

INCOME DISTRIBUTION EMPLOYMENT AND ECONOMIC GROWTH: A NEO-RICARDIAN VIEW

(PAPER DELIVERED AT THE BIENNIAL CONFERENCE OF THE ECONOMIC SOCIETY OF SOUTH AFRICA, BLOEMFONTEIN, 25-27 SEPTEMBER 2013)

PDF STRYDOM¹

Abstract

The neo-Ricardian analysis of the relation between economic growth and income distribution is constructive in explaining problems associated with distribution, employment and economic growth. A wage-led and a profit-led economic framework feature in this analysis. The advantages of the neo-Ricardian, as opposed to neoclassical growth analysis, in dealing with this subject are identified. The outcome of the analysis is that the modern problems of distribution and secular unemployment are better explained in terms of institutional failure rather than the economic growth process. In this respect an extension of the Kalecki model appears to explain institutional failure in respect of the South African labour market.

Key words: economic growth, income distribution, employment, neo-Ricardian economics

JEL Code: B22

Income distribution issues have often featured within an economic growth framework while redistribution issues were extensively discussed within a growth and international trade context as, for instance, by Das (2007). It is virtually impossible to establish a growth versus income distribution trade off in terms of the results of current research. Nevertheless, Alesina and Rodrik (1994) claimed that inequality is conducive to the implementation of growth retarding policies. Moreover, neoclassical growth theory, in terms of Solow (1956), is not particularly clear on policy perspectives regarding distribution issues. It is, therefore, not surprising that analyses that followed a neoclassical framework such as Alesina and Rodrik (1994) or those that adopted an alternative exposition such as Bénabou (1996) or Besley and Burgess (2003) identified the importance of policy reforms and institutional constraints in addressing income inequalities. In similar vein the concept of inclusive growth as suggested by Addison and Niño-Zarazúa (2012) covers primarily institutional factors as opposed to growth factors.² In view of these different approaches in the literature it would appear to be helpful in systematising the relevant problems by revisiting the neo-Ricardian growth theories. They explicitly accommodate income distribution within the growth process. Unfortunately these contributions are often overlooked in the modern literature. The well-known Macroeconomic text by Romer (2006), for instance, overlooks these contributions. In this respect this essay is an exercise in the history of economic thought. Our focus on the neo-Ricardian economic growth theory enables us to assess the importance of institutional aspects within an economic growth context. The advantage of our approach is that we present an analytical framework to demonstrate that the constraints associated with economic growth and income distribution are not imposed by the economic growth process but rather by institutional failure.

The neo-Ricardians are often associated with Sraffa but here the term refers to Kalecki, Kaldor Joan Robinson and Sraffa.

¹ Extraordinary Professor, School of Economics North-West University Potchefstroom. E-mail address pdfs@icon.co.za. The author gratefully acknowledges helpful comments by Andria Saayman. The usual disclaimer applies

² According to these authors inclusive growth deals with policies that allow people from different groups – gender, ethnicity, religion – and across sectors – agriculture, manufacturing industry, services, to contribute to, and benefit from economic growth.

In order to emphasise the particular features of neo-Ricardian theory we give an overview of the main analytical properties of neoclassical growth economics in section 1, followed by a similar exposition on neo-Ricardian growth economics in section 2. In section 3 we distinguish two neo-Ricardian growth processes, as has been identified by Taylor (2010). The conclusions are listed under section 4.

1. The main features of neoclassical growth

Neoclassical growth theory in terms of Solow (1956) is based on the following principles. Economic growth is dependent on a sustained increase in the factors of production capital, labour as well as technological progress. Technological progress is an exogenous variable that could augment one or both factors of production. The adjustment process is dependent on relative price changes which drive factor substitution. The theory accommodates distribution features in the sense that the total product is divided between capital and labour in accordance with their marginal products under perfect competition. Remuneration is not in itself concerned with distribution issues but is rather driving the adjustment process towards long-term equilibrium where the growth rate of output equals that of the factors of production. This stable equilibrium is achieved and maintained through relative price adjustments.

If we assume a positive technological impulse that stimulates investment, there will be an increase in capital and capital growth will exceed that of labour. A relative labour scarcity *vis-à-vis* capital develops and labour's share in total output, as determined by its marginal product, rises. Capital is rendered relatively cheaper and this relative price change triggers a substitution in production in favour of capital. As capital increases its average productivity falls and its growth rate declines to match that of labour while the adjustment process secures the eventual steady state where output, capital and labour grow at the same rate. It goes without saying that the adjustment process driven by relative price changes is dependent on perfect competition.

The growth in capital, or investment, is driven by savings. This feature of neoclassical growth emphasises the real sector nature of this approach or the absence of money. This framework of thinking is inspired by the old loanable funds theory that claims that the rate of interest is the price that equates the demand and supply of loanable funds. The rate of interest is determined in the real sector.

In a monetary economy the rate of interest is determined in the financial sector. The real sector-determined interest rate could be envisaged as a Wicksellian natural rate of interest that is determined by the expected rate of return on investment. In a monetary economy saving does not determine investment but investment determines saving. In the literature this is known as the debate about reverse causation. We return to this problem later on since it features prominently in neo-Ricardian economics.

2. The main features of neo-Ricardian growth

Economic growth is determined by sustained growth in investment, population growth and technological progress. This formulation by Kaldor (1960b) is, in principle, equivalent to Solow's neoclassical approach as described above. There are, nevertheless, a number of important differences between the two processes of growth. The neo-Ricardians subscribe to different micro

foundations. As opposed to neoclassical theory they reject the marginal productivity theory. Joan Robinson (1972) explicitly rejected this on the strength of its circular reasoning. The real wage is regarded as a measure of the marginal product yet there is no measure of the marginal product except wages. Following Kaldor (1960a) they consider total output (Y) as the sum of wages (W) and profits P, i.e.

$$Y = W + P$$

The implication of this reasoning is that the neoclassical production function is rejected. Kaldor (1960b) introduced technology in terms of the technical progress function which describes the relation between the rate of output growth and the growth rate of capital. In terms of this analysis the principal driving force behind economic growth comes from technological progress in combination with investment. Furthermore, perfect competition is rejected in favour of the Kaleckian price theory (Arestes, 1992) that adheres to mark-up pricing. The price (π) is cost-determined through a gross costing margin (θ) that reflects the degree of monopoly. If average variable costs are indicated by AVC we have

$$\pi = (1 + \theta)AVC; \theta > 0$$

Although prices are not fixed they are more rigid than under neoclassical conditions. The adjustment process towards the steady state, where output, capital and population growth rates are the same, relies primarily on income distribution.

An important microeconomic feature of this school is the distinction between logical and historical time as outlined by Joan Robinson (1980). Logical time has no connection with the real world since it does not recognise the distinction between the present and the past. Neoclassical economics subscribes to logical time and in this sense the marginal productivity theory is an instantaneous occurrence in logical time. The neo-Ricardians are emphasising the importance of historical as opposed to logical time. They envisage economic theory as a body of knowledge that explains the real world in a time framework comprising the present and the past. The future is unknown.

At the macro level neo-Ricardians abandon the explanation of the interest rate as a real sector phenomenon. It is determined in the financial sector by financial institutions and money is considered to be endogenous to the economy. Entrepreneurial “animal spirits” and expectations about future returns drive investment and the financial sector secures the supply of savings or funding. Once we accept the endogeneity of money it follows that investment generates the required saving. The causality between saving and investment is the opposite from what is adhered to in neoclassical economics. The neo-Ricardian causality between saving and investment is confirmed by the features of an open economy. In this respect effective financial institutions can secure finance or saving by accessing international saving, particularly from saving surplus countries. It would appear that the neoclassical causation between saving and investment is in fact a closed economy approach.

3. Different economic growth processes

Neo-Ricardians acknowledge two types of growth models as argued by Taylor (2010). The first is referred to as growth in the wage-led economy and the second as profit-led economic growth. These two growth processes rely on different growth drivers as will be indicated below.

3.1. Growth in a wage-led economy

This model is associated with the work of Kalecki. The basic Kalecki framework has been extended by Lavoie (2009) and Taylor (2010) but for our purpose it suffices to concentrate on the basic Kalecki model.

Income distribution is formulated without reference to the marginal productivity theory i.e. total income is divided between labour and capital (or capitalists) as indicated below:

$$Y = wL + P$$

Where wL comprises the wage bill, and P and Y denote profits and aggregate demand or income respectively. It is assumed that workers do not save and consume the total wage bill. Capitalists consume and save while capitalists saving are invested. Profits could be defined as

$$P = \pi\alpha_c + \pi\alpha_i = \pi a; \quad (a = \alpha_c + \alpha_i)$$

where $\pi\alpha_c$ and $\pi\alpha_i$ are the nominal consumption and investment expenditures by capitalists with π denoting the price level, as before. The profit equation could also be formulated as

$$\pi a = (1 - s_c)P + I$$

where s_c is the propensity to save by capitalists and I denotes investment expenditure. Since $\pi a = P$ the profit equation becomes

$$P = I/s_c$$

Aggregate demand in real terms is defined as follows

$$Y/\pi = wL/\pi + P/\pi$$

$$\text{i.e. } Y/\pi = y = (w/\pi)L + a$$

The production utilization function is an expression in labour and productivity (T) with Q indicating production

$$Q = TL$$

T is the production per worker and serves as a measure of (labour) productivity.

By equating aggregate supply and demand we derive the effective labour demand equation which describes a locus of equilibria where aggregate demand and supply are equal. Along this path the goods market is in equilibrium. We therefore obtain

$$TL = (w/\pi)L + a$$

$$\text{with } L = a/T - w/\pi$$

$$\text{and } w/\pi = T - a/L$$

The properties of this relation which we describe in general terms as

$$w/\pi = f(L)$$

will be defined below with f' and f'' denoting first and second derivatives³, thus

$$f'(L) > 0 \text{ and } f''(L) < 0.$$

Moreover, in the limit we have

$$L \rightarrow \infty \Rightarrow f(L) \rightarrow T$$

where T is the output/labour ratio and constant over the short term. It could also be interpreted as a technology frontier.

Furthermore

$$f(L) = a/T \text{ for } w/\pi = 0$$

Equilibrium in the goods market secures equality between saving and investment. We therefore derive the following conditions when economic activity deviates from $f(L)$

In the case of a too high real wage rate we have: $w/\pi > f(L) \Rightarrow I > S$; for all $L > a/T$

In the case of a too low real wage rate we have: $w/\pi < f(L) \Rightarrow I < S$; for all $L > a/T$

Economic growth is technology and aggregate demand driven. An increase in the real wage rate will benefit workers through income redistribution. Profits are not affected since

$$P = I/s_c$$

We assume that the labour supply is independent of w/π , thus $L = L_i$ for all $L_i > a/T$

Workers consume all their income and with the goods market in equilibrium ($S = I$) we obtain for any $(w/\pi)_i$ a corresponding $f(L_i)$ provided that the real wage rate is less than productivity (i.e. $(w/\pi)_i < T$). Under these conditions the labour market clears at a real wage rate $(w/\pi)_i$ and employment L_i and we obtain

$$(w/\pi)_i = f(L_i); \text{ for all } L_i > a/T$$

An increase in the real wage rate from, say, $(w/\pi)_1$ to $(w/\pi)_2$ renders a corresponding $f(L_1)$ or $f(L_2)$ with labour market clearance at employment L_1 or L_2 provided that $(w/\pi)_1 < T$ and $(w/\pi)_2 < T$

The Kalecki wage-led growth model secures that an increase in real wages, at the aggregate level, will raise demand and a higher employment level is achieved. This is the so-called paradox of cost that follows directly from the expression

$$L = a/T - w/\pi$$

³ $f'(L) = a/L^2$; $f''(L) = -2a/L^3$

The important constraint is that w/π cannot exceed real output per worker, i.e. labour productivity

$$T = Q/L$$

In the event of $w/\pi > T$, we signal institutional failure since employment is indeterminate as w/π is off the demand curve.

It is, nevertheless, possible to extend the Kalecki exposition in order to discover how the growth process adjusts to institutional failure. We start the exposition with the labour market clearing at $(w/\pi)_f$ with equilibrium employment L_f and labour supply described by the wage rate inelastic supply function $L = L_f$. This means that

$$(w/\pi)_f = f(L_f)$$

If labour now imposes a new real wage rate $(w/\pi)_b > (w/\pi)_f > T$ labour is off its demand curve.

In view of the feature of endogenous technological progress one can expect capitalists to introduce capital augmenting (labour saving) technological progress and T shifts outwards to T_1 so that, in the limit we have

$$L \rightarrow \infty \Rightarrow f(L) \rightarrow T_1$$

Moreover, capitalists have the full advantage of the technological progress with a rising θ in the price equation

$$\pi = (1 + \theta) AVC$$

At the newly imposed real wage rate $(w/\pi)_b$ and the new technology T_1 we have

$$T_1 > (w/\pi)_b$$

As capitalists benefit from the technological progress π rises, aggregate demand is adversely affected and $f(L)$ shifts to a/T_1 where $a/T_1 < a/T$. In view of the labour saving technological progress the shape of the demand curve changes to reflect the effect on labour demand⁴. Labour is back on the new demand curve at a real wage rate $(w/\pi)_b$ but since the goods market is in equilibrium capitalists have no incentive to employ L_f while they enjoy the full advantage of technological progress. At $(w/\pi)_b$ on the new demand curve employment falls, i.e.

$$L_b < L_f$$

This is ascribed to Labour being off its supply curve ($L = L_f$) and the labour market is not clearing. Capitalists manage the wage bill and employment falls. In the long term labour could crawl back to the supply curve $L = L_f$ if real wage rate increases are not in excess of productivity. Eventually the labour market clears at $(w/\pi)_c$ such that $L = L_f = f(L_f)$. The following condition holds:

$$(w/\pi)_b < (w/\pi)_c < T_1$$

⁴ Capital augmenting or labour saving technological progress implies $f'(L_b) > f'(L_f)$.

This extension of the Kalecki model explains the role of institutional failure. Owing to institutional failure the real wage rate is fixed above the productivity level and labour is off its demand curve. Capitalists react by managing the real wage bill $(w/\pi)L$ and this is achieved by cutting back on employment while introducing capital augmenting technological progress.

At wage rates in excess of productivity our exposition claims that $f(L)$ shifts to aT_1 and employment falls as labour is off its supply curve. In due course the relatively high wage rate, capital augmenting technological progress and depressed employment become entrenched features of the economy. Furthermore, it follows that it is not the growth process that should be blamed for chronic unemployment but labour market institutional failure.

The analytical framework developed above appears to be effective in explaining institutional failure in the South African labour market. Sustained wage increases beyond labour productivity levels encourage capital enhancing technological progress with a secular rising K/L ratio and falling employment while the private sector manages the real wage bill $(w/\pi)L$.

3.2 Growth in a profit-led economy

Economic growth in a profit-led economy was analysed by Joan Robinson (1962) and Kaldor (1960b). Joan Robinson envisaged economic growth as being determined by population growth, technological progress and investment. Technological progress is an endogenous variable while investment is profit driven. The “animal spirits” of firms, which is seen as a relation that describes the desired rate of growth in the stock of productive capital to expected profits. The distribution between profits and wages is institutionally determined and not by the marginal productivity theory. Moreover, investment is not determined by saving but conversely, saving is determined by investment. The process runs from expected profits to investment and actual profits are dependent on investment.

As indicated already, investments are financed through the financial sector by issuing bonds or equities or by bank loans. In the long term investment growth has to become aligned with population growth and technological progress. This long-term equilibrium is achieved when investment growth is in accordance with the profit rate while technological progress is passed on in real wage rate benefits at full employment. This is the so-called “golden age” in Joan Robinson’s exposition.

Several conditions could disrupt this long-term equilibrium but the one that is important to us is the “inflation barrier” identified by Joan Robinson (1962) as part of a “bastard golden age”. In this condition investment growth is under pressure. This is likely when real wage rates are high and organised labour prevents downward adjustment. Investment growth is frustrated by the inflationary rise in the money wage rate that is likely to gain momentum under these circumstances. Investment growth is said to be limited by this “inflation barrier”. As inflation gains momentum and w/π , in terms of our exposition above, falls we establish a situation similar to that described above in terms of a Kalecki model i.e.

$$w/\pi < f(L) \Rightarrow I < S; \text{ for all } L > a/T$$

Investment growth is then not fast enough to secure full employment. It is evident that a departure from the neoclassical framework in favour of an adjustment via income distribution enables us to identify the growth inhibiting effects coming from institutional failure. In this particular approach

institutional failure imposes an “inflation barrier” that disrupts the growth process while employment and income distribution deteriorate.

Our second profit-led growth model is associated with Kaldor (1960b) who followed the other members of this school by focusing on income distribution as the growth adjustment mechanism. In view of his rejection of the marginal productivity theory he introduced a technical progress function that governs the long-term growth between capital and output. Investment together with technological progress is the main driving forces of economic growth while he explicitly distinguishes between a short-term expansion and long-term growth.

In the short-term economic expansion is determined by the I/Y and the S/Y ratios, i.e. the investment rate and the savings rate respectively. Profits induce investment and under explicit stability conditions this process secures equilibrium between I/Y and S/Y

I/Y and S/Y are functions of the share of profits in output (P/Y). Furthermore Kaldor introduces a cost-pricing procedure in terms of the degree of monopoly as has been indicated above, thus

$$\pi = (1 + \theta)AVC; \theta > 0$$

Prices are less flexible than under perfect competition but under conditions close to full employment prices are likely to be more flexible as what the degree of monopoly proposition would suggest.

The Kaldor exposition is best understood if we start from an equilibrium solution with $S = I$ so that I/Y and S/Y deliver an equilibrium profit share $(P/Y)_0$. If we consider a non-equilibrium point $(P/Y)_1$ such that

$$(P/Y)_1 < (P/Y)_0$$

The I/Y and S/Y relations would verify that $I > S$ and conversely they would verify $S > I$ for

$$(P/Y)_1 > (P/Y)_0$$

If we consider the region $(P/Y)_1 < (P/Y)_0$ with $I > S$ the following process is distinguished. Since S has fallen *vis-à-vis* its equilibrium position we have excess demand and upward pressure on prices in the goods market. The real wage bill $(w/\pi)L$ falls and profits rise. As prices rise the P/Y ratio rises towards $(P/Y)_0$ and the saving deficit disappears. In view of the constant K/Y ratio the adjustment is primarily via income distribution. The latter adjustment, in turn, is dependent on price adjustments that are gaining more flexibility as $(P/Y)_0$ is approached.

We are now in a position to establish the importance of institutional elements in the adjustment process. If price adjustments that drive the adjustment via income distribution are obstructed or disrupted by institutional failure such as price collusion, the growth process becomes disrupted. This is, according to the exposition above, particularly important in the short-term section of the model. In the long-term the growth process moves from the short term to expand along the technological progress function to the steady state where the growth rates of output and capital are equal.

The neo-Ricardian approach to economic growth appears to be very helpful in advancing our understanding of the role of institutional arrangements in disrupting the economic growth process.

We have identified the analytical framework to explain institutional failure in the labour market as well as in the goods market.

4. Conclusion

Income distribution issues are often discussed within the context of economic growth with the implied conclusion that the economic growth process should secure a particular income distribution with employment growth. Terms such as jobless growth or inclusive growth often imply a failing economic growth process.

The neo-Ricardian analysis of the economic growth process explicitly accommodates distribution issues and this analytical framework opens the possibility of assessing the role of institutional factors in the growth process. From this exposition it follows that distorted income distribution patterns and secular unemployment problems are directly related to institutional failure as opposed to a failing economic growth process.

REFERENCES

- ADDISON, T. AND NIÑO-ZARAZÚA, M. (2012) What is Inclusive Growth? UNI-WIDER, www.wider.edu
- ALESSINA, A. AND RODRIK, D. (1994) Distributive Politics and Economic Growth, *Quarterly Journal of Economics*, 109(2):465-469.
- ARESTES, P. (1992) *The Post-Keynesian Approach to Economics: An Alternative Analysis of Economic Theory and Policy*, Aldershot: Elgar.
- BÉNABOU, R. (1996) Inequality and Economic Growth, in Bernanke, B.S. and Rotemberg, J.S. (Eds) *NBER Macroeconomics Annual*, Vol. 11:11-92.
- BESLEY, T. AND BURGESS, R. (2003) Halving Global Poverty, *Journal of Economic Perspectives*, 17(3):3-22.
- DAS, D.K. (2007) *The Evolving Global Trade Architecture*, Cheltenham: Elgar.
- KALDOR, N. (1960a) *Essays on Value and Distribution*, London: Duckworth.
- KALDOR, N. (1960b) *Essays on Economic Stability and Growth*, London: Duckworth.
- LAVOIE, M. (2009) *Introduction to Post-Keynesian Economics*, Basingstoke: Palgrave Macmillan.
- ROBINSON, J. (1962) *Essays in the Theory of Economic Growth*, London: Macmillan.
- ROBINSON, J. (1972) The Second Crisis of Economic Theory, *American Economic Review*, 62(1/2):1-10
- ROBINSON, J. (1980) Time in Economic Theory, *Kyklos*, Fsc. 2:219-229.

ROMER, D. (2006) *Advanced Macroeconomics*, Third Edition, New York: McGraw-Hill.

SOLOW, R. M. (1956) A Contribution to the Theory of Economic Growth, *Quarterly Journal of Economics*, 70:65-94.

TAYLOR, L. (2010) *Maynard's Revenge: The Collapse of Free Market Macroeconomics*, Cambridge (Mass): Harvard University Press.