1. Introduction

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

Issues of income distribution, economic development and growth are back on the economics research agenda, at least since the Great Recession (2008–09) and the difficulties of recovery of the world economy, in particular in the Euro area. This is true not only for research output based on heterodox approaches, as for example more recently Galbraith (2012), Hein (2012a), Palley (2012a, 2013a), Stockhammer (2012a, 2012b) and Stockhammer and Onaran (2013), as well as the contributions in Niechoj et al. (2011) and Lavoie and Stockhammer (2013a), have shown. It is also true for contributions rooted in mainstream research methods and approaches, as for example Rajan (2010) and Stiglitz (2012) have demonstrated. Furthermore, international institutions, for example the OECD (2008, 2011, 2012a, chap. 3), the ILO (2012) and the UNCTAD (2012), as well as authors based at the IMF, for example Berg et al. (2008), Kumhof and Rancière (2010), Berg and Ostry (2011), Kumhof et al. (2012) and Ostry et al. (2014), have stressed the issue and the importance of income distribution recently.

Whereas data on functional income distribution, that is on wage and profit shares, are directly available from the national accounts, reliable data on the personal or household distribution of income are more difficult to obtain, because they are usually based on household and consumer surveys. However, recent research on top income shares based on tax data by Atkinson and Piketty (2007, 2010), Atkinson et al. (2011) and Piketty (2014), as well as the dataset now publically available in the *World Top Incomes Database* provided by Alvaredo et al. (2014), have attracted and facilitated studies in this area as well.

Therefore it seems that relevant parts of the economics discipline are now willing to contribute to an attempt at ‘bringing income distribution in from the cold’, as demanded by Atkinson (1997) almost 20 years ago in his presidential address to the Royal Economic Society. This means returning to the starting point of economics as an academic discipline, when issues of income distribution were considered to be at the very core of this social science. A famous quotation from David Ricardo reminds us of this:

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 or 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, emphasis added)

Determining the laws which govern functional income distribution was by no means an end in itself for Ricardo and the classical political economy, but it was a necessary step from the viewpoint of this economic school, because it was held that the development of functional income distribution directly affects economic development and growth and thus ‘the wealth of nations’, to use Adam Smith’s (1776) terminology. The specific classical perception of the link between functional income distribution and economic growth was challenged, rejected or reversed by the successive economic paradigms, the Marxian, the neoclassical and the Keynesian and post-Keynesian paradigms.¹

In this book we will deal with theories of distribution and growth after Keynes. Excluding the discussion of classical theories (Smith, Ricardo, Malthus) and in particular Marx’s and Marxian distribution and growth theories could be considered to be a serious shortcoming. On the one hand, this is dictated by the limitation of space and by the intention to focus on the latest developments of post-Keynesian and in particular Kaleckian–Steindlian distribution and growth theories and their empirical applications in this book. On the other hand, there are several books available covering classical or Marxian approaches together with neoclassical and post-Keynesian models, but without any detailed treatment of the latest developments of Kaleckian–Steindlian approaches, for example Harris (1978), Marglin (1984a), Dutt (1990a) and Foley and Michl (1999).² It would have been almost impossible to add anything of substance regarding the classical and Marxian approaches to these eminent contributions.³

The focus of the present book is on the link between ‘functional income distribution’ and growth or economic development in the theories of distribution and growth after Keynes. Questions concerning ‘personal income distribution’ and also ‘wealth distribution’ are only touched on the margin. However, this does not mean that personal distribution and wealth distribution are unimportant or do not matter for economic development. As is well known, the functional income distribution describes the distribution

of income between social classes (workers, capitalists, landowners) and/or between different types of income (wages, profits, rents), whereas the personal or household distribution looks at the distribution between households and individuals regardless of the functional source of the income. If economic and financial wealth and hence capital income and wages are not equally distributed over households, a change in functional income distribution will also affect the personal or household distribution of income. And it will also feed back on the distribution of wealth, because it will affect the ability to accumulate wealth out of current income.

A closer examination of the transition from 'primary distribution' to 'secondary distribution' is also beyond the scope of this book. While the primary distribution refers to the distribution of income derived from market activity, the secondary distribution is affected by redistribution of the state by means of taxes and social security contributions as well as by subsidies and social transfers. The result of this redistribution process is the distribution of disposable income. Although government redistribution of income takes place to a considerable degree in developed capitalist economies, we will not study this in any detail, because the focus in the present book will be on the paradigmatic differences regarding the nexus between distribution and growth. The implications for distribution policies, however, will be spelt out where appropriate.

When approaching the issue of distribution and growth we are interested in the relationship between functional income distribution, aggregate demand and real GDP growth, as indicator of current economic activity, on the one hand, and between distribution and capital stock growth, as a main determinant of future potential output and economic activity, on the other hand. Reviewing distribution and growth theories after Keynes, the first question to be raised is whether the respective paradigms or theories to be studied see any connection between income distribution, output and growth at all. If such an interdependence is considered, the second question refers to the specific nature of the relationship between distribution and growth: Is there a certain impact running from capital accumulation and growth to income distribution, or is the latter determined by other factors or rather impacts on the long-run growth trend of an economy? Or are distribution and growth mutually dependent?

The neoclassical approach, discussed in Chapter 3 of this book, explains both income distribution and growth in a unified and integrated framework taken from its foundations in allocation theory starting from 'first principles'. These are given production technologies, and hence production functions, given utility functions, given initial endowments of economic agents, and the assumption of strictly utility and profit maximizing behaviour of economic agents in perfectly competitive markets. In this approach,

the technology of production determines the income shares of the factors of production. Adding initial endowments to the story, the personal or household distribution of income is also fully determined. Factor price relations, established by supply and demand processes in factor markets, are taken to represent relative scarcities. Flexible factor prices guarantee the adjustment towards an exogenously given full employment equilibrium growth rate, the 'natural rate of growth', determined by non-explained rates of population growth and technological progress. Capital stock growth is determined by saving and has no effect on the natural rate of growth, but only on the long-run equilibrium growth path. Saving is thus beneficial because it increases the capital intensity of production and the level of productivity, but not the growth rate of productivity or output. In the modern version of neoclassical growth theory, that is in the new or endogenous growth theory, productivity growth and hence the natural rate of growth are determined endogenously in a way which is consistent with neoclassical first principles. In this approach it is technical progress which is determined by technology, applied in generating growth enhancing human capital or R&D, and preferences, in particular the time preference of households regarding present and future consumption. Unlike the case in old neoclassical growth theory, saving and (broad) investment have a permanent effect on the equilibrium growth rate and thus on the natural rate of growth. Saving, determining investment, is thus beneficial for the steady growth rate, and not only for the growth path.

In contrast to the neoclassical approaches, post-Keynesian distribution and growth theories, discussed extensively in this book, as well as the approaches based on classical and Marx's contributions, start off with one degree of freedom in the determination of relative prices and thus in functional income distribution, which can be closed by different hypotheses. Therefore, income distribution cannot be explained by simple and generally valid assumptions about production technologies, utility functions and strictly utility and profit maximizing behaviours in perfectly competitive markets. Instead, an independent theory of distribution is required in order to determine equilibrium relative prices, which are prices of production and reproduction in these approaches. Since these approaches cannot be based on first principles they are open to and indeed require the integration of specific historical, institutional and societal considerations. Furthermore, income distribution, capital accumulation and growth are interrelated, albeit in different ways.

The classical authors, such as Adam Smith and David Ricardo, as well as Karl Marx, assume that functional income distribution is determined by socio-institutional factors, in particular by a subsistence real wage rate. For a given production technology the rate of profit then becomes a residual

variable. The subsistence real wage rate is given by the necessary means of reproduction of workers and their families, which themselves are affected by the prevailing historical and institutional circumstances, and by the power relations between the social classes, in particular for Marx. With functional income distribution determined in this way, the rate of profit (r), together with capitalists' propensity to save and to accumulate (s_{Π}), determines the rate of capital accumulation and growth (g):

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

In this approach the validity of Say's law in Ricardo's version is assumed:⁴ Profits saved are completely used for investment and accumulation, so that no problems of effective demand for the economy as a whole arise in long-run growth.⁵ However, for the classical authors and Marx this does not mean that the growth path is characterized by full employment. On the contrary, unemployment is considered to be a persistent feature of capitalism constraining distribution claims of workers and thus providing the conditions for positive profits, capital accumulation and growth. Furthermore, in this perspective, capital accumulation feeds back on the rate of profit in the long run, and causes a tendency of the rate of profit to fall. This is either due to the specific nature of technological progress causing a falling productivity of capital (Marx) or to the falling marginal productivity of land (Ricardo). Finally, a deep crisis of capitalism (Marx) or a stationary state of the economy (Ricardo) is supposed to emerge.

In the first generation of post-Keynesian distribution and growth theories put forward by Nicholas Kaldor and Joan Robinson, relying on Keynes's and Kalecki's 'principle of effective demand' and extending it to the long period, it is investment decisions of firms and hence capital accumulation, financed independently of prior saving in the economy, which determine functional income distribution. The causality known from the classicals and Marx is reversed: The rate of profit is determined by the rate of accumulation and growth and by the propensity to save out of profits; income distribution is a result of capital accumulation and not a precondition:

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

In the second generation post-Keynesian models based on Michal Kalecki's and Josef Steindl's works, the independence of capital accumulation of firms from prior saving is connected with a determination of

income distribution by relative economic powers, mainly through firms' mark-up pricing on unit labour costs in incompletely competitive goods markets. At first sight, the system now seems to be overdetermined. However, the long-run endogeneity of the rate of capacity utilization allows for a reconciliation: Functional income distribution, and hence the profit share (h), is explained by relative economic powers of capital and labour affecting the mark-up in firms' pricing, and the rate of capacity utilization (u) is determined by aggregate demand and hence by capital accumulation and consumption. In the Kalecki-Steindl approach, the rate of capital accumulation still determines the rate of profit, as in equation (1.2), but now through variations in the rate of capacity utilisation:

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

with Π representing the sum of profits, K the real capital stock, p the price level, Y real output, Y^p potential output given by the capital stock, h the profit share, u the rate of capacity utilization, and v the capital-potential output ratio.

What all the post-Keynesian distribution and growth models have in common is the adherence to Keynes's and Kalecki's principle of effective demand. Investment by firms is independent of prior saving and is the driving force of the growth process, which determines not only the utilization of existing capacities, but also the creation of additional productive capacities. The identification of the determinants of investment and capital accumulation is thus a key challenge and plays a key role in these models. Generally, the expected rate of profit and the interest rate or the interest payments as monetary categories are of significance, as will be shown in detail in the chapters to follow.

1.2 DISTRIBUTION AND GROWTH TRENDS SINCE THE 1960s – SOME STYLIZED FACTS

We do not attempt a detailed empirical analysis of the relationship between functional income distribution and economic development in this introduction, but we would like to present a brief overview of the trends of important indicators for the period starting in the 1960s until the Great Recession in 2008/09. The focus will be on a sample of developed capitalist economies.

Looking at functional income distribution first, we can start with the wage share ($1-h$) from the national accounts. This is the share of

compensation of employees (W) in nominal GDP at market prices or at factor costs, or in national income (pY):

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

The profit share (h) as the share of profits (Π), including income of self-employed persons, retained profits, dividends, interest and rents, in nominal GDP at market prices or at factor costs, or as a share in national income, is given as:

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

Since nominal GDP or national income is only divided between wages and profits in a broad sense,

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

we have:

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

The development of the unadjusted wage share taken from the national accounts may be insufficient to assess the distribution position of the average wage income earner in comparison with the average profit income earner. This is so because the wage share is significantly affected by the development of the share of employees (L) in total employment (E), including employees and self-employed persons (E_s):

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

When formerly self-employed persons, earning profits in a broad sense according to the national accounts, give up their business and become employed workers and thus wage and salary earners, *ceteris paribus* the wage share rises and the profit share falls, without any improvement of the distribution position of the average wage income earner relative to the average profit income earner. Such a change in the employment structure is often associated with structural change in the economy, for example from agriculture dominated by self-employment to industrial production dominated by dependent employment and wage labour.

In order to correct for the effect of this structural change on the functional income distribution measure, we can calculate a 'labour income share', which is called an 'adjusted wage share' in the AMECO database of the European Commission (2013) widely used in the empirical research referred to in this book. When calculating a labour income share, it is assumed that the average labour income of a self-employed person is equal to the average labour income of an employee. With this assumption the transition from self-employment to dependent employment has no effect on the functional income shares in the economy. This can be shown as follows. The total labour income (W_{LI}) is given as the sum of wages of employees (W) plus the labour income of the self-employed persons (W_s), and therefore we obtain:

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

Dividing total labour income from equation (1.9) by national income or GDP at market prices or factor costs, we obtain the respective labour income share:

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

As can be seen from equation (1.10), the labour income share can easily be calculated by multiplying the unadjusted wage share from the national accounts with the ratio of total employment to employees. It is also given by dividing the nominal wage rate ($w = W/L$) by the product of the price level (p) and the real productivity of total employment ($y = Y/E$). Writing equation (1.10) in growth rates, we obtain the determinants of a change in functional income distribution:

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

Therefore, by definition, the labour income share will rise (fall) whenever the rate of change of the nominal wage rate exceeds (falls short of) the sum of the rate of change of the price index (inflation) and of labour productivity growth:

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

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

Figures 1.1 to 1.3 show the development of the labour income shares in selected developed capitalist economies from 1960 until 2013. As can be seen the labour income share is usually characterized by significant short-run fluctuations during a trade cycle, on the one hand, and by long-run trends beyond the trade cycle, on the other hand. Therefore, functional income distribution does not seem to be constant over time, neither in the short nor in the long run. In a short-run perspective, labour income shares seem to reach local maxima during cyclical recession periods, as in the mid-1970s, the early 1980s, the early 1990s, the early 2000s and around 2008/09, and local minima during cyclical recoveries and booms after these recessions. However, there are some exceptions to this pattern. As can be easily explained with the help of equation (1.11), this counter-cyclical pattern in the labour income share will be observed if in a recession nominal wage growth does not fall to the same extent as the sum of inflation and productivity growth, and if in a cyclical recovery and boom period nominal wage growth does not rise in step with the sum of inflation and productivity growth.

In a long-run perspective, the labour income share seems to have a constant (Italy, the US) or slightly rising trend (France, Germany, Spain, the UK, Japan) from the early 1960s until the recession of the early 1980s, and then a falling trend until the Great Recession of 2008/09. Therefore, the recession of the early 1980s seems to mark a structural break in the development of income distribution. Such a structural break is visible not only for functional income distribution but also for the trend of other macroeconomic variables, as can be seen in Table 1.1, where we have calculated cyclical average values for the labour income share, real GDP growth, labour productivity growth, the real long-term interest rate, that is the nominal interest rate corrected for inflation, and the rate of inflation.

Since there are difficulties in identifying a clear common pattern of trade cycles for the seven economies during the period 1961–73/74, we have calculated the average values for this whole period. This first period covers a major part of the post Second World War ‘golden age’ of capitalism from the 1950s until the late 1960s/mid-1970s with stable or slightly rising labour income shares, high real GDP, capital stock and productivity growth, low real interest rates falling short of real GDP growth, and moderate rates of inflation. The latter is particularly true for the 1960s; in the late 1960s/early 1970s inflation rates started to rise significantly, thus raising the average for the period 1961–74/75.

The cycle of the second half of the 1970s saw a further increase in labour income shares, except for Italy, higher inflation rates, lower real interest rates, which even became negative in France, Italy, Spain and the UK, and lower real GDP, capital stock and productivity growth than in the period before. Therefore, the turbulent 1970s meant the end of the

Source: European Commission (2013).

Figure 1.1 Labour income share in France and Germany

Source: European Commission (2013).

Figure 1.2 Labour income share in Italy and Spain

Source: European Commission (2013).

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

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 US and Japan, 1961–2008

France	1961–74	1975–80	1981–92	1993–2002	2003–08
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
Germany ¹	1961–74	1975–81	1982–92	1993–2002	2003–08
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
Italy	1961–74	1975–81	1982–92	1993–2002	2003–08
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
Spain	1961–74	1975–80	1981–92	1993–2001	2002–08
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

Table 1.1 (continued)

UK	1961–73	1974–79	1980–90	1991–2000	2001–08
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
US	1961–73	1974–81	1982–90	1991–2000	2001–08
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
Japan ²	1961–73	1974–82	1983–92	1993–2001	2002–08
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:

In percentages.

The local minimum of real GDP growth is taken as the beginning of a trade cycle. The period 1961–73/74 shows no clear pattern of trade cycles for the countries under consideration.

¹ West Germany from 1960 to 1991.

² 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.

golden age period. Full employment, rising labour income shares, high inflation and low, partly negative real interest rates triggered ‘the revenge of the rentiers’ (Smithin 1996) and the rise of ‘monetarism as a social doctrine’ (Bhaduri and Steindl 1985). As a consequence, in the course

of the 1970s governments moved away from targeting full employment by means of active aggregate demand management towards targeting price stability, using higher rates of unemployment as an instrument. This change in policy priorities included the deregulation and liberalization of labour markets, as well as national and international financial markets in particular. All this caused a shift of power from labour to capital, and to financial capital in particular, and finally gave rise to ‘finance-dominated capitalism’ (Hein 2012a), as has been analysed in detail in Glyn (2006), for example.⁶ The macroeconomic dimension and implications of this shift from the golden age period of capitalism towards finance-dominated capitalism or ‘financialization’ will be explored in Chapter 10 of this book.

The economic effects of this shift can be seen in Table 1.1. Starting with the trade cycle of the 1980s, labour income shares were falling over the consecutive cycles in all the countries until the Great Recession. Inflation rates started to fall as well, and in the cycles of the 1990s and the early 2000s they reached levels below those in the golden age period, with Japan even being shattered by severe deflationary pressures. Real interest rates rose considerably during the cycles of the 1980s and the 1990s, and only in the cycle of the early 2000s did they fall back to the levels of the golden age, with Japan being an exception. In some countries real GDP growth recovered somewhat compared to the cycle of the second half of the 1970s, however, without reaching the high growth rates of the golden age period again. Most importantly, real GDP remained below the real long-term interest rate during the cycles of the 1980s, 1990s and early 2000s, thus reversing the golden age constellation. The only exceptions to this were Italy, Spain and the US during the cycle of the early 2000s, the former two benefiting from the convergence of nominal interest rates towards the lower German level associated with the establishment of the European Monetary Union and the euro. Real capital stock growth remained weak during the three cycles of ‘finance-dominated capitalism’ and no longer reached the growth rates of the golden age period. Finally, the trend of productivity growth continually declined in all of the countries, except the UK and the US, where a rise during the cycles of the 1980s and 1990s could be observed.

This broad overview will suffice for the introduction. We shall come back to the explanation of some of these facts and trends in Chapters 7 to 10 of this book, which contain empirical applications of the Kaleckian models developed in those chapters.

1.3 OVERVIEW OF CHAPTERS AND METHODS

The following chapters of this book can be broadly divided into two parts. First, Chapters 2 to 5 give an overview of the development of distribution and growth theories after Keynes, focusing on the main strands and contributing authors. The presentations of the contributions of different authors may sometimes deviate from the original sources in order to make the approaches more accessible and comparable. But, of course, the content should be faithful to the original contributions. Second, Chapters 6 to 11 introduce and develop in more detail different versions of the Kaleckian–Steindlian distribution and growth models, which have become workhorse models in post-Keynesian research during the last two decades or so.

We start in Chapter 2 with the transition from Keynes's short-period macroeconomics to the contributions by Evsey D. Domar and Roy F. Harrod. The latter two were the first explicitly to treat the capacity effect of investment, which had been omitted by Keynes and in short-run macroeconomic theory after Keynes. Domar merely formulated the conditions for a growth equilibrium in which capacity effects of investments are taken into consideration. Harrod also studied the out-of-equilibrium dynamics in an attempt at formulating a dynamic theory, and he considered these dynamics to be unstable. The determinants of the long-period growth processes, however, have not been treated by these two authors. We also show that the well-known textbook post-Keynesian 'Harrod–Domar growth model' is a misinterpretation of the intentions and the contributions of Domar and Harrod, which then gave rise to neoclassical growth theory.

Chapter 3 deals with the neoclassical distribution and growth theory. We start by reiterating that neoclassical general equilibrium microeconomics already contains a theory of distribution determining the remuneration of the factors of production by technology and utility, and the household distribution of income furthermore by initial endowments. At the macroeconomic level, the aggregate marginal productivity theory of income distribution determines factor income shares by production technology. Next in this chapter we discuss the 'old neoclassical growth model' put forward by Robert M. Solow and Trevor Swan in the 1950s. The properties of the Solow model, which is a full employment growth model with exogenous technological progress, are outlined and the implications of this approach with regard to productivity convergence are discussed. The treatment of technological progress as an exogenous and thus unexplained variable in the model gave rise to a second generation of neoclassical growth models, the so-called 'new growth theory' or 'endogenous growth models', starting

in the 1980s with the works of Paul M. Romer and Robert E. Lucas. We discuss basic versions of these models and focus, among other things, on the role of income distribution. Finally, we deal with fundamental critiques of the neoclassical distribution and growth theories, old and new, and focus on the ‘Cambridge controversies in the theory of capital’ or the ‘Cambridge–Cambridge controversy’ of the 1950s and 1960s questioning the logical consistency of the neoclassical approach outside a one-good barter economy.

In Chapter 4 we turn to the first generation post-Keynesian distribution and growth approaches put forward by Nicholas Kaldor and Joan Robinson in the 1950s and early 1960s. First, we start by presenting Kaldor’s full utilization–full employment equilibrium growth models, together with extensions and further developments suggested by Luigi L. Pasinetti. In these models, capital accumulation and full employment growth determine the rate of profit and thus functional income distribution. Productivity growth and hence the natural rate of growth become endogenous through Kaldor’s technical progress function and the notion of capital-embodied technical change. Second, we address Kaldor’s applied economics of growth, considerably deviating from his full utilization–full employment equilibrium growth models. We deal with the export-led growth model based on Kaldor’s growth laws and finally with Anthony P. Thirlwall’s model of a ‘balance-of-payments-constrained’ growth rate. Then we turn to Joan Robinson’s contributions, her rejection of steady state equilibrium growth models, her analysis of the relationship between the rate of profit and the rate of growth, and her distinctions between different accumulation scenarios or ‘ages’. Finally in this chapter, we present a textbook ‘Kaldor–Robinson’ or ‘post-Keynesian’ distribution and growth model, capturing some of the main characteristics of this approach.

Chapter 5 deals with Michal Kalecki’s and Josef Steindl’s contributions. As already mentioned above, the major differences of the Kalecki–Steindl approach as compared to the post-Keynesian Kaldor–Robinson approach are that active cost-plus price setting of firms in the industrial sector of the economy is assumed, which becomes a major determinant of functional income distribution. And, furthermore, in the Kalecki–Steindl approach the economy is characterized by unemployment and excess capacity beyond the short run. Therefore, the rate of utilization of productive capacities given by the capital stock is considered to be endogenous in the medium to long run, too. We start the overview with Kalecki’s pricing and distribution theory, which is followed by his determination of national income and the level of profits. In this chapter we also touch on some of the debates of Kalecki’s theory of pricing and distribution, and we deal with some further developments of mark-up pricing and distribution theories, as proposed

by Alfred S. Eichner, G.C. Harcourt and Peter Kenyon, Adrian Wood, Josef Steindl and Paolo Sylos-Labini. Next, we outline Kalecki's views on the determination of investment and on economic dynamics and growth. Finally, we turn to Josef Steindl's theory of stagnation in mature capitalist economies and some further developments.

Starting with Chapter 6, we develop Kaleckian models of distribution and growth in a gradual manner. These models have in common the three main distinguishing features of the Kalecki–Steindl approach, that is active cost-plus price setting of firms as a major determinant of functional income distribution, excess labour supply and hence unemployment beyond the short run, and the notion of a medium- to long-run endogenous rate of utilization of productive capacities given by the capital stock. In Chapter 6 we begin by developing two baseline models, the 'neo-Kaleckian' distribution and growth model based on the contributions by Amitava K. Dutt and Robert Rowthorn, and the 'post-Kaleckian' model based on the work of Amit Bhaduri and Stephen Marglin, as well as on a paper by Heinz D. Kurz. The neo-Kaleckian model in its basic version generates uniquely wage-led results – a higher wage share is beneficial for the rates of capacity utilization, capital accumulation and profit. The post-Kaleckian model, however, allows for wage- or profit-led regimes depending on the values of the model parameters and coefficients.

In Chapter 7 we extend the different versions of the basic Kaleckian models with the final purpose of assessing the empirical work which has been done on the basis of the post-Kaleckian model. We start by introducing saving out of wages into the closed economy versions of the neo-Kaleckian and the post-Kaleckian model. Since with this extension the neo-Kaleckian model is no longer uniquely wage-led, we then move on with the post-Kaleckian model and integrate international trade into this model. This provides us with the version of the theoretical model which has been used in empirical research on wage- and profit-led demand and growth regimes since the early to mid-1990s. The main results of these empirical studies are finally reviewed and summarized.

In Chapter 8 we integrate productivity growth into the post-Kaleckian model. We distinguish between the demand regime and the productivity regime of our model, and we discuss the separate effects of changes in the profit share on each of these regimes. Finally, we analyse the overall effects of changes in distribution on aggregate demand, capital accumulation and productivity growth. Extending the post-Kaleckian model in this way contributes to an understanding of the long-run effects of redistribution on capital accumulation, productivity growth and hence the potential or the 'natural' rate of growth. We show that, with the endogeneity of productivity growth, potential GDP growth becomes endogenous with respect

to distributional changes and to actual GDP growth, and economic policies thus have long-lasting effects through these channels. In this chapter we also provide an overview of empirical results on the estimations of the productivity growth regime of the model.

Chapter 9 explicitly integrates monetary variables and a rentiers' class into the post-Kaleckian distribution and growth model. For this purpose, we rely on the post-Keynesian horizontalist approach towards interest rates, credit and money. Therefore, we treat the monetary rate of interest as an exogenous variable, mainly determined by central bank policies and by the liquidity and risk considerations of commercial banks supplying credit to the productive sectors of the economy. The volumes of credit and money are considered as endogenous variables, determined by economic activity and payment conventions. In the first step, the short-run effects of changes in the rate of interest on income distribution, saving and investment are discussed and the effects on the equilibrium rates of capacity utilization, capital accumulation and profit are derived, holding the degree of indebtedness of the firm sector constant. This allows deriving different potential regimes depending on the behavioural coefficients of the model. In the second step, we treat the firms' debt-capital ratio as a long-run endogenous variable and we discuss its stability properties in the different regimes. Finally, empirical studies on the channels of transmission of changes in the interest rate on distribution, consumption and investment and on the respective overall regime are reviewed.

In Chapter 10 the 'macroeconomics of finance-dominated capitalism' are reviewed, based on different versions of the Kaleckian distribution and growth model. From a macroeconomic perspective four channels of transmission of financialization, or the dominance of finance, to the macroeconomy can be distinguished: first, the effect on income distribution; second, the effects on investment in capital stock; third, the effects on household debt and consumption; and, fourth, the effects on net exports and current account balances. We start by reviewing and interpreting the effects of financialization on income distribution against the background of Kalecki's theory of distribution. Then we integrate the distribution effects of financialization with the effects on investment in capital stock and derive implications for capital accumulation and growth, as well as for the stability of the financial structure of the firm sector. Next, we turn to the effects on consumption and household debt, and we discuss the implications for accumulation and growth as well as for the sustainability of household debt. Finally, we introduce an open economy dimension and present a Kaleckian model of growth driven by net exports and current account surpluses, and we discuss the sustainability of such a regime as well.

Chapter 11 is devoted to the critique of the Kaleckian distribution and growth models put forward by Harroddian and Marxian authors. The main point of this critique is addressing the Kaleckian treatment of the rate of capacity utilization as an endogenous variable in the medium to long run, which may deviate from the 'normal' rate of utilization. If the latter is considered as a definite target of the firm, deviations from this target will trigger reactions of firms' investment, thus causing 'Harroddian instability', according to the critics. In order to review this critique and to examine the implications we start with a basic neo-Kaleckian model, include a normal rate of capacity utilization into the model and define medium- to long-run Harroddian instability. Then we discuss several mechanisms to contain and tame Harroddian instability with an exogenous normal rate of capacity utilization, as suggested by the critics of the Kaleckian models, and find them to be far from convincing. Next, we outline Kaleckian responses to the critique. These include those Kaleckian approaches which question the notion of a normal rate of utilization in general or its uniqueness, as well as a recent approach accepting the idea of a unique normal rate of utilization but arguing that firms may have other, potentially more important, medium- to long-run targets so that neither an adjustment towards the utilization target nor Harroddian instability should be expected. Furthermore, we discuss approaches which accept the equality of actual and normal rates of capacity utilization in long-run equilibrium, but argue that the normal rate may become endogenous to the actual rate. Finally, we discuss the effects of applying monetary policies as a stabilizer in the face of Harroddian instability, and we show that this may also generate an endogenous normal rate of capacity utilization.

In Chapter 12, we summarize our main results and findings, touch on those issues in post-Keynesian distribution and growth theories which have not been dealt with in detail in this book, and outline areas of future research.

Before we start with the discussion of the theories of distribution and growth after Keynes, a few words on the methods and concepts used in presenting the models seem to be appropriate. In the chapters that follow we will mainly make use of comparative dynamic models based on linear equations. This means that we will derive equilibrium growth rates from our models, together with equilibrium distribution and equilibrium utilization rates of growing productive capacities where appropriate. Changes in model parameters, in coefficients in the behavioural equations of the model, or in initial conditions will generate a new dynamic equilibrium. The most we can do with this method is checking the stability of the respective equilibria. However, a detailed analysis of the transition from one equilibrium growth path to another, provided the equilibrium is stable,

and thus tracing the disequilibrium or out-of-equilibrium processes, is well beyond the scope of this method. In this sense comparative dynamics in distribution and growth theory is similar to the use of comparative statics in short-run macroeconomics focusing on the determination of income and employment.⁷

In particular post-Keynesians might object that comparative dynamics based on linear equations is too simple an approach, either because it incorporates the notion of equilibrium growth which should be rejected and/or because detailed analyses of the out-of-equilibrium dynamics as well as non-linearities are missing, which are considered to be most important in the ‘real world’. However, in our book we follow Dutt’s (2011a, p. 143) justification of the use of equilibrium analysis in Kaleckian models:

[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.

Therefore, the method of comparative dynamics can be considered as a useful first step in modelling distribution and growth issues. It provides important insights, in particular when it comes to the comparison of different approaches and paradigms towards distribution and growth. Further developments can then include the explicit considerations of out-of-equilibrium dynamics based on linear or non-linear equations, and the generation of cyclical growth models, for example.

Considering equilibrium as a theoretical tool of analysis – and not as an actual state of the economy or a point of rest towards which the economy will tend in ‘historical time’ – also means that we will use ‘periods’ or ‘runs’ as theoretical and modelling concepts, which do not necessarily refer to historical episodes.⁸ A ‘short-run’ – or a ‘short-period’ – equilibrium is thus an equilibrium in which certain variables are held constant or are taken to be exogenous. These variables may then vary and are determined endogenously within the model when it comes to the ‘medium-run’ or ‘long-run’ equilibrium. Further explanations regarding the modelling concepts will be provided in the respective chapters.

NOTES

1. Following Kuhn (1962), a paradigm is here understood as a specific view of the world, which determines the object of investigation, the relevant research questions and the research methodology. See also Dow (2001).
2. Of course, Dutt (1990a) includes a detailed introduction into and development of the Kaleckian–Steindlian approach to distribution and growth, going well beyond the scope of the present book by including two-sector models and uneven development issues.
3. However, classical and Marx's theories are covered in my German book on distribution and growth at an introductory level (Hein 2004a, chaps 2–3). For an introduction to the classical approach to distribution and growth see also Pasinetti (1974, chap. 1), Harris (1987) and Kurz and Salvadori (2003). On Marx's and Marxian theories of distribution and capital accumulation see also, for example, Shaikh (1978a, 1978b), Levine (1988) and Catephores (1989).
4. The validity of Say's law, however, is not accepted by all classical economists. During the 'general glut' controversy, in which the possibility of a general crisis of overproduction was discussed, Ricardo, Say and James Mill advocated that demand is only limited by production and that a general overproduction crisis is therefore impossible. Malthus and Sismondi, however, stressed the possibility of overproduction and a general stagnation due to a lack of effective demand (Sowell 1972).
5. Marx's theory, however, also allows for another interpretation, in which the assumption of Say's law does not follow conclusively, and in which aggregate demand, finance, credit and interest rates matter for the determination of accumulation and growth (Argitis 2001, 2008; Hein 2004b, 2006a, 2008, chap. 5).
6. The analysis of different stages or regimes of capitalism is at the core of the French Regulation School and the US-based Social Structure of Accumulation approach. Several post-Keynesian authors, like Steindl (1979, 1989), Bhaduri and Steindl (1985), Smithin (1996) and Cornwall and Cornwall (2001), have contributed as well. See Hein et al. (2014) for an overview of these approaches.
7. For further details, see Gandolfo (1997, chap. 20).
8. In the models to be presented, we do not follow the distinction frequently made in the literature, according to which 'periods' are analytical concepts whereas 'runs' refer to historical episodes, as for example Harcourt (2011, pp. 3–4) explains: "'Period'" is a theoretical concept where what is and what is not confined to the *cet. par.* pound is decided by the theorist in question (and the issue being examined); whereas "run" refers to actual historical episodes where what relevant determining factors change or do not change are products of that particular historical episode and are not decided by the theorist and/or historian analyzing it.'