of convertibility is the root cause
- Country banks cannot issue paper money without the aid of BOE

The Bullion Report（1810）: High Point of Bullionists

- Report of the Commons committee
- Chair Francis Horner, Thornton is a member.
- High price of bullion：「The evil has been, that the Exchange, when fallen, has not had the full means of recovery under the subsisting system. And if those occasional depressions, which arise from commercial causes, are not after a time successively corrected by the remedy which used to apply itself before the suspension of the cash payments of the Bank, the consequences may ultimately be exactly similar to those which a sudden and extravagant issue of paper would produce”（Cannan 1925, p.35）。
- Against Real Bills Doctrine: “a doctrine wholly erroneous in principle, and pregnant with dangerous consequences in practice”（Cannan 1925, p.46）。
- Systematic discussion of how monetary policy affects the economy (Cannan 1925, pp.50-51)

Proposals

- Resumption within 2 years at the old parity
- House of Commons discussed them in 1810ー11
- All rejected
- Return to the GS earlier is rejected. But the desirability of the return itself is approved.

Phase III

- 1815 : Final defeat of Napoleon at Waterloo
- 1816 : House of Commons decided to measure the value of pound at the 1797 price; old parity
  - Post-Napoleonic Wars Depression
- 1819 : Law enacted to convertibility
- May, 1821 : The Return

Historical Background

- War ends, war boom ends, and deflation resumes
- Affecting the real economy (agriculture and metals)
  - Agriculture⇒Supports Corn-Laws to continue protectionism
  - Birmingham：center of defense and metals industries⇒Criticizes BOE’s deflationary monetary policy
    - Economists at Birmingham
- Political Background：Unequal political representation despite industrial revolution
  - No MP from industrial districts and Birmingham
  - To be changed in 1832 Reform Act

Ricardo “Economical and Secure Currency”（1816）

- What is a perfect currency?
- Goal： Price stability
- Ingot Plan
  - Convertibility assumed：convertible with ingot
  - Abolishing gold coins; Paper note ＋ smaller coins
  - Application of Adam Smith on Banking

Ricardo concerned with deflation

- 1810-11 : gradual return to the GS
  - "The remedy which I propose for all evils in our currency, is that the Bank should gradually decrease the amount of their notes in circulation until they shall have rendered the remainder of equal value with the coins which they represent, or , in other words, until the prices of gold and silver bullion shall be brought down to their money price." ("The High Price of Bullion", p.94)
- 1816 : Use of paper note as supplementary money supply

1821：Resumption, Return to the GS

- In Law：May 1, 1821; converted BOE bank notes to ingot; then May 1823, converted to gold coins
- But Ingot plan was not implemented
- Political reasons：forgery of smaller notes⇒death punishiments⇒unpopular⇒converted to gold coins directly
- But BOE purchases gold coins＝contraction in money⇒Opposite of Ingot plan

Ricardo’s case for new parity

- 1819: Return to GS at the old parity
  - Gold price was closer to mint price
- Sept., 1821 : If market price of gold > mint price considerably⇒Permanent devaluation at the new parity

Achievements

- Price fluctuations have impacts on production and employment
- Rules vs. Discretion in monetary policy
- International monetary system as a nominal anchor of monetary policy
- The Birth of “two interest rate” model
  - From Wicksell to Michael Woodford and the present

Some Controversies

- They are not monolith.
- Malthus as a heterodoxy
  - Important contributions to the classical growth theory
    - Population principle, the law of diminishing returns
  - ①Questions the desirability of free trade; supports Corn-Laws; protectionism, agriculturalism; but changed later
  - ②Post-Napoleonic Wars Depression

Corn-Laws Debate

- During the war：Continental blockade
  - Agriculture prospered
- End of war and good harvest⇒Corn price↓
- 1815：Corn Law
  - Prohibitive import tariff when domestic price goes down to a certain level

Corn-Laws Debate

Malthus

- Defending the high price of corn
  - High price⇒high rent⇒ "effectual" demand
  - Different value theory
- Skepticism toward manufacturing
  - Bad for health
  - Dependent on export of manufacturing goods
- Food Security
  - Concerns about disruption due to war and bad harvest

Ricardo

- Free trade⇒corn price↓⇒Cheap bread and wages⇒high profit⇒capital accumulation
- Importing corn⇒can export to manufacturing goods to trading partners
- Constant import⇒Stable import from abroad

Theory of comparative cost
Ricardo's numerical example

	England	Portugal
Clothes	100	90
Wine	120	80

- Also known as theory of comparative advantage
- Ricardo proves gains from trade
  - Cf. 18th century rule "absolute advantage" (Smith)
- What is remarkable about it?

Post-Napoleonic War Depression

Malthus

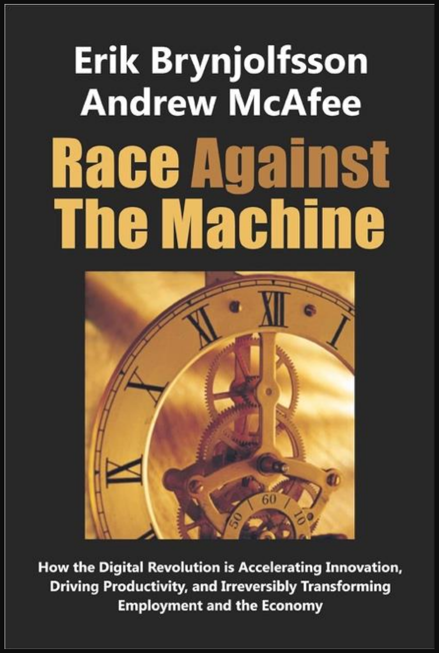
- Cause：deficient “aggregate demand”
  - Rapid investment⇒Production capacity ↑⇒Demand cannot keep up with it⇒Prices of goods↓, labor and capital underutilized
  - “excessive investment” as cause of depression
    - Cf. Keynes
- remedy：Public works (government consumption) to increase aggregate demand

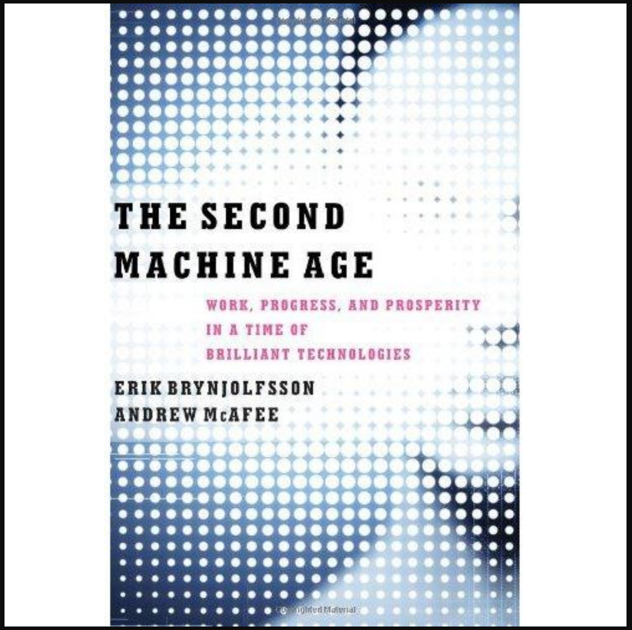
Ricardo

- Cause：deficient capital
  - 1815―17： Disruption by transition from the war to peace economy
  - 1819―20：
    - Error in forecasting foreign demand
    - Overproduction in corn
    - BOE’s Monetary contraction
- Remedy：Price stability through monetary policy

The Coming of the Second Machine Age?

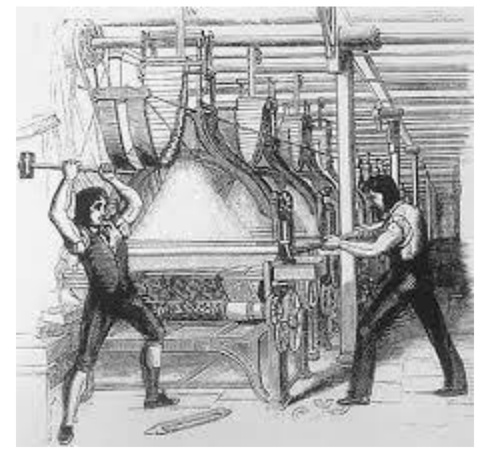
- *Race Against the Machine*（2012）
- *The Second Machine Age*（2014）
- Machines with intelligence）⇒Loss of Jobs as we know them
- Technological unemployment?
- So far, no evidence
- New phase with Generative AI





The Luddites

- 1811-1817
- Mid England
- Machine breaking by workers in cotton industry
- 1811-13: Violent in Nottingham and its neighboring area
- Army deployed: 11 dead, 35 executed
- May 11, 1812: PM Spencer Perceval assassinated



Ricardo on Machinery

- Is unemployment possible by the introduction of fixed capital = machinery?
- *Principles*, 1^{st} edition（1817）, 2^{nd} edition（1819）: No
- Changed his mind in 3^{rd} edition（1821）
  - Investment over saving (production of new machines) ⇒ Wage goods↓⇒Demand for labor↓⇒Real wages↓ or unemployment
  - Forced saving: it is fixed capital not machines which cause unemployment

Ricardo's Numerical example

- New machine introduced at the necessary goods producing industry
- Total amount of capital：£20000
- £ 7000 fixed capital, £13000 circulating capital
- Profit rate 10%, profit £2000
- First year： necessaries £ 13000, workers produces £15000, capitalists consume profit £ 2000
- 2nd year：Half of workers produce machine, the other half produces necessaries
  - Necessaries £ 7500, machine £ 7500, total £ 15000, circulating capital £13000
- 3rd year：Necessaries £ 7500, capitalists consume £ 2000. Necessaries for workers decreases to £5500. 13000ー5500＝ £ 7500 decreases. Either real wages fall or unemployment
- "Forced saving": Machine production＝Investment, but there is no corresponding savings, so workers have to cut back consumption

Ricardo was in favor of the introduction of machinery

- Under certain conditions, demand for labor and the production of consumption goods will keep increasing beyond the level at the introduction of machinery in the long-run（Uchiyama, Takashi (2000), “Ricardo on Machinery: A Dynamic Analysis,” *European Journal of the History of Economic Thought*, Vol.7, No.2, pp.208-227.）。
- “I have before observed, too, that the increase of net incomes, estimated in commodities, which is always the consequence of improved machinery, will lead to new savings and accumulations. These savings, it must be remembered are annual, and must soon create a fund, much greater than the gross revenue, originally lost by the discovery of the machine, when the demand for labour will be as great as before, and the situation of the people will be still further improved by the increased savings which the increased net revenue will still enable them to make”.（Ricardo 1921/1951, 396）
- “The statements which I have made will not, I hope, lead to the inference that machinery should not be encouraged. To elucidate the principle, I have been supposing, that improved machinery is *suddenly* discovered, and extensively used; but the truth is, that these discoveries are gradual, and rather operate in determining the employment of the capital which is saved and accumulated, than in diverting capital from its actual employment."（Ricardo 1921/1951, 395）

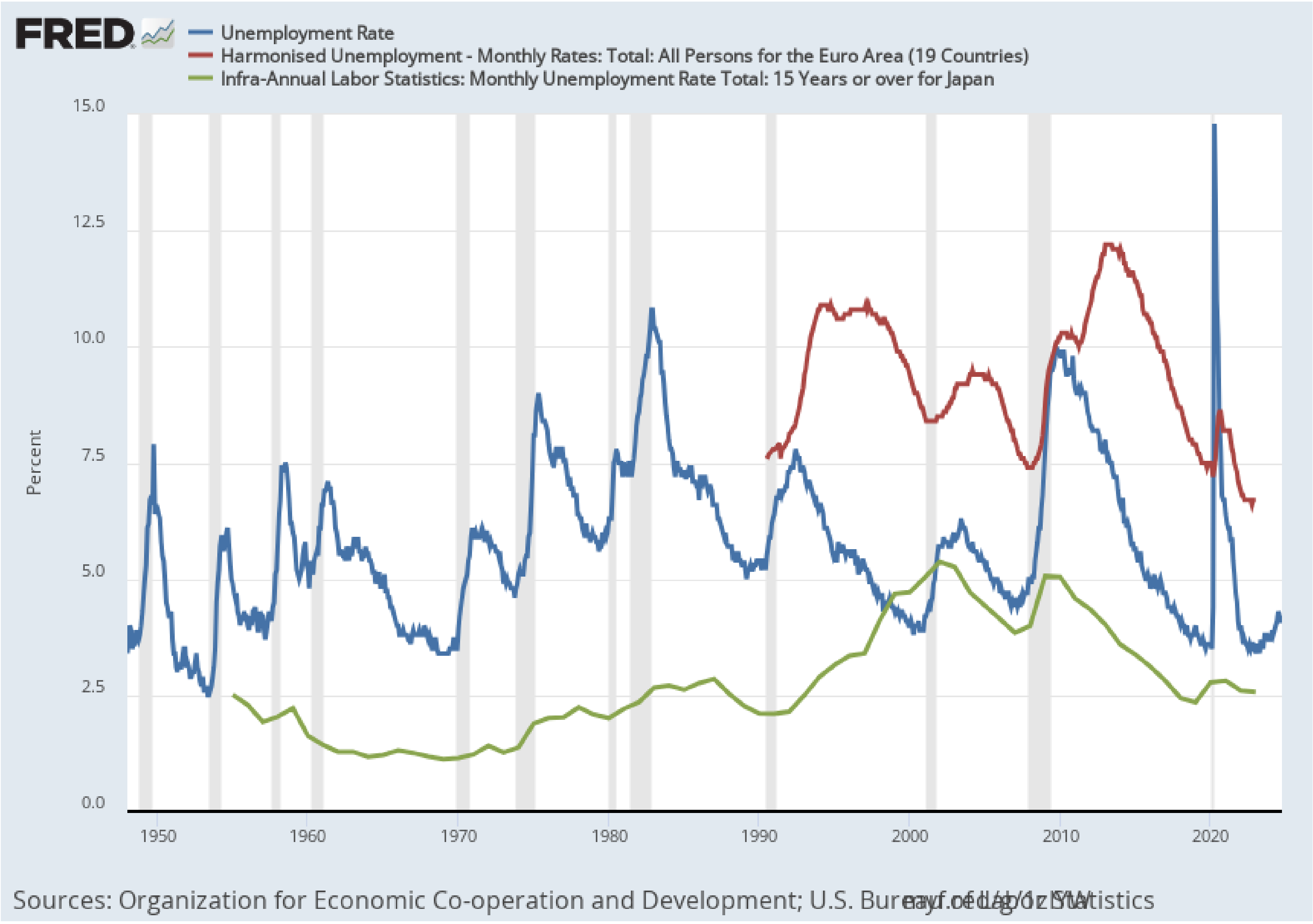
Globalization⇒Race to Mechanization

- If your country does not use machine, the other foreign countries will use it.
- “The employment of machinery could never be safely discouraged in a State, for if a capital is not allowed to get the greatest net revenue that the use of machinery will afford here, it will be carried abroad, and this must be a much more serious discouragement to the demand for labour, than the most extensive employment of machinery; for, while a capital is employed in this country, it must create a demand for some labour; machinery cannot be worked without the assistance of men, it cannot be made but with the contribution of their labour. By investing part of a capital in improved machinery, there will be a diminution in the progressive demand for labour; by exporting it to another country, the demand will be wholly annihilated.”（Ricardo 1821/1951, 396）
- If a foreign country use machine, it will increase its productivity
- “If, however, you were to reject the use of machinery, while all other countries encouraged it, you would be obliged to export your money, in exchange for foreign goods, till you sunk the natural prices of your goods to the prices of other countries. In making your exchanges with those countries, you might give a commodity which cost two days labour, here, for a commodity which cost one, abroad, and this disadvantageous exchange would be the consequence of your own act, for the commodity which you export, and which cost you two days labour, would have cost you only one if you had not rejected the use of machinery, the services of which your neighbours had more wisely appropriated to themselves.”（Ricardo 1821/1951, 397）

What is important?

- “Every rise of wages will have a tendency to determine the saved capital in a greater proportion than before to the employment of machinery. Machinery and labour are in constant competition” （Ricardo 1821/1951, 395）
- “machinery cannot be worked without the assistance of men, it cannot be made but with the contribution of their labour.” （Ricardo 1821/1951, 396）
- Can we build a complementary relationship with machines?

So far, no technological unemployment



Examples of AI arts

Think Further

- Why did the directors of BOE embrace the real bills doctrine?
- Why didn't Thornton and Ricardo advocate the abolition of the Gold Standard?
- Which is more convincing, Ricardo or Malthus?
- Do you think the advancement of AI will make humans jobless?

Next Week

- Read the following classics:
  - Alexander Hamilton, “Report on Manufactures”, https://founders.archives.gov/documents/Hamilton/01-10-02-0001-0007
  - Friedrich List, *The National System of Political Economy*, “SOME EXTRACTS FROM THE AUTHOR'S PREFACE TO THE FIRST EDITION,” “Chapter XII: THE THEORY OF THE POWERS OF PRODUCTION AND THE THEORY OF VALUES.” https://oll.libertyfund.org/title/lloyd-the-national-system-of-political-economy
  - Thomas Carlyle, https://www.americanantiquarian.org/Manuscripts/carlyle.html
  - The Carlyle-Mill “Negro Question” Debate: https://cruel.org/econthought/texts/carlyle/negroquest.html

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