The ‘One big fact’

- Between 1985 and 2000, the population of the world market grew from 2.5 billion to 6 billion people. http://www.cgdev.org/doc/event docs/Global work force.pdf

- Reason: the inclusion of China, India, the former Soviet Union, and Eastern Europe into the ‘global economic world’ (without them, increase to 3.3).

- International economic integration between 1985 and 2000 has doubled the size of the global labor force, from 1.46 billion to 1.46 + 1.47 billion.

Fred Goldstein (2009): Low-Wage Capitalism: Colossus with Feet of Clay (p. 4)

International segmented labour

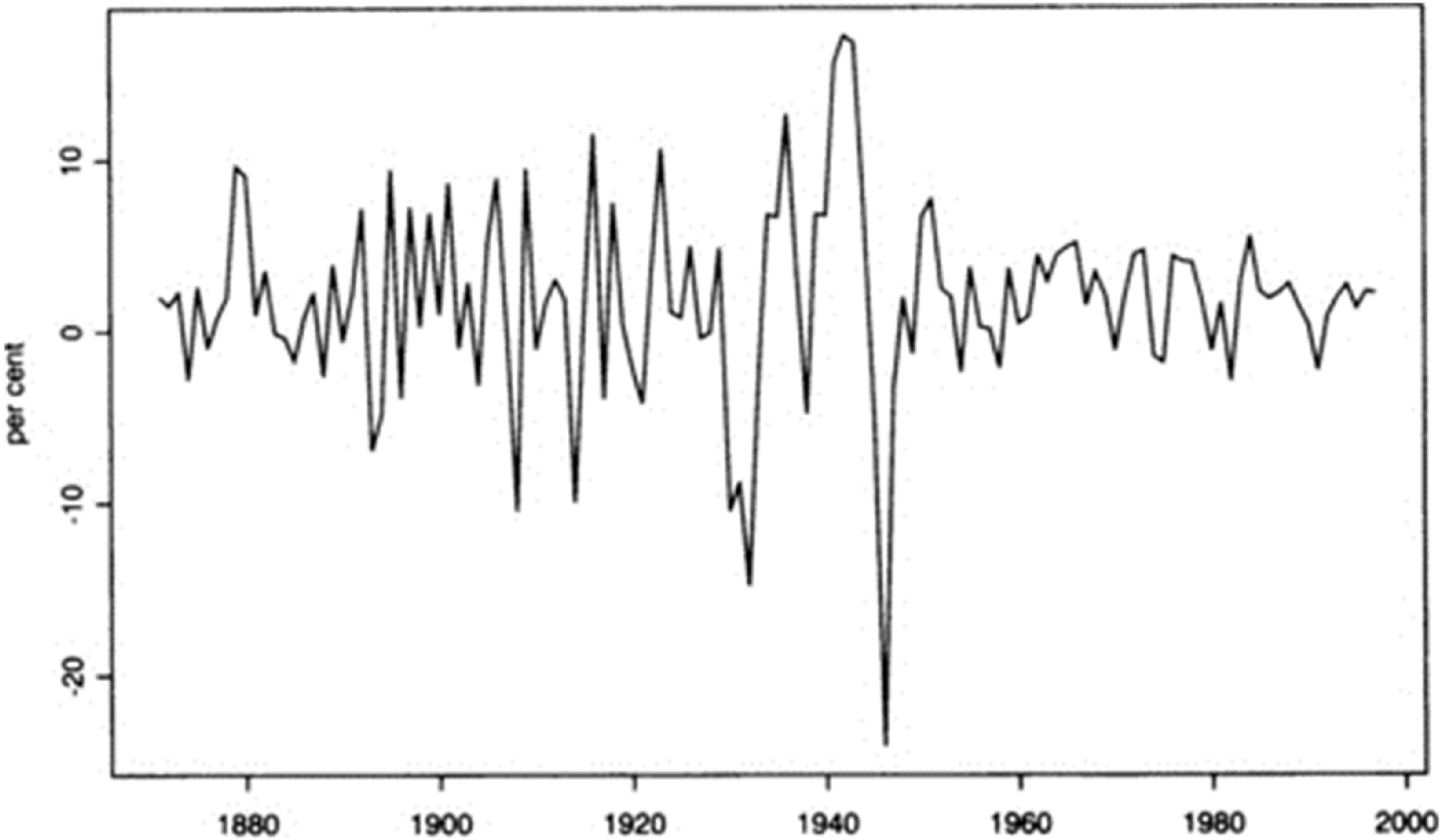
- Big firms can outsource production to countries were wages are smaller. This production typically involves unskilled labour.

- Domestic unskilled workers then compete against international unskilled workers and have to accept lower wages.

- Domestic skilled workers are not subject to this competition and can then enjoy higher wages. Hence, the average domestic wage is higher than the wage paid to unskilled workers.

Business cycle

- Ups and downs in overall economic activity.
- Recurrent but not periodic.
- Irregular length (5 to 10 years).
- Magnitude of the fluctuation is relatively small ($\pm$ 5% of GDP).
- Developed (rich) economies smooth the cycle more than developing (poor) economies.



Annual percentage change in real per capita US national output 1871–1997
Paul Ormerod (1999): *Butterfly Economics. A New General Theory of Social and Economic Behavior*

Procyclical/countercyclical variables

- A procyclical variable tends to move in the same direction as overall economic activity (up in an expansion, down in a contraction).

- Examples: industrial production, consumption, investment, employment, money stock, inflation, stock prices, and nominal interest rate.

- A countercyclical variable tends to move in opposite direction to overall economic activity.

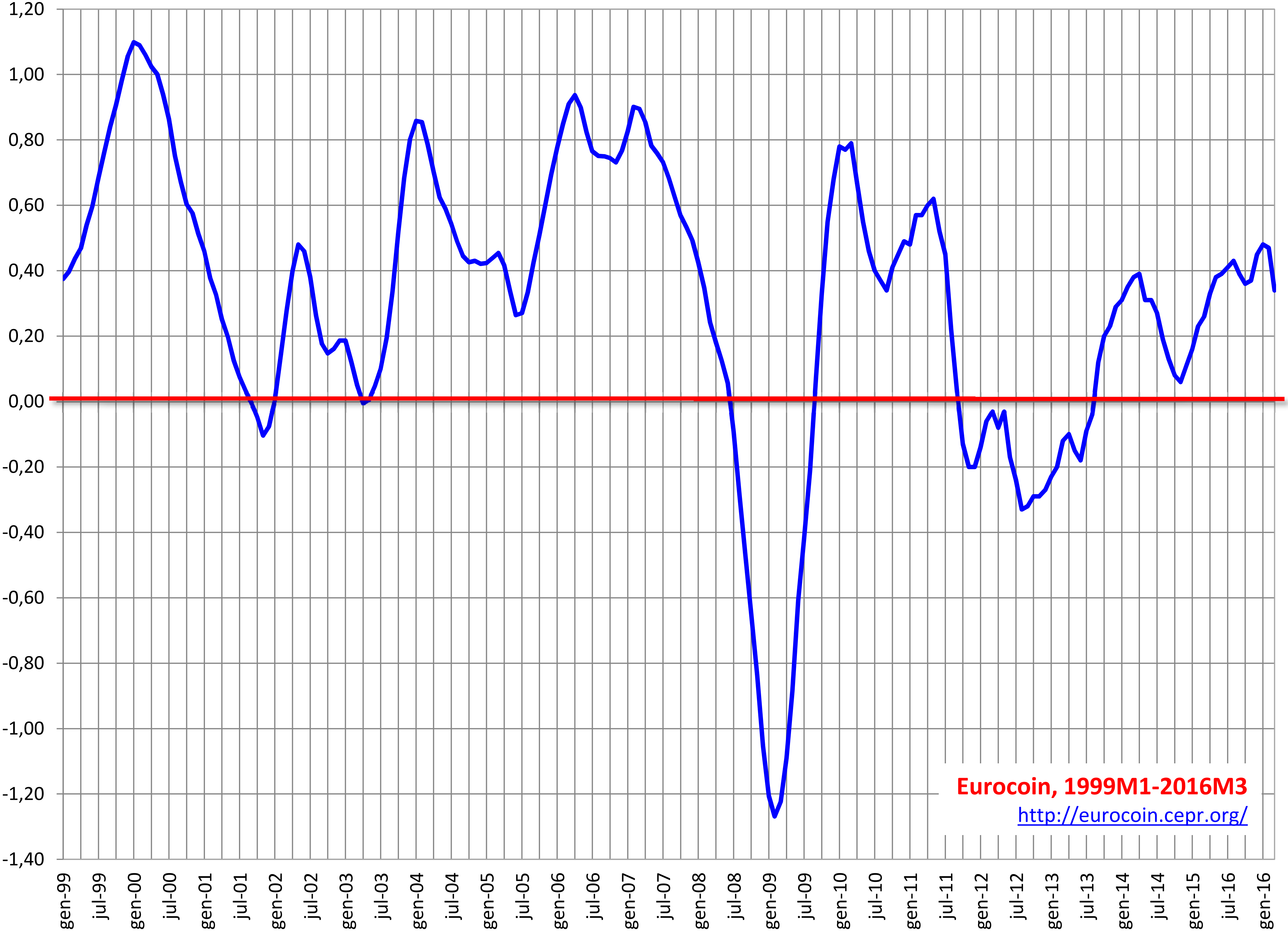
- Example: unemployment rate.

Indicators

- A leading indicator is a variable whose turning points tend to precede the turning points of the business cycle (example: inventory investment).

- A coincident indicator reaches turning points at about the same time as the business cycle (examples: industrial production, consumption, unemployment).

- A lagging indicator is one whose peaks and troughs tend to occur later than the business cycle's.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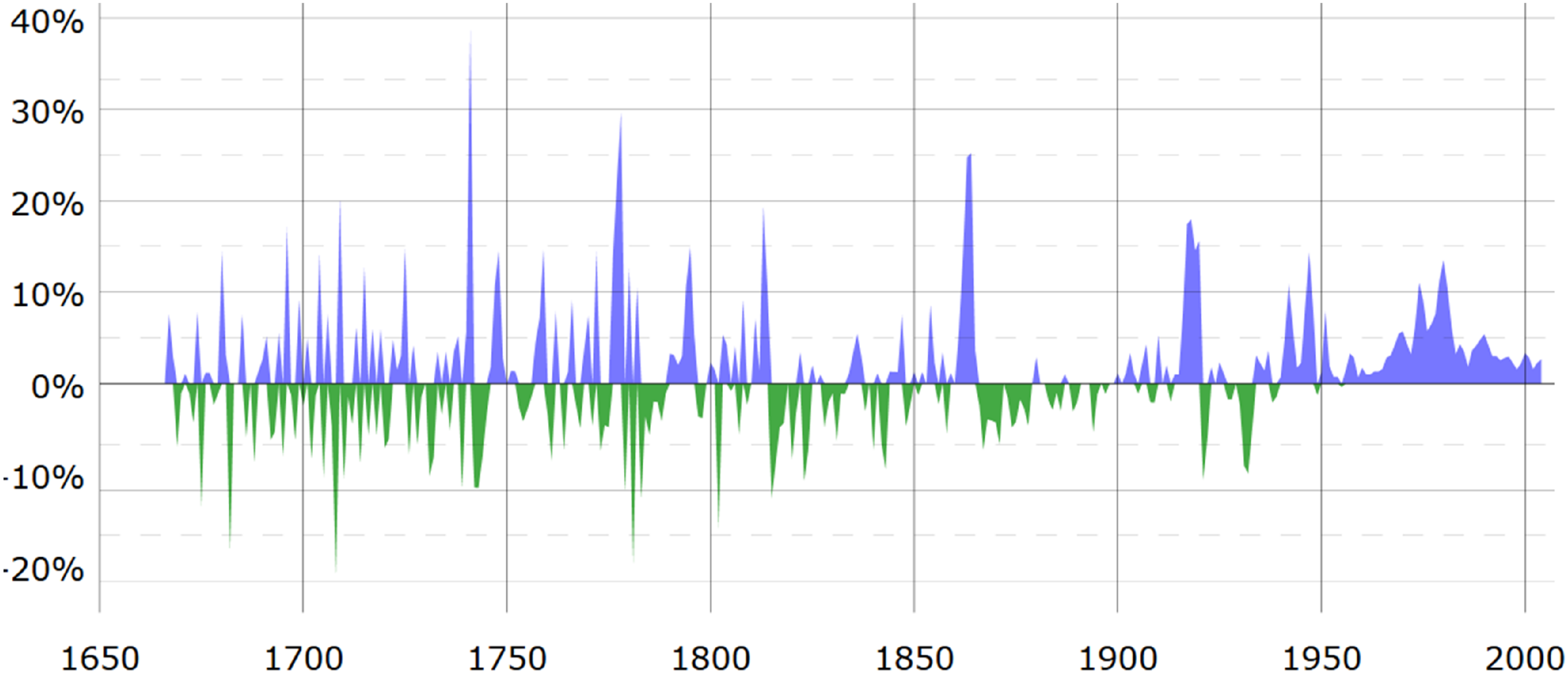
Eurocoin, 1999M1-2016M3
http://eurocoin.cepr.org/

Deflation: causes

- Demand-pull deflation is deflation caused by a reduction in aggregate demand.

- Cost-push deflation (productivity-induced deflation) is deflation induced by productivity gains, typically due to rapid technological innovation.

US historical annual inflation rate



https://upload.wikimedia.org/wikipedia/commons/2/20/US_Historical_Inflation_Ancient.svg

Fisher’s debt-deflation mechanism

Overindebtedness ⇒ debt liquidation ⇒

↑sale of assets (distress selling) &
↓bank deposits (bank loans are paid off) ⇒

↓net worth of business (as ↓P) & ↑bankruptcies ⇒

↓profits ⇒ ↓I & ↓employment ⇒

⇒↓I & ↓C ⇒ ↓AD ⇒

⇒↓P & ↑pessimism & loss of confidence ⇒

⇒↑savings & ↓borrowing ⇒ ↓AD ⇒ ...

Effects of persistent deflation

- Purchases are delayed
- Fall in profits
- Debt increases in real terms
- Bankruptcies and credit restriction
- Wealth reduction
- Reverse causation: asset price deflation leading to CPI deflation

Debt under deflation: an example

- A firm has a nominal debt of $B = 1{,}000$ EUR and the price level is $P = 100$. Then, in real terms, the firm owes $B/P = 1{,}000/100 = 10$.

- Suppose the firm pays 10% of the debt but the price level falls by 20%. Now the firm owes $B' = 900$ EUR and the price level is $P' = 80$.

- In real terms, the firm's debt is now $B'/P' = 900/80 = 11.25$. Thus, the firm's real debt has increased (by 12.5%) despite the fact that the debt has been lowered (by 10%) in nominal terms.

Balance sheet recession theory

- Suggested by Richard Koo to explain Japan's recent deflation.

- The theory holds that:
  - (i) a fall in asset prices forces a shift in the focus of businesses <u>from profit maximization to debt minimization</u>; and
  - (ii) the shift initiates a spiral of declining aggregate demand and leaves the <u>economy unresponsive to changes in interest rates</u>.

Fisher vs Koo

- In Fisher's view, deflation is the driver of the recession and the real sector is affected after many steps (price and monetary changes occur first).

- In Koo's, the recession is caused by the fall in the value of assets and deflation is an effect not a cause of the recession: <u>in a balance sheet recession, GDP declines first, as firms stop borrowing and spen-ding, and redirect cash flows to debt repayment</u>. As a result, demand drops, the economy slumps, and prices (of goods and assets) fall. This makes more urgent for firms to reduce debt.

View of the business cycle

- 1. By ‘fresh-water’ economists. They hold that the market system works well as long as market forces are free from government interferences.

- 2. By ‘salt-water’ economists. In their view, crises and recessions are caused by market failures, insufficient information, and/or lack of appropriate regulation and supervision.

- 3. Non-mainstream economists. View 2 is deepened by invoking the existence of structural causes of crises and recessions, like income distribution.

The heterodox view

- Economic policies not aimed at promoting full employment but at targeting low inflation levels.
- Society has come to accept conservative views.
- Firms do not attempt to make profits through investment but by reducing the workforce.
- Bargaining power of labour has been weakened leading to a decline in the wage share.
- Growth no longer relies on wage-led consumption supported by rising wages but on household debt or on low wages able to sustain export-led growth.

The Washington consensus

Original Washington Consensus	"Augmented" Washington Consensus the previous 10 items, plus:
1. Fiscal discipline	11. Corporate governance
2. Reorientation of public expenditures	12. Anti-corruption
3. Tax reform	13. Flexible labor markets
4. Financial liberalization	14. WTO agreements
5. Unified and competitive exchange rates	15. Financial codes and standards
6. Trade liberalization	16. "Prudent" capital-account opening
7. Openness to DFI	17. Non-intermediate exchange rate regimes
8. Privatization	18. Independent central banks/inflation targeting
9. Deregulation	19. Social safety nets
10. Secure Property Rights	20. Targeted poverty reduction

Dani Rodrik (2006): "Goodbye Washington Consensus, Hello Washington Confusion" Journal of Economic Literature 44, 973–987 (p. 978)

Economic policy

- Economic policy of a government = decisions by the government that affect the economy with the purpose of achieving certain preestablished goals.
- The following sketch is a basic outline of economic policy. For macroeconomic policy, the desired goals are expressed as values of certain macro-economic variables one wishes to influence.

Tools or instruments at the diposal of the governement $\xrightarrow{\text{Economic policy}}$ Targets (desired goals)

Targets, instruments, indicators

- Targets: goals of policy identified with precision.
- Instruments: tools that the policymaker can control and manipulate directly.
- Indicators: variables that inform about the degree of fulfillment of targets.
- An ultimate target defines the goal in which the policymaker is really interested. An intermediate target is a goal considered relevant or necessary to achieve the ultimate target. As it signals closeness to the ultimate target, it may be used as indicator.

The Tinbergen precept

- Formulated by Nobel laureate Jan Tinbergen, the precept (also known as "basic rule of economic policy") states that, when designing a specific economic policy, the number of independent instruments under the policymaker's control cannot be smaller than the number of ultimate targets.

- Short version: "Have at least as many instruments as goals" (no policy tool can serve two objectives: do not expect to kill two birds with one stone).

Policy implementation problems

- The implementation of economic policies is subject to several limitations and constraints.
- Lags. There is a delay between the moment at which intervention is needed and the moment at which the economy responds to the policies.
- Credibility of policymakers and the temporal inconsistency of policies.
- Policymaking should take into account people's reaction to policies: Goodhart's law.
- Policies may have undesirable unintended effects.

Lags

- <u>Recognition lag</u>: period between the moment at which a disturbance (problem) occurs and the moment at which it is recognized the need to take some action (this lag makes <u>policymaking analogous to driving a car looking backwards</u>).

- <u>Decision lag</u>: time between the recognition of the problem and the policy decision. <u>Action lag</u>: delay between the policy decision and its execution.

- <u>Effectiveness lag</u>: time needed for the policy action to affect the economy and achieve the desired goal (the effects of the policy take time to appear).

Temporal inconsistency of policies

- A decision made at time t to be carried out at a later time t' is <u>temporally inconsistent</u> if, at time t', the decision-maker would prefer not to carry it out.

- Temporal inconsistent policies are ineffective because they are <u>not credible</u>: when it is the policymaker's turn to execute a temporally inconsistent, he will have an incentive to not execute it.

- Example: to attract foreign investors, a government promises not to tax profits from firms created by foreign investors; but, once the firms get the profits, the government has an incentive to tax them.

Goodhart's law

- Named for Charles Goodhart, a former chief advisor to the Bank of England, it was originally formulated in 1975 as *"Any observed statistical regularity will tend to collapse once pressure is placed upon it for control purposes"*.
- Marilyn Strathern's formulation: "<u>When a measure becomes a target, it ceases to be a good measure</u>".
- Goodhart's law expresses for the social world what the Heisenberg principle expresses for the phyical world: <u>the act of measuring reality changes reality</u>.

Goodhart's law and economic policy

- By Goodhart's law, when a policymaker makes use of some empirical regularity as a policymaking instrument, the regularity will tend to disappear.
- Empirical regularities link variables (course attendance and course performance in the previous example). If one of the variables is taken as target (performance), the other variables (attendance) may act as indicators. But <u>taking the indicator as a measure of the target invalidates the indicator</u>: controlling the indicator instead of the target may destroy the empirical regularity.

Unintended effects

- A <u>side effect</u> of an economic policy is a change caused by the policy on a variable that the policy did not intend to alter. Side effects could be positive (favourable) or negative (unfavourable).

- A <u>revenge</u> (boomerang, blowback) <u>effect</u> of an economic policy is a change caused by the policy on a variable that the policy aims to alter but in the opposite direction as intended: the policy has the opposite effect of the one intended. By definition, a revenge effect is negative.

Intervention vs no intervention

- The <u>nonactivist position</u> (no intervention) is based on the belief that the economy is self-regulating and works better when left by itself.
- Intervention may make things worse: policymakers have an imperfect knowledge of both the economic reality and the effects of policies, and may be guided by personal interests.
- Policy design is subject to the previous constraints.
- Crises are good for the economy, as they purge the economy of inefficiencies and weaknesses.

The issue of rules versus discretion

- When an activist position is adopted, the choice is between flexibility and certainty of the policy.

- Flexibility = policymakers do not tie their hands when choosing targets or using tools (the economy and what is known about it changes over time).

- Certainty = policy is conducted by preannounced rules that describe how the policy targets are determined and instruments used in every situation. Taylor's rule (due to John B. Taylor, 1993) is an example of a policy rule.

Taylor's rule

- Taylor's rule is a <u>monetary policy rule</u> telling the central bank (CB) how to set the nominal interest rate. The rule is given by an equation of the sort

$$i = \pi + \bar{r} + A(\pi - \bar{\pi}) + B(y - \bar{y})$$

where: $\bar{r}$ is the long-term real interest rate (Fisher hypothesis); $\bar{\pi}$ is the CB's target inflation rate (π is current inflation); $\bar{y}$ is the "normal" growth rate of the economy (y is current growth); constant $A > 0$ measures the CB's sensitivity to deviations from target $\bar{\pi}$; and constant $B > 0$ measures the CB's sensitivity to deviations from normal growth $\bar{y}$.

Taylor's rule & pure inflation targetting

- If the CB only cares about inflation (and not about growth or unemployment), then $B = 0$. In this case, Taylor's rule becomes $\boxed{i = \pi + \bar{r} + A(\pi - \bar{\pi})}$.
- When $\pi = \bar{\pi}$ (the CB's goal is met), $i = \pi + \bar{r}$. That is, $i - \pi = \bar{r}$: the current real interest rate $r = i - \pi$ equals the equilibrium real interest rate $\bar{r}$. Taylor's rule then generalizes the Fisher equation.
- The larger A, the more aggresive the central bank is in fighting inflation.

Taylor's rule: an example

- With rule $i = \pi + \bar{r} + A(\pi - \bar{\pi})$, if $\pi > \bar{\pi}$, then, to cool off the economy by cutting aggregate demand, <u>the CB rises i so that the current real interest rate</u> $r = i - \pi$ <u>is above the equilibrium interest rate</u> $\bar{r}$.

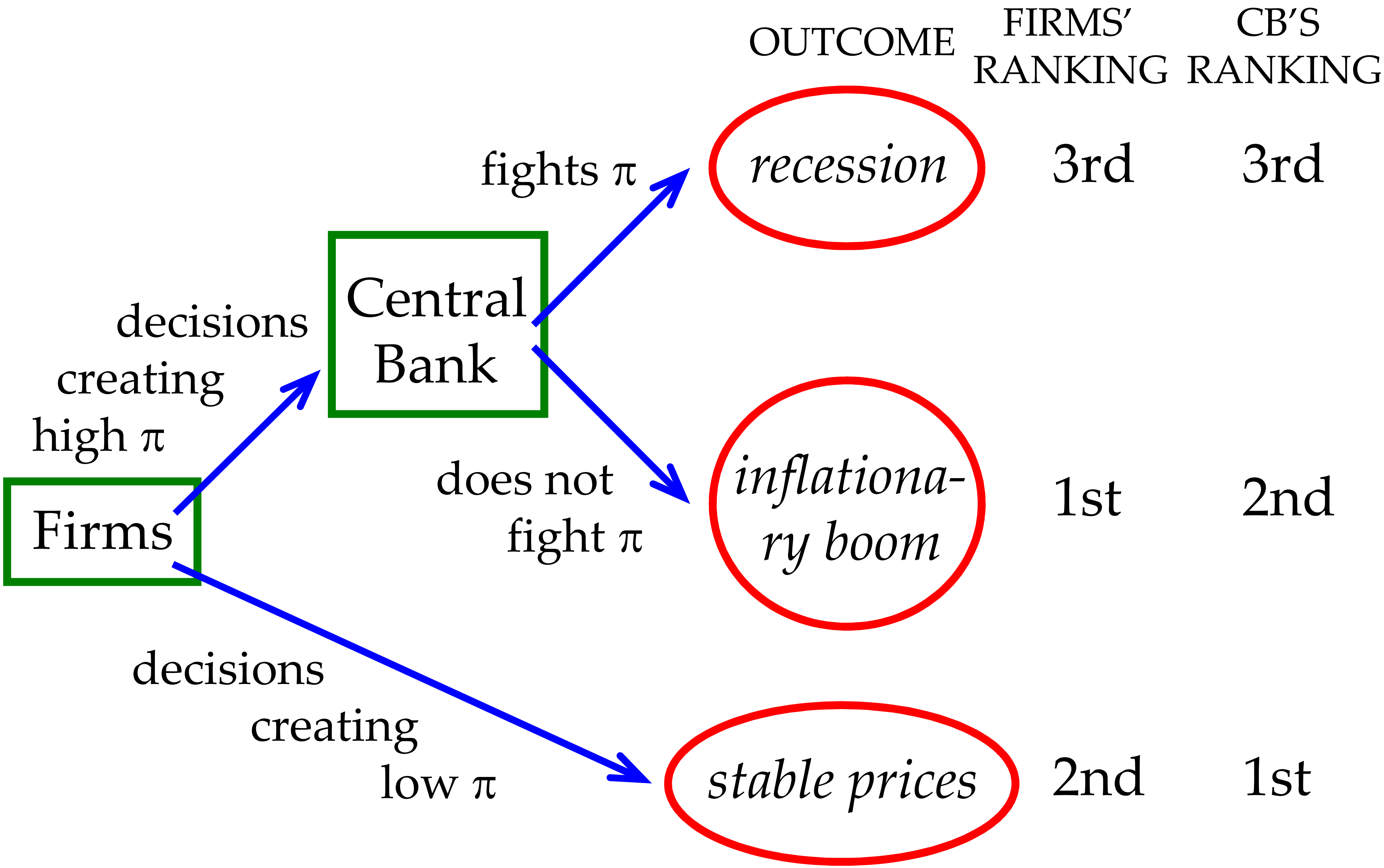
- Example. Let $\bar{r} = 1\%$, $\bar{\pi} = 3\%$, and $A = ½$ (so, for each inflation point above the goal, the CB rises i by 0.5 points). Suppose $\pi_0 = 3\%$. Then the CB sets $i_0 = \pi_0 + \bar{r} + (\pi_0 - 3)/2 = 3 + 1 + 0/2 = 4\%$.

- If $\pi_1 = 5\%$, $i_1 = \pi_1 + \bar{r} + (\pi_1 - 3)/2 = 5 + 1 + (5 - 3)/2 = 7\%$, so $r_1 = i_1 - \pi_1 = 7 - 5 = 2 > \bar{r} = 1\%$.

Comparing rules and discretion

- Advantage of rules: when making decisions, people anticipate the policymakers' actions (uncertainty reduced). Problem 1: rules will be eventually changed. If the change is frequent, there is no much difference with discretion. Must there be rules for the change of rules? Problem 2: people need to believe that rules will be followed (reputation).

- Advantage of discretion: unexpected or serious economic problems can be attacked efficiently. Problem: predicting the policymakers' actions becomes a new problem for the agents in the economy (policies may be erratic and arbitrary).


OUTCOME
FIRMS' RANKING
CB'S RANKING
Firms
decisions creating high π
Central Bank
fights π
recession
3rd
3rd
does not fight π
inflationa-ry boom
1st
2nd
decisions creating low π
stable prices
2nd
1st

Importance of committing to policies

- Case 1: the CB acts discretionally. Solving by backwards induction, the CB prefers not to fight inflation. Given this, firms choose the high inflation option. This leads to the firms' best outcome.

- Case 2: the CB commits itself to fighting inflation. Assume the CB develops a reputation for fighting inflation regardless of any other consideration. Firms then choose the low inflation option. Now, the CB achieves its best outcome without having to engineer recessions: the belief that the CB is willing to generate a recession to fight inflation suffices.

Hirschman's triad

- Albert Hirschman (1991) identifies three ways of criticizing and ridiculing new policy proposals.

- Perversity thesis: the attempt to solve a problem (or improve some condition) by means of the policy proposal under attack only serves to exacerbate the problem (worsen the condition).

- Futility thesis: the policy proposal fails to solve the problem (or does so in an illusory way).

- Jeopardy thesis: the policy proposal endangers some previous, desirable accomplishment.

Macroeconomic policies: a typology

- Macroeconomic policies can be classified into two broad categories.
- Supply-side policies. Try to shift the AS function to the right (never intended to shift it left).
- Demand-side policies. Their intended target is the AD function (to contract or expand it). They tend to achieve its goal faster than supply-side policies.
- The main demand-side policies are the fiscal policy (decided by the governement) and the monetary policy (decided by the CB, when independent).

Supply-side policies

- Policies that move the AS function to the right by improving the productive capacity of the economy.
- Measures to rationalize the government intervention in the economy: remove unnecessary regulation, efficient provision of public services, privatization of public monopolies, tax reductions…
- Measures to improve the way markets operate: stimulate competition, reduce market power…
- Measures to improve the quality of inputs (retraining programmes for unemployed people) and to encourage technological progress.

Supply-side economics

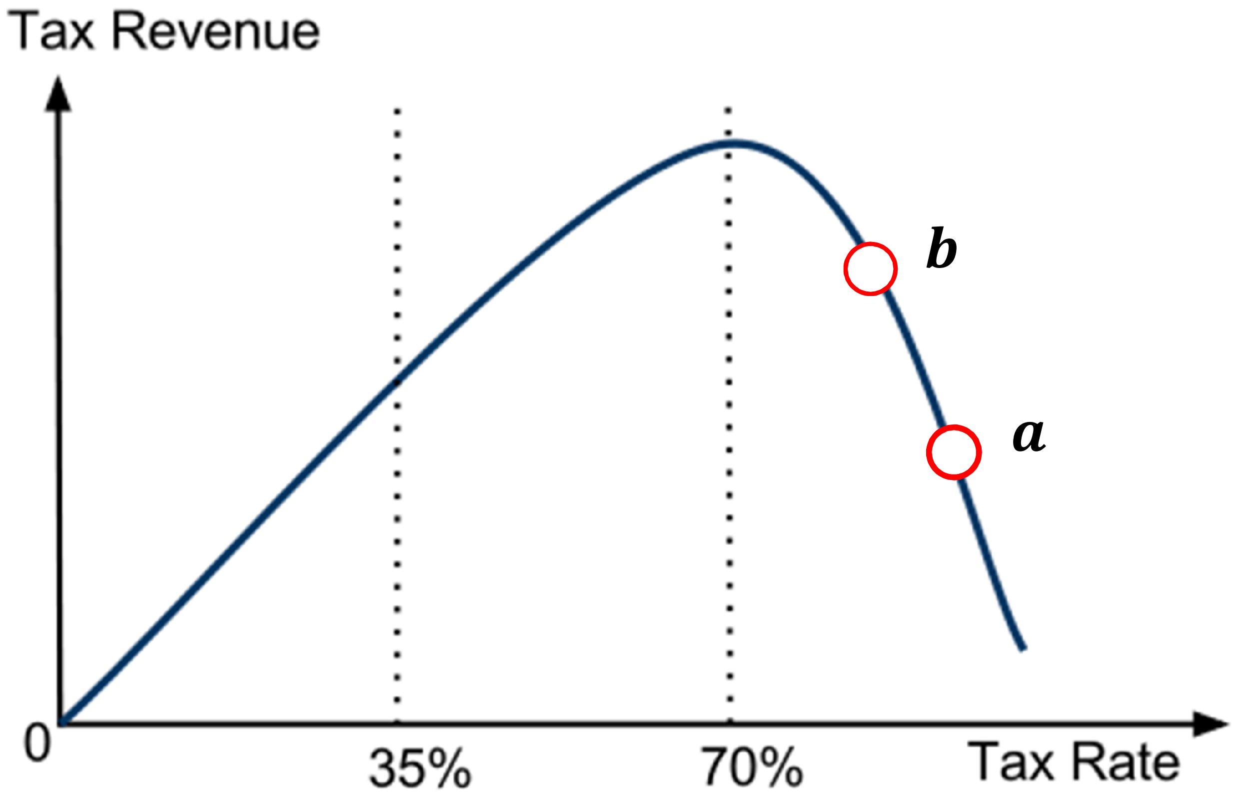
- It is a school of economic thought that contends that the best way to stimulate growth consists of removing the obstacles to production.

- This is achieved by providing incentives to people and firms through reductions of the income tax rate and the capital tax gain rate. The Laffer curve constitutes a theoretical justification of this policy.

- The second typical recommendation is less regulation: the less a government interferes with the economy, the better for the economy.

The Laffer curve

- It is a theoretical relationship between the revenues obtained from taxation and the average tax rate.



A non-symmetric Laffer curve with a maximum Revenue point at around a 70% tax rate.

*The tax rate reduction from **a** to **b** benefits the economy and the government: a smaller tax rate induces peo-ple to work and pro-duce more, and more production yields higher revenues.*

http://en.wikipedia.org/wiki/Laffer_curve

Fiscal vs monetary policy

- Fiscal policy (FP) instruments. Government expenditure (G), net transfers to the private sector (TR), and the tax rate (t).

- FP targets. Typically, GDP growth, unemployment, unemployment rate. Atypically, budget deficit.

- Monetary policy (MP) instruments. Open market operations (OMOs), interest rates set by the CB (discount rate), and reserve requirements.

- MP targets. Main: inflation rate. Secondary: GDP growth, unemployment rate, exchange rate.

Expansionary/contractionary policy

- An expansionary FP consists of ↑G, ↑TR, and/or ↓t.
- A contractionary FP consists of ↓G, ↓TR, and/or ↑t.
- An expansionary MP consists of an expansionary OMO, a reduction of the discount rate, and/or a reduction in the reserve requirements. A contractionary MP consists of the opposite.
- An expansionary FP/MP tries to shift the AD function to the right (increase expenditure). An contractionary FP/MP pursues the opposite.

Effects of the FP in the AS-AD model

Initial (primary) effects of an	instruments			effect on		
	G	TR	t	Y	π	u
expansionary fiscal policy	$\uparrow$	$\uparrow$	$\downarrow$	$\uparrow$	$\uparrow$	$\downarrow$
contractionary fiscal policy	$\downarrow$	$\downarrow$	$\uparrow$	$\downarrow$	$\downarrow$	$\uparrow$

Okun's law

Effects of the MP in the AS-AD model

Initial (primary) effects of an	implies		effect on		
	r	M1	Y	π	u
expansionary ("easy") monetary policy	$\downarrow$	$\uparrow$	$\uparrow$	$\uparrow$	$\downarrow$
contractionary ("tight") monetary policy	$\uparrow$	$\downarrow$	$\downarrow$	$\downarrow$	$\uparrow$

Okun's law

The government (govt) outlays

- The total spending by the govt (govt outlays) consists of three items.
- G = govt consumption expenditures (purchases on currently produced goods) + govt investment (purchases on capital goods).
- TR = transfer payments made to individuals from whom the govt does not receive current goods in exchange.
- INT = net interest payments = interest paid to the holders of govt bonds less interest paid to the govt

The government budget

- There are four main categories of <u>tax receipts</u> T:
  - personal taxes,
  - corporate taxes,
  - taxes on production (sales taxes) and imports (tariffs), and
  - contributions for social insurance.

- <u>Govt budget</u> deficit (or just deficit) = govt outlays – tax receipts = G + TR + INT – T.

- <u>Primary govt budget</u> deficit (or just primary deficit) = deficit – INT.

Financing budget deficits

- There are three basic ways of financing a deficit:
  - by increasing current taxes or creating new ones (= *tax now* option);
  - by issuing govt bonds (= *tax later* option);
  - by monetizing the deficit (= creating monetary base = printing money and/or selling the bonds to the CB).
- When considering the effects of an expansionary FP, the way it is financed should be taken into account, as it may offset the primary effect of the FP.

Consequences of taxing now

- Suppose the govt executes an expansionary FP consisting of an increase in govt consumption (ΔG).
- The immediate effect of this policy is an increase in the deficit. Let it be financed by raising taxes now.
- Since people have less disposable income, they will probably cut consumption. Hence, <u>the expansionary effect of ΔG on the AD function is followed by a contractionary effect</u> caused by a reduction in consumption. This qualifies the primary effect of an expansionary FP: it may not alter Y^*.

The Ricardian equivalence proposition

- Suggested by David Ricardo (1772-1823). As debt financing by bond issue just postpones taxation, people realize that bonds will be paid off with future increases in taxes, so they will save more <u>now</u> to be able to pay higher taxes in the future.

- The proposition holds that an increase in the deficit leads to an increase in saving equal to that deficit, so it does not matter if the deficit is financed by more taxes or by bond issue. <u>If people save now the taxes to be paid in the future, consumption is reduced now and the effect of an expansionary FP may be neutralized</u>.

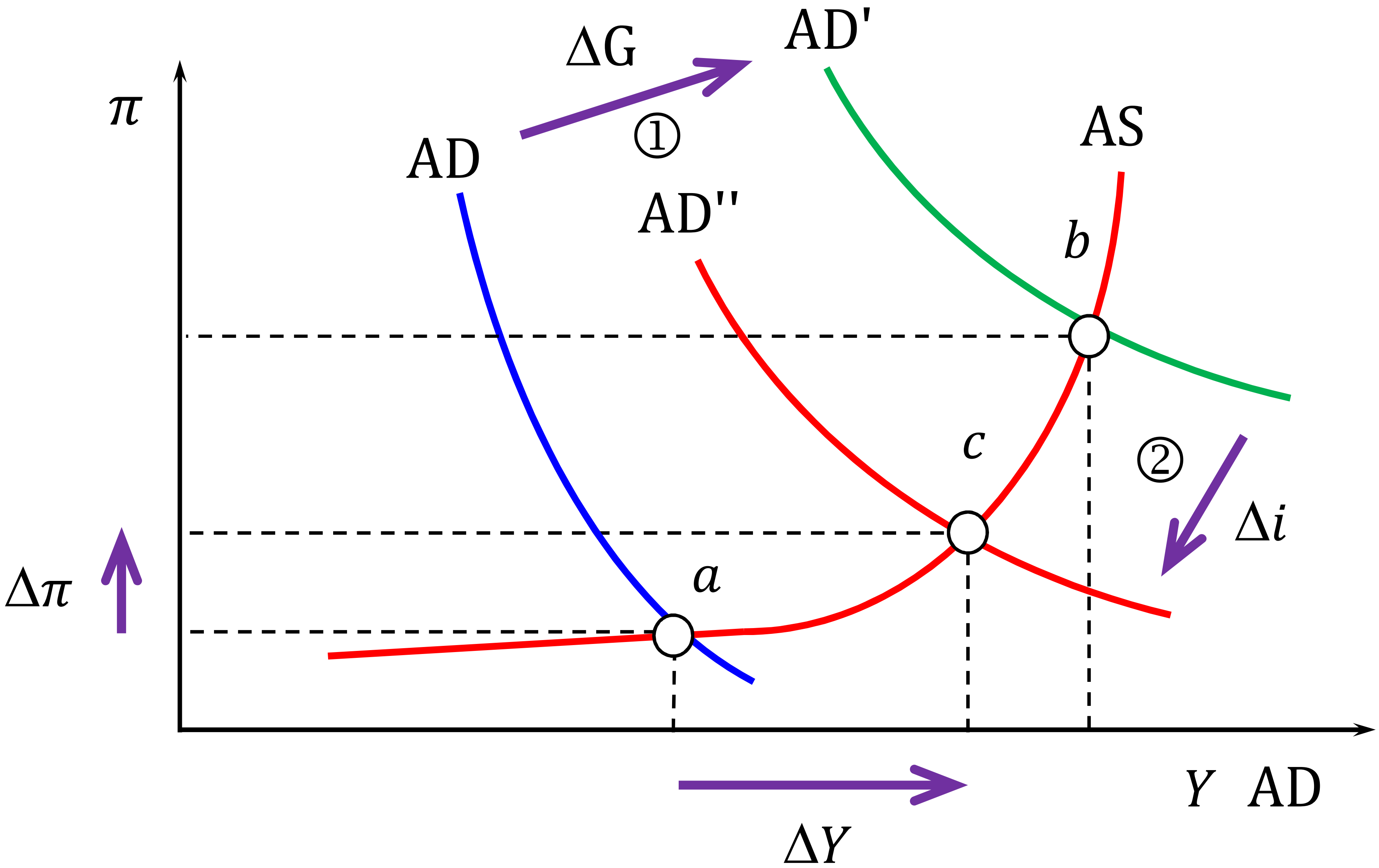
Taxing later: the crowding-out effect

- Suppose an expansionary FP consisting of an increase in $\mathtt{G}$ is financed by bond issue. This shifts the demand for liquidity to the right causing, in the loan market, a rise in i.

- The increase in i is likely to have a negative impact on consumption and investment. Therefore, private spending is reduced.

- As a result, $\mathtt{G}$ (public spending) crowds out $\mathtt{C} + \mathrm{I}$ (private spending). The next slide illustrates that phenomenon: instead of reaching b, the economy reaches c due to the effect of the FP on i.

Crowding-out in the AS-AD model



Rolling debt over

- <u>To roll debt over is to pay debt with more debt</u>.
- A major corporation may allow the debt to grow period after period, even choosing not to pay back the original loan, because the funds that would cancel the debt can be used in investment projects that generate sufficiently high profits.
- A government may roll debt over (take on more debt) in a booming economy if there is a better use for the funds than debt repayment and <u>the revenue obtained from the GDP increase suffices to pay the interest on the new debt</u>.

Burden of the (government) debt

- The burden of the debt refers to the annual interest on the debt as a percentage of annual GDP or, alternatively, to the taxes, as a percentage of GDP, needed to pay the interest on the debt.
- For instance, if interest payments on the debt rise by 3%, government spending is not altered, and debt is not rolled over, then taxes must rise by 3%.
- Part of the additional taxes collected go abroad if foreigners own part of the debt. Higher taxes tend to reduce AD and, therefore, GDP. This limits the government's ability to repay debt in the future.

A rising debt $\nRightarrow$ a rising burden

- Consider the following debt rule: the growth rate of nominal debt should not be higher than the growth rate of nominal GDP.

- For example, according to the rule, if nominal GDP grows at 3% per year, then nominal debt cannot grow by more than 3% per year.

- Under the debt rule, a rising government debt does not imply a rising burden of the debt. To prevent the burden from rising, it is not necessary to run budget surpluses or reduce total debt. It all boils down to control the rate at which total debt grows.

Debt grows, constant burden

$debt\ growth = 5\% = g_{GPD_n}$

burden of debt

t	g_{GPD_n}	GDP_n	nominal debt	$\frac{debt}{GDP_n}$	i	interest payment	$\frac{int.pay.}{GDP_n}$
1	5%	100	80	80%	3%	2.4	2.4%
2	5%	105	84.2	80%	3%	2.526	2.4%
3	5%	110.25	88.2	80%	3%	2.646	2.4%
4	5%	115.7625	92.61	80%	3%	2.7783	2.4%
5	5%	121.550625	97.2405	80%	3%	2.917215	2.4%

Debt grows, rising burden

$debt\ growth = 10\% > g_{GPD_n}$

burden of debt

t	g_{GPD_n}	GDP_n	nominal debt	$\frac{\text{debt}}{GDP_n}$	i	interest payment	$\frac{\text{int. pay.}}{GDP_n}$
1	5%	100	80	80%	3%	2.4	2.4%
2	5%	105	88	83.8	3%	2.64	2.51%
3	5%	110.25	96.8	87.8	3%	2.904	2.63%
4	5%	115.7625	106.48	91.9	3%	3.1944	2.75%
5	5%	121.550625	117.128	96.3	3%	3.51384	2.89%

Debt and deficit /1

- Deficit is a flow variable: the current borrowing of the government (in one year, for instance).
- Debt is a stock variable: what the government currently owes as a result of past deficits.
- The government budget constraint implies that the change in the government debt in period t equals the government budget deficit in period t. That is,

$$\underbrace{B_t - B_{t-1}}_{\text{(real) change in debt}} = \underbrace{r_{t-1} \cdot B_{t-1}}_{\text{(real) interest payment}} + \underbrace{(G_t + TR_t - T_t)}_{\text{(real) primary deficit}} .$$

Debt and deficit /2

- Defining $PD_t = G_t + TR_t - T_t$, and letting the real interest rate be constant, the previous expression can be rewritten as

$$B_t = (1 + r) \cdot B_{t-1} + PD_t.$$

- Let real GDP Y grow at a constant rate g, so $Y_t = (1 + g) \cdot Y_{t-1}$. Dividing both sides by Y_t,

$$\frac{B_t}{Y_t} = (1 + r) \cdot \frac{B_{t-1}}{(1 + g) \cdot Y_{t-1}} + \frac{PD_t}{Y_t}$$

and using the approximation $\frac{1+r}{1+g} \approx 1 + r - g$

Debt and deficit /3

$$\frac{B_t}{Y_t} \approx (1 + r - g) \cdot \frac{B_{t-1}}{Y_{t-1}} + \frac{PD_t}{Y_t}.$$

- In sum,

$$\underbrace{\frac{B_t}{Y_t} - \frac{B_{t-1}}{Y_{t-1}}}_{\substack{\text{change in the}\\ \text{debt-to-GDP ratio}}} \approx \underbrace{(r - g)}_{\substack{\text{real inte-}\\ \text{rest rate}\\ \text{minus}\\ \text{GDP growth}}} \cdot \underbrace{\frac{B_{t-1}}{Y_{t-1}}}_{\substack{\text{initial}\\ \text{debt-to-}\\ \text{GDP ratio}}} + \underbrace{\frac{PD_t}{Y_t}}_{\substack{\text{primary}\\ \text{deficit-to-}\\ \text{GDP ratio}}}.$$

Debt and deficit /4

- Since $B_t = (1 + r) \cdot B_{t-1} + PD_t$, when PD_t is always zero, debt grows at a rate r. As GDP grows at rate g, the difference $r - g$ is the rate of growth of the debt-to-GDP ratio under zero primary deficit.

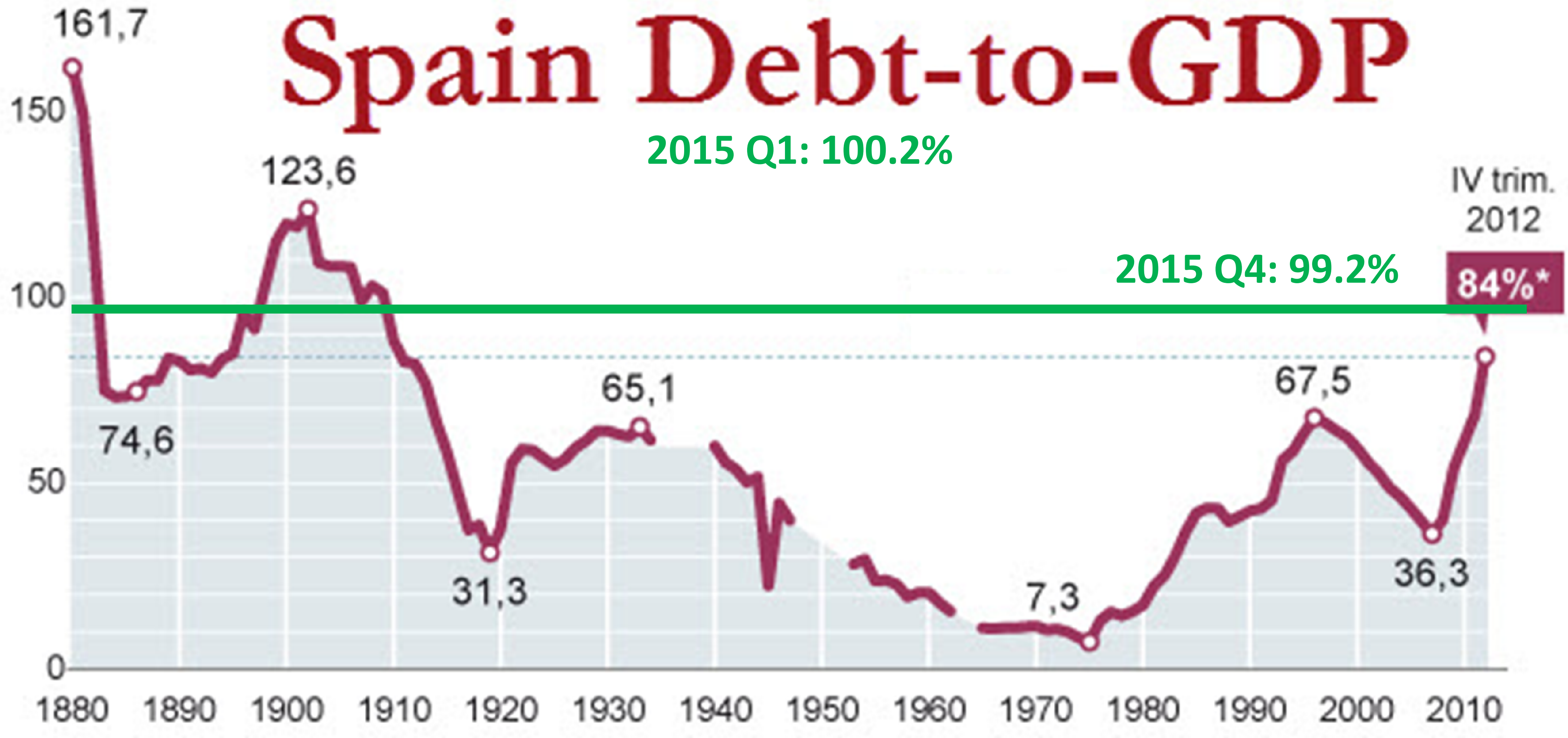
- According to the final equation in the preceding slide, a reduction of the debt-to-GDP ratio requires
  - that $g > r$ (<u>the GDP growth rate is larger than the real interest rate</u>), o
  - that $PD_t < 0$ (<u>the current primary deficit is reduced</u>).

Debt and deficit /5

- The increase in the debt-to-GDP ratio will be larger
  - the higher the initial debt-to-GDP ratio $\frac{B_{t-1}}{Y_{t-1}}$;
  - the higher the real interest rate r;
  - the lower the growth rate g of real GDP; or
  - the larger the primary deficit to GDP ratio $\frac{PD_t}{Y_t}$.
- High $\frac{B}{Y}$ $\Rightarrow$ $\uparrow$default risk $\Rightarrow \uparrow i \Rightarrow \uparrow r \Rightarrow \downarrow AD \Rightarrow \downarrow Y \Rightarrow \downarrow g \Rightarrow$ need to $\downarrow \frac{PD}{Y} \Rightarrow$ fiscal austerity $\Rightarrow \downarrow AD \Rightarrow \downarrow Y \Rightarrow \downarrow g \Rightarrow$ $\uparrow$default risk $\Rightarrow \uparrow i \Rightarrow \uparrow r \Rightarrow$ … debt-to-GDP ratio harder to lower and more likely a debt explosion is (Spain, 2007: 36%; 2013: 94%).

http://www.nationaldebtclocks.org/debtclock/spain

http://www.datosmacro.com/deuda/espana



http://www.zerohedge.com/news/2013-02-18/chart-day-spanish-debt

http://economia.elpais.com/economia/2014/03/17/actualidad/1395050058_140377.html

Controversial ideas /1

- 1/ Expansionary fiscal contraction. Fiscal austerity may be expansive because a reduction in government spending expands private investment, GDP growth, and employment.

- Fiscal austerity may calm down financial markets in a debt crisis. Interest rates fall and, through the rise of value of financial assets, financial wealth rises. Even if fiscal austerity reduces GDP in the short-run (mandated social spending may increase and tax revenues decrease when economic activity declines), it is argued that long-term positive effects outweigh short-term negative effects.

Controversial ideas /2

- 2/ High debt-to-GDP ratios (the fatal 90%) damages GDP growth. Conclusion in a 2010 paper by C. Reinhart and K. Rogoff. Subsequent studies suggested the opposite: low growth causes high debt.
- 3/ The banking sector can be dispensed with in macroeconomic models. But banks may stop performing their presumed function: to channel funds for savers to investors.
- By excluding the banking system from macro models, it is not possible to see that excessive bank lending may lead to a financial crisis.

Controversial ideas /3

- In the recent financial crisis, the problem was not lack of money (bank lending creates money), but the risky and undercapitalized structure of the banks' balance sheets and the failure of regulators and policy makers to realize that.

- <u>Policy based on wrong economic ideas makes economic problems worse</u> and persistence in wrong policies multiply the problems and the harm done.

http://www.forbes.com/sites/francescoppola/2014/03/22/three-dangerous-economic-ideas/

Austerity economics

- Expression that refers to a set of policy recommendations that rely on the <u>presumed expansionary effect of contractionary fiscal policies</u> that aim at balancing the government budget.

- Deficit reduction would imply that taxes need not be increased in the future to finance deficits. Lower taxes are said to stimulate capital formation, which represents a positive supply shock. People and firms expect higher future income encourage them to spend more now.

- Less gvt spending crowds in private investment.

Possible effects of $\downarrow$G

- $\downarrow$AD $\Rightarrow$ pessimist expectations $\Rightarrow$ $\downarrow$level of activity
- $\downarrow i \Rightarrow \uparrow$I (via crowding in) $\Rightarrow$ $\uparrow$level of activity
- $\downarrow$AD $\Rightarrow$ $\downarrow$income $\Rightarrow$ $\downarrow$imports $\Rightarrow$ $\uparrow$C (via substitution of goods) $\Rightarrow$ $\uparrow$level of activity
- expectation of lower taxes $\Rightarrow$ $\uparrow$C (via Ricardian equivalence) $\Rightarrow$ $\uparrow$level of activity
- firms shift to foreign markets $\Rightarrow$ $\uparrow$EX (if there are also wage cuts) $\Rightarrow$ $\uparrow$level of activity

Austerity economics channels

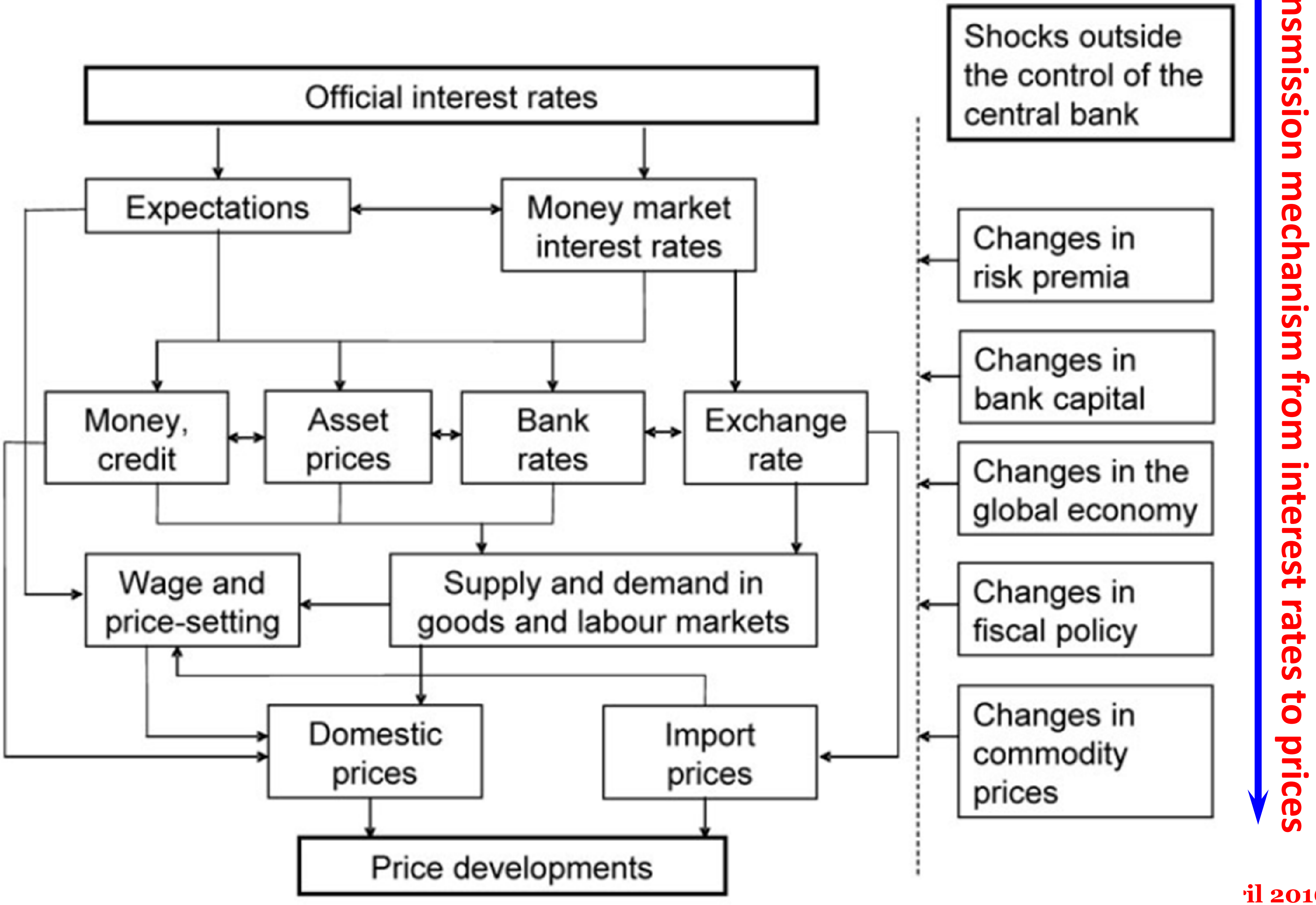
Monetary policy design

Instruments (tools) the CB has	→	Intermediate targets	→	Ultimate targets

- Instruments: OMOs, discount rate, and reserve requirements (tools under the CB's direct control).
- Intermediate targets: i, **M2**, **M1**, growth of **M1**… (variables that the CB can influence directly and signal if the CB is closer to the desired target).
- Ultimate targets: Y, y, π, u… (they are the goals of policy: variables in which the CB is really interested [desired target] and can be affected in a predictable way by the intermediate targets)

MP transmission channels

http://www.ecb.europa.eu/mopo/intro/transmission/html/index.en.html



Interest rate channel of MP

- The interest rate channel of MP collects all the effects on the economy that work through changes in the (real) interest rate.

- The following sequence illustrates how the channel works when the MP consists of an expansionary open market operation (the sequence presumes that <u>i reacts quicker than π</u>, which seems reasonable since the prices of financial assets change typically faster than the prices of goods).

$$\uparrow \mathbf{M0} \Rightarrow \uparrow \mathbf{M1} \Rightarrow \downarrow i \Rightarrow \downarrow r \Rightarrow \uparrow \mathrm{C} \uparrow \mathrm{I} \Rightarrow \uparrow \mathrm{AD} \Rightarrow \uparrow \mathrm{Y}$$

Exchange rate channel of MP

- The exchange rate channel of MP collects all the effects on the economy that work through changes in the (real) exchange rate e_r.

- A tightening of MP raises e_r. Since e_r is a mesure of the economy's competitiveness, <u>a contractionary MP erodes competitivenss</u>. The following sequence shows how this channel works when the MP consists of an expansionary open market operation.

$$\uparrow\mathbf{M0} \Rightarrow \uparrow\mathbf{M1} \Rightarrow \downarrow i \Rightarrow \downarrow e \Rightarrow \downarrow e_r \Rightarrow \uparrow\mathrm{NX} \Rightarrow \uparrow\mathrm{AD} \Rightarrow \uparrow\mathrm{Y}$$

The credit channel of MP

- This channel collects the effects on the economy that work through credit supply and demand.
- <u>Supply</u>. If the reserve ratio is increased, banks cut lending to accumulate more reserves. Purchases by consumers or small firms that depend on that lending cannot be carried out and AD falls.
- <u>Demand</u>. A tight MP makes borrowers less eligible for loans: if i rises, the firms' financial costs also rise (so their profits fall) and, for consumers, their financial wealth is reduced ($\uparrow i \Rightarrow \downarrow$price of shares).

Stock market channel of MP

- The stock market channel of MP collects all the effects on the economy that work through changes in the stock prices (and, in general, in the financial asset prices).

- The following sequence shows how this channel works when the MP consists of an expansionary open market operation.

$$\uparrow \mathbf{M0} \Rightarrow \uparrow \mathbf{M1} \Rightarrow \downarrow i \Rightarrow \uparrow \text{price of financial assets} \Rightarrow$$
$$\Rightarrow \uparrow \text{wealth} \Rightarrow \uparrow \text{C} \uparrow \text{I} \Rightarrow \uparrow \text{AD} \Rightarrow \uparrow \text{Y}$$

Classical dichotomy

- The classical dichotomy holds that real variables do not depend on nominal variables (for instance, real GDP is not affected by changes in M1). The classical dichotomy is not consistent with the Phillips curve (there is a relationship between a real variable, u, and a nominal variable, π).

- It appears that most macroeconomists (and virtually all textbooks) believe that the classical dichotomy holds in the long run: even though nominal variables may have an impact on real variables in the short run, in the long run that effect vanishes (so, in the long run, MP is ineffective).

Neutrality of money

- Money is neutral if changes in the money stock do not affect real variables (but merely the price level).
- The belief that the classical dichotomy holds in the long run implies the belief that money is neutral in the long run.
- Money neutral in the long run means that more money in the economy only amounts, eventually, to more inflation not more wealth. Mainstream macroeconomics accepts that money is neutral in the long run (that justifies the present role of CBs).

Monetarism

- It is a school of thought that holds that the money stock is the chief determinant of the (short-run) aggregate demand (and, therefore, the nominal GDP, the price level, and the inflation rate).
- Its main policy recommendation is to control the inflation rate by controlling the money stock.
- According to Milton Friedman (1912-2006), monetarism's leading exponent, "Inflation is always and everywhere a monetary phenomenon". Monetarism is based on the quantity equation.

Quantity equation

- The quantity equation (or equation of exchange) is

$$\boxed{M \cdot V = P \cdot Y}$$

  where M = money stock, V = velocity of money (number of times per year a euro turns over), P = price level, Y = real GDP (so $P \cdot Y$ is nominal GDP).

- The equation says that <u>the total number of EUR spent in a year</u> ($M \cdot V$) <u>equals the nominal value of the goods produced that year</u> (nominal GDP = $P \cdot Y$). That is, the nominal value of everything sold equals the nominal value of everything bought.

Quantity equation & rates of change

- Using lower case letters to designate rates of change, the rates of change version of the quantity equation is $\boxed{m + v \approx \pi + y}$.
- If the velocity of money remains constant, $v = 0$. In this case, $m \approx \pi + y$. That is, $\pi \approx m - y$.
- This means that the excess of money growth with respect to the economy's growth is inflation. If the economy does not grow ($y = 0$), then $\pi \approx m$: all the increase in the money stock becomes inflation (more money, higher inflation).

Monetization of budget deficits

- A CB monetizes budget deficits when it purchases debt issued by the government to finance a deficit.

- In practice, monetizing the deficit is like paying the budget deficit by issuing/printing new money. This source of revenue for governments is known as seigniorage.

- Monetization may feed inflation. If the CB does not monetize the deficit and the government finances it by issuing bonds, the interest rate will rise and crowd out private expenditure.

The costs of inflation

- <u>The cost of holding money rises with inflation</u>. A cost of holding money is the interest forgone by not holding an interest-bearing asset. By the Fisher effect, more inflation leads to higher interest rates.

- <u>Inflation as a tax</u>. A rising inflation reduces the purchasing power of money (is like losing money).

- <u>Wealth redistribution</u>. Inflation redistributes wealth between debtors and creditors: it benefits nominal debtors and hurts those receiving fixed nominal payments (like pensioners).

Why are CBs independent?

"The central banker's task is to provide the monetary and credit conditions that achieve the ideal balance between accommodating economic expansion and engendering inflation or deflation. […] Why do we have independent central banks? <u>To provide a barrier between government and the money supply</u>. Why is this necessary? Because doing the right thing for the long-term interests of the people can be very hard to do. Monetary policymakers often have to make decisions that can cause economic pain for real people in the short term, or decide not to do things that could help people out of an immediate bad situation, in order to preserve the welfare of the people over the long run."

http://www.dallasfed.org/news/speeches/fisher/2008/fs080207.cfm

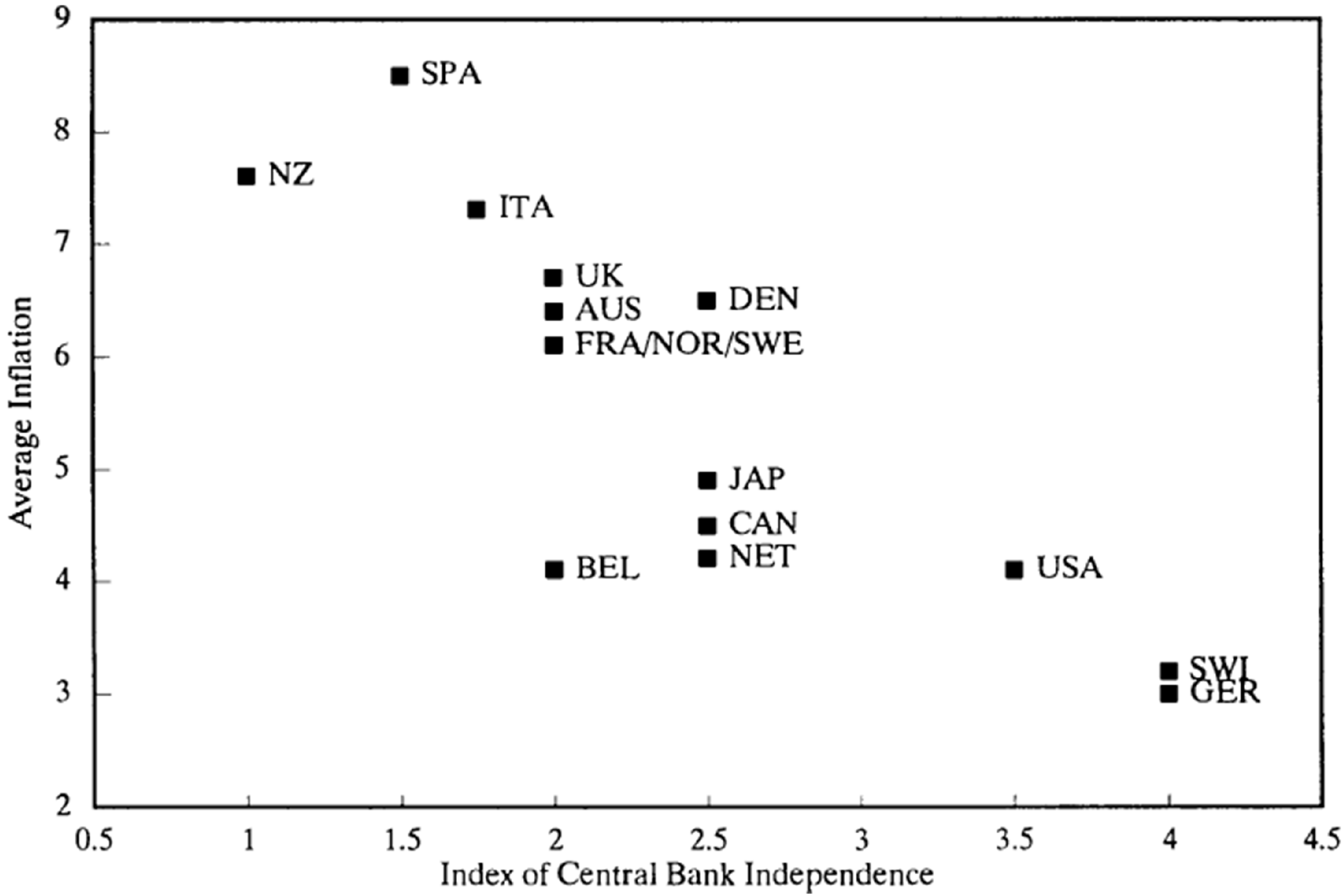
Monetization in Zimbabwe 2004-2009

- Zimbabwe experienced hyperinflation from 2004 to April 2009, with an unemployment rate of 94% at the beginning of 2009, thereby becoming one of the worst economies in the world.

- By December 2008, annual inflation was estimated at 6.5×10^{108} % (6.5 octodecillion = 650 million googol; 1 googol = 10 sexdecilliard = 10^{100}).

- In 2007, President Mugabe unsuccessfully declared inflation illegal. Final solution: in April 2009 the home currency (Zimbabwean dollar) was suspended and foreign currencies were adopted instead.

CB independence & inflation (1955-88)



http://www.deu.edu.tr/userweb/yesim.kustepeli/dosyalar/alesinasummers1993.pdf

Orthodox macro: a summary

- Inflation = monetary phenomenon
- Low and stable inflation provides important benefits. For achieve that the CB should be independent.
- In the long-run there is no Phillips curve (no tradeoff between unemployment and inflation).
- Taylor principle: raise the nominal interest rate by more than the rise in inflation.
- Time-inconsistency problem: discretional monetary policy may only lead to high inflation.
- Credibility is central to successful policy making

Keynes' view

- Fallacy of composition effects. Orthodox microeconomic analysis cannot be be automatically extrapolated to the macroeconomic level.

- Uncertainty cannot be avoided. The role of expectations about the future is fundamental in financial markets and the different views concerning the future have a bearing on investment and production decisions.

- Unemployment is determined by aggregate demand, itself deeply influenced by investment decisions.

Heterodox macro: a summary

- Aggregate demand influences economic activity in any run.
- Aggregate demand depends crucially on the distribution of income.
- Aggregate demand and aggregate supply are interdependent.
- The dynamics of the economy is path dependent: short-term shocks may have permanent effects.
- Money is endogenous, created by the credit system.
- Inflation is not a monetary phenomenon.