



Eckhard Hein

# **DISTRIBUTION AND GROWTH AFTER KEYNES**

A Post-Keynesian Guide

(Edward Elgar 2014)

**Chapter 1**

**'Introduction'**



# **1.1 DISTRIBUTION IS BACK ON THE RESEARCH AGENDA – ON THE SUBJECT OF THE BOOK**



- OECD (2008; 2011; 2012a)
- UNCTAD (2012)
- ILO (2012)
- IMF: Berg/Ostry (2011), Berg/Ostry/Zettelmeyer (2008), Kumhof et al. (2012), Kumhof/Ranciere (2010), Ostry/Berg/Tsangaridis (2014)
- Rajan (2010), Stiglitz (2012)
- Galbraith (2012), Hein (2012), Palley (2012; 2013), Stockhammer (2012), Stockhammer/Onaran (2013), Lavoie/Stockhammer (2013), Niechoj et al. (2012), ...
- New data: World Top Incomes Database, Atkinson/Piketty (2007; 2010), Piketty (2013)



“The produce of the earth – all that is derived from its surface by the united application of labour, machinery, and capital, is divided among three classes of the community; namely, the proprietor of the land, the owner of the stock of capital necessary for its cultivation, and the labourers by whose industry it is cultivated.

But in different stages of society, the proportions of the whole produce of the earth which will be allotted to each of these classes, under the names of rent, profit and wages, will be essentially different; depending mainly on the actual fertility of the soil, on the accumulation of capital and population, and on the skill, ingenuity, and instruments employed in agriculture.

**To determine the laws that regulate this distribution, is the principal problem in Political Economy (...).”**

(Ricardo 1817, p. 5)



## *Why is distribution relevant?*

Effects on the long-run development of the ‘Wealth of the Nations’  
(Smith), i.e. on accumulation and growth

### Growth

- GDP (nominal – real; gross - net)
- Real GDP per employee
- Real GDP per capita

### Accumulation

Capital stock (nominal – real; gross – net)



## Dimensions of distribution

- Of wealth
- Of income
  - personal/households
  - functional: classes, factors of production
- Of income
  - primary distribution (market)
  - secondary (re-)distribution (state)



## Neoclassical theory

### First principles:

- Given technology/production function and utility function
- Given initial endowments
- Maximizing behaviour in competitive markets

### Determine:

- Income distribution (technology + initial endowments)
  - Growth (exogenous growth of labour force and exogenous productivity growth) at full employment
- Capital stock growth is determined by saving and has no effect on equilibrium growth rate ('natural growth rate') but only on the growth path (Solow, Swan).



## New neoclassical growth theory

- Productivity growth and hence full employment growth path is endogenised
- Technical progress is determined by technology and preferences
- Saving determining broad investment has a permanent effect on equilibrium growth rate (natural growth rate)
- Thriftiness is beneficial with respect to growth rate (Romer, Lucas, ...)

### Critique

- New growth theory needs specific parameters to generate stable growth (Solow)
- What about money and effective demand?
- What about aggregate output, capital (and also human capital, ...)?
- ‚Cambridge controversies‘ in the theory of capital



# Classical, Marx's and Post-Keynesian approaches



- No a-historical first principles
- Distribution and capital accumulation/ growth are interdependent
- Explicit theories of distribution (,degree of freedom' to be closed by socio-institutional factors)

## Classical and orthodox Marxian approach



- Distribution is determined by socio-institutional factors: subsistence wage and/or class struggle
- With a given technology this determines the rate of profit
- Rate of profit determines the rate of capital accumulation because capitalist class as whole can only accumulate out of profits (Classical version of Say's Law:  $S \rightarrow I$ ):

$$(1.1) \quad g = s_{\Pi} r$$

$g$ : accumulation rate,  $s_{\Pi}$ : propensity to save out of profits,

$r$ : rate of profit



- Rate of capital accumulation determines the rate of growth
- Unemployment is a persistent feature, though fluctuating
- Capital accumulation feeds back negatively on the rate of profit in the long run
  - tendency of the rate of profit to fall
  - deep crisis (Marx) or stationary state (Ricardo)



## Post-Keynesian approach

- Capital accumulation is independent of saving,  
 $I \rightarrow S$ , *no Say's law* (→ Robinson 1962, pp. 82-83)
- Harrod, Domar: Explore conditions for balanced growth, Harrod detects instability of ‚warranted rate of growth‘
- Kaldor, Pasinetti, Robinson: Capital accumulation determines the rate of profit and thus income distribution in the long run (Kaldor: full employment; Robinson: no full employment):

$$(1.2) \quad r = \frac{g}{s_{\Pi}}$$



“The Keynesian models (including our own) are designed to project into the long period the central thesis of the *General Theory*, that firms are free, within wide limits, to accumulate as they please, and that the rate of saving of the economy as a whole accommodates itself to the rate of investment that they decree.”  
(Robinson 1962, pp. 82-83)



- Kalecki, Steindl: Capital accumulation determines the growth and the degree of utilisation of productive capacities also in the long run, as well as the rate of profit; distribution is determined mainly by mark-up pricing in incompletely competitive markets :

$$(1.3) \quad r = \frac{\Pi}{pK} = \frac{\Pi}{pY} \frac{Y}{Y^P} \frac{Y^P}{K} = hu \frac{1}{v}$$

$\Pi$ : profits,  $p$ : domestic prices,  $K$ : capital stock,  $Y$ : real output,  
 $Y^P$ : potential output,  $h$ : profit share,  $u$ : rate of capacity utilization,  
 $v$ : capital-potential output ratio

- Endogenous growth models driven by effective demand, i.e. productivity growth is also demand determined



## **1.2 DISTRIBUTION AND GROWTH TRENDS SINCE THE 1960S – SOME STYLIZED FACTS**

# How to measure functional income distribution?



- Wage share, profit share
- Adjusted wage share, adjusted profit share
- Labour income share

(sometimes also called 'adjusted wage share' → AMECO)





## Wage share and profit share

$$(1.4) \quad (1 - h) = \frac{W}{pY}$$

$1 - h$  : wage share,  $W$ : wages,  $p$ : price level,  $Y$ : real income/GDP

$$(1.5) \quad h = \frac{\Pi}{pY}$$

$h$ : profit share

$$(1.6) \quad pY = W + \Pi$$

$$(1.7) \quad \frac{W}{pY} + \frac{\Pi}{pY} = 1$$

## Labour income



$$(1.8) \quad E = L + E_s$$

E: employment, L: employees,  $E_s$ : self-employed persons

$$(1.9) \quad W_{LI} = W + W_s = \frac{W}{L}L + \frac{W}{L}E_s = \frac{W}{L}(L + E_s) = \frac{W}{L}E$$

$W_{LI}$ : labour income,  $W_s$ : labour income of self-employed persons



## Labour income share

$$(1.10) \quad (1-h)_{LI} = \frac{W_{LI}}{pY} = \frac{\frac{W}{L} E}{pY} = \frac{W}{pY} \frac{E}{L} = \frac{\frac{W}{L}}{\frac{pY}{E}} = \frac{w}{py}$$

w: nominal wage rate, y: labour productivity

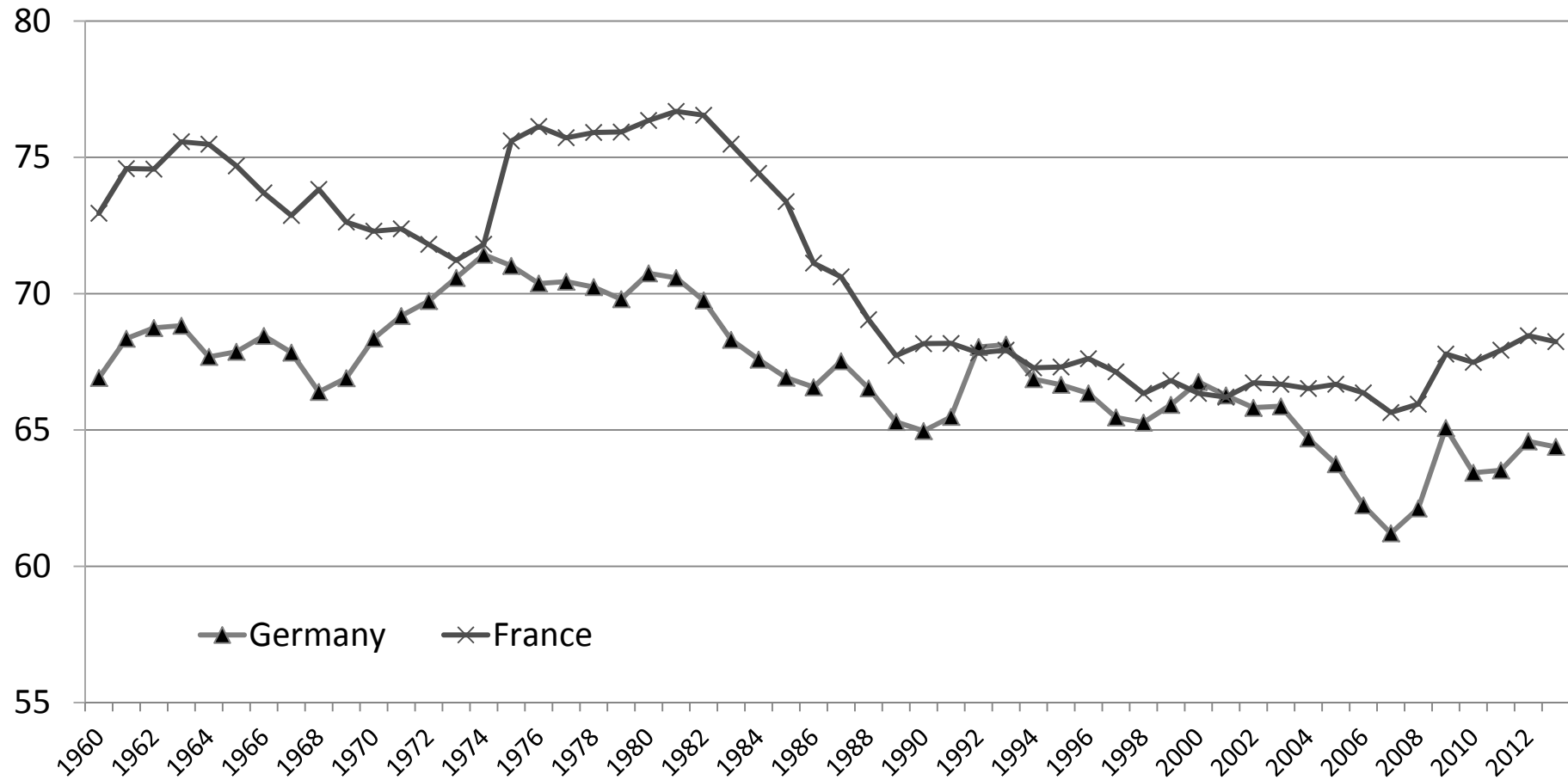
$$(1.11) \quad (1-h)_{LI}^{\wedge} = \hat{w} - \hat{p} - \hat{y}$$

$$(1.11a) \quad (1-h)_{LI}^{\wedge} > 0, \text{ if } : \hat{w} > \hat{p} + \hat{y}$$

$$(1.11b) \quad (1-h)_{LI}^{\wedge} < 0, \text{ if } : \hat{w} < \hat{p} + \hat{y}$$

**Figure 1.1 Labour income share in France and Germany**

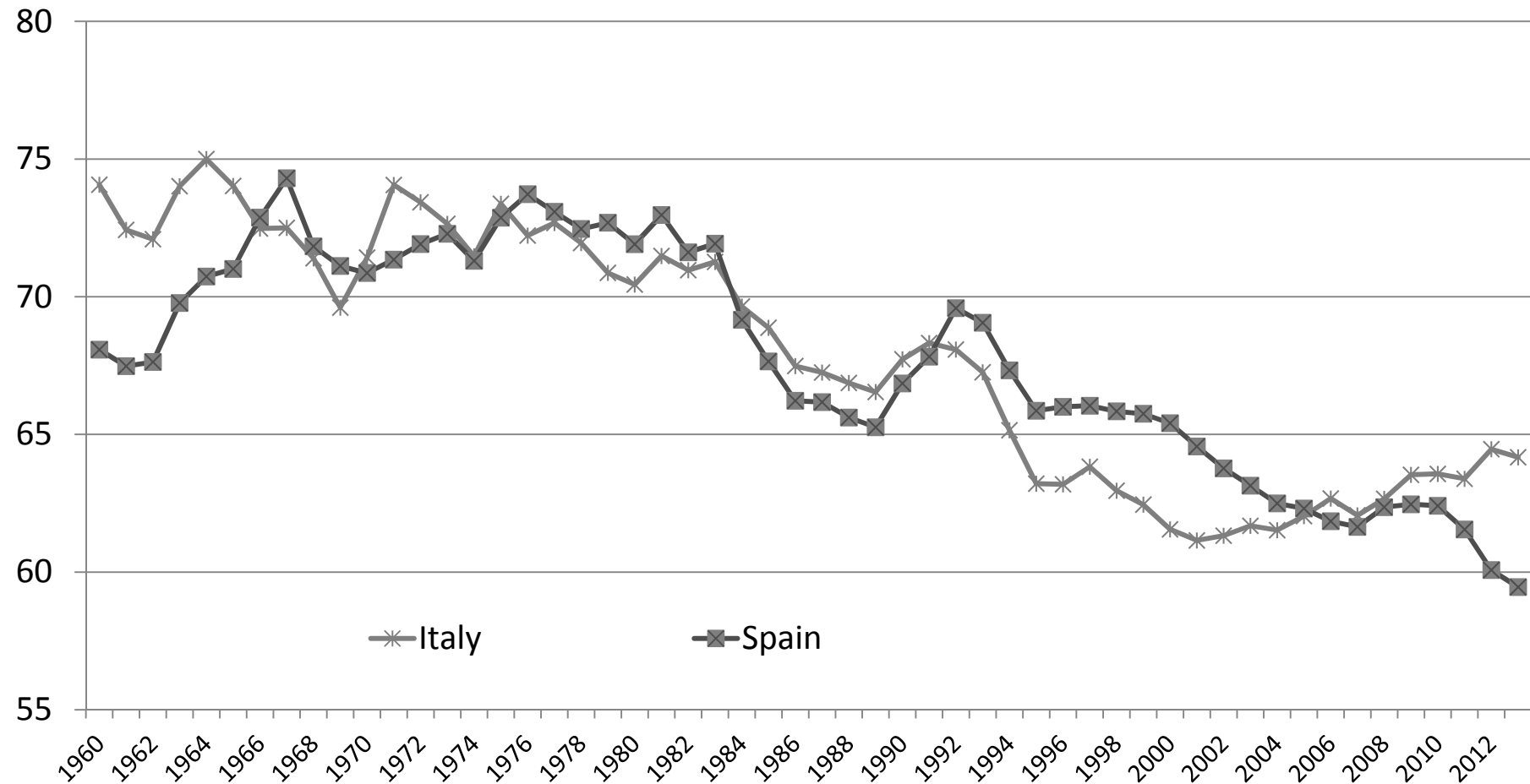
Labour income share as percentage of GDP at current factor costs in France and Germany, 1960-2013



Source: European Commission (2013)

**Figure 1.2 Labour income share in Italy and Spain**

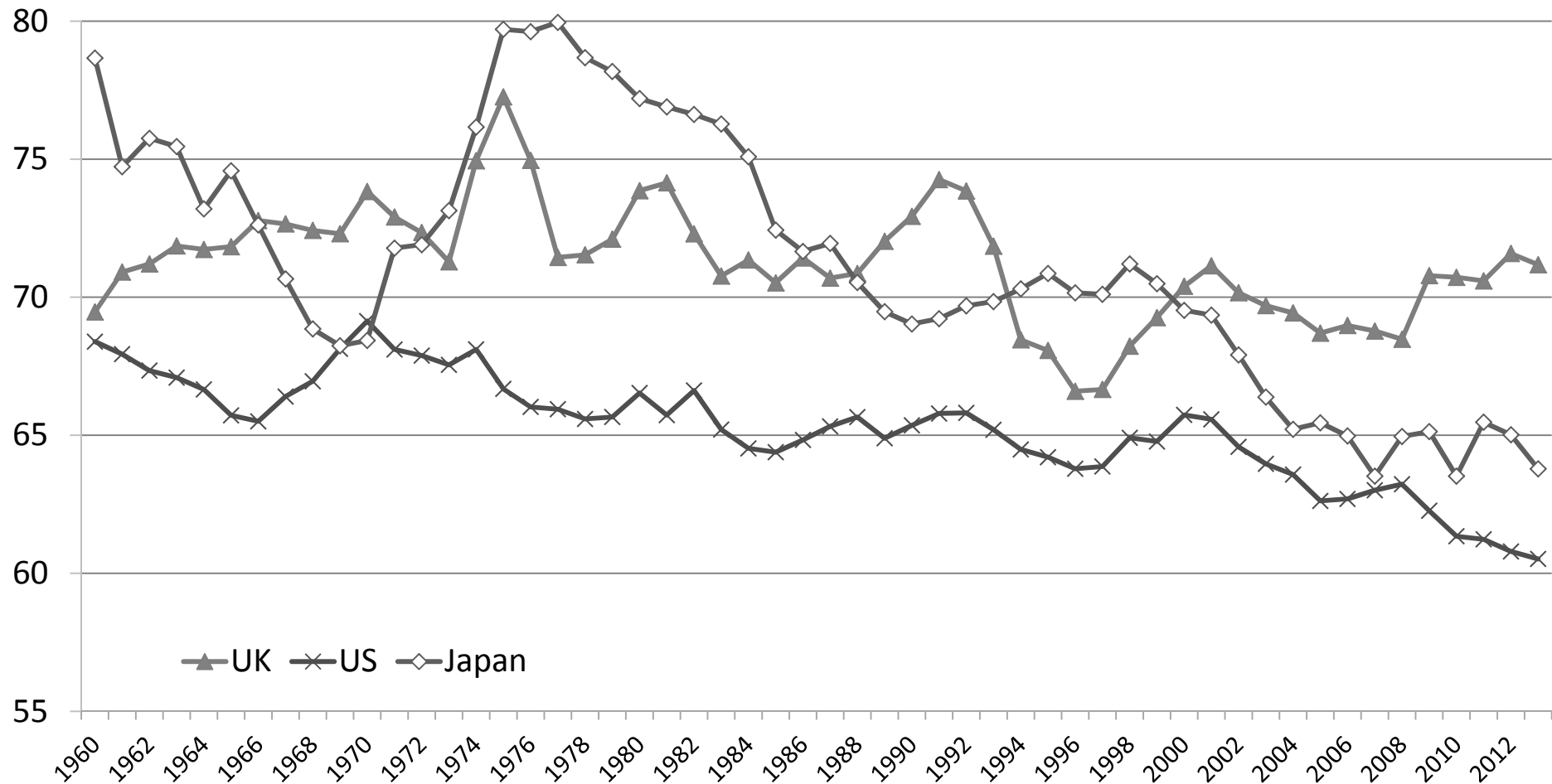
Labour income share as percentage of GDP at current factor costs in Italy and Spain, 1960-2013



Source: European Commission (2013)

**Figure 1.3 Labour income share in Japan, the UK and the US**

Labour income share as percentage of GDP at current factor costs in Japan, the UK and the US, 1960-2013



Source: European Commission (2013)



*Table 1.1 Labour income shares, real GDP growth, real capital stock growth, labour productivity growth, and real long-term interest rates on average over the trade cycle in France, Germany, Italy, Spain, the UK, the USA, and Japan, 1960-2008, in per cent*

| <b>France</b>                          | 1961-1974 | 1975-1980 | 1981-1992 | 1993-2002 | 2003-2008 |
|--|-----------|-----------|-----------|-----------|-----------|
| Labour income share                    | 73.39     | 75.94     | 71.60     | 66.97     | 66.30     |
| Real GDP growth                        | 5.58      | 2.62      | 2.19      | 1.99      | 1.65      |
| Real net capital stock growth          | 4.68      | 3.65      | 2.47      | 2.05      | 2.39      |
| Growth of real GDP per person employed | 5.00      | 2.17      | 1.92      | 1.13      | 1.01      |
| Real long-term interest rate           | 1.56      | -0.27     | 4.96      | 4.53      | 1.81      |
| Inflation (consumer price index)       | 5.25      | 10.60     | 5.72      | 1.52      | 1.99      |
| <b>Germany<sup>1</sup></b>             | 1961-1974 | 1975-1981 | 1982-1992 | 1993-2002 | 2003-2008 |
| Labour income share                    | 68.60     | 70.46     | 67.13     | 66.35     | 63.31     |
| Real GDP growth                        | 4.10      | 2.34      | 2.72      | 1.39      | 1.58      |
| Real net capital stock growth          | 4.13      | 2.47      | 1.93      | 2.09      | 1.10      |
| Growth of real GDP per person employed | 3.87      | 2.06      | 1.63      | 1.11      | 1.11      |
| Real long-term interest rate           | 3.52      | 3.21      | 4.96      | 4.09      | 2.44      |
| Inflation (consumer price index)       | 3.62      | 4.63      | 2.59      | 1.85      | 1.79      |



Table 1.1 continued

| <b>Italy</b>                           | 1961-1974 | 1975-1981 | 1982-1992 | 1993-2002 | 2003-2008 |
|--|-----------|-----------|-----------|-----------|-----------|
| Labour income share                    | 72.61     | 71.86     | 68.46     | 63.21     | 62.11     |
| Real GDP growth                        | 5.37      | 2.97      | 2.33      | 1.60      | 0.88      |
| Real net capital stock growth          | 4.67      | 3.42      | 2.62      | 1.75      | 1.83      |
| Growth of real GDP per person employed | 5.45      | 2.00      | 1.75      | 1.32      | 0.33      |
| Real long-term interest rate           | 0.23      | -2.55     | 4.95      | 3.88      | 1.59      |
| Inflation (consumer price index)       | 5.63      | 16.84     | 8.20      | 3.11      | 2.36      |
| <b>Spain</b>                           | 1961-1974 | 1975-1980 | 1981-1992 | 1993-2001 | 2002-2008 |
| Labour income share                    | 71.03     | 72.79     | 68.40     | 66.20     | 62.51     |
| Real GDP growth                        | 7.11      | 1.58      | 2.73      | 3.13      | 3.01      |
| Real net capital stock growth          | 5.38      | 4.56      | 3.40      | 3.63      | 4.59      |
| Growth of real GDP per person employed | 6.37      | 3.28      | 1.88      | 0.84      | 0.50      |
| Real long-term interest rate           | ...       | -2.83     | 4.68      | 3.70      | 0.77      |
| Inflation (consumer price index)       | 7.38      | 18.35     | 8.75      | 3.40      | 3.33      |
| <b>UK</b>                              | 1961-1973 | 1974-1979 | 1980-1990 | 1991-2000 | 2001-2008 |
| Labour income share                    | 72.16     | 73.71     | 71.90     | 69.76     | 69.42     |
| Real GDP growth                        | 3.16      | 1.48      | 2.31      | 2.52      | 2.52      |
| Real net capital stock growth          | 2.75      | 2.00      | 1.69      | 1.83      | 2.46      |
| Growth of real GDP per person employed | 2.86      | 1.07      | 1.74      | 2.27      | 1.64      |
| Real long-term interest rate           | 2.52      | -1.61     | 3.98      | 4.19      | 2.68      |
| Inflation (consumer price index)       | 5.09      | 15.63     | 7.09      | 2.67      | 1.93      |





Table 1.1 continued

| <b>USA</b>                             | 1961-1973 | 1974-1981 | 1982-1990 | 1991-2000 | 2001-2008 |
|--|-----------|-----------|-----------|-----------|-----------|
| Labour income share                    | 67.26     | 66.28     | 65.20     | 64.86     | 63.66     |
| Real GDP growth                        | 4.34      | 2.52      | 3.42      | 3.46      | 2.10      |
| Real net capital stock growth          | 3.07      | 2.70      | 2.66      | 2.73      | 2.95      |
| Growth of real GDP per person employed | 2.36      | 0.62      | 1.45      | 1.84      | 1.64      |
| Real long-term interest rate           | 2.09      | 0.24      | 5.76      | 4.30      | 2.01      |
| Inflation (consumer price index)       | 3.17      | 9.37      | 4.12      | 2.81      | 2.83      |
| <b>Japan<sup>2)</sup></b>              | 1961-1973 | 1974-1982 | 1983-1992 | 1993-2001 | 2002-2008 |
| Labour income share                    | 72.26     | 78.11     | 71.53     | 70.20     | 65.49     |
| Real GDP growth                        | 9.39      | 3.47      | 4.29      | 0.83      | 1.21      |
| Real net capital stock growth          | 6.72      | 6.24      | 4.74      | 2.46      | 0.62      |
| Growth of real GDP per person employed | 7.95      | 2.83      | 3.18      | 1.10      | 1.12      |
| Real long-term interest rate           | -1.36     | 0.20      | 4.42      | 2.56      | 2.11      |
| Inflation (consumer price index)       | 6.17      | 8.28      | 1.78      | 0.30      | 0.03      |

Notes: The local minimum of real GDP growth is taken as the beginning of a trade cycle. The period 1961 – 1973/74 shows no clear pattern of trade cycles for the countries under consideration.

<sup>1)</sup> West Germany from 1960 to 1991.

<sup>2)</sup> For Japan the trade cycle pattern for the period 1974 – 2008 has been adjusted to fit the pattern of the other countries.

Source: European Commission (2013), author's calculations



## **1950s – late 1960s/mid 1970s: golden age**

- Stable or slightly rising labour income shares
- High real GDP, capital stock and productivity growth
- Low real interest rates well below real GDP growth
- Moderate inflation

## **1970s: period of turbulences**

- Increase in labour income shares
- High rates of inflation
- Lower partly negative real interest rates
- Lower real GDP, capital stock and productivity growth



## **1980s - ...: neoliberalism, finance-dominated capitalism**

- Falling inflation rates
- Falling labour income shares
- Rise in real interest rates in the 1980s and 1990s, remaining well above real GDP growth (few exceptions)
- Weak capital stock and productivity growth (few exceptions)



## 1.3 A FEW WORDS ON METHODS



## Comparative dynamics

- Linear equations
  - equilibrium growth rates, utilisation rates, profit rates, ...
- Change in parameters and exogenous variables
  - new dynamic equilibrium
- Only stability can be examined, but no precise out-of-equilibrium dynamics



“[I]t should be pointed out that equilibrium should be thought of not as an actual state of rest, or a tranquil state, but rather as a theoretical tool of analysis. [...] [T]he equilibrium in a model does not imply a position of rest for actual economies, since in the model many things which can actually change over time are held constant in order to abstract from their influences. If these things change erratically, they need not be modelled formally. But if they do change systematically, the equilibrium model can be the basis of examining the results of the endogenous dynamics of these state variables [...].”

(Dutt 2011a, p. 143)



- Equilibrium as theoretical tool:
  - ‘periods’ or ‘runs’ are theoretical concepts
  
- Short-run or short-period equilibrium:
  - certain variables are held constant or are taken as exogenous for the short run
  - variations are only examined for medium- or long-run/period equilibrium