

Lecture 5

Heterodox Approaches to Economics

Marco Veronese Passarella

m.passarella@leeds.ac.uk

5.1 Contacts



UNIVERSITY OF LEEDS

Email: m.passarella@leeds.ac.uk

Office: Room 1.21 (Maurice Keyworth Building)

Consultation time: I am available on **Mondays, 3-5pm**. Appointments outside these times can be arranged by email.

LUBS webpage: [click here](#)

My blog/website: <http://www.marcopassarella.it/en/>

5.2 Outline of next 4 lectures



UNIVERSITY OF LEEDS

Outline

5. Heterodox Approaches to Economics
6. Introduction to Post-Keynesian Economics (PKE)
7. Introduction to Marxian Economics (ME)
8. Heterodox Theories of Crisis

Note: we develop a simple model in lectures 6 and 7. We use it to compare PKE's assumptions and results with ME's and mainstream ones. I would suggest downloading *R-Studio* to run the experiments by yourself and familiarise with the model (see Box 1)

5.3 Suggested readings



UNIVERSITY OF LEEDS

Lectures 5-6

Lavoie M. (2006) **Introduction to Post-Keynesian Economics**, Palgrave Macmillan, ch. 1

Lavoie M. (2014) **Post-Keynesian Economics: New Foundations**, Edward Elgar, ch. 1, 6

Lecture 7

Foley K.D (1986) **Understanding Capital. Marx's Economic Theory**, Harvard University Press, ch. 8, 9

Lavoie M. (2006) **Introduction to Post-Keynesian Economics**, Palgrave Macmillan, ch. 2.4

Mohun S. (2010) **The Present Crisis in Historical Perspective**, Presentation at Historical Materialism, 7th Annual Conference

Vidal M., Smith T., Rotta T. and Prew P. (eds.) (2019) **The Oxford Handbook of Karl Marx**, Oxford University Press.

Lecture 8

Clarke S. (1990-1991) **The Marxist Theory of Overaccumulation and Crisis**, 54(4), pp. 442-467

Sardoni C. (2015) **Is a Marxist Explanation of the Current Crisis Possible?**, Review of Keynesian Economics, 3(2), pp. 143-157

Shaikh A. (1978) **An Introduction to History of Crisis Theories**, URPE, pp. 2019-24

5.4 Presuppositions



UNIVERSITY OF LEEDS

Presupposition	Heterodox schools	Orthodox Schools
Epistemology/Ontology	Realism	Instrumentalism
Rationality	Environment-consistent rationality, satisficing agent	Hyper model-consistent rationality, optimizing agent
Method	Holism, organicism	Individualism, atomism
Economic Core	Production, growth, abundance	Exchange, allocation, scarcity
Political Core	Regulated markets	Unfettered markets

Source: Lavoie (2014, p. 12)

5.5 Epistemology / Ontology



UNIVERSITY OF LEEDS

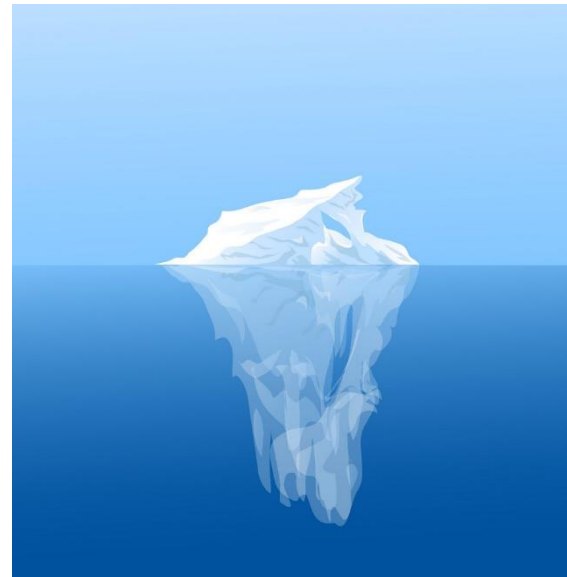
Orthodox: Instrumentalism

The truth of a statement is irrelevant.
Only predictive power matters!



Heterodox: Realism

Assumptions must be realistic. Go
beneath the surface!



5.6 Rationality



UNIVERSITY OF LEEDS

Orthodox: Rational expectations

Agents' expectations are correct on average. No systematic errors. They know the "correct" model.



Heterodox: Procedural rationality

Agents use routines, habits, conventions and rules of thumb. In a complex and uncertain world, this is rational!



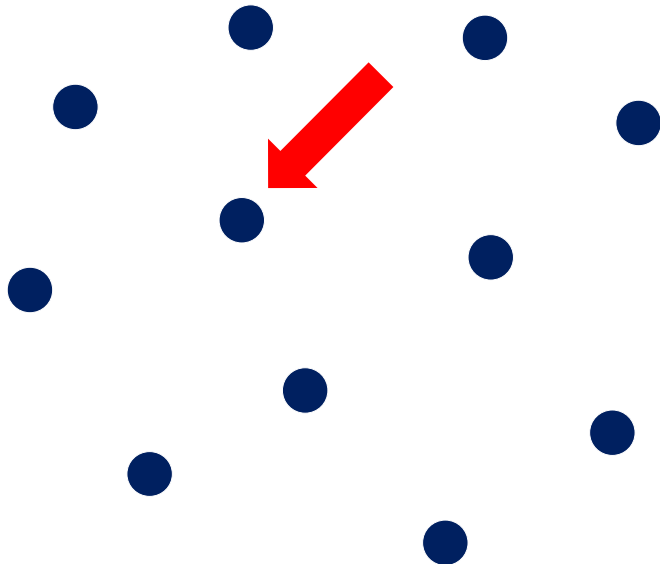
5.7 Method



UNIVERSITY OF LEEDS

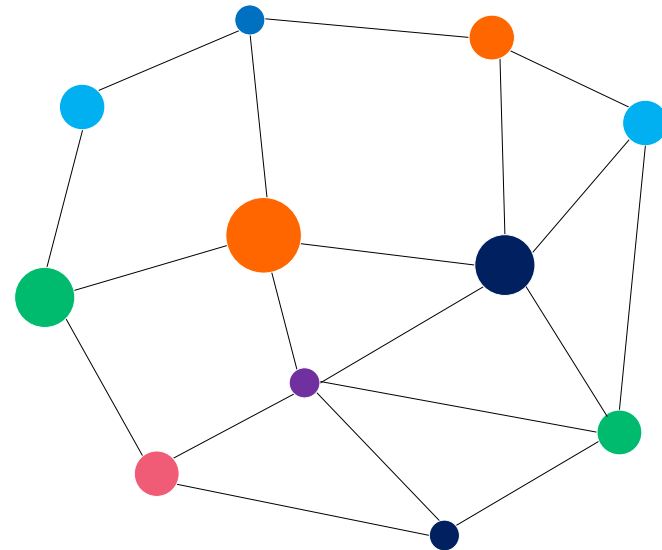
Orthodox: Individualism, atomism

The behaviour of the economic system can be reduced to the behaviour of a representative agent.



Heterodox: Pluralism, organicism

There are many interacting heterogeneous agents. The system has its own emerging behaviour.



5.8 Paradoxes



UNIVERSITY OF LEEDS

Holism: some paradoxes

Paradox of thrift	Higher saving rates lead to reduced output
Paradox of costs	Higher real wages lead to higher profit rates
Paradox of public deficits	Government deficits raise private profits
Paradox of deb	Effort to de-leverage might lead to higher leverage ratios
Paradox of tranquillity	Stability is destabilizing
Paradox of liquidity	New ways to create liquidity end up transforming liquid assets into illiquid ones
Paradox of risk	The availability of individual risk cover leads to more risk overall
Paradox of profit-led demand	Generalized wage restrictions lead to a slowdown in growth even when all economies seem to be profit-led

Source: Lavoie (2014, p. 18)

5.9 Economic core



UNIVERSITY OF LEEDS

Orthodox: Allocation

Prices are scarcity indices. All resources are efficiently allocated by market forces.



Heterodox: Production

Prices are defined by reproduction conditions (unit costs of production). Inputs are usually not fully employed.



5.10 Political core



UNIVERSITY OF LEEDS

Orthodox: Unfettered markets

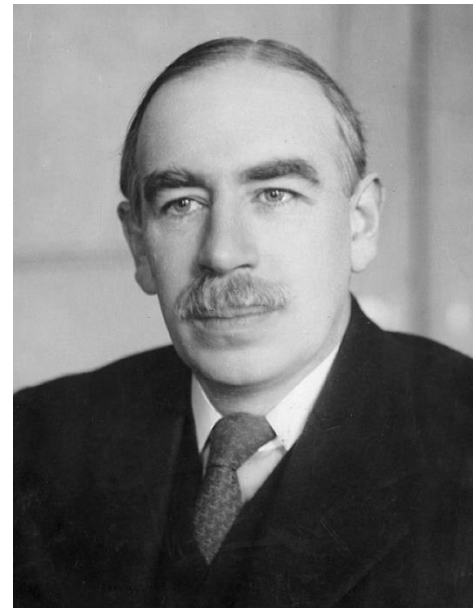
Support for free-market policies. Only “scientific” monetary policy (and automatic stabilisers) admitted.



Friedrich August von Hayek (1899-1992)

Heterodox: Regulated markets

Regulation and state intervention are necessary to keep the economy stable, assure full employment and equality.

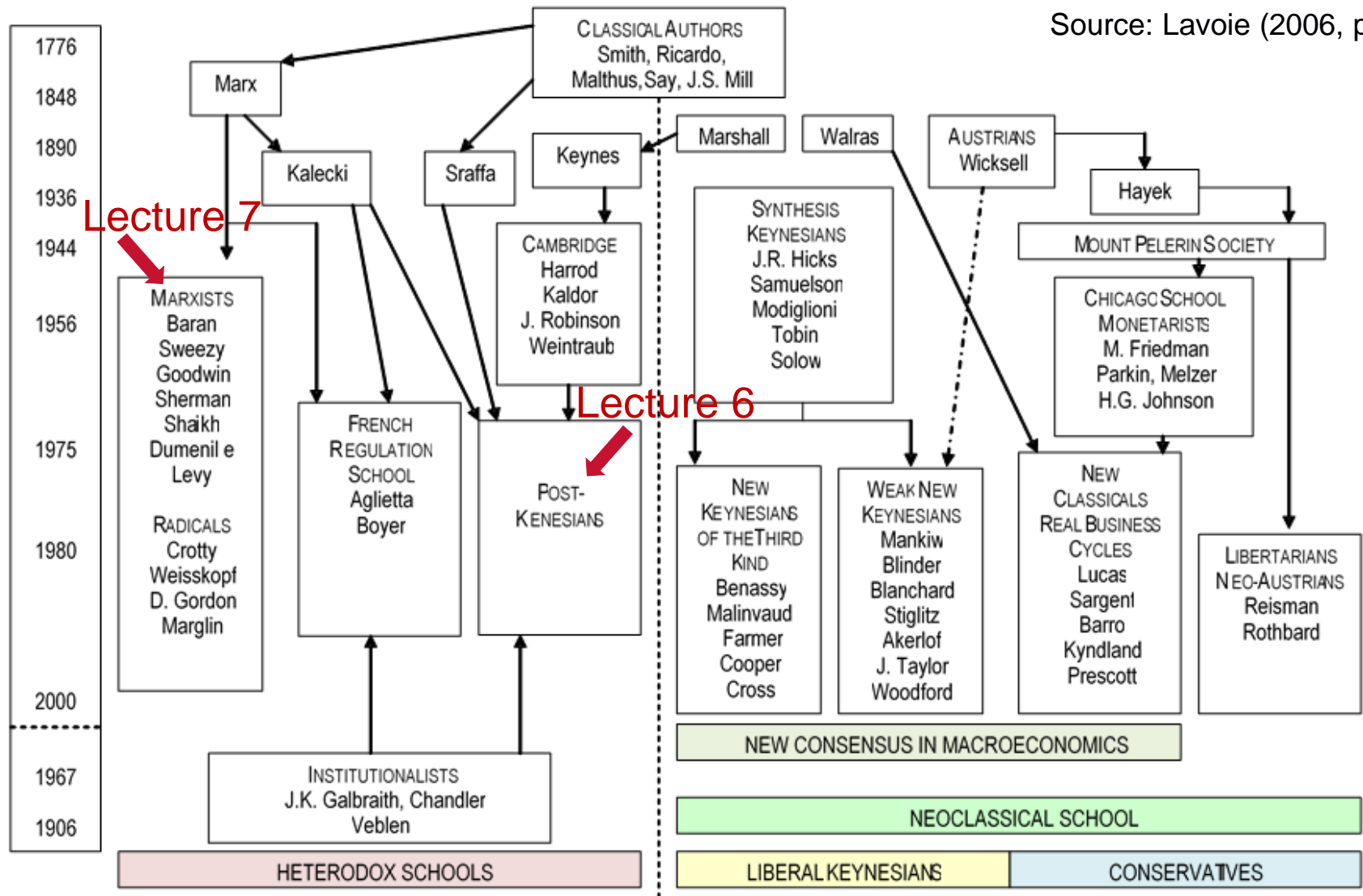


John Maynard Keynes (1883-1946)



5.11 Family tree (of macroeconomists) UNIVERSITY OF LEEDS

Source: Lavoie (2006, p. 3)



Box 1 - How to install *R Studio*



UNIVERSITY OF LEEDS

- a) Download and install [R](#) (free software)
- b) Download and install [R-Studio Desktop](#) (choose free version)
- c) Get familiar with *R* using the [Cheat Sheet](#)
- d) Download toy models from [marxianomics](#)
 - Go to [PKE model](#) (Lecture 6)
 - Go to [ME model](#) (Lecture 7)
 - Go to [PKE-SFC model](#) (Lecture 6, extra)
 - Go to [MAE model](#) (Lecture 7, extra)

Next lecture
Introduction to
Post-Keynesian Economics

Lecture 6

Introduction to Post-Keynesian Economics

Marco Veronese Passarella

m.passarella@leeds.ac.uk

6.1 Presuppositions of PKE



UNIVERSITY OF LEEDS

Presupposition	Description
Realism	Assumptions must be realistic. Go beneath the surface!
Organicism	Emerging behaviour of the system. Interactions matter.
Reasonable rationality	Agents follow routines, conventions and rules of thumb
Monetary economy of production	Capitalism is production of <i>more</i> money by means of money
Money endogeneity	Money is created by agents' demand for finance
Effective demand	Supply is constrained by spending decisions of agents
Investment priority	Investment → output (income) → saving
Multiple equilibria	Suboptimal equilibria are possible and long lasting
Path-dependency	Today's position (equilibrium) depends on yesterday's position
Fundamental uncertainty	Neither the set of events nor the probabilities are known
Power matters	Distribution depends on power, not natural or technical factors

Source: my elaboration on Lavoie (2014, p. 34)

Effective demand constrains supply



6.2 A simple PKE model



UNIVERSITY OF LEEDS

Let us start from **aggregate demand** (Z) of a capitalist economy, open to international trade, with no government intervention:

$$Z = C + I + NX$$

where C = private consumption, I = private investment and NX = net export (namely, export minus import).

Assume that production (or supply, Y) adjusts to demand (no inventories):

$$Y = C + I + NX \tag{1}$$

Note: Y equals national income, that is, labour incomes (wages and salaries, W) plus non-labour incomes (interests, rents and profits, P).

What do C , I and NX depend on? Let us simply define **consumption** as:

$$C = c_0 + c_1 \cdot Y_{-1} \tag{2}$$

where c_0 is autonomous consumption (out of wealth, funded by credit, etc.) and c_1 is the marginal propensity to consume out of income.

*Investment depends on
the utilisation rate*



6.3 A simple PKE model (cont'd)



UNIVERSITY OF LEEDS

PKE economists hold that **investment** decisions depend mainly on the rate of utilisation of plants. Firms always try to keep a percentage of spare capacity to face unexpected changes in demand.

This is tantamount to assuming that firms invest as long as their current **capital stock to output ratio** is below the target or **desired ratio**, call it κ . (Rationale: capital stock is \sum investments, which depend on demand for products).

Using formulas, the desired capital stock is:

$$K^T = \kappa \cdot Y_{-1} \quad (3)$$

Therefore, firms' gross investment is:

$$I = \gamma \cdot (K^T - K_{-1}) + \delta \cdot K_{-1} \quad (4)$$

where γ is the speed at which firms adjust their current stock of capital to the desired one and δ is the capital depreciation rate (e.g. machines that must be replaced to keep the capital stock, hence production, unchanged).

6.3 A simple PKE model (cont'd)



UNIVERSITY OF LEEDS

The total capital stock at the end of each period is:

$$K = K_{-1} + I - \delta \cdot K_{-1} \quad (5)$$

Capital stock of firms increases as gross investment increases and the depreciation rate reduces.

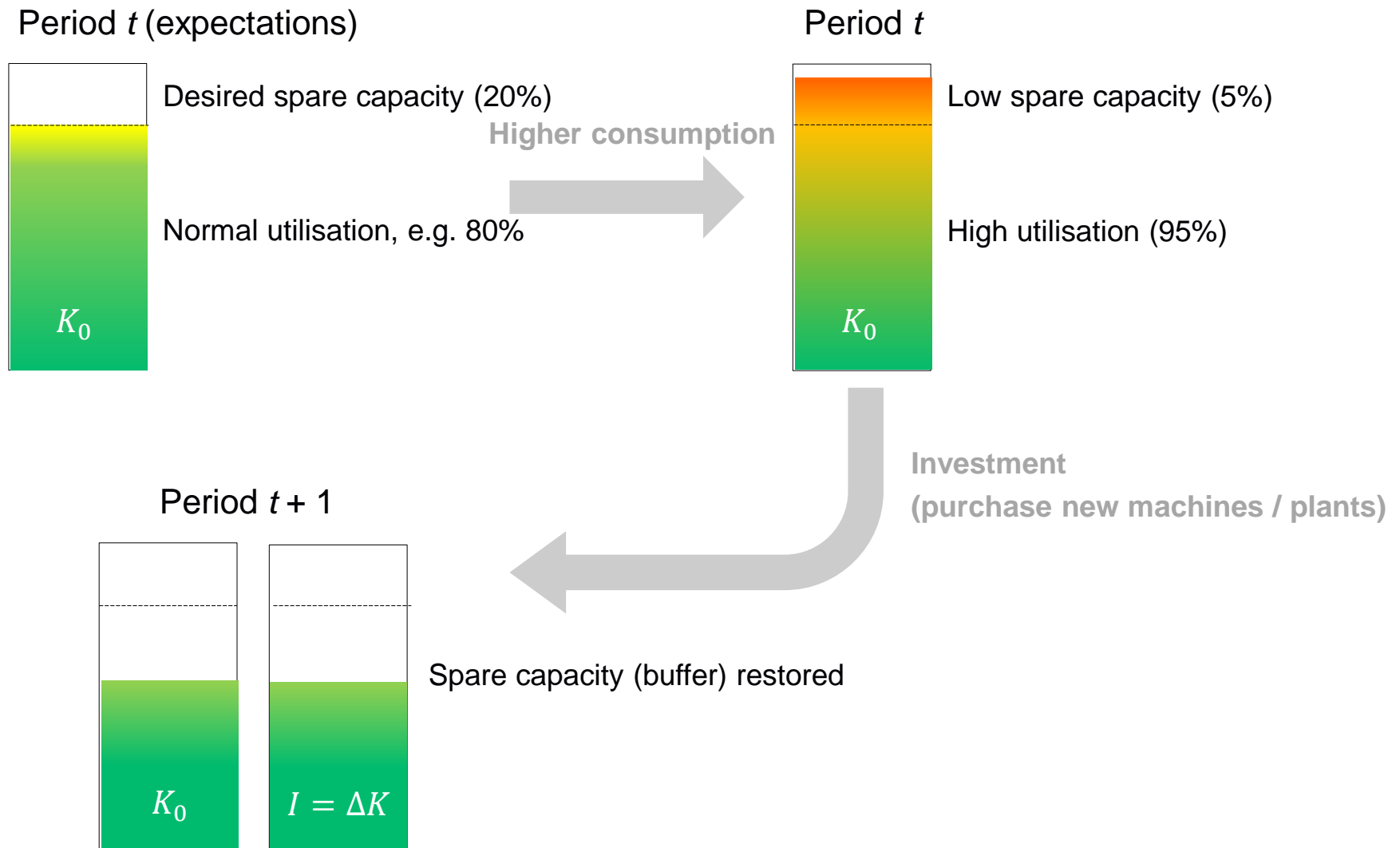
Notice that I is *gross* investment, that is, investment including replacement of depleted or damaged capital goods.

Tip: the use of lags (-1) for explanatory variables in macroeconomic models allows reducing model simultaneity (good for simulations!) and emphasising causation relationships.

Box 2 - Capacity utilisation



UNIVERSITY OF LEEDS



6.3 A simple PKE model (cont'd)



UNIVERSITY OF LEEDS

Finally, let us focus on **net export** (that is, the trade balance).

On the one hand, **gross export** depends on foreign income (i.e. the purchasing power of foreign consumers) and the real exchange rate.

For the sake of simplicity, we take it as an exogenous variable, x_0 .

On the other hand, **import** depends (mainly) on the purchasing power of domestic consumers.

Therefore, we can simply define net export as follows:

$$NX = x_0 - m \cdot Y_{-1} \quad (6)$$

where m is the marginal (and average) propensity to import out of income of domestic consumers.

The model – call it **PKE model** – is now complete. Does our (artificial) economy achieve an equilibrium in the medium run? What type of equilibrium, anyway?

Equilibrium?

Yes, but which equilibrium?



6.4 Model steady-state solution



UNIVERSITY OF LEEDS

We can solve the model analytically to find the **steady-state output** (or income) of the economy. For this purpose, use equations (2), (3), (4) and (6) into equation (1).

Remembering that $Y_{-1} = Y$ and $K_{-1} = K = K^T$ in the steady state, we obtain:

$$Y^* = \frac{c_0 + x_0}{1 - c_1 - \delta \cdot \kappa + m}$$

Since $c_0, x_0 \geq 0$, model results make sense only if: $1 + m > c_1 + \delta \cdot \kappa$.

The higher autonomous spending (c_0 and x_0), the higher Y^* . Besides, the higher the marginal propensity to consume out of income (c_1), the capital depreciation rate (δ), and the target capital stock to output ratio (κ), the higher Y^* . By contrast, the higher the propensity to import (m), the lower Y^* .

Tip: $1/(1 - c_1 - \delta \cdot \kappa + m)$ is the **Keynesian multiplier**, meaning the quantity of £s generated by 1£ of autonomous spending (c_0 and x_0 in our simplified model).

6.5 Model calibration



UNIVERSITY OF LEEDS

Let us attribute numerical values to model coefficients (calibration). In principle, coefficients can be estimated and initial values can be taken from observed time series. However, we can use reasonable values here.

Name	Symbol	Value
Autonomous consumption	c_0	20.00
Marginal propensity to consume out of income	c_1	0.80
Target capital to output ratio	κ	1.00
Speed of adjustment of capital	γ	0.15
Capital depreciation rate	δ	0.10
Autonomous export	x_0	0.00
Marginal propensity to import out of income	m	0.10
Initial value of output (income)	Y_0	0.00
Initial value of capital stock	K_0	0.00

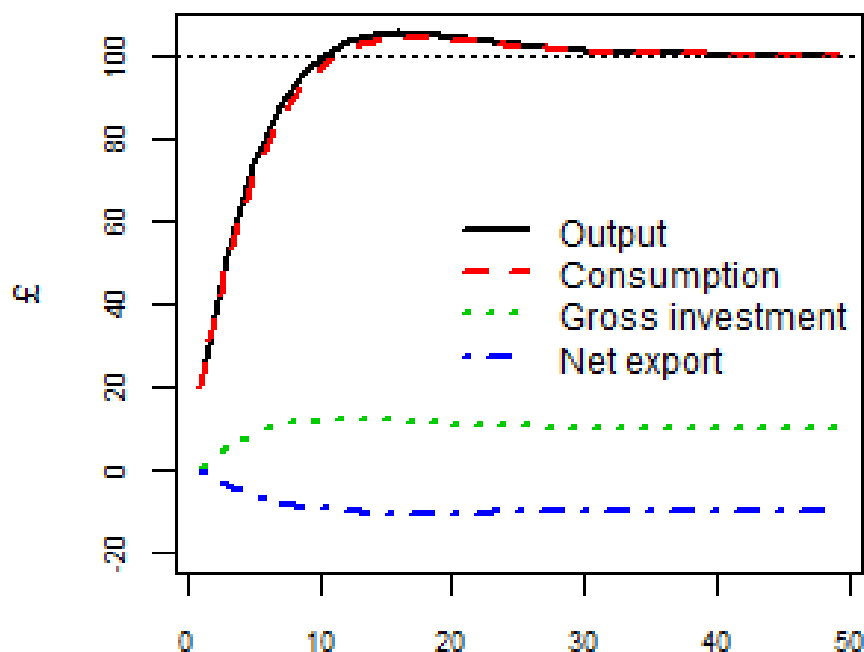
6.6 Model simulation (baseline)



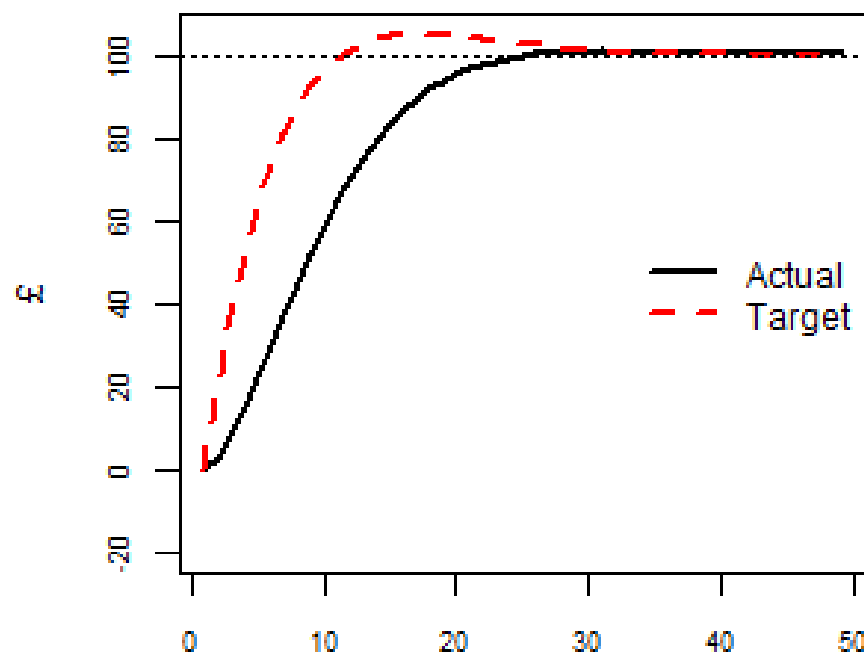
UNIVERSITY OF LEEDS

The steady-state value of output is: $Y^* = \frac{c_0 + x_0}{1 - c_1 - \delta \cdot \kappa + m} = \frac{20 + 0}{1 - 0.8 - 0.1 \cdot 1 + 0.1} = 100$.
Similarly, the steady-state of capital stock is: $K^* = \kappa \cdot Y^* = 1 \cdot 100 = 100$.

a) Output components under baseline



b) Capital stock under baseline



6.7 A sub-optimal equilibrium

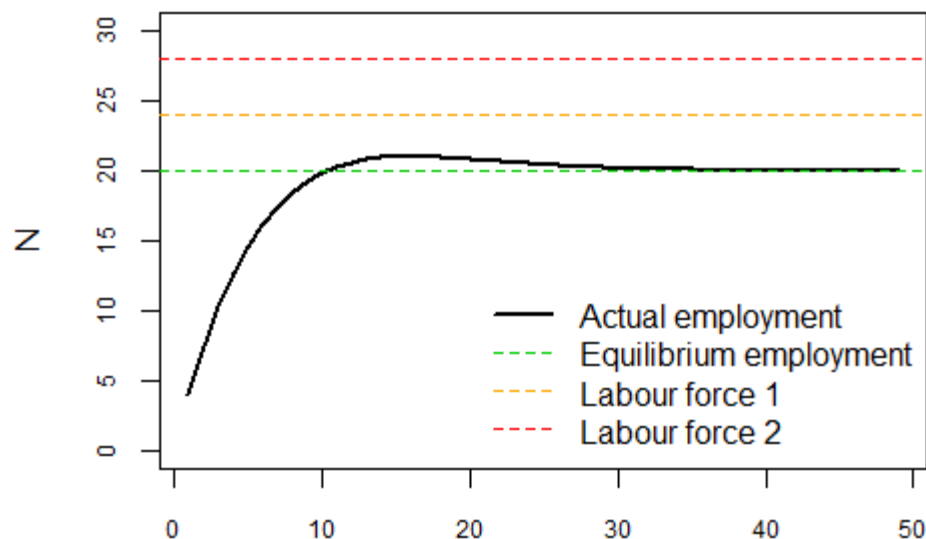


UNIVERSITY OF LEEDS

While model variables achieve a **stable position** in the medium run, there is no guarantee that this is also a full-employment equilibrium.

In fact, **full employment can be achieved just by coincidence**, that is, only if autonomous expenditures (c_0 and x_0) and behavioural coefficients (c_1 , δ , κ and m) are such to make firms hire all the available labour force of the economy (given labour productivity).

a) Employment under baseline: $N = Y/(\text{product per worker})$



Note: the chart above is obtained by assuming that the product per worker = 5.

6.7 A sub-optimal equilibrium (cont'd)



UNIVERSITY OF LEEDS

PKE theorists argue that there is **no automatic market mechanism** that can assure full employment.

What about a wage cut (i.e. the standard neoclassical recipe)? If the economy is demand-driven, it would only make it worse, for it would reduce consumption, hence investment, output and employment!

Besides, we have not considered **income (and wealth) distribution** so far. In principle, the same steady-state value of output could be consistent either with a perfectly equal society or highly unequal society.

However, PKE theorists argue that income distribution plays a crucial role...

Income distribution matters!



6.8 Income distribution



UNIVERSITY OF LEEDS

As mentioned, total income is the summation of labour incomes (or wages, W) and non-labour incomes (or profits, P).

Wages and **profits** can be defined, respectively, as:

$$W = \omega \cdot Y \quad (7)$$

$$P = Y - W = (1 - \omega) \cdot Y \quad (8)$$

where ω is the **wage share to total income**.

Equation (3) becomes:

$$C = c_0 + c_W \cdot W_{-1} + c_P \cdot P_{-1} \quad (2B)$$

where c_W is the marginal propensity to consume out of wages and c_P is the marginal propensity to consume out of profits

PKE theorists assume that $c_W > c_P$, based on empirical evidence. Therefore, C increases as the wage share, ω , increases.

6.9 New solution



UNIVERSITY OF LEEDS

If you do the math, the new steady-state of output becomes:

$$Y^{**} = \frac{c_0 + x_0}{1 - c_W \cdot \omega - c_P \cdot (1 - \omega) - \delta \cdot \kappa + m}$$

If $c_W = c_P$ then the steady-state value of output does not change compared with the original model (so that: $Y^{**} = Y^*$).

If $c_W > c_P$ then an increase in the wage share to total income (ω) brings about an increase in demand, output and income under the new steady state ($Y^{**} > Y^*$).

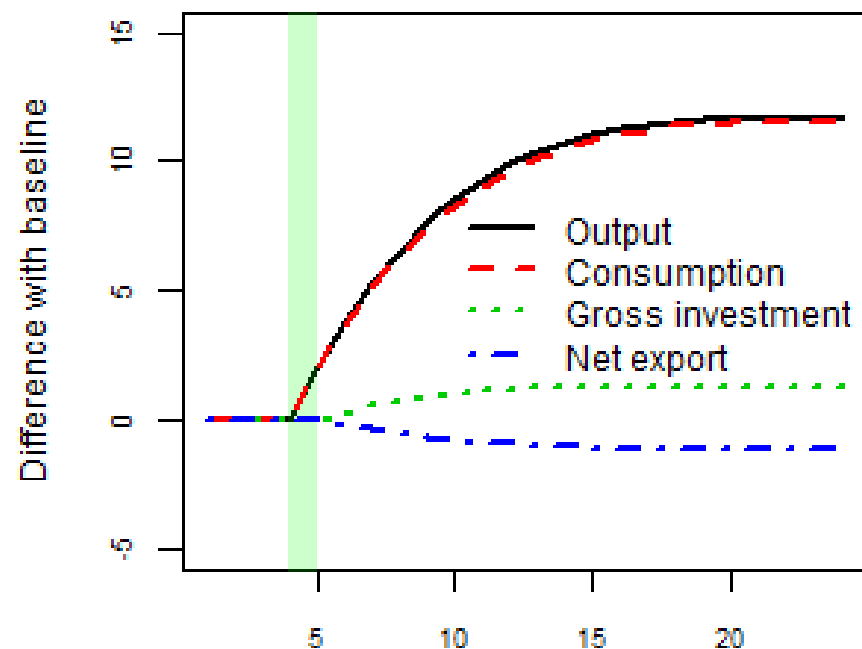
Let us check our analytical results by using computer simulations...

6.10 Experiments: higher wages

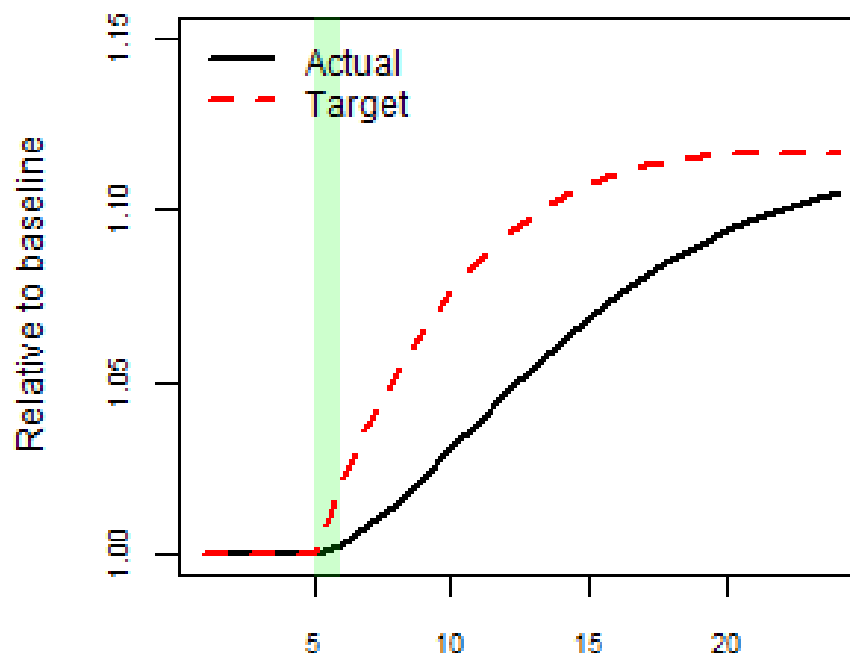


UNIVERSITY OF LEEDS

a) Change in output components following an increase in wage share



b) Change in capital stock following an increase in wage share



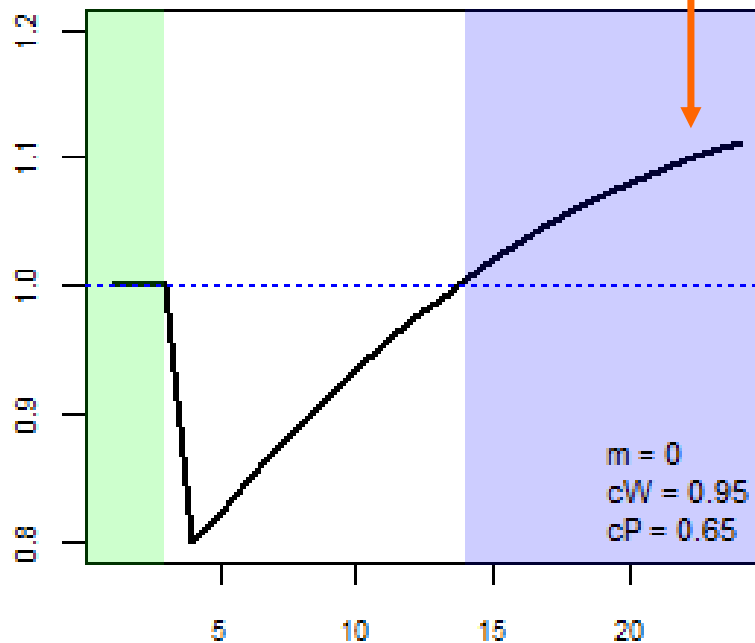
6.11 Experiments: impact on profit



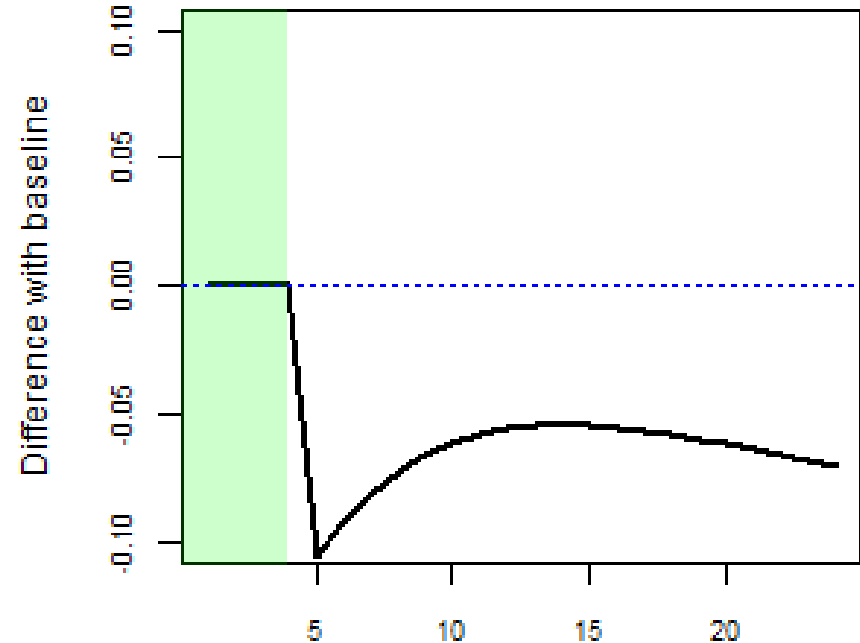
UNIVERSITY OF LEEDS

Paradox of costs

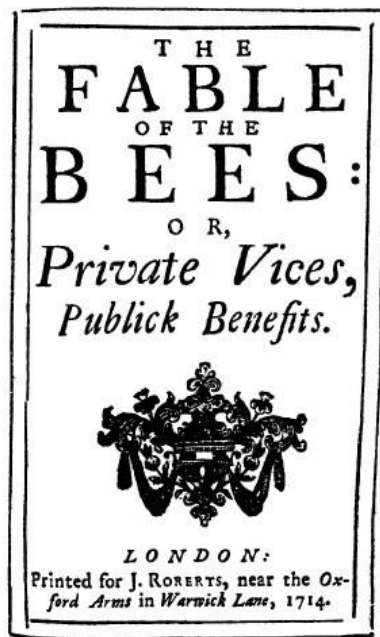
c) Total profit following an increase in wage share



d) Profit rate following an increase in wage share



Save less... to save more

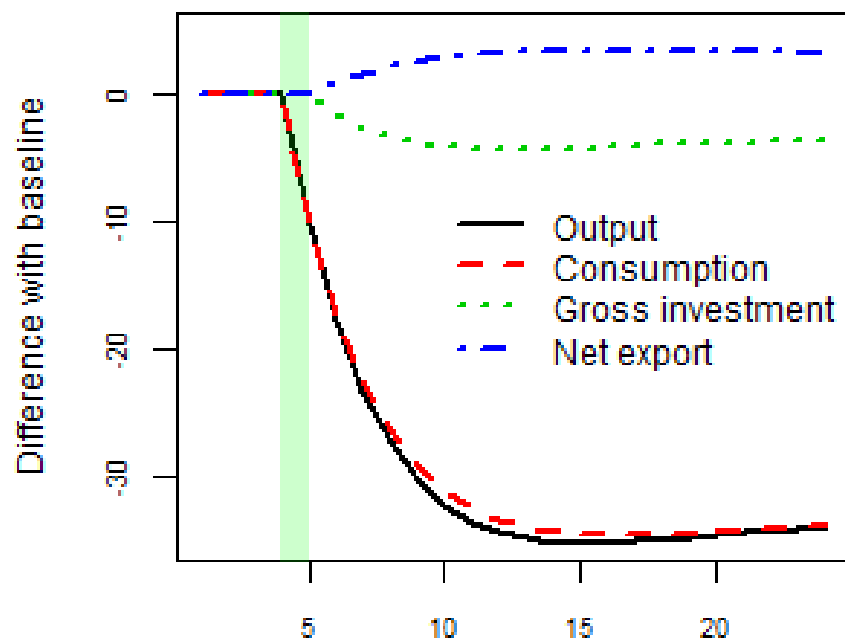


6.12 Experiments: higher saving rate

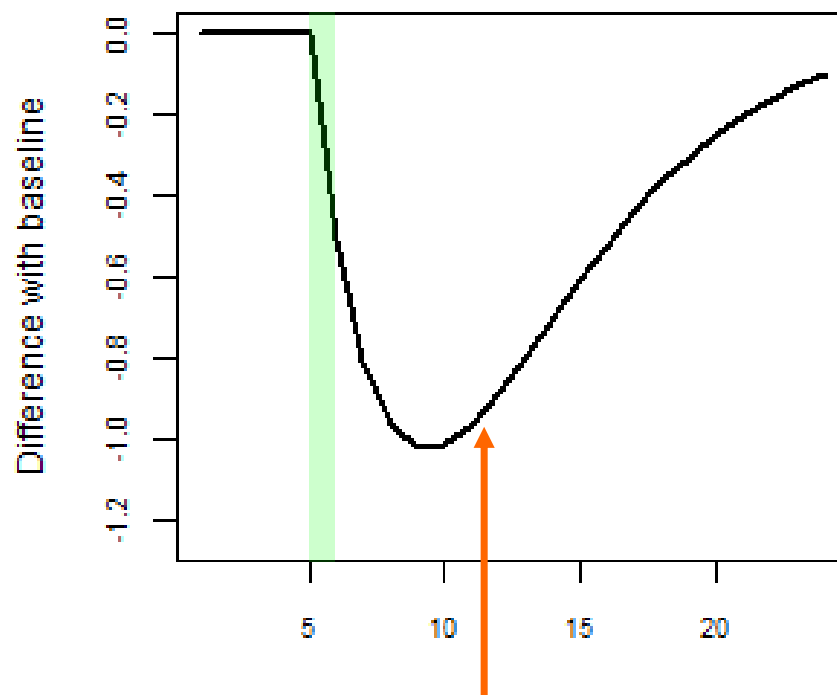


UNIVERSITY OF LEEDS

a) Change in output components following an increase in saving rate



b) Change in total saving following an increase in saving rate



Paradox of thrift

6.12 Recap



UNIVERSITY OF LEEDS

Key preconditions of PKE are **at odds with mainstream economics** (realism vs. functionalism, holism vs. individualism, demand side vs. supply, etc.).

A simple PKE model can be developed by assuming that **production adjusts to demand through quantities**. Firms have a **desired utilisation rate** of plants (hence a desired capital/output ratio) that defines their investment decisions.

The economy achieves a steady-state in the medium run. However, nothing assures full-employment. **Sub-optimal equilibria** are possible.

Since **wage-earners have a higher propensity to consume** than capitalists, an increase in the wage-share brings about an increase in total output.

While both firms' profit rate ($r = P/K$) and profit share ($1 - \omega$) decline, **total profit may well increase** following an increase in the wage share: \uparrow wages \rightarrow \uparrow consumption \rightarrow \uparrow plant utilisation \rightarrow \uparrow investment \rightarrow \uparrow output \rightarrow \uparrow profits.

Cooperation between firms and workers can be mutually beneficial.

Box 3 - Wealth, credit and interests



UNIVERSITY OF LEEDS

The model we have developed so far is not **stock-flow consistent**. First, it is not clear where saving ends up. Second, it is not clear how money is created (and destroyed).

Let us focus on a closed economy and assume that there is only one asset, bank deposits. We can fix our model as follows. First, the **consumption function** must be redefined as:

$$C = c_0 + c_W \cdot W_{-1} + c_P \cdot P_{-1} + c_2 \cdot M_{d,-1} \quad (2C)$$

where M_d is the stock of deposits held (demanded) by households and c_2 is their propensity to consume out of wealth.

Bank deposits increase as saving (wages and profits minus consumption) grows:

$$M_d = M_{d,-1} + W + P - C \quad (12)$$

Firms need **bank loans** to fund investment:

$$L_d = L_{d,-1} + I - \delta \cdot K_{-1} \quad (13)$$

Box 3 - Wealth, credit... (cont'd)



UNIVERSITY OF LEEDS

If we rule out credit rationing, loans are supplied by banks on demand:

$$L_s = L_d \quad (14)$$

Similarly, the supply of deposits adjusts to the demand for deposits:

$$M_s = M_d \quad (15)$$

Firms' profit is total income minus wages, amortisation funds and interests:

$$P_f = Y - W - \delta \cdot K_{-1} - r_l \cdot L_{d,-1} \quad (16)$$

where r_l is the interest rate on bank loans.

Banks' profit is interests received on loans minus interests paid on deposits:

$$P_b = r_l \cdot L_{d,-1} - r_m \cdot M_{d,-1} \quad (17)$$

Finally, **total non-labour incomes** are total profits plus interests on deposits:

$$P = P_f + P_b + r_m \cdot M_{d,-1} \quad (8B)$$

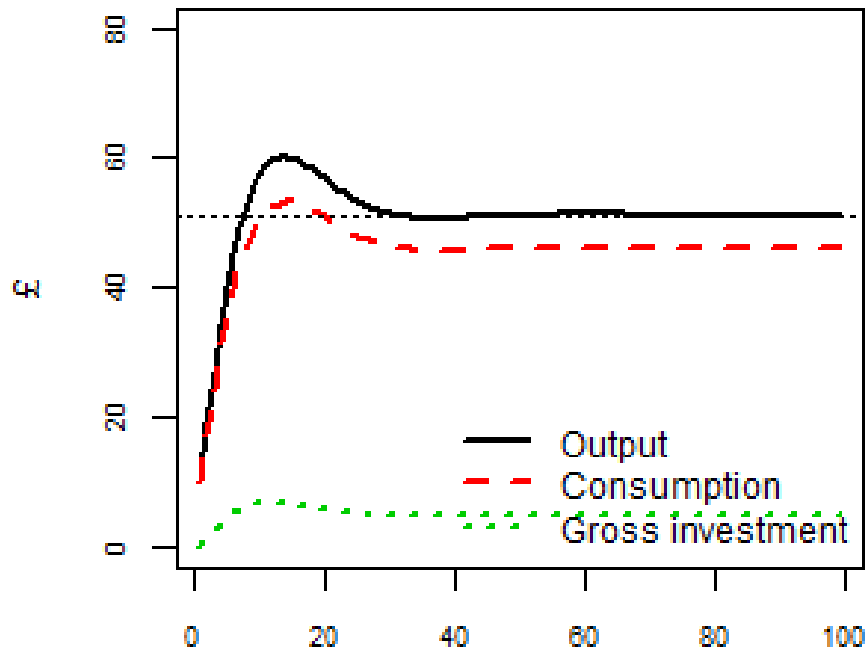
The new model, call it **PKE-SFC model**, is now complete and can be simulated. Overall, our qualitative findings are confirmed (see charts below).

Box 3 - Wealth, credit... (cont'd)

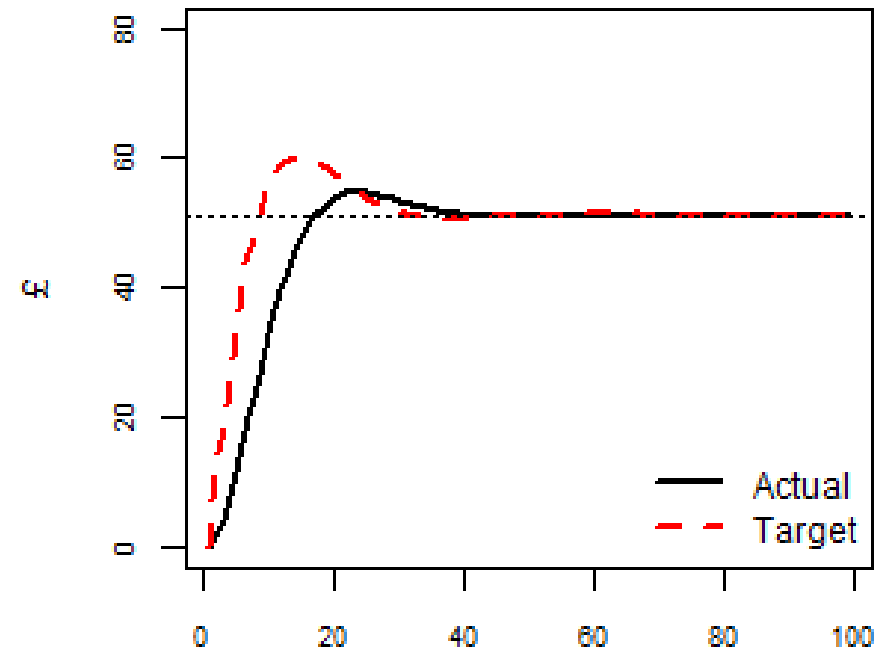


UNIVERSITY OF LEEDS

1a) Output components under baseline



1b) Capital stock under baseline

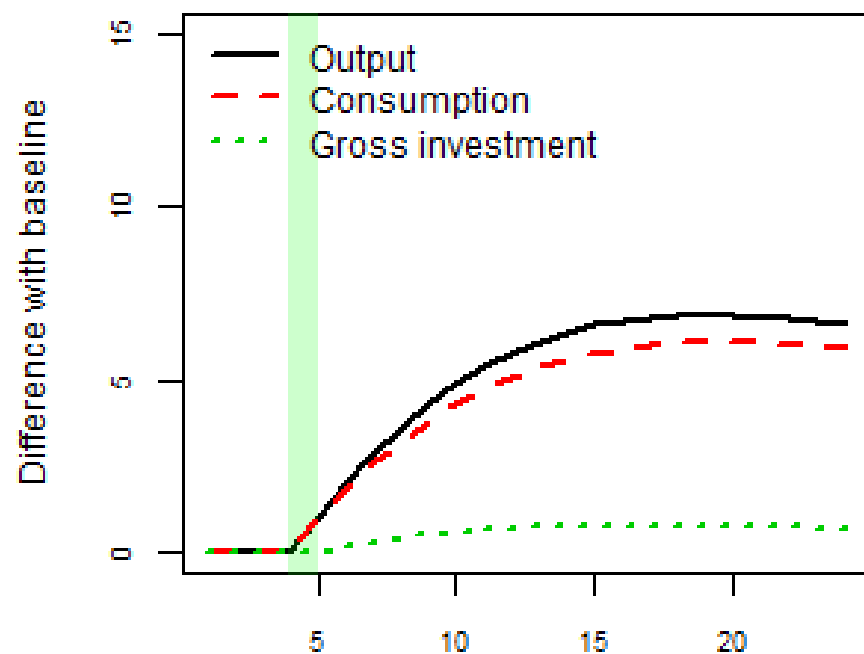


Box 3 - Wealth, credit... (cont'd)

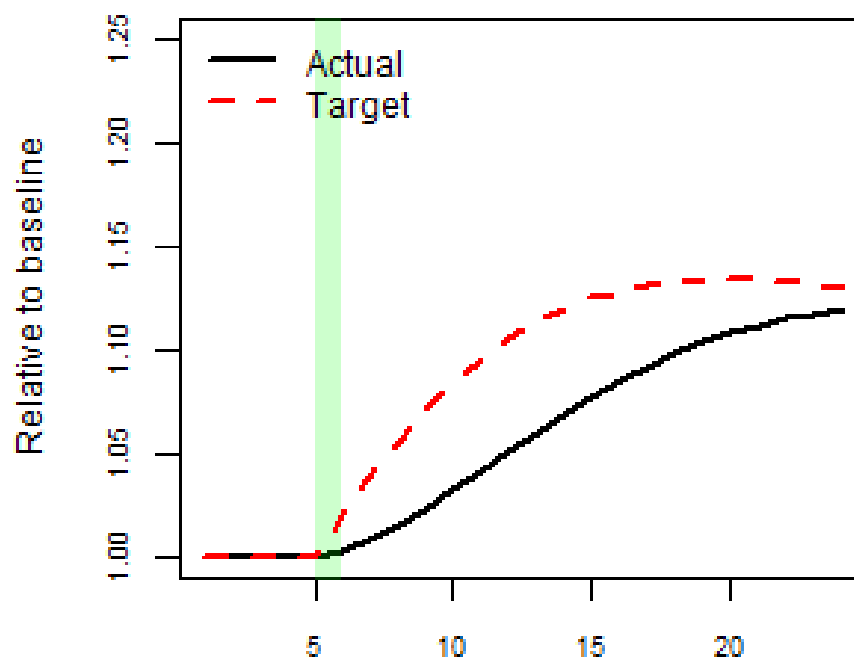


UNIVERSITY OF LEEDS

2a) Change in output components following an increase in wage share



2b) Change in capital stock following an increase in wage share



Next lecture
Introduction to
Marxian Economics

Lecture 7

Introduction to Marxian Economics

Marco Veronese Passarella

m.passarella@leeds.ac.uk

7.1 Presuppositions of ME



UNIVERSITY OF LEEDS

Presupposition	Description
Historical materialism	Material (macroeconomic) conditions eventually shape our society and its historical development
Class struggle	The struggle between the workers and the capitalists, and within the capitalist class, is the main engine of historical development
Exploitation	Workers are exploited in the production sphere, for they provide more labour time than the quantity necessary to produce their necessities
Money-Value-Labour	The monetary value of the annual net product expresses abstract and socially necessary direct labour expended in a year
Social reproduction	The equilibrium state must be defined in terms of the economy's reproduction conditions over time
Disequilibrium	Unregulated (or free-market) capitalist economies can only achieve the equilibrium position by coincidence
Laws of motion	The economists must find out the hidden general tendencies (and counter-tendencies) underpinning capitalism
Profit motive	Capitalism is a system of production of more money (profit) by means of money (money capital), via exploitation of living labour

Workers are exploited in the production sphere





7.2 The exploitation rate

Let us turn our PKE model into a **Marxian-like** model. First, recall the wage share to total income (from equation 7):

$$\omega = \frac{W}{Y} = \frac{W}{P+W} = \frac{1}{\frac{P}{W}+1} \quad (9)$$

In Marxian terms, the ratio P/W approximately matches the ratio of the **surplus labour time** (namely, the working time it takes to produce profit goods) to the **necessary labour time** (namely, the working time it takes to produce wage goods).

This ratio, call it ε , is named by Marx the **exploitation rate** of the working class. Using $\varepsilon \approx P/W$ in equation (9) with obtain:

$$\varepsilon \approx \frac{1}{\omega} - 1 \quad (10)$$

Ceteris paribus, a lower wage share is associated with a higher exploitation rate. What does the wage share depend on?

7.2 The exploitation rate (cont'd)



UNIVERSITY OF LEEDS

The wage share to total income can also be expressed as:

$$\omega = \frac{W}{Y} = \frac{N \cdot w}{N \cdot a \cdot p} = \frac{\hat{w}}{a} \quad (9B)$$

where p is the unit price of products (see Box 4), a is the product per worker (labour productivity) and $\hat{w} = w/p$ is the real wage rate.

Using equation (9B) in equation (10), we obtain:

$$\varepsilon \approx \frac{a}{\hat{w}} - 1 \quad (10B)$$

Workers' exploitation increases as workers' productivity increases and the real wage rate reduces.

If $a \uparrow$ and/or $\hat{w} \downarrow$, a smaller portion of the working day is used by the workers to produce their own subsistence (wage goods), whereas a large portion is used to produce profit goods (including investment and/or luxury goods). In other words, they are **more exploited**!

*There is a tendency for
the profit rate to fall*





7.3 The falling profit rate

The **profit rate** of domestic firms is the ratio of total profit to total capital stock. Its steady-state value is:

$$r = \frac{P}{K} = \frac{(1-\omega) \cdot Y}{\kappa \cdot Y} = \frac{1-\omega}{\kappa} = \frac{1-(\hat{w}/a)}{\kappa} \quad \text{or} \quad r = \left(1 - \frac{1}{\varepsilon+1}\right) \cdot \frac{1}{\kappa} \quad (11)$$

For Marx, firms are driven to **replace workers with machines** in the attempt to reduce production costs. This roughly amounts to increasing the target capital to output ratio, κ , in our model.

If κ increases then the profit rate increases *if and only if* the associated increase in productivity is such that: $\Delta a > \Delta \kappa$, hence $\Delta P > \Delta K$ and $\Delta r > 0$.

By contrast, if $\Delta a < \Delta \kappa$ then the profit rate falls. This is what Marx named **the tendency for the profit rate to fall**. It is a long run trend (or gravity law).

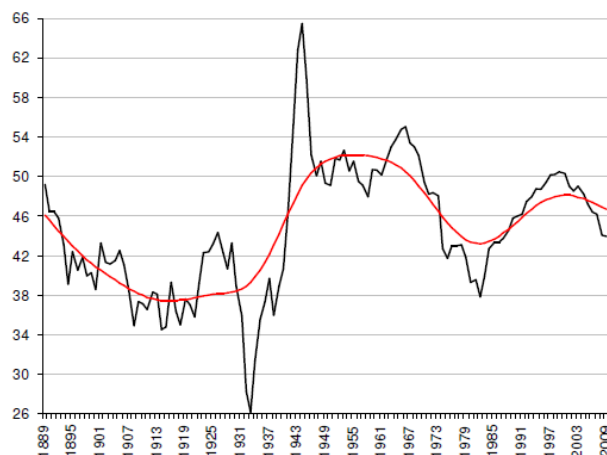
In the short run, everything that increases productivity and/or makes labour-power cheaper and/or reduce the value of K (therefore countering its quantitative increase), keeps the profit rate from falling. These **counteracting factors** comprise technical progress, international trade and imperialism.

7.4 Empirical evidence for the US



UNIVERSITY OF LEEDS

Capital Productivity 1889-2009



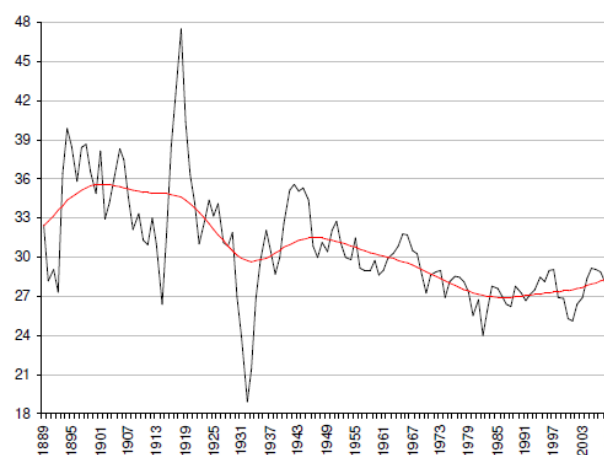
Trough: 1913-6

Peak: 1956-9

Trough: 1980-2

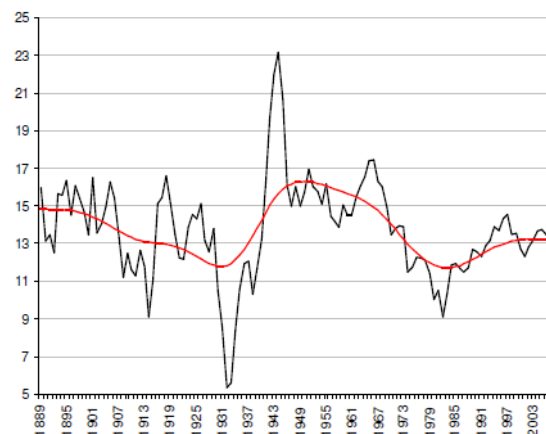
Peak 1998-2000

The Profit Share 1889-2009



- Peak around 1900
- Trough around 1931-3
- Peak: late 1940s
- Trough: mid 1980s
- Secular downward trend

The Rate of Profit 1889-2009



- Falling to trough in early 1930s
- Rising to peak in late 1940s
- Falling to trough in early 1980s
- Rising after early 1980s
- Peak around 2008-9?

Source: Mohun (2010)

Memo:

$$\text{Capital Productivity} = \frac{Y}{K} = \frac{1}{\kappa}$$

$$\text{Profit Share} = 1 - \omega$$

$$\text{Rate of Profit} = r = (1 - \omega)/\kappa$$

*Investment depends on
the profit rate!*



7.5 Investment and profit



UNIVERSITY OF LEEDS

Second, Marxian economists observe that firms' investment decisions depend (also) on **expected and realised profits**. The higher the latter, the higher investment.

Therefore, firms' gross investment function must be amended:

$$I = \gamma \cdot (K^T - K_{-1}) + \delta \cdot K_{-1} + \rho \cdot r_{-1} \quad (4B)$$

where ρ is the sensitivity of the investment to the profit rate, r . The lag can be either interpreted as meaning the past profit rate or the expected profit rate for the current period (if we assume adaptive expectations).

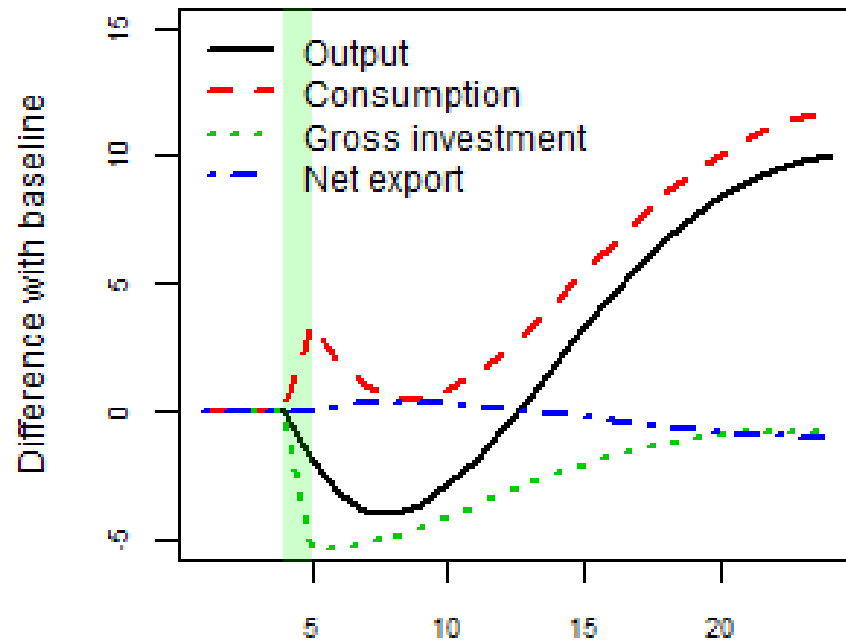
Let us check what happens to output and capital accumulation when we replace equation (4) with equation (4B) in the PKE model. We name the amended model the **ME model** (note: ME stands for Marxian Economics).

7.6 Experiments: higher wages

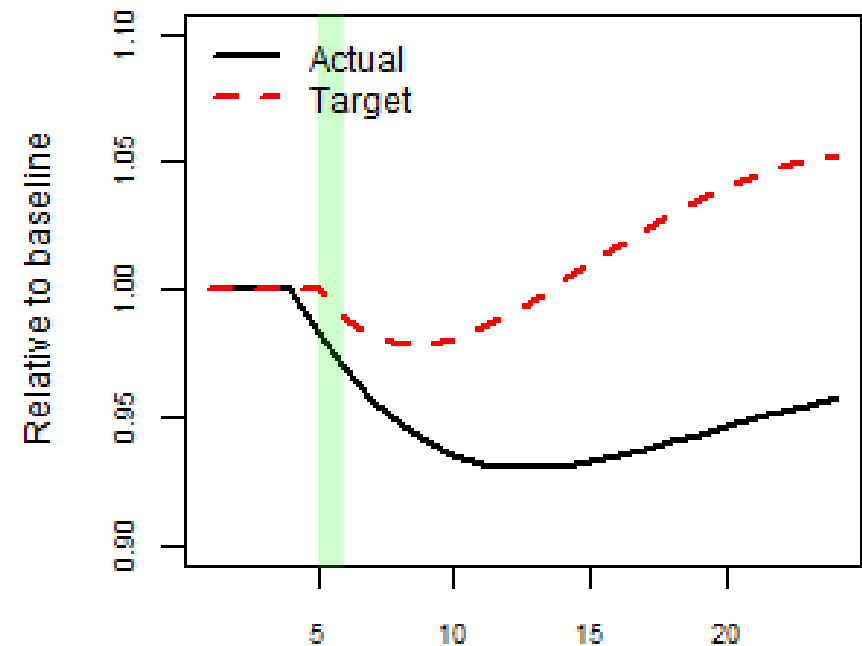


UNIVERSITY OF LEEDS

a) Change in output components following an increase in wage share (and Marxian investment)



b) Change in capital stock following an increase in wage share (and Marxian investment)



Business cycle or final collapse?



7.7 Creative destruction



UNIVERSITY OF LEEDS

Higher wages are now detrimental for the economy, in the short run at least.

The increase in the wage share brings forward a fall in the profit rate that drags investment and capital accumulation.

When enough capital has been de-cumulated / destroyed, the profit rate begins to raise again.

The crisis shows its **creative destruction** power: some firms (capitalists) go bankrupt, whereas other firms survive and expand through re-organisations, mergers and acquisitions processes.

When confidence is restored, firms restart investing and accumulating capital. However, this creates the preconditions for the next – arguably, more destructive – crisis.

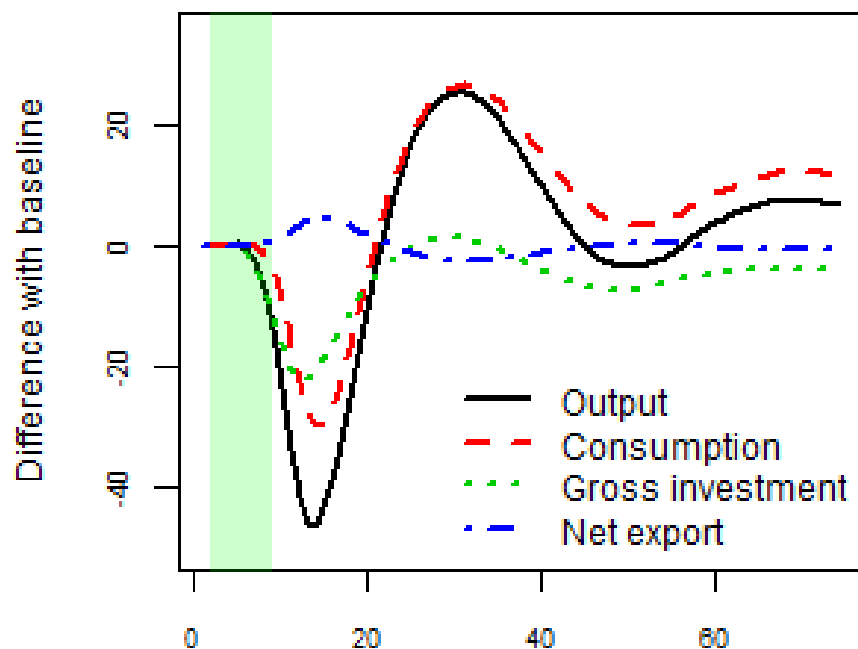
Capitalism does not collapse by itself though. Crises can only provide **opportunities to change radically the system.**

7.8 Experiments: boom and bust

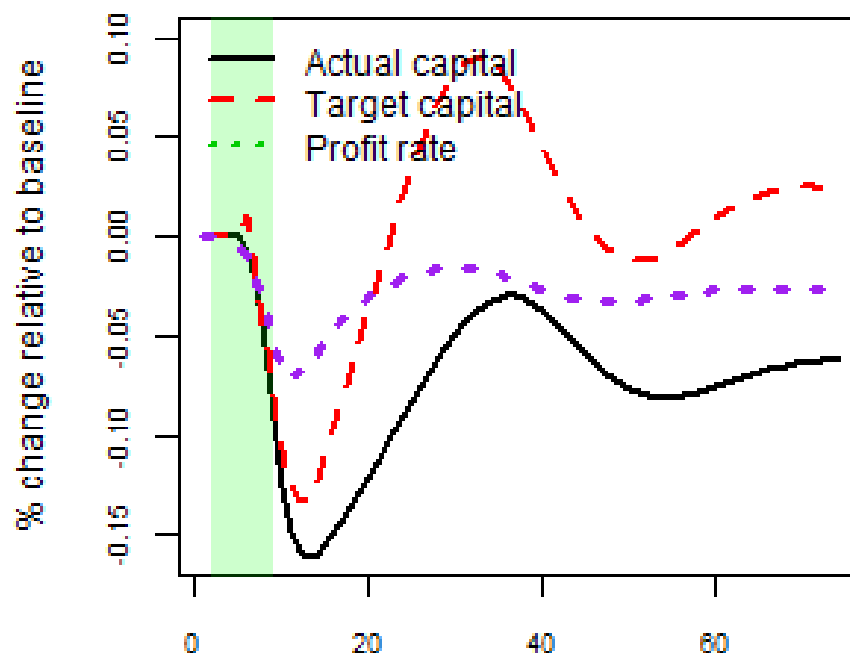


UNIVERSITY OF LEEDS

a) Change in output components following an increase in wage share (boom and bust)



b) Change in capital stock following an increase in wage share (boom and bust)



7.9 Recap



UNIVERSITY OF LEEDS

Key **preconditions** of ME are at odds with MAE principles, but they are generally consistent with PKE preconditions.

However, ME theorists focus more on **class conflict** with respect to PKE theorists. Unlike the latter, ME theorists do not believe that cooperation between workers and firms (capitalists) is realistic/desirable.

Paradoxically, some ME **implications** may look closer to MAE than to PKE findings! – think of the fall in output following an increase in wages.

ME theorists are also more focused on **inner disequilibrium and crisis tendencies** of capitalism, rather than on multiple / sub-optimal equilibria.

ME claim that **profitability mostly drives investment decisions**, whereas PKE claim that investment decisions mostly drive profitability.

The dispute between PKE and ME on the investment function (hence, the investment-profit nexus) can only be addressed empirically.

Box 4 - Price setting



UNIVERSITY OF LEEDS

What about prices in PKE and ME models? They usually rely on **cost-plus pricing**. Firms determine their unit direct cost (wages), to which they add a costing margin (covering general costs and anticipated profits).

Direct costs are assumed to be roughly constant below full capacity. As a result, the **unit price of output** is simply:

$$p = \frac{w}{a} \cdot (1 + \mu)$$

where w is the wage rate, a is the product per unit of labour and μ is the costing margin (or mark-up).

It is easy to show that income distribution depends on μ . Using the price equation in the wage share equation (9B), we obtain:

$$\omega = \frac{Y}{W} = \frac{N \cdot w}{N \cdot a \cdot p} = \frac{w}{a \cdot p} = \frac{1}{1 + \mu}$$

Box 4 - Price setting (cont'd)



UNIVERSITY OF LEEDS

Given labour productivity and the money wage rate, the higher firms' mark-up, the lower the wage share. Example: if $\mu = 0$ then $\omega = 100\%$; if $\mu = 50\%$ then $\omega \cong 67\%$; if $\mu = 100\%$ then $\omega = 50\%$; and so on.

Price is a **distribution variable**, not an equilibrium or adjustment one. It depends on firms' decisions about the mark-up. But what does μ depend on?

Tradition	Determinants
Marxist	Class struggle
Kaleckian	The degree of concentration and the ability to prevent the entry of potential rivals
Cambridge	The growth rate of capital
Sraffian	The rate of interest set by the central bank

Source: Lavoie (2006, p. 52)

Box 5 - A comparison



UNIVERSITY OF LEEDS

If we turned our PKE model into a mainstream economics model – call it the **MAE model** – how would it look like?

For the sake of simplicity, let us assume away net export. We can keep the demand (or current output) function unchanged.

However, supply or **potential output** (or natural output, Y^*) would be determined by a **production function** (usually a Cobb-Douglas function):

$$Y^* = \alpha \cdot L_0^\beta \cdot K_0^{(1-\beta)}$$

where L_0 and K_0 are exogenous endowments of inputs (labour and capital), β defines output elasticities of inputs, and α is a coefficient capturing technical progress (also named “total factor productivity”).

Second, the price level would depend on the gap between Y and Y^* :

$$p = \pi_0 + \pi_1 \cdot (Y_{-1} - Y^*)$$

where π_0 , and π_1 are all positive coefficients.

Box 5 - A comparison



UNIVERSITY OF LEEDS

When current output exceeds natural output, inputs are over-utilised. This reduces unemployment below its natural rate and puts pressure on costs and prices. This relationship is known as the **Phillips curve**.

Third, household saving would depend positively on the interest rate, r , that is, consumption would depend negatively on the interest rate:

$$C = c_0 - c_r \cdot r_{-1}$$

where c_0 and c_r are positive coefficients. Rationale: higher interest rate leads agents to save more, thus postponing consumption.

Finally, the **policy rate** would depend on the gap between the current price and the price level targeted by the monetary authorities:

$$r = r_{-1} + \sigma \cdot (p_{-1} - p^*)$$

where r_{-1} can be considered the **natural interest rate** (that is, the interest rate that we would observe if the current price level equalled the target price level, P^*), and σ defines the sensitivity of the interest rate to the price gap.

Box 5 - A comparison (cont'd)



UNIVERSITY OF LEEDS

The interest rate equation defines the monetary rule. Monetary authorities (central banks) try to influence macroeconomic variables by steering the nominal interest rate.

In the MAE model, current output always **adjusts to natural output in the long run**. If the former is above the latter, prices increase. As a result, monetary authorities raise the interest rate to bring prices back to the target level, via a reduction in consumption, hence demand, investment and output.

Booms and bursts are just temporary adjustments to the economy following unexpected (stochastic) shocks to demand or supply conditions – see simulations reported in the next slide.

Therefore, **demand-side policies are always ineffective in the long run**. In fact, there is no real role for them in this model. Let alone for class conflict.

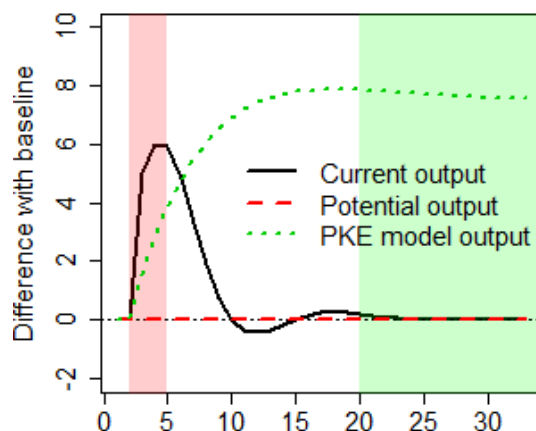
The system is ruled by natural-like laws. The policy makers should only support them.

Box 5 - A comparison (cont'd)

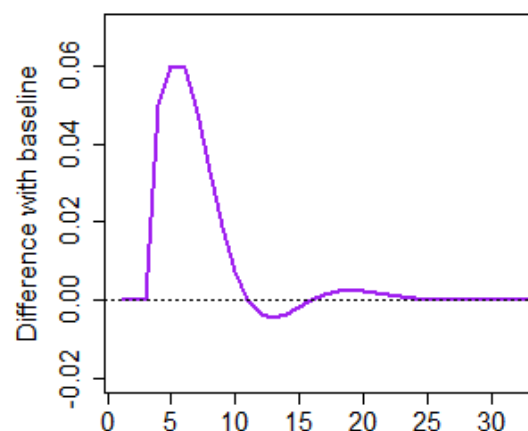


UNIVERSITY OF LEEDS

a) Output after positive shock to demand



b) Price level after shock



Calibration:

$$c_0 = 90$$

$$c_r = 180$$

$$\alpha = 4$$

$$\beta = 0.5$$

$$\pi_0 = 1$$

$$\pi_1 = 0.01$$

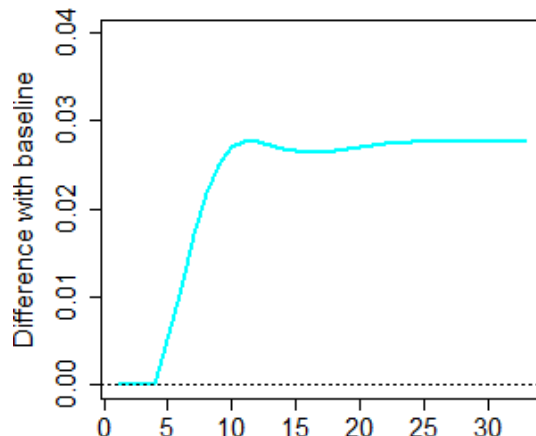
$$\delta = 0.25$$

$$\gamma = 0.2$$

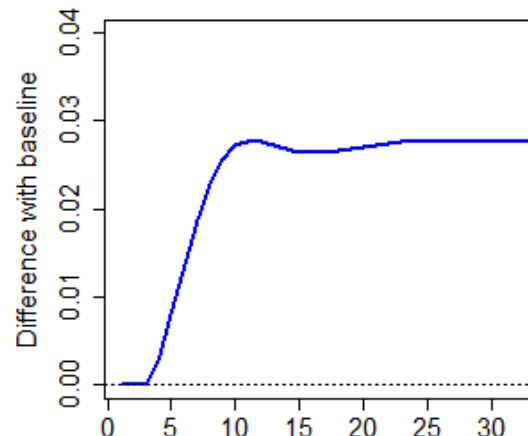
$$\sigma = 0.10$$

$$p^* = 1$$

c) Nominal interest rate after shock



d) Real interest rate



Shock to $Y = +5\%$

Next lecture

Heterodox Theories of Crisis

Lecture 8

Heterodox Theories of Crisis

Marco Veronese Passarella

m.passarella@leeds.ac.uk

8.1 Three different views



UNIVERSITY OF LEEDS

Shaikh (1978) identifies three lines of analysis about capitalist reproduction:

- A. Capitalism is **capable** of automatic self-expansion
- B. Capitalism is **incapable** of self-expansion
- C. In principle, capitalism is capable of self-expansion, but it develops **internal contradictions** that eventually erupt in a crisis

8.2 Capitalism is capable...



UNIVERSITY OF LEEDS

A. Capitalism is capable of automatic self-reproduction

A1. **Expansion is smooth and efficient**. No inner tendency to crisis. Just free market forces (some mainstream economists: **Neoclassicals, Monetarists, New Classicals, Real Business Cycle theorists**)

A2. **Expansion is erratic and wasteful**. The State must intervene to smooth the business cycle. However, there are no necessary limits to the capitalist system (**Keynes, Neo-Keynesians, some PKE theorists**)

We can identify another, quite recent, view:

A3. **Expansion can erratic and wasteful in the short run only**. Regulation and monetary policy help stabilise the economy (current mainstream in economics: **New Keynesians, New Neoclassical Synthesis**)

8.3 Capitalism is incapable...



UNIVERSITY OF LEEDS

B. Capitalism is incapable of self-expansion. It requires an external source of demand. Its limits are external to it.

B1. Because of **excess investment** (**Malthus**)

B2. Because of **cross-sector imbalances** (**Hilferding**)

B3. Because of **underconsumption of the masses** (**Luxemburg**)

Underconsumption theories have been re-discovered by some **PKE** and **New Keynesian economists** after the Global Financial Crisis (GFC)

8.4 Capitalism is capable but...



UNIVERSITY OF LEEDS

C. Though capitalism is capable of self-expansion, the accumulation process deepens its internal contradictions, which eventually erupt in a crisis. Limits are internal to it.

C1. **Increase in real wage rate** exceeding the increase in labour productivity, thus squeezing the profit rate (**some PKE** and **ME theorists**)

C2. **Tendency for the profit rate to fall** (although counter-acting factors can be strong) (**Marx** and **some ME theorists**)

However, each crisis only shows that a radical change of the system is possible (and desirable), not unavoidable/necessary...

8.5 State intervention



UNIVERSITY OF LEEDS

The three views above imply different presuppositions about economic dynamics and State intervention.

We can identify them by using our original tripartition:

MAE theorists: temporary (short-run) disequilibria are possible, but there is a tendency towards the optimal equilibrium in the long-run. There is scope for monetary policy and non-discretionary fiscal policy (automatic stabilisers) in the short run.

PKE theorists: multiple and sub-optimal equilibria are possible and likely. However, State intervention (mainly through fiscal policy) can correct this.

ME theorists: there is an inner tendency to disequilibrium and crisis. State intervention is ineffective in the long run, if it is not coupled with a radical change of the economic structure.

8.6 Causes of the GFC



UNIVERSITY OF LEEDS

Was the 2007-2009 crisis triggered by “low wages”, namely, by rising inequality?

MAE theorists (Classicals, A1): Crisis? Which crisis? It was just a stochastic shock. The GFC was not predicted because economic theory predicts that such events cannot be predicted (Lucas 2009)

MAE theorists (Keynesians, A3): yes, fall in consumption due to burst of housing/credit bubble, but also financial deregulation and financial accelerator (that is, risk premia are defined by the value of collaterals, which are highly pro-cyclical)

PKE theorists: yes (see next slide)

ME theorists: yes and no (see next slide)

8.7 Remedies



UNIVERSITY OF LEEDS

Are high wages detrimental for the economy?

MAE theorists (Classicals, A1): yes, because higher wages entail higher costs for the firms. Besides, inequality is good, because it creates incentives

MAE theorists (Keynesians, A3): no, because higher wages stimulate productivity (efficiency wage theory) and demand (when we are far from the optimal equilibrium)

PKE theorists: no, because higher wages entail higher consumption, hence higher utilisation rates of plants, hence higher investment and output

ME theorists: it depends. On the one hand, low wages can harm value realisation. On the other hand, capitalist production is not driven by consumption. It is driven by profits. Investment is also a function of the (expected) profit rate. If the wage rate grows (more than productivity), profits may well fall...

Note: see Appendix A for global figures on inequality

8.8 Empirical evidence



UNIVERSITY OF LEEDS

Onaran and Galanis (2012) show that economies would be wage-led (PKE) if they were closed. However, income elasticity of import may well offset the expansionary effect of higher wages by reducing net export (ME = ●)!

Table 6.2 Effect of a one percentage point increase in the share of profits on consumption, investment, net exports, domestic demand and total demand

	Cons. a	Invest. b	Net exports c	Domestic demand d(a + b)	Total demand e(a + b + c)
Eurozone-12	-0.439	0.299	0.057	-0.140	-0.084
Germany	-0.501	0.376	0.096	-0.125	-0.029
France	-0.305	0.088	0.198	-0.217	-0.020
Italy	-0.356	0.130	0.126	-0.226	-0.100
UK	-0.303	0.120	0.158	-0.183	-0.025
USA	-0.426	0.000	0.037	-0.426	-0.388
Japan	-0.353	0.284	0.055	-0.069	-0.014
● Canada	-0.326	0.182	0.266	-0.144	0.122 ●
● Australia	-0.256	0.174	0.272	-0.082	0.190 ●
Turkey	-0.491	0.000	0.283	-0.491	-0.208
● Mexico	-0.438	0.153	0.381	-0.285	0.096 ●
South Korea	-0.422	0.000	0.359	-0.422	-0.063
● Argentina	-0.153	0.015	0.192	-0.138	0.054 ●
● China	-0.412	0.000	1.986	-0.412	1.574 ●
● India	-0.291	0.000	0.310	-0.291	0.018 ●
● South Africa	-0.145	0.129	0.506	-0.016	0.490 ●

8.9 Recap



UNIVERSITY OF LEEDS

There are different theories of crisis and different views about the GFC.

Some MAE theorists think that capitalist economies are stable systems, which are capable to reproduce smoothly over time. Crisis are **stochastic events** (hence unpredictable and unstoppable).

Other MAE theorists recognise that some intervention (mainly monetary policies) can be necessary in the **short run**.

PKE theorists usually see **State intervention** as having a **permanent nature**, for unregulated economies are characterised by a plurality of equilibria, some of which are socially sub-optimal (e.g. high unemployment rate).

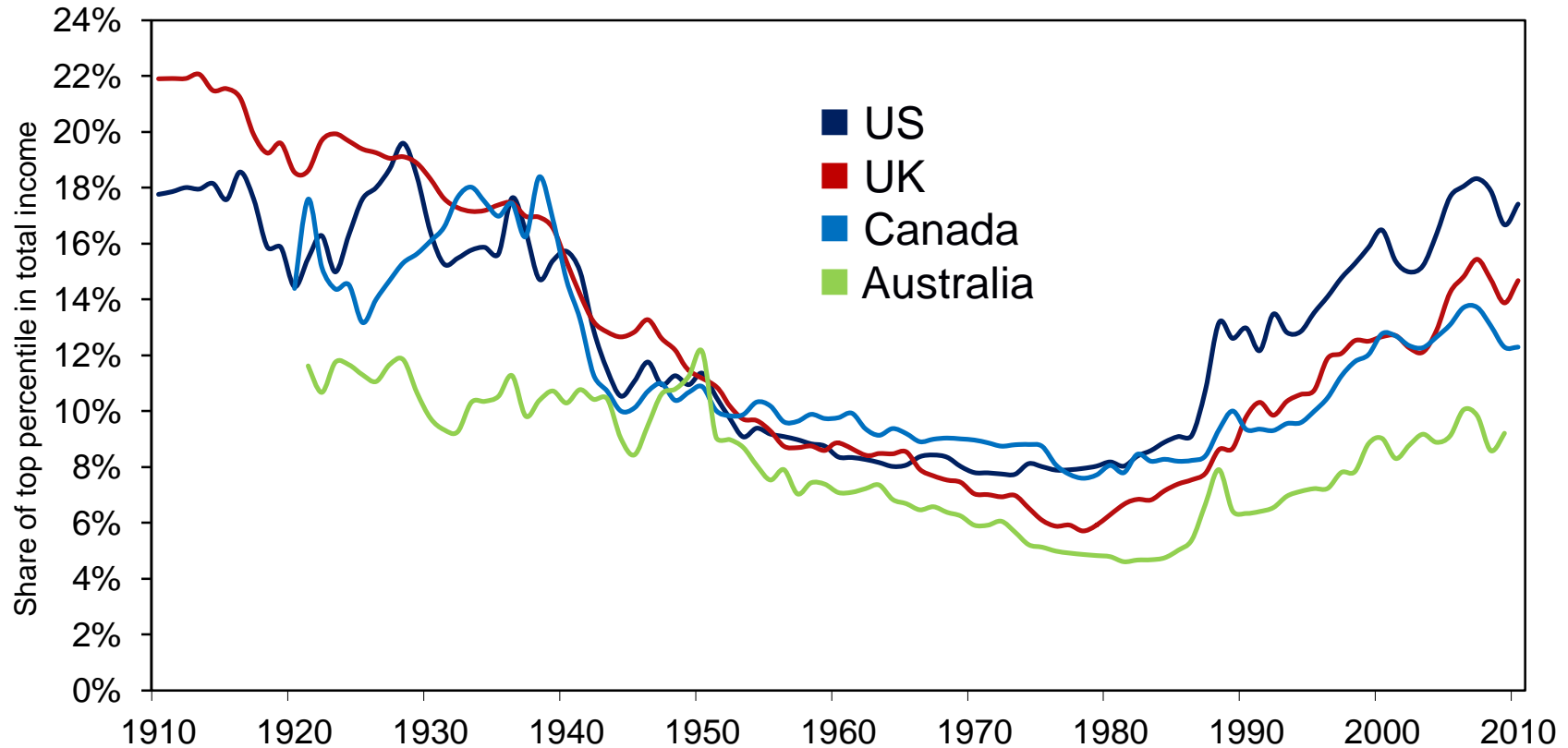
ME theorists are more pessimistic. They usually do not oppose State intervention. However, they stress that capitalism is marked by **inner contradictions**, which cannot be overcome but by a radical change in the economic structure.

The End
Thank You

Appendix A

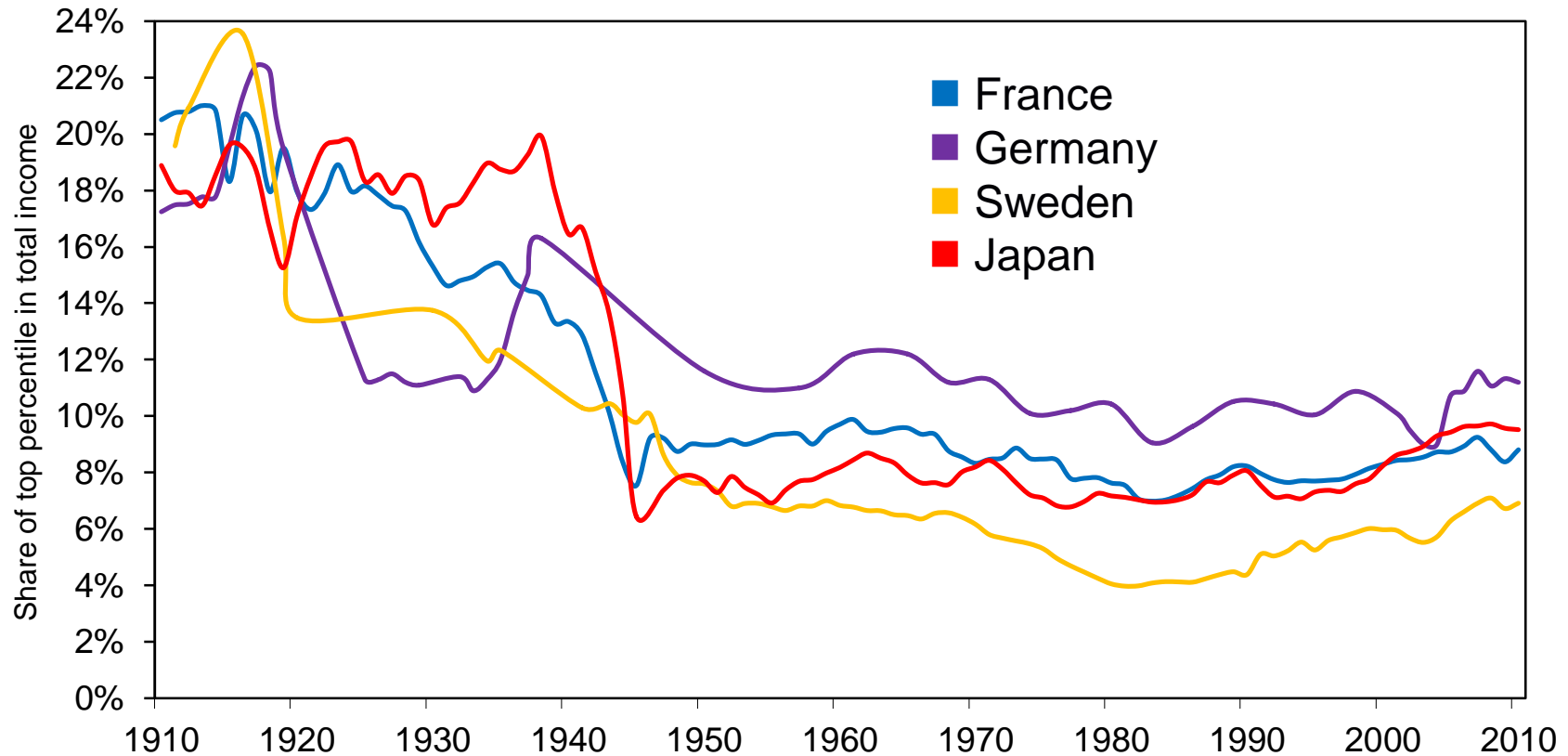
Inequality figures

Fig. 1. Income inequality in Anglo-Saxon countries, 1910-2010



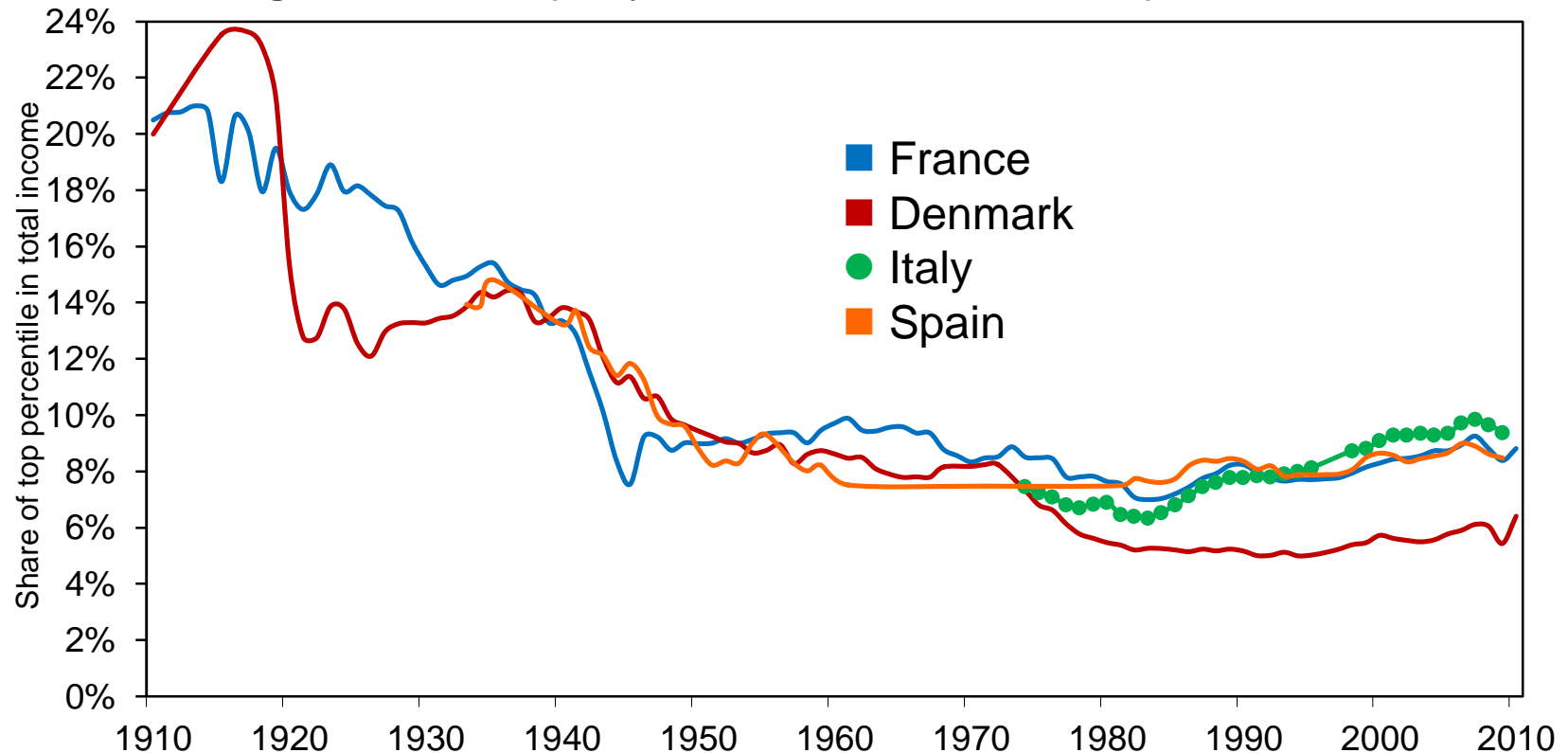
The share of top percentile in total income rose since the 1970s in all Anglo-saxon countries, but with different magnitudes. Source: <http://piketty.pse.ens.fr/en/capital21c2> (Figure 9.2)

Fig. 2. Income inequality: Continental Europe and Japan, 1910-2010



As compared to Anglo-saxon countries, the share of top percentile barely increased since the 1970s in Continental Europe and Japan. Source: <http://piketty.pse.ens.fr/en/capital21c2> (Figure 9.3)

Fig. 3. Income inequality: Northern and Southern Europe, 1910-2010



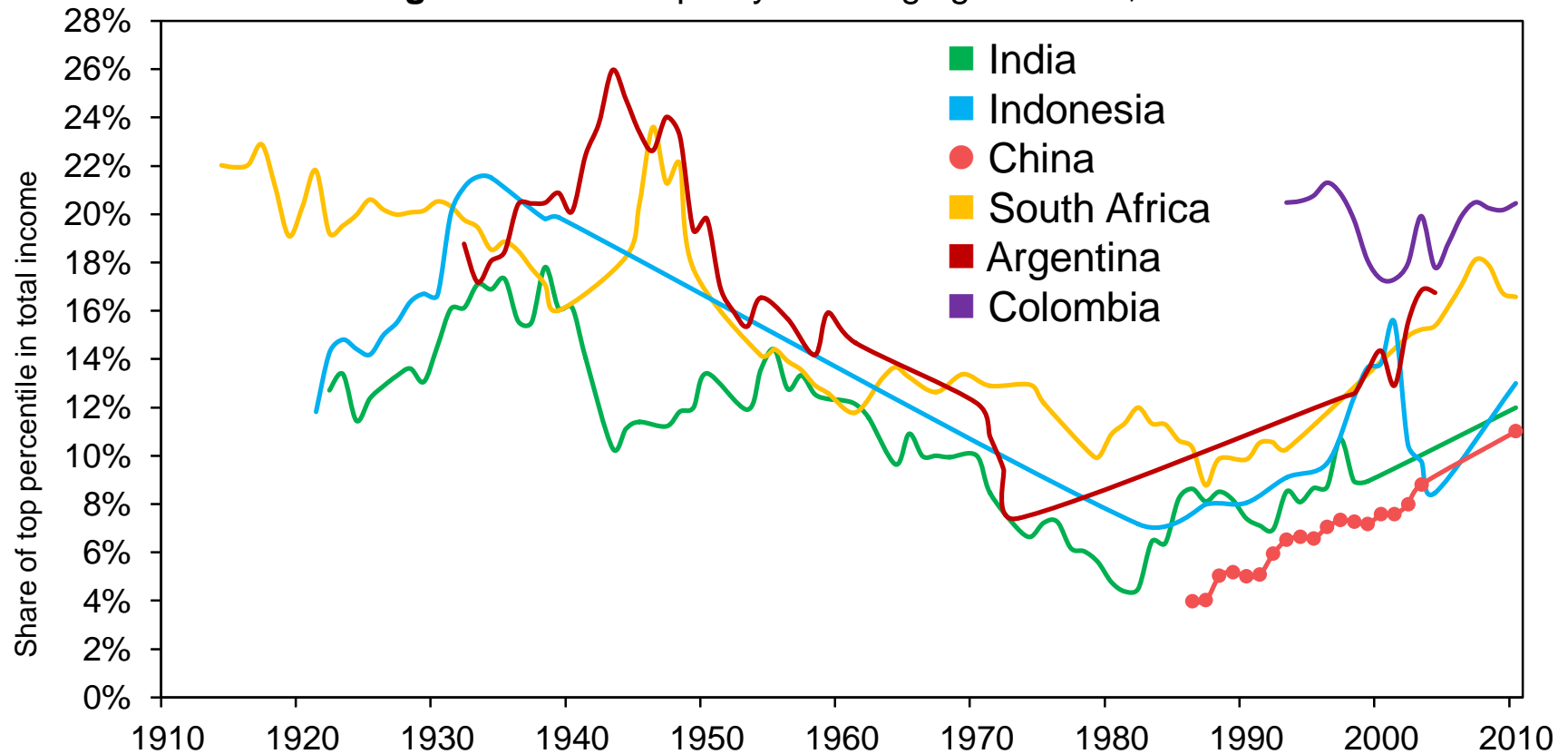
As compared to Anglo-saxon countries, the top percentile income share barely increased in Northern and Southern Europe since the 1970s. Source: <http://piketty.pse.ens.fr/en/capital21c2> (Figure 9.4)

A4 - Top 1% (cont'd)



UNIVERSITY OF LEEDS

Fig. 4. Income inequality in emerging countries, 1910-2010



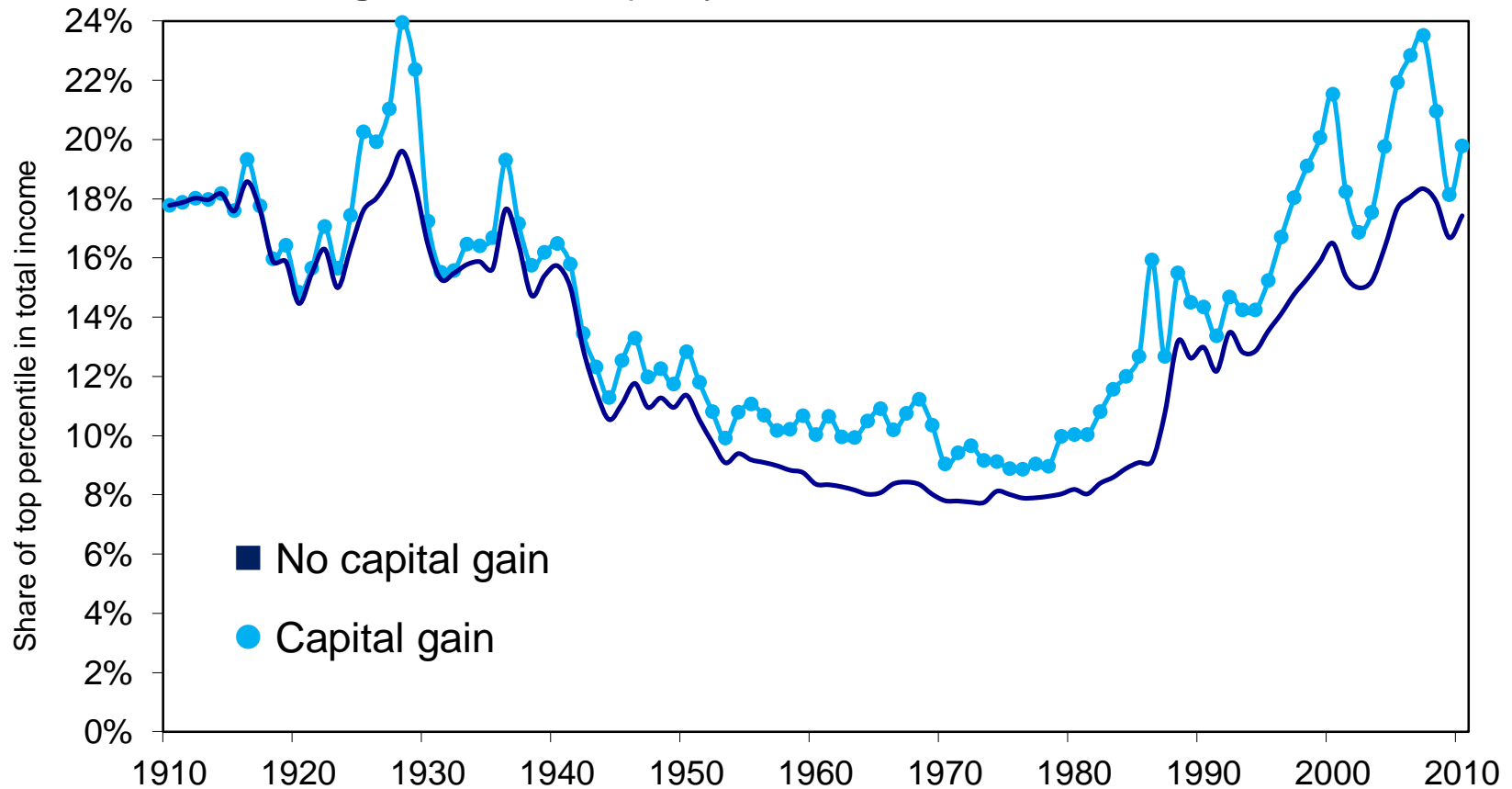
Measured by the top percentile income share, income inequality rose in emerging countries since the 1980s, but ranks below U.S. level in 2000-2010. Source: <http://piketty.pse.ens.fr/en/capital21c2> (Figure 9.9)

A5 - Capital gains effect



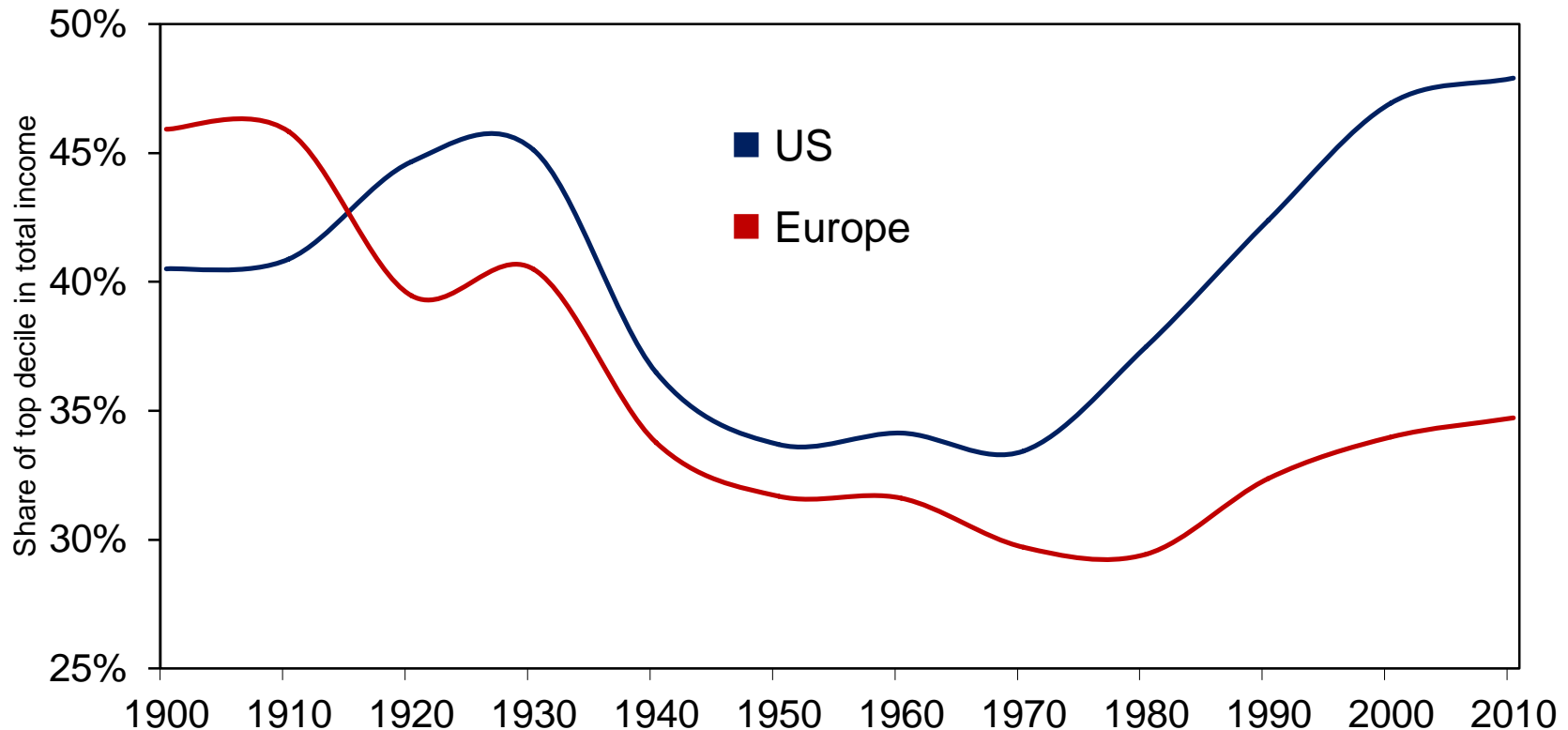
UNIVERSITY OF LEEDS

Fig. 5. Income inequality in the US, 1910-2010



Source: <http://piketty.pse.ens.fr/en/capital21c2> (Figure S9.3)

Fig. 6. Income inequality: Europe vs. the United States, 1900-2010



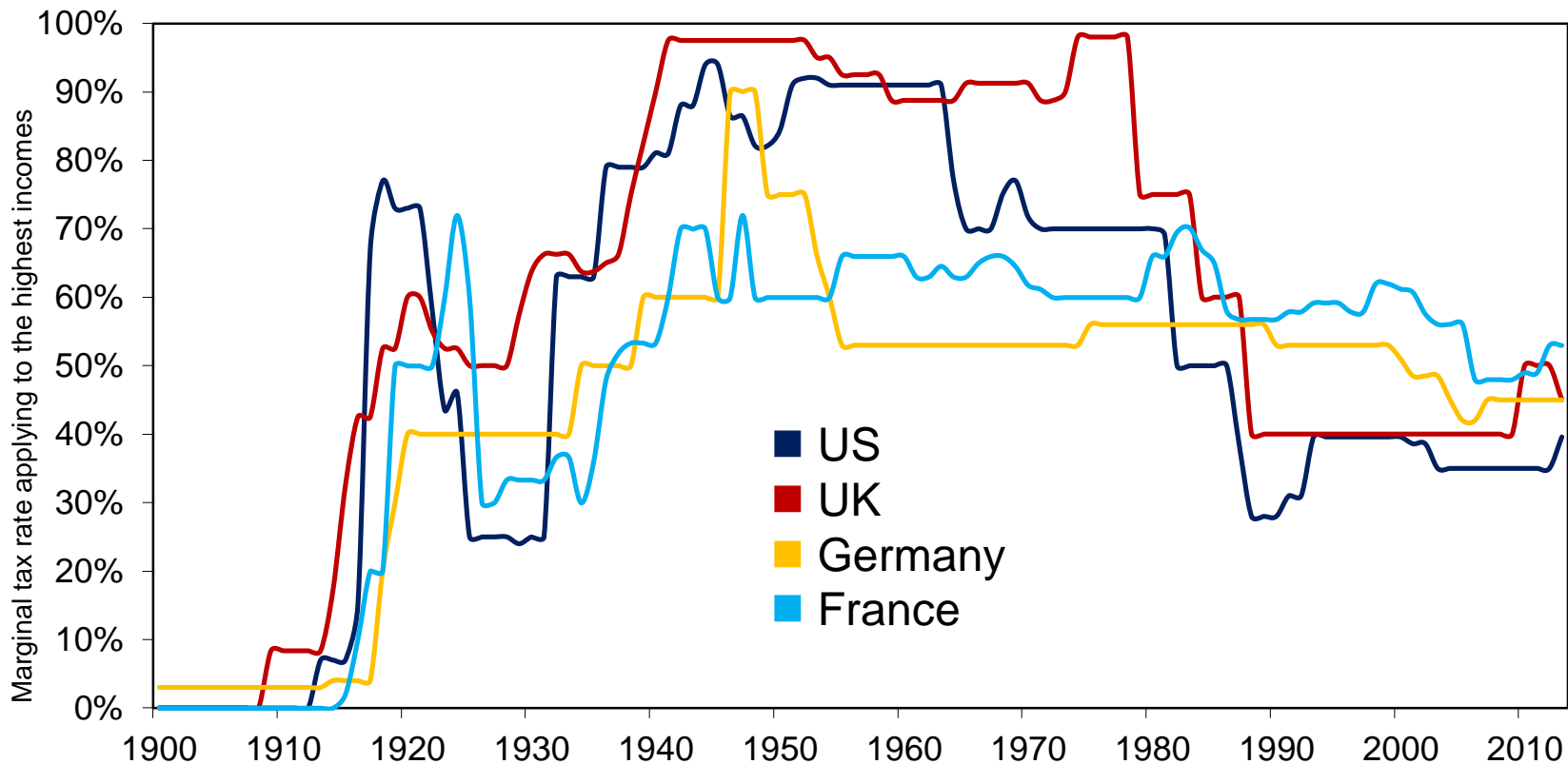
The top decile income share was higher in Europe than in the U.S. in 1900-1910; it is a lot higher in the U.S. in 2000-2010. Source: <http://piketty.pse.ens.fr/en/capital21c2> (Figure 9.8)

A7 - Top income taxes



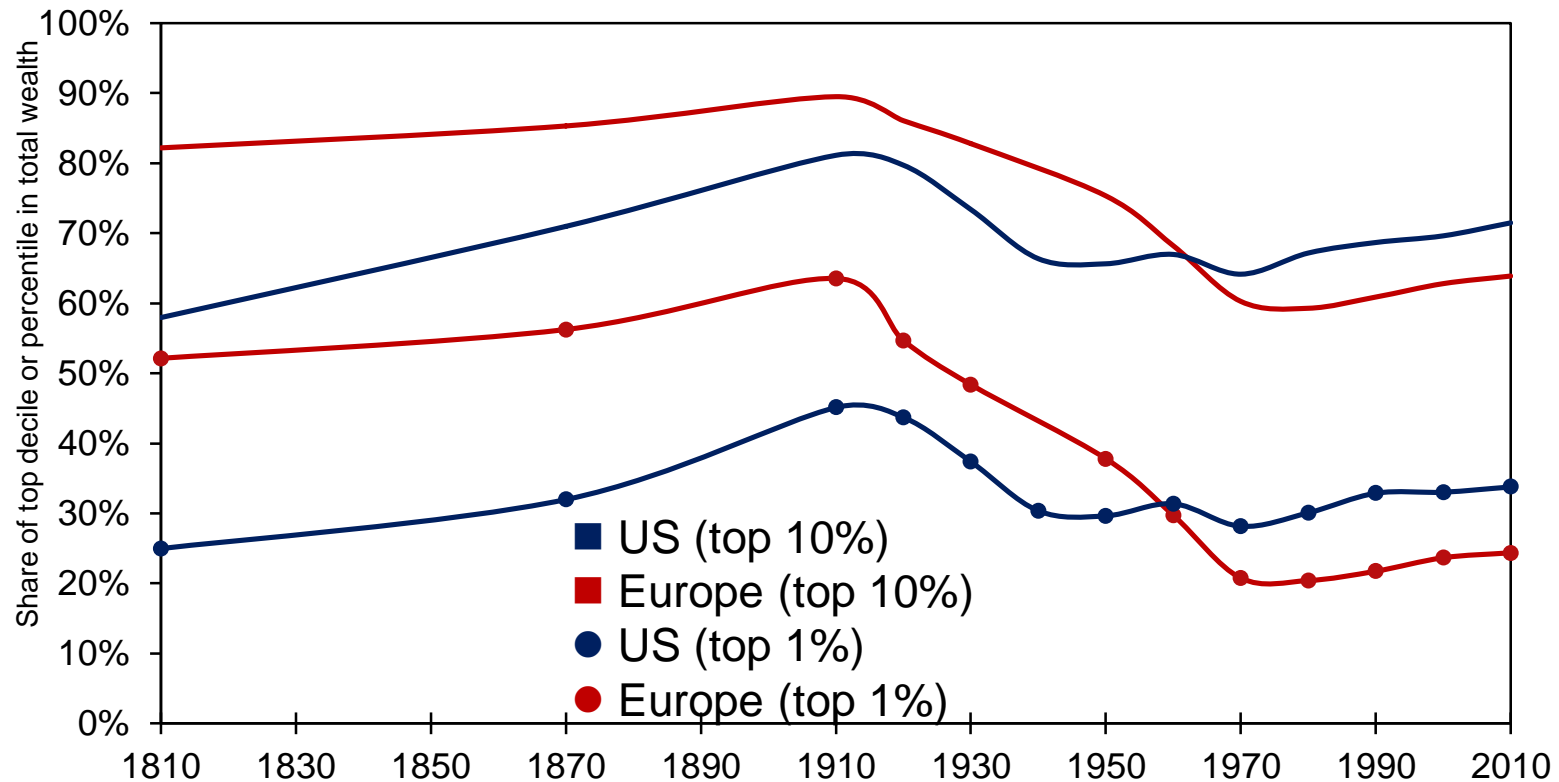
UNIVERSITY OF LEEDS

Fig. 7. Top income tax rates, 1900-2013



The top marginal tax rate of the income tax (applying to the highest incomes) in the U.S. dropped from 70% in 1980 to 28% in 1988. Source: <http://piketty.pse.ens.fr/en/capital21c2> (Figure 14.1)

Fig. 8. Wealth inequality: Europe and the U.S., 1810-2010



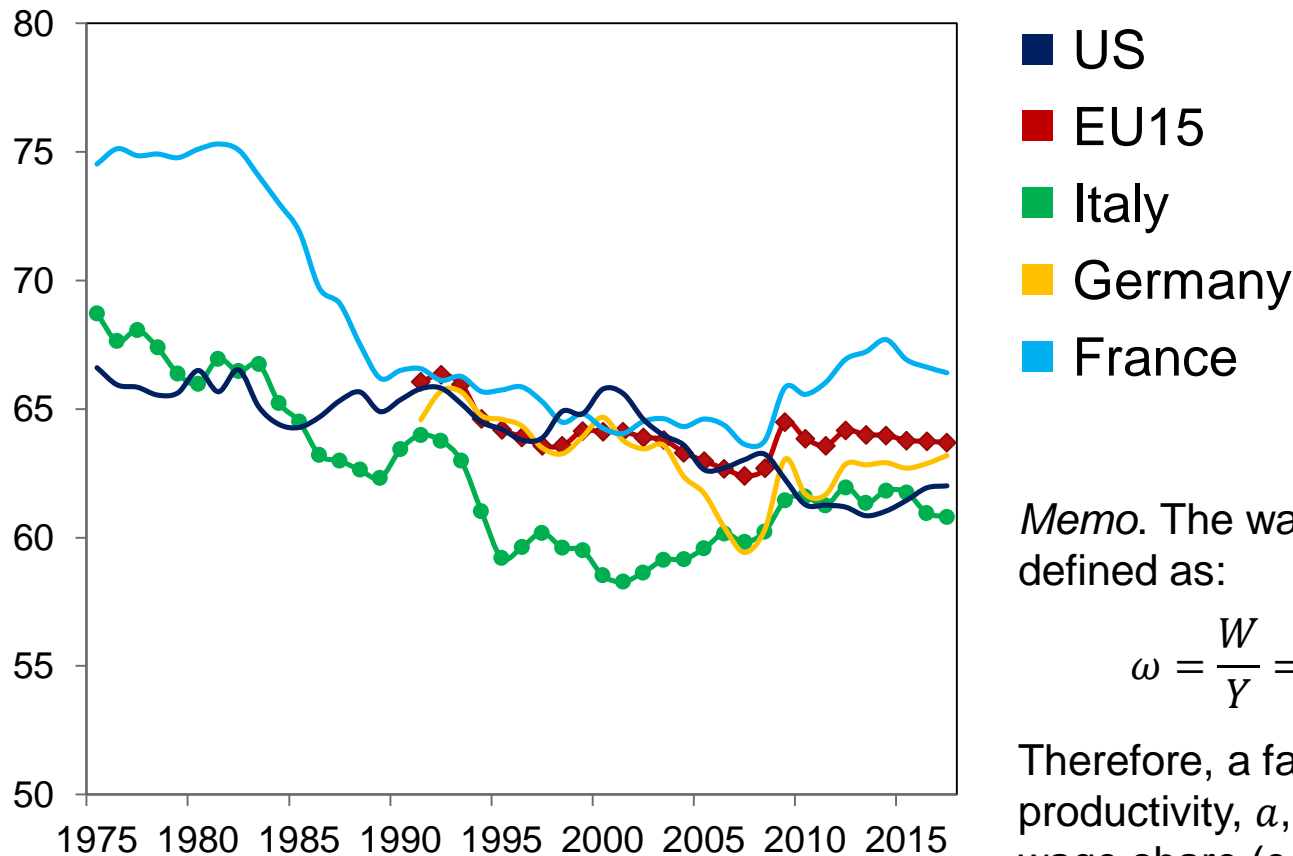
Until the mid 20th century, wealth inequality was higher in Europe than in the United States. Source: <http://piketty.pse.ens.fr/en/capital21c2> (Figure 10.6)

A9 - Wage share to total income



UNIVERSITY OF LEEDS

Fig. 9. Adjusted wage share, % of GDP, current factor cost



Source: AMECO 2016

Memo. The wage share is defined as:

$$\omega = \frac{W}{Y} = \frac{N \cdot w}{N \cdot a \cdot p} = \frac{\hat{w}}{a}$$

Therefore, a fall in labour productivity, a , increases the wage share (e.g. Italy in the 2000s).

Appendix B

The complete models

Basic model

$$Y = C + I + NX$$

$$C = c_0 + c_1 \cdot Y_{-1}$$

$$K^T = \kappa \cdot Y_{-1}$$

$$I = \gamma \cdot (K^T - K_{-1}) + \delta \cdot K_{-1}$$

$$K = K_{-1} \cdot (1 - \delta) + I$$

$$NX = x_0 - m \cdot Y_{-1}$$

(1) National income (output)

(2) Consumption

(3) Target capital stock

(4) Gross investment

(5) Actual capital stock

(6) Net export

Income distribution

$$W = \omega \cdot Y$$

$$P = Y - W = (1 - \omega) \cdot Y$$

$$C = c_0 + c_W \cdot W_{-1} + c_P \cdot P_{-1}$$

(7) Wage bill

(8) Total profit

(2B) Amended consumption

B2 - ME model



UNIVERSITY OF LEEDS

$$Y = C + I + NX$$

$$C = c_0 + c_W \cdot W_{-1} + c_P \cdot P_{-1}$$

$$K^T = \kappa \cdot Y_{-1}$$

$$I = \gamma \cdot (K^T - K_{-1}) + \delta \cdot K_{-1} + \rho \cdot r_{-1}$$

$$K = K_{-1} \cdot (1 - \delta) + I$$

$$NX = x_0 - m \cdot Y_{-1}$$

$$W = \omega \cdot Y$$

$$P = Y - W = (1 - \omega) \cdot Y$$

$$r = \frac{P}{K}$$

$$\varepsilon = \frac{P}{W}$$

(1) National income (output)

(2B) Amended consumption

(3) Target capital stock

(4B) Gross investment

(5) Actual capital stock

(6) Net export

(7) Wage bill

(8) Total profit

(10B) Profit rate

(11) Exploitation rate

B3 - PKE-SFC model



UNIVERSITY OF LEEDS

$$Y = C + I$$

(1B) National income (output)

$$C = c_0 + c_W \cdot W_{-1} + c_P \cdot P_{-1} + c_2 \cdot M_{d,-1}$$

(2C) Consumption

$$K^T = \kappa \cdot Y_{-1}$$

(3) Target capital stock

$$I = \gamma \cdot (K^T - K_{-1}) + \delta \cdot K_{-1}$$

(4) Gross investment

$$K = K_{-1} \cdot (1 - \delta) + I$$

(5) Actual capital stock

$$M_d = M_{d,-1} + Y - C - \delta \cdot K_{-1}$$

(12) Household wealth (deposits)

$$L_d = L_{d,-1} + I - \delta \cdot K_{-1}$$

(13) Demand for loans

$$L_s = L_d$$

(14) Supply of bank loans

$$M_s = M_d$$

(15) Supply of bank deposits

$$W = \omega \cdot Y$$

(7) Wage bill

$$P_f = Y - W - r_l \cdot L_{d,-1}$$

(16) Firms profits

$$P_b = r_l \cdot L_{d,-1} - r_m \cdot M_{d,-1}$$

(17) Banks profits

$$P = P_f + P_b + r_m \cdot M_{d,-1}$$

(8B) Total non-labour incomes

B4 - MAE model



UNIVERSITY OF LEEDS

$$Y = C + I + \xi$$

$$C = c_0 - c_r \cdot r_{-1}$$

$$I = \gamma \cdot Y_{-1} - \delta \cdot K_{-1}$$

$$Y^* = \alpha \cdot L_0^\beta \cdot K_0^{(1-\beta)}$$

$$p = \pi_0 + \pi_1 \cdot (Y_{-1} - Y^*)$$

$$r = r_{-1} + \sigma \cdot (p_{-1} - p^*)$$

1B) National income (output)

2D) Consumption

4C) Net investment

18) Natural output

19) Price level

20) Interest rate