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Weaknesses of 'wage-led growth'

by

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Abstract

The emphasis in post-Keynesian macroeconomics on wage- versus profit-led growth may not have been helpful. The profit share is not an exogenous variable, and the correlations between the profit share and economic growth can be positive for some exogenous shocks but negative for others. The terminology, second, suggests a unidirectional causality from distribution to aggregate demand while in fact distribution can itself be directly affected by shifts in aggregate demand. The reduced form correlations, third, depend on interactions with the labor market, and a focus on the goods market can be misleading. If, fourth, empirical estimates are taken at face value, the support for wage-led conclusions is much weaker than suggested by the literature. A focus on the growth-benefits of a reduction in inequality, finally, makes for an impoverished policy discussion.

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1 Introduction

The distribution of income is of the greatest importance. It is important in its own right and also because of interactions between distribution and other economic and social outcomes. Not everyone agrees with these claims. In fact, a focus on distribution has been seen as distinctly harmful by some; Lucas (2004) famously commented, "Of the tendencies that are harmful to sound economics, the most seductive, and in my opinion the most poisonous, is to focus on questions of distribution". Fortunately, there are signs that inequality will now be receiving greater attention throughout the profession.

To their great credit the post-Keynesian and neo-Marxian traditions have always emphasized distributional issues. The forms, however, that this attention have taken may not be the most productive. In the post-Keynesian tradition the concepts of wage- and profit-led growth have dominated the discussion. The concepts are defined with reference to the properties of aggregate demand, and countless contributions have elaborated ways in which the functional distribution could affect the different components of demand. Empirical studies have followed up by estimating these effects econometrically.

I want to question this approach. Concepts of wage and profit led growth are well-defined in benchmark models with restrictive assumptions. The concepts become less helpful – and possibly misleading – if the restrictive assumptions are relaxed. In general, it makes little sense to refer to an economy as being wage or profit led. More specifically, I shall argue that

- reduced-form correlations between income distribution and economic growth depend on the nature of the underlying exogenous shocks or policy interventions. For some shocks the reduced-form correlation between the wage share and economic growth may be positive, suggesting a wage-led economy; for other shocks the correlation may be negative, suggesting a profit-led economy.

- the concepts of wage and profit led growth are unhelpful when it comes to analyzing what interventions – whether by policy makers or social movements – could be used to change economic outcomes in the direction of less inequality and greater social justice while maintaining full employment.

- the distribution of income may itself depend on aggregate demand. Reduced-form correlations between the profit share and aggregate demand may reflect the effects of aggregate demand on profits rather than (or as well as) the effects of distribution on aggregate demand.

- whether an economy is wage or profit led depends not only on the properties of the goods market but also on the specification of the rest of the economy, including the labor market.

- empirical studies of the effects of distribution on aggregate demand and economic growth have produced weak and inconclusive results. Problems

that are intrinsic to macroeconometrics – including questionable data quality and short time series - account for some of the weaknesses but the specification of the regressions, the econometric approach and the interpretation of the results can be questioned too.

- a strong focus on the growth-benefits of redistribution makes for an impoverished policy discussion. Support for policies that reduce inequality need not be contingent on whether these policies will tend to raise aggregate demand and the rate of economic growth.

The time dimension of the relation between income distribution and growth is sometimes left ambiguous. The original contributions to the literature on wage-led growth took a medium to long run perspective. This would also seem to be the perspective of many recent contributions, including the much cited studies in Lavoie and Stockhammer (2013). Indeed, gains from an increase in the wage share would seem rather uninteresting if they are not sustainable beyond the short run. This paper therefore considers medium or long run interactions between distribution and economic growth. It should be noted, however, that the time dimension can be critical for the observed correlation, and the wage/profit led terminology is sometimes being used with respect to short-run cyclical patterns (e.g. Barbosa-Filho and Taylor 2006, von Arnim and Barrales 2015). The forces which determine long-run correlations may be quite distinct from those that govern short-run correlations, and the usefulness of the terminology to describe cyclical patterns is beyond the scope of this paper.[1]

Section 2 provides a brief outline of the benchmark analysis of wage- and profit-led growth. Section 3 describes a general mathematical structure that highlights some of the issues. Section 4 discusses the dependence of reduced-form correlations on the underlying shock. Section 5 introduces a demand-dependent distribution of income. Section 6 analyzes the effects of distributional change on employment and economic growth when a labor market is added to the model. Econometric work on wage- and profit-led growth is considered in section 7. Section 8 offers a few concluding remarks.

2 The benchmark analysis

The Kaleckian model that has dominated post-Keynesian macroeconomics was developed independently by Rowthorn (1981) and Dutt (1984) and subsequently modified by Marglin and Bhaduri (1990). Using standard notation the Dutt version of the model can be stated as follows:

[1] Blecker (2016) suggests that the empirical literature has paid too little attention to the time dimension.

$$\frac{I}{K} = \alpha + \beta u + \gamma \pi u; \quad \beta > 0, \gamma \geq 0 \tag{1}$$

$$\frac{S}{K} = s\pi u \tag{2}$$

$$\frac{I}{K} = \frac{S}{K} \tag{3}$$

$$\pi = \bar{\pi} \tag{4}$$

$$g = \hat{K} = \frac{I}{K} - \delta \tag{5}$$

where I, S, K, π, u and g denote investment, saving, the capital stock, the profit share, the output capital ratio and the net accumulation rate. Assuming a fixed coefficient production function, the output capital ratio can be used as a measure of capacity utilization, and I shall refer to it as the utilization rate. With a constant utilization rate, the growth rate of output is equal to the accumulation rate.

The model produces steady growth solutions for the utilization rate and the growth rate,

$$u^* = \frac{\alpha}{s\bar{\pi} - \beta - \gamma\bar{\pi}} \tag{6}$$

$$g^* = s\bar{\pi}\frac{\alpha}{s\bar{\pi} - \beta - \gamma\bar{\pi}} - \delta \tag{7}$$

and the effects of a change in $\bar{\pi}$ are given by

$$\frac{du^*}{d\bar{\pi}} = \frac{-(s-\gamma)u^*}{s\bar{\pi} - \beta - \gamma\bar{\pi}} \tag{8}$$

$$\frac{dg^*}{d\bar{\pi}} = su^* - s\bar{\pi}\frac{(s-\gamma)}{s\bar{\pi} - \beta - \gamma\bar{\pi}}u^* = \frac{-\beta s u^*}{s\bar{\pi} - \beta - \gamma\bar{\pi}} \tag{9}$$

Dutt assumes that the 'Keynesian stability condition' is satisfied; that is, $s\pi > \beta + \gamma\pi$. The model – using Marglin and Bhaduri's terminology – is therefore stagnationist ($\frac{du^*}{d\bar{\pi}} < 0$) and growth is wage led ($\frac{dg^*}{d\bar{\pi}} < 0$).

Dutt's specification of investment and saving can be seen as a special case of a generic post-Keynesian specification:

$$\frac{I}{K} = i(u, \pi); \quad i_u > 0, i_\pi \geq 0 \tag{10}$$

$$\frac{S}{K} = s(u, \pi); \quad s_u > 0, s_\pi > 0 \tag{11}$$

Using these generic forms, the effects of changes in the profit share can be written

$$\frac{du^*}{d\bar{\pi}} = \frac{i_\pi - s_\pi}{s_u - i_u} \tag{12}$$

$$\frac{dg^*}{d\bar{\pi}} = s_u\frac{du^*}{d\pi} + s_\pi \tag{13}$$

The generic specification does not necessarily produce a stagnationist and wage led economy. Dutt's version implies three restrictions on the generic form: (i) $s_u > i_u$, (ii) $s(u,\pi) = s\pi u$, (iii) $i_u = \beta + \frac{\pi}{u} i_\pi$.

Marglin and Bhaduri's influential contributions questioned the third of these restrictions. Specifically, they suggested replacing (1) by

$$\frac{I}{K} = \alpha + \beta u + \gamma\pi; \quad \beta > 0, \gamma \geq 0 \tag{14a}$$

Hence, keeping the saving function (2),

$$\frac{du^*}{d\bar{\pi}} = \frac{i_\pi - s_\pi}{s_u - i_u} = \frac{\gamma - su}{s\pi - \beta} \gtreqless 0 \tag{15}$$

$$\frac{dg^*}{d\bar{\pi}} = s_u \frac{du^*}{d\pi} + s_\pi = s\bar{\pi}\frac{\gamma - su}{s\bar{\pi} - \beta} + su \tag{16}$$

$$= \frac{s}{(s\bar{\pi} - \beta)^2}[\gamma\bar{\pi}(s\bar{\pi} - 2\beta) - \alpha\beta] \gtreqless 0 \tag{17}$$

The re-specification eliminates restriction (iii), and without (iii) the restrictions (i) and (ii) no longer ensure that $i_\pi - s_\pi$ will be negative. Essentially the Marglin-Bhaduri modification allows a stronger sensitivity of investment to profits relative to the sensitivity to utilization. As a result of this relative weakening of the utilization effect on investment, the model allows for the possibility of both profit- and wage-led outcomes.

It should be noted that the same widening of the range of possibilities to include profit-led regimes could be achieved by abandoning one of the first two restrictions and retaining the third:

- A Harrodian approach questions the validity of the 'Keynesian stability condition' in the long run (Auerbach and Skott 1988, Skott 2012). If restriction (i) is reversed and $i_u > s_u$, the sign of the denominator in (12) changes but the numerator may still be negative. It follows that utilization – and a fortiori economic growth – can be profit led.

- The classical saving function – assuming that there is no saving out of wage income – is often introduced as a simplifying assumption with the implied suggestion that results carry over to the more general case in which the saving propensity out of profits exceeds the saving propensity out of wages. The simplifying assumption is not innocuous, however: if (ii) is relaxed to allow saving out of wage income then (i) and (iii) no longer ensure that the numerator in the expression for $du^*/d\bar{\pi}$ will be negative.[2]

[2] Let

$$\frac{S}{K} = (s_0 + s\pi)u$$

where s_0 is the saving rate out of wages and s is the difference between the saving rates. Then

$$u^* = \frac{\alpha}{s_0 + s\pi - \beta - \gamma\pi}$$

Thus, abandoning any one of the three restrictions may reverse the effect of changes in the profit share on utilization. Marglin and Bhaduri retained the first two restrictions and relaxed the third.

Whatever assumptions are being made about the relative magnitudes of i_u, i_π, s_u and s_π, the concepts of wage- and profit-led growth are well-defined in the benchmark model if the distribution of income is exogenous and, second, the parameters of the saving and investment function are independent of shocks to the distribution of income.

3 Mathematical structure

It may be useful to consider a general mathematical structure before turning to the specifics of 'wage-led' growth. Assume that two endogenous variables, x and y, are determined by the equations

$$x = F(y, \mathbf{Z}) \tag{18}$$
$$y = H(x, \mathbf{Z}) \tag{19}$$

where $\mathbf{Z}$ is a vector of exogenous variable. One could now ask whether x is $y-$led. But the question seems neither helpful nor interesting. Solving equations (18)-(19) – assuming for simplicity that they have a unique solution – we can write x and y as functions of the exogenous variables

$$x = \Phi(\mathbf{Z}) \tag{20}$$
$$y = \Psi(\mathbf{Z}) \tag{21}$$

The solutions in (20)-(21) do not exclude reduced-form correlations between x and y, but the correlations are contingent. Shocks to exogenous variables may affect both x and y, and the resulting correlation between the two will – in general – depend on which of the exogenous Z-variables have been shocked, as well as on the properties of both the F and H functions.

Two well-known examples may illustrate the point. Consider a standard $IS-MP$ model:

$$Y = F(i; G, ...) \tag{22}$$
$$i = H(Y; \hat{p}^T, ...) \tag{23}$$

where government consumption (G) and the target rate of inflation ($\hat{p}^T$) are among the exogenous variables. Equation (22) is the IS relation, and the MP relation in equation (23) describes monetary policy (a Taylor rule).

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and

$$\frac{du^*}{d\pi} = u^* \frac{\gamma - s}{(s_0 - \beta) + (s - \gamma)\pi}$$

It follows that $du^*/d\pi$ can be positive for parameter values that do not violate the Keynesian stability condition: the two inequalities $\gamma - s > 0$ and $s_0 - \beta + (s - \gamma)\pi > 0$ can both be satisfied if $s_0 - \beta > 0$.

Although often overlooked, the restrictiveness of the classical saving assumption has been noted by, among others, Taylor (1990) and Lavoie (1992).

One can examine the properties of the two equations – including the signs of the partials F_i and H_Y but it is unhelpful to ask whether output is interest-led in the IS-MP model. If, nevertheless, the question is being asked, attempts to settle the issue empirically by estimating the a relation between Y and i would be misguided. The reduced-form correlation between output and the interest rate depends on whether fluctuations in Y and i reflect shocks to government consumption G (or other components of autonomous demand) or shocks to the inflation target $\hat{p}^T$ (or other determinants of monetary policy).

As a second example, consider a standard microeconomic model of a single market. Do we want to refer to output as being 'price led' if the correlation between output and price happens to be positive for a particular market over a particular period?

4 Shock-dependent reduced-form correlations

The general argument has implications for the literature on wage-led growth. This section examines issues associated with the exogenous variables and their effects, assuming that there is no direct feedback from growth to distribution (corresponding to the special case of (18)-(19) in which $H_x = 0$); section 5 considers implications of feedback effects from growth to distribution ($H_x \neq 0$).

The 'wage-led versus profit-led' terminology focuses on distributional *outcomes:* it leaves open the question of how to effect changes in distribution and it may give the impression that the precise manner in which distribution is changed will be of secondary importance.

Assume that policy makers want to increase the wage share. The wage share is not itself an instrument, but a variety of interventions could be used in an influence distribution. Lavoie and Stockhammer (2013a, pp. 16-17) outline some of them, including interventions to strengthen unions, increases in unemployment benefits or financial regulation. For present purposes let us simplify and consider two approaches to raising the wage share: one that aims to improve the bargaining strength of workers in the expectation that this will translate into higher real wages, and one that aims to affect firms' pricing behavior by increasing competition in the product market, regulating monopolies, or other types of industrial policy that could reduce the markup.

Policies of the first kind – strengthening workers – typically get more of a hearing. At some level this seems surprising since a key Keynesian insight has it that wage bargaining does not directly determine the real wage. Let us assume, however, that a strengthening of workers leads to a rise in the real wage and a decline in the profit share, that is, a shift in equation (4). Other equations in the model may be affected too. Indeed, standard Marxian and Kaleckian arguments would suggest that a strengthening of workers can have a negative impact on the 'business climate' and 'animal spirits' (Kalecki (1943)).

The Marxian/Kaleckian argument can be questioned. Using the Dutt specification of investment, one could argue, for instance, that the profit rate enters the investment equation (1) precisely in order to capture the effects of work-

ers' strength and the general business climate. That is not the way in which the specification is usually defended but, more importantly, an argument along these lines could leave the uncomfortable impression that somehow the parameters of the equation can be seen as completely independent of policies and institutional structures. This is not, I believe, a route that most post-Keynesians would want to travel. It would be quite paradoxical to do so: the ahistorical and institution-blind approach of mainstream economics has been a recurrent theme in heterodox critiques of mainstream models. Thus, an *a-priori* rejection of shifts in investment following a rise a workers' power would seem hard to defend. Consider therefore the case in which the accumulation function shifts down as a result of policy measures to strengthen workers.

If θ_w represents an indicator of workers' strength and if the shift in the accumulation function affects the parameter α in equation (1), we have

$$\frac{d\bar{\pi}}{d\theta_w} < 0; \quad \frac{d\alpha}{d\theta_w} < 0 \tag{24}$$

Using (6)-(7) it follows that

$$\frac{dg^*}{d\theta_w} = \frac{\partial g^*}{\partial \bar{\pi}} \frac{d\bar{\pi}}{d\theta_w} + \frac{\partial g^*}{\partial \alpha} \frac{d\alpha}{d\theta_w} < \frac{\partial g^*}{\partial \bar{\pi}} \frac{d\bar{\pi}}{d\theta_w} \tag{25}$$

Now consider an approach centered on the goods market, and assume that industrial policy can affect the markup. Formally, let θ_p be an indicator of goods market competition and assume that $d\bar{\pi}/d\theta_p < 0$. Industrial policy may also have ramifications for other behavioral equations, but there would seem no reason to believe that the shifts will be exactly the same as those produced by the strengthening of workers. The case for a negative impact on the investment function (over and above what is captured by the profit term) would seem to be weaker, and for the purposes of this example I shall assume that the investment and saving equations are unaffected by the changes in θ_p.

The assumption of unchanged investment and saving behavior implies that in this case we get

$$\frac{dg^*}{d\theta_p} = \frac{\partial g^*}{\partial \bar{\pi}} \frac{d\bar{\pi}}{d\theta_p} \tag{26}$$

Comparing (25) and (26) it is apparent that for some parameter values the reduced-form profit-growth correlations will be positive if the shifts in distribution are brought about by strengthening workers (changes in θ_w) but negative if they are brought about by increasing competition (changes in θ_p).

The specific assumptions in this example can be challenged. I want to emphasize, however, that the general argument does not depend on these assumptions. It only requires the possibility that policies that shift distribution by a certain amount can differ in their effects on one or more of the other equations. This argument – it seems to me – should not be contentious to economists who believe that institutions matter.

Figure 1 illustrates the general argument. The original equilibrium is at E_1, and two interventions are considered. Both interventions shift the vertical

$\pi-$curve to $\pi(z_2)$. The effect on the g-curve, however, depends on the type of intervention: one intervention shifts the growth curve down with a new equilibrium at E_2; the other intervention leaves the growth curve unchanged and the new equilibrium is at E_3. The first intervention would appear to suggest a profit-led economy; the second would appear to suggest a wage-led economy.

Figure 1 about here

Special cases of the general argument have appeared in the literature. Skott (1989) analyzed differences in the effects of increases in workers' strength and increases in competition, as in the example above. Blecker (1989, 2011) has made a similar point with respect to foreign trade. A reduction in the profit share raises exports if it is the result of a fall in price for given money wages and a given nominal exchange rate. By contrast, reductions in the profit share that derive from an increase in money wages or an appreciation of the exchange rate may cause a decline in exports and lead to downward pressure on aggregate demand and economic growth.

5 Profit-led growth or growth-led profits?

Section 4 left out feedback effects from aggregate demand to income distribution. In terms of the general equations in section 3, it was assumed that $H_x = 0$. It would seem hard, however, to exclude the possibility that prices and profit shares respond to demand conditions. Certainly, the influence of demand on pricing was accepted by early post-Keynesians. Steindl (1952, p. 228), for instance, argued that

> the profit function will depend on the degree of utilisation (a high utilisation shifting it upwards, and a low utilisation downwards)

Robinson took a similar position. She assumed (Robinson, 1962, p. 46) that

> competition (in the short-period sense) is sufficiently keen to keep prices at the level at which normal capacity output can be sold.

In fact, proponents of the 'wage-led' / 'profit-led' terminology – including the early contributions by Dutt and Marglin-Bhaduri – also posited links from the utilization rate to the profit share.[3] But the implications of a two-way interaction do not always seem to be fully appreciated.

Formalizing the Steindl-Robinson argument,[4] the profit share is predetermined at any moment but responds gradually to utilization, shifting upwards

[3] Skott and Zipperer (2012) present a generic post-Keynesian model of pricing and investment in which Kaleckian, Robinsonian and Kaldorian specifications emerge as special cases. Their empirical results using US data lend support to a Kaldorian position with fast adjustments in the profit share. See also Skott (1989, 2015).

[4] The formalization of the Steindl-Robinson argument can be kept simple for present purposes. See Flaschel and Skott (2006) for a more detailed interpretation and analysis of Steindl's argument.

(downwards) when utilization is high (low). Thus, let

$$\dot{\pi} = h(u, \pi); \qquad h_1 > 0, h_2 < 0 \tag{27}$$

where $\dot{\pi} = d\pi/dt$ is the rate of change of the profit share. This dynamic equation for the profit share can be combined with the generic post-Keynesian specification of investment and saving. The utilization rate is determined by the equilibrium condition for the product market in the short run,

$$i(u, \pi) = s(u, \pi) \tag{28}$$

or

$$u = u(\pi); \qquad u' \gtreqless 0 \tag{29}$$

where the sign of $u'(\pi)$ depends on the magnitudes of the different partial derivatives of $i(u, \pi)$ and $s(u, \pi)$. For concreteness, assume that aggregate demand is stagnationist, that is, $u'(\pi) < 0$ in the relevant range for the profit share. We then have

$$\dot{\pi} = h(u(\pi), \pi) \tag{30}$$

and

$$\frac{d\dot{\pi}}{d\pi} = h_1 u' + h_2 < 0 \tag{31}$$

It follows that there is (at most) one stationary solution and that this solution is stable (if it exists).

Consider the case in which the stationarity condition for the profit share ($h(u, \pi) = 0$) yields a positive relation between π and g, and assume that the IS relation (goods market equilibrium) implies a negative relation between g and π, as shown in Figure 2.[5] The variables are different, but formally the situation is now completely analogous to the IS-MP example in section 3; shocks to animal spirits (shifts in the $g(\pi)$ curve) correspond to shifts in the IS curve. These shocks change the growth rate and the profit share in the same direction. Since

[5] A similar figure appears in Marglin and Bhaduri (1990). Using a diagram with utilization and the profit share along the axes, Marglin and Bhaduri depict an IS curve along with a flexible markup equation in their figure 4.1.

As a simple specification leading to the constellation in figure 2, let

$$\begin{aligned} \dot{\pi} &= -a + bu - c\pi \\ \frac{I}{K} &= \alpha + \beta u \\ \frac{S}{K} &= s\pi u \end{aligned}$$

We now have

$$\begin{aligned} \pi(g) &= -(\frac{a}{c} + \frac{b\alpha}{\beta c}) + \frac{b}{\beta c} g \\ g(\pi) &= \alpha + \frac{\beta\alpha}{s\pi - \beta} \end{aligned}$$

the exogenous shifts come from shocks to animal spirits one could reasonably talk of a growth-led profit share.[6]

Figure 2 about here

The example is exceedingly simple but the lesson is general: the presence of a two-way relation between aggregate demand and income distribution complicates any attempt to draw causal inference from reduced-form correlations between economic growth and the distribution of income. Post-Keynesian economists are clearly aware of this identification problem. But the labeling of economies as wage or profit led tends to obscure the issues.[7]

The problem is not just econometric. Consider the general setting in section 3 and assume that somehow the problems of identification and endogeneity bias have been resolved and that we have a clean estimate of the $F(y, Z)$ function. An upward shift in the $H-$function will affect the equilibrium solution for y but complete knowledge of the $F-$function does not tell us whether the equilibrium solution rises or falls. The change in y will depend on the properties of the $H(x, Z)$ function as well as on the $F-$function. To see this, assume for simplicity that there is a shock to a single exogenous variable z and that this variable does not enter the $F-$function. Thus,

$$x = F(y) \tag{32}$$

$$y = H(x, z) \tag{33}$$

and,

$$x = F(H(x, z)) \tag{34}$$

Total differentiation implies that

$$\frac{dx}{dz} = \frac{F'H_z}{1 - F'H_x} \qquad \text{if } F'H_x \neq 1 \tag{35}$$

Knowing the value of F' does not determine the sign of dx/dz. Figures 3a and 3b illustrate the issue. The $F-$function is taken to be positively sloped and unchanged in the two figures. The $H-$curve is also positively sloped, but flatter than F in figure 3a and steeper than F in figure 3b. In both figures the shock to z leads to an upward shift in the $H-$curve. In figure 3a the equilibrium solution for y increases; in figure 3b the equilibrium solution for y decreases.

Figures 3a-3b about here

The analysis has implications for the wage-led literature. Consider the definition suggested by Lavoie and Stockhammer (2013a, p. 17; italics in original):

[6] Ryoo (2016) applies a Kaldorian model where the profit share adjusts to clear the goods market to US trends in income distribution.

[7] Dos Santos (2015) raises similar issues. Using a Marxian circuit of capital approach he argues that the distribution of income will be jointly determined with output and that empirical work trying to establish the causal effect of distribution on growth is misguided.

> if income distribution in a country is shifting in favour of profit recipients, does this by itself have favourable consequences on aggregate demand in the short run, on the growth rate of aggregate demand in the long run, or on the growth rate of labour productivity? If indeed this shift towards profits has favourable repercussions on the economy, as we have just defined them, then we shall say that this economy is in a *profit-led economic regime*. If not, if the shift towards profits has a negative impact on the economy, then the economy is in a *wage-led economic regime*.

Disregarding the other performance indicators, it is not entirely clear how this definition should be interpreted when there are feedback effects from growth to distribution. If 'shifting in favor of profits' is interpreted as an *ex post* outcome in which for some reason profits have increased, then the definition would seem to refer to the reduced-form correlation between growth and distribution. In this case no causality can be assigned and the correlation will depend on the nature of the shocks. If the 'shifting' represents an upward shift in the functional relation between the profit share and growth (a shift to the right of the $\pi(g)$ curve in a diagram with π and g on the axes), the implications depend on the slopes of both the g and the π curves. Yet, the suggested test for whether an economy is wage-led refers exclusively to the direct effect of changes in the profit share on aggregate demand and economic growth (Lavoie and Stockhammer, p. 21):

> an economy is in a wage-led demand regime when an increase in the wage share (or a decrease in the profit share) leads to an increase in the sum of the components of aggregate demand; and we will say that an economy is in a profit-led demand regime when an increase in the profit share (or a decrease in the wage share) leads to an increase in the sum of the components of aggregate demand.

This test also dominates much of the empirical literature: economies are declared wage or profit led on the basis of regressions that aim to identify the direct effects of the profit share on aggregate demand and economic growth (section 7 below). This approach is conceptually misguided if there are feedback effects from the growth rate and the level of aggregate demand to the distribution of income.

6 Adding a labor market

The criticisms in sections 3-5 apply broadly to the concept of a 'wage or profit led economy'; they are not specific to any particular version of the generic post-Keynesian economy in equations (10)-(11). This section introduces an extension of the generic model.

Most post-Keynesian models and almost all Kaleckian models leave out any consideration of employment rates and the labor market.[8] This approach could be justified by a dual-economy argument. Economies may appear to fluctuate around levels associated with unemployment rates in the range from 2-12 percent, but in fact there may be no effective labor market constraints on economic growth: immigration, induced technical change or the presence of internal reservoirs of underemployment could imply that the growth rate is determined exclusively by the growth in aggregate demand. The analysis in sections 4-5 accepted this premise.

The dual-economy argument has merit with respect to many LDCs but not, I would argue, for economies like the US, Japan and most parts of Europe. Undoubtedly, there is some endogeneity in the growth of the labor supply in efficiency units, but I see neither empirical nor theoretical support for a reverse Say's law in which any long-run growth rate in aggregate demand can be met by increases in employment and productivity. Thus, it may be of interest to consider a labor constrained economy. A labor constrained economy need not always be at full employment in any meaningful sense, but long-run growth is constrained by the 'natural growth rate', n, using Harrod's terminology. The natural growth rate is often taken to be exogenous, but an economy can be labor constrained without the exogeneity assumption: the natural growth rate may depend on other variables, including the employment rate.

Models that assume equality between the long-run average of the actual growth rate and the natural growth rate need to consider the mechanisms behind the equalization. It is typically difficult to establish a floor under the growth rate – that is, without policy intervention the actual growth rate could stay below the natural rate, leading to ever-increasing unemployment as the employment rate goes to zero. The ceiling on actual growth is easy, however: with a fixed coefficient production function, output cannot grow faster than the labor supply (in efficiency units) in the long run, and capitalist firms will not keep investing in more capacity if they cannot find workers.[9] This observation suggests a simple way to modify the benchmark model in section 2: following Flaschel and Skott (2006) and Ryoo and Skott (2008), the accumulation rate may depend inversely on the employment rate.[10] Shortages of workers may have a direct effect on firms' hiring, but broader forces are also at work. As employment increases, workers get stronger and the business climate deteriorates, as suggested by Marx and Kalecki (cf. above).

The relationship between accumulation and employment is likely to be nonlinear: a rise in employment from 80% to 81% may have a negligible effect on accumulation, a rise from 98% to 99%, by contrast, may have a large effect

[8] There are exceptions, also among Kaleckian models, but when labor markets are introduced it is often assumed that the utilization rate can be used as an indicator of the employment rate (e.g. Barbosa-Filho and Taylor (2006) and Sasaki et al. (2013)).

[9] Skott (1989) assumes that firms' pricing and output decisions (rather than the investment decision) depend on the state of the labor market. The two mechanisms, which have similar effects, are not mutually exclusive. The empirical results in Skott and Zipperer (2012) suggest that the employment rate affects both output and investment decisions.

[10] This assumption is consistent with the analysis in Robinson (1962, pp. 54-56).

(it is this non-linearity that accounts for the asymmetry between establishing ceilings and floors). For present purposes the asymmetry is irrelevant, and I shall use a linear extension of the Marglin-Bhaduri equation,[11]

$$\frac{I}{K} = \alpha + \beta u + \gamma \pi - \rho e \tag{36}$$

where $e = L/N$ is the employment rate.

Normalizing the labor productivity to one (by measuring employment and the labor force in efficiency units), the employment rate can be written as a product of the utilization rate (the output capital ratio) and the ratio of the capital stock to the labor force ($k = K/N$),

$$e = uk \tag{37}$$

Using the classical saving function (2),

$$\frac{S}{K} = s\pi u \tag{38}$$

the conditions for steady growth at the natural rate can now be written

$$s\pi u = \alpha + \beta u + \gamma \pi - \rho u k \tag{39}$$

$$= n + \delta \tag{40}$$

The first equation is the equilibrium condition for the product market; the second equation gives the required equality between the natural rate of growth and the accumulation rate.

For the sake of argument, assume that the profit share is an exogenous variable and that the issues in sections 3-5 do not arise. With $\pi = \bar{\pi}$, equations (39)-(40) can be solved for u and k :

$$u^* = \frac{n + \delta}{s\bar{\pi}} \tag{41}$$

$$k^* = \frac{s\bar{\pi}(\alpha + \gamma\bar{\pi} - n - \delta) + (n + \delta)\beta}{(n + \delta)\rho} \tag{42}$$

If the natural growth rate is exogenously given, changes in distribution have level effects on the employment rate. We have

$$e^* = u^* k^* = \frac{\alpha + \gamma\bar{\pi} - n - \delta}{\rho} + \frac{\beta(n + \delta)}{s\bar{\pi}\rho} \tag{43}$$

[11] An autonomous referee found this equation "alien to the Kaleckian approach", suggesting that "Kaleckian models are not labor constrained".

My own view is that if the term "Kaleckian" is defined to exclude the effects of unemployment on firms' investment and price/output decisions, then Kaleckian models become largely irrelevant for an understanding of many real-world economies. But this is a different issue; for present purposes, it does not matter whether the specification is "Kaleckian".

Growth effects (in addition to level effects) can be introduced by assuming that the natural growth rate depends on the employment rate, i.e. let

$$n + \delta = \phi(e); \qquad \phi' \geq 0 \tag{44}$$

The underlying mechanism behind (44) could be induced technical progress – a tight labor market gives firms a stronger incentive to search for labor saving innovations. Induced changes in the labor supply as a result of migration or changes in the participation rate would have similar effects.

Combining (43)-(44) we have

$$e^* + \frac{\phi(e^*)}{\rho} - \frac{\beta\phi(e^*)}{\rho s\bar{\pi}} = \frac{\alpha + \gamma\bar{\pi}}{\rho} \tag{45}$$

Total differentiation of equation (45) implies that

$$\frac{de^*}{d\bar{\pi}} = \frac{\gamma s\pi^2 - \phi\beta}{\rho\psi_e s\pi^2} \tag{46}$$

$$\frac{dg^*}{d\bar{\pi}} = \phi'(e^*)\frac{de^*}{d\bar{\pi}} = \frac{\phi'}{\rho\psi_e s\pi^2}(\gamma s\pi^2 - \phi\beta) \tag{47}$$

where the function ψ and its partial derivative ψ_e are given by

$$\psi(e^*, \pi) = e^* + \frac{\phi(e^*)}{\rho} - \frac{\beta\phi(e^*)}{\rho s\bar{\pi}} \tag{48}$$

$$\psi_e = 1 + \frac{\phi'}{\rho}(1 - \frac{\beta}{s\pi}) \tag{49}$$

The sign of the partial derivative ψ_e is likely to be positive. The presence of employment-induced growth effects is plausible but the effects are likely to be weak. I shall assume therefore that $\psi_e > 0$. This condition is trivially satisfied if the Keynesian stability condition is met ($\beta < s\pi$); it is satisfied in the Harrodian case with $\beta > s\pi$ if ϕ' is sufficiently small.

The conditions for wage-led growth in the labor constrained Marglin-Bhaduri model (LC-MB) can now be compared to those associated with the non-labor constrained Marglin-Bhaduri (MB) model in section 2. Consider a simple Harrodian case with $\beta > s\bar{\pi}, \alpha < 0$ and $\gamma = 0$. Using (17) and (47) it follows that the economy is profit led in the MB case but wage led in the LC-MB case (assuming $\psi_e > 0$). The two cases are illustrated in figures 4 and 5. The saving function rotates upwards in both figures when the profit share increases. In figure 4 (the MB case) the result is an increase in the equilibrium solutions for both utilization and the rate of growth. In the LC-MB model, the growth rate has to be brought back to the natural rate n. This is achieved by a decline in the stationary solution for the ratio of the capital stock to the labor supply, k^*. A decline in k^* implies a lower employment rate for any given value of u; this in turn corresponds to an upward shift of the investment function in the (u, g) space. With an exogenous natural rate, the economy returns to the

same growth rate but with a lower utilization rate. Allowing for employment effects on the natural rate, the $\phi(e)-$curve describing the natural-rate would shift downwards in the (u, g) diagram as k declines, and the new stationary state will be characterized by lower economic growth (see figure 5).

Figures 4-5 about here

The results in equations (17) and (47) may be of interest in their own right. There is also a general lesson: when the interaction across markets is taken into account, conclusions that have been derived by considering one market in isolation may no longer hold. This is a lesson that should be familiar to Keynesians. The problem with pre-Keynesian economics was that

> important mistakes have been made through extending to the system as a whole conclusions which have been correctly arrived at in respect of a part of it taken in isolation
>
> (Keynes 1936, p. xxxii, preface to the French edition)

The pre-Keynesians were guilty of extrapolating from an analysis of the labor market in isolation to the economy as a whole. The dangers of extrapolation also arise when trying to move from a partial analysis of the product market to the economy as a whole. A similar argument applies to discussions of financialization; the effects of financialization depend critically on the specification of the non-financial aspects of the economy, including both goods and labor markets (Skott and Ryoo 2008).

It may be worth noting that the LC-MB case illustrates the possibility of stabilizing cross-market interactions. To examine stability, the short run dynamics need to be specified. Let

$$\dot{g} = \lambda(g^d - g) \tag{50}$$

$$\dot{k} = k(g - n - \delta) \tag{51}$$

where g^d and $n + \delta$ are given by (36) and (44).[12] Equation (50) captures a standard Harrodian adjustment;[13] equation (51) follows from the definition of k as the ratio of capital to the labor supply.

[12] The utilization rate in (36) is given by the short-run equilibrium condition for the goods market: $u = g/(s\pi)$.

[13] The equation could be cast in terms of adjustments in response to deviations of actual utilization from a desired rate that is itself a function of growth, productivity and the employment rate. Define u^d as the value of the utilization rate which makes the accumulation rate equal to the desired rate. Using (36), u^d satisfies

$$u^d = \frac{g - \alpha - \gamma\bar{\pi} + \rho e}{\beta}$$

and we have

$$u - u^d = \frac{1}{\beta}(g^d - g)$$

The unique stationary solution to this two dimensional system of differential equations satisfies $g = n + \delta$ and $k = [s\pi\alpha + (n + \delta)(\beta - s\pi)]/[\rho(n + \delta)]$. The Jacobian matrix is given by

$$J(g,k) = \begin{pmatrix} \lambda(\frac{\beta}{s\pi} - \frac{\rho k}{s\pi} - 1) & -\lambda\rho\frac{n+\delta}{s\pi} \\ k(1 - \phi'\frac{k}{s\pi}) & -k\phi'\frac{n+\delta}{s\pi} \end{pmatrix} \tag{52}$$

The stability properties of the system are determined by the trace and determinant of the Jacobian. Depending on parameter values, a range of outcomes – stable as well as unstable – are possible. For present purposes the key point, however, is methodological. There is a set of meaningful parameter values, such that

- the goods market is unstable, leaving out the feedback effects from k; that is, $\lambda(\frac{\beta}{s\pi} - \frac{\rho k}{s\pi} - 1) > 0$
- the two dimensional system in (50)-(51) is stable; that is, $tr = \lambda(\frac{\beta}{s\pi} - \frac{\rho k}{s\pi} - 1) - k\phi'\frac{n+\delta}{s\pi} < 0$ and $\det = -\lambda(\frac{\beta}{s\pi} - \frac{\rho k}{s\pi} - 1)k\phi'\frac{n+\delta}{s\pi} + k(1 - \phi'\frac{k}{s\pi})\lambda\rho\frac{n+\delta}{s\pi} > 0$).

The example shows that destabilizing Harrodian feedback effects in the goods market do not necessarily imply that an economy will exhibit empirically implausible knife-edge instability. Interactions with other parts of the economy (and/or policy intervention) can stabilize the system. The steady growth path may become asymptotically stable (as in the above example) or nonlinearities can lead to bounded fluctuations around a steady growth path that is locally unstable (e.g. Skott (1989, 2015), von Arnim and Barrales (2015), Flaschel et al. (1997)).

7 Econometric evidence

A large empirical literature has investigated whether actual economies are wage or profit led. In accordance with the benchmark model in section 2, the focus has been on the goods market. A standard procedure has been to run regressions in which the components of aggregate demand are regressed on the profit share and other controls. The economy is then declared wage led if the sum of the coefficients on the profit share is negative. The results have been mixed, but according to Lavoie and Stockhammer (2013a) the evidence shows that the global economy is wage led and that the same applies to domestic demand in most countries; some open economies are profit led because of the effects of distributional change on net exports.

Several methodological questions can be raised. As argued in section 4, there is no reason to expect a stable reduced-form relation between income distribution and growth. The correlations depend on the nature of shocks. The correlations can be positive in some countries and for some periods but negative for other countries or other periods; this can happen even without any shifts in

the direct feedback effects between π and g (with unchanged partials F_y and H_x, using the notation from the general setting in section 3). Moreover, the effects of shocks to exogenous variables on economic growth cannot be decided without taking into account the feedback effects from aggregate demand and economic growth to distribution (section 5).

Shifts in the variables that is treated as exogenous can also affect the direct feedbacks (the partials F_x and H_y). This point is exemplified by the argument in Palley (2014) and Carvalho and Rezai (2016). Aggregate demand may tend to be profit led if wage distribution is skewed heavily in favor of the rich (who have a high saving rate); a redistribution of wage income away from CEOs, bankers and sports stars reduces the saving rate out of wage income and shifts aggregate demand in a wage-led direction. An approach which treats the coefficient on the profit share as a policy invariant parameter may therefore, Palley argues, be subject to a 'Lucas critique'.[14]

The Lucas critique also applies in another way. The reaction of profit seeking firms to a demand shock depends on how the shock affects their expectations for future demand. These expectations will be conditioned by past experience. The parameters of the investment function therefore will not be the same in two economies, one in which the *level* of aggregate demand is subject to persistent stochastic shocks around a constant trend rate of growth and one in which the *growth rate* is subject to persistent stochastic shocks. Investment functions for advanced economies arguably fit the first category, and in economies of this kind the response is likely to be small. The Kaleckian benchmark model without a labor market, by contrast, describes an economy in which the long-run growth rate will be affected by shocks to aggregate demand (a shift in income distribution, for instance). Econometric results from economies of the first type say little about the parameters in an economy of the second type (Skott 2014).

Single equation OLS regressions, finally, will be biased if the profit share depends on aggregate demand (section 5). Omitted variable bias is a potential problem, too, if labor market effects are excluded from the equations (section 6). The short-run correlation between capacity utilization and employment will tend to produce a negative bias in the estimate for β if equation (36) describes the investment function and the employment rate is omitted from the regression.

These methodological concerns would have been alleviated if the econometric evidence had been strong and unambiguous. That is not the case. Blecker (2016, p.1) comments that for many countries the "vast empirical literature has yet to reach a consensus" on whether the economies are wage or profit led. This inconclusiveness should not be surprising given the methodological concerns. But there is an additional problem: despite claims to the contrary – and taking the estimated coefficients at face value – the regressions do not in fact support the Keynesian stability condition. This, in turn, affects conclusions about the wage-led character of the economy (section 2).

[14] Different, but related, arguments against the categorization of economies as either wage or profit lad have been advanced by Nikiforos (2014). Nikiforos suggests that the parameters of the investment and saving functions change endogenously and that economies may go through phases of wage- and profit-led growth.

Consider the results in Onaran and Galanis (2012) and take the 'Euro area 12' as an example.[15] For the 'Euro area 12' they estimate the following log-linear consumption and investment functions:

$$d\log C = 0.006 + 0.127 d\log R + 0.739 d\log W \quad (53)$$

$$d\log I = -0.304 + 2.238 d\log Y - 0.137 d\log \pi + 0.088 d\log I_{-1} - 0.203\log I_{-1} + 0.207\log Y_{-1} + 0.093\log \pi_{-1} \quad (54)$$

The consumption function is estimated in differences and, curiously, does not satisfy linear homogeneity, which would seem to make it suspect from a long-run perspective. The investment function is cast in terms of levels and changes in investment, output and the profit share; the capital stock and its utilization rates do not enter the equation.

Onaran and Galanis claim that their results support the Keynesian stability condition in the benchmark model. In order to assess the claim we need an estimate for the long-run sensitivity of the accumulation rate (I/K) to a change in utilization (Y/K). The investment equation does not provide that directly, but an estimate can be inferred. The growth rates of investment, output and capital are all equal in steady growth, and the ratios $I/Y, Y/K$ and the profit share are constant. This outcome is consistent with the estimated regression if we assume that the coefficients on $-\log I_{-1}$ and $\log Y_{-1}$ (0.203 and 0.207, respectively) are identical, a restriction that is clearly consistent with the econometric results. If we denote the common growth rate by g, the long-run version of equation (54) can be written

$$g = -0.304 + 2.238g + 0.088g - 0.205\log(\frac{I}{K}/\frac{Y}{K}) + 0.093\log\pi \quad (55)$$

$$= -0.304 + 2.326g - 0.205\log(\frac{g+\delta}{u}) + 0.093\log\pi \quad (56)$$

or

$$-1.326g + 0.205\log(g+\delta) = -.304 + 0.205\log u + 0.093\log\pi \quad (57)$$

The function is non-linear but total differentiation (keeping π constant) gives

$$(-1.326 + \frac{0.205}{g+\delta})dg = \frac{0.205}{u}du \quad (58)$$

Using the benchmark values $g+\delta = 0.1$ and $u = 0.5$, the equation implies that $dg/du \approx 0.6$. Given the way it has been obtained, this long-run value must be taken with a pinch of salt. Still, it is the point estimate implied by the econometric results and taking the regression at face value, the saving rate (a weighted average of saving rates out of wages and profits) would need to exceed 0.6 in order to satisfy the Keynesian stability condition. This minimum value is far above the plausible range for the Euro area (or other advanced economies).

[15] Onaran and Galanis's study is representative of a larger literature, including Ederer and Stockhammer (2007), Hein and Vogel 2008) and Stockhammer et al. (2009). Skott (2012) raises some of the criticisms below in relation to Stockhammer et al. (2009).

Thus, the Keynesian stability fails to hold and what looked like a wage-led economy may in fact be profit led (section 2).[16]

These results are inconsistent with Onaran and Galanis' conclusions. It appears that they may be calculating long-run effects of utilization on accumulation by looking at the sensitivity of the *level* of investment to a change in the *level* of output, keeping the growth rates constant.[17] This calculation would be consistent with their stated elasticity of I with respect to Y. It is not the relevant calculation, however, for an evaluation of the long-run stability condition in the Kaleckian model: the growth rate cannot be taken as constant if one wants to examine the effects of utilization on economic growth. To make this point in a different way, consider the extreme Harrodian case in which accumulation is perfectly elastic with respect to changes in utilization: the long-run investment function is vertical and can be written simply as $u = u^d$ where u^d is the desired output capital ratio (utilization rate). With this Harrodian specification, a level increase in output generates a level increase in the capital stock. We have

$$\frac{dK}{dY} = \frac{1}{u^d}$$

and the long-run effect on investment becomes

$$\frac{dI}{dY} = \frac{\delta}{u^d}$$

Using benchmark values for the depreciation rate δ (0.07) and the desired output capital ratio (0.5), the long-run sensitivity of investment to a level increase in output is 0.14 in this extreme Harrodian model. The long-run sensitivity of the accumulation rate to utilization, by contrast, is infinite.

8 Concluding remarks

My intention in this paper is not to deny or play down the significance of the functional distribution of income. Other dimensions of the distribution of income may be at least as important from the perspective of equality or social justice, and some of the dramatic changes in inequality fail to be captured by movements in the profit share.[18] But clearly the functional distribution is important, and it interacts with other aspects of economic performance. I do not believe, however, that the current focus on wage versus profit led growth has been very helpful.

From a theoretical perspective the wage/profit led terminology obscures significant issues. I have argued that (i) the profit share is itself an endogenous

[16] Because of its lack of linear homogeneity, the consumption function (53) is only compatible with steady growth at a unique growth rate: $g = 6/134$. It therefore makes little sense to discuss the equation's steady growth implications for the saving rate.

[17] If the focus is not on long-run effects, the strong short-run effect of changes in output on the change in investment cannot be ignored.

[18] Skott and Guy (2008, 2013) analyze 'power biased technological change' as a source of increasing earnings inequality.

variable, and the precise nature of the underlying exogenous shocks can be critical: correlations can be positive for some changes but negative for others; (ii) the wage/profit led terminology is misleading by suggesting a unidirectional causality from distribution to aggregate demand: distribution can be directly affected by shifts in aggregate demand, and these feedback effects influence the impact of shocks to exogenous variables on economic growth; and (iii) the reduced-form correlations between growth and distribution depend on interactions with other markets, including the labor market.

These concerns provide strong reasons to re-think the way the inequality issue has been addressed in (much of) heterodox macroeconomics. The concept of a 'wage led economy' is flawed in the same way that concepts of interest-led economies would be flawed. Disregarding this conceptual issue, the weakness of the empirical evidence raises another question. Would I advocate an increase in inequality if it could be established that a rise in inequality tends to raise the rate of economic growth? Certainly not, and I expect that many – both economists and non-economists – would choose the same answer.[19]

It is dangerous to base policy recommendations for lower inequality on their growth-enhancing benefits. It is dangerous for a number of reasons. The weakness of the empirical evidence and the theoretical problems with the concepts provide one set of reasons. A general uneasiness about the universal benefits of higher growth may also weaken growth-based arguments; involuntary unemployment is a scourge, but environmental concerns as well as negative consumption externalities (a la Veblen-Duesenberry-Sen-Frank) suggest that economic growth as usually measured should not be the primary concern, at least for advanced economies. Most importantly, however, we are not in a world in which only one instrument – the share of profits – affects aggregate demand and economic growth; in fact, as argued in sections 4 and 5, the profit share is not even an instrument but itself an outcome. A focus on wage- versus profit-led growth distracts attention from the possibility that policy instruments can differ significantly in the way they affect inequality and economic growth (and other variables). These differences can be useful.

Instruments – including labor market policies, the regulation of financial and non-financial sectors, taxes, transfers, public investment and education policy – can be combined to move income distribution towards greater equality without reducing aggregate demand or economic growth. If it were the case that lower inequality tends to reduce aggregate demand, there would be ways to address this problem: a more expansionary monetary or fiscal policy is the

[19] Lavoie and Stockhammer may agree, I expect. But why then describe pro-labor reforms in a profit-led economy as

> 'doomed social reforms'. It is the scenario that neoliberals claim would happen if progressive social reforms were implemented. Margaret Thatcher's famous dictum, later repeated by several think-tanks and even left-wing politicians, that 'there is no alternative' (TINA), makes sense in this cell.
>
> (Lavoie and Stockhammer (2013a, p. 20))

obvious one.[20] Measures to increase equality and social justice need not pass a 'do-they-increase-economic-growth' test. If greater equality is considered desirable for other reasons, a test of this kind would produce an urgency to find both theoretical arguments and empirical evidence in favor of wage-led conclusions. Theories, however, should not be judged on whether they give some pre-ordained, desired conclusions, and the heterodox tradition does itself a disfavor if its understanding of how the world actually works becomes based on wishful thinking. Is there reason to fear a bias of this kind? Perhaps not. But heterodox economists typically have no difficulty seeing the confirmatory bias when mainstream economists search for evidence that confirm their prior beliefs (a belief, for instance, in labor market rigidities and generous welfare spending as the causes of high European unemployment).

Am I setting up a straw man? I would be delighted to hear that no reader interprets the literature on wage-led economies as suggesting that faster growth provides a key argument for addressing inequality. But if there is no intention to send this message, why focus so heavily on whether economies appear to be wage led or profit led? It is time to move beyond the notion of wage and profit led economies. Let us analyze the effects of specific interventions to reduce inequality. And if these interventions were to have adverse consequences for aggregate demand, let us consider ways to address these demand problems. The important point is that the TINA argument is invalid: there are alternatives to neoliberal policies and increasing inequality. We do not need the wage/profit led terminology to make this point.

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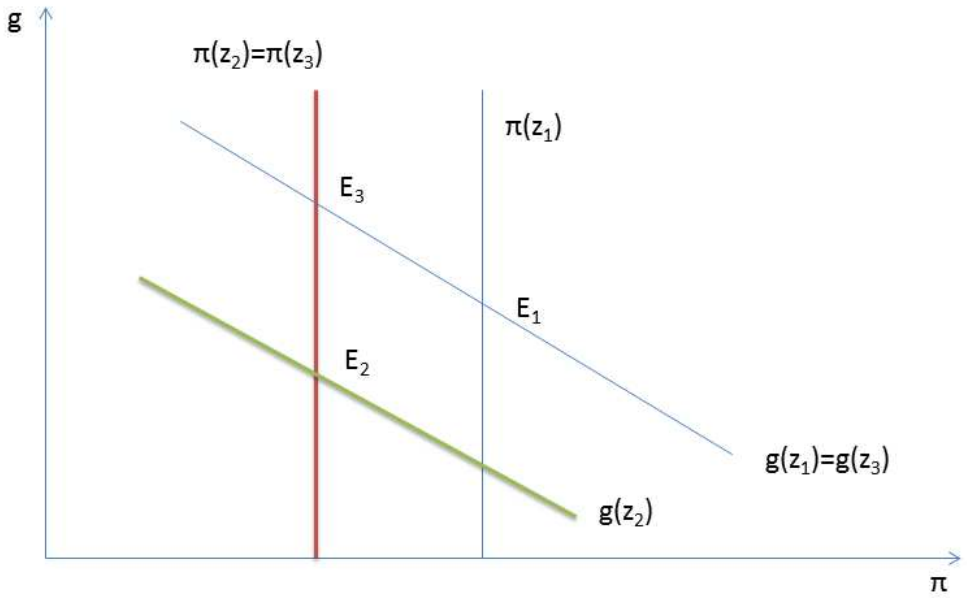

Figure 1: Effects of interventions with the same effect on the profit share but different effects on the growth curve.

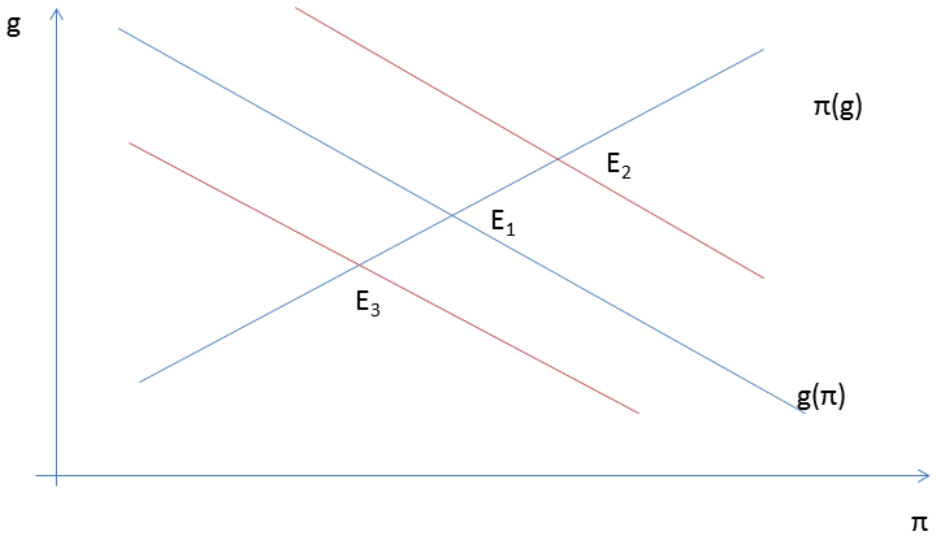

Figure 2: Effects of shocks to animal spirits.

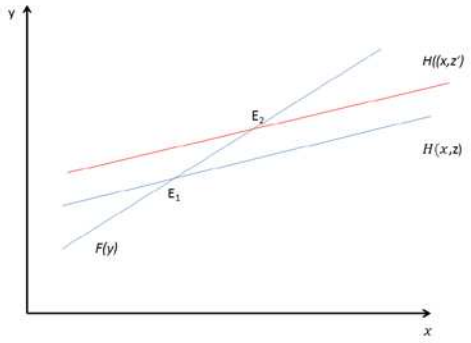

Figure 3a

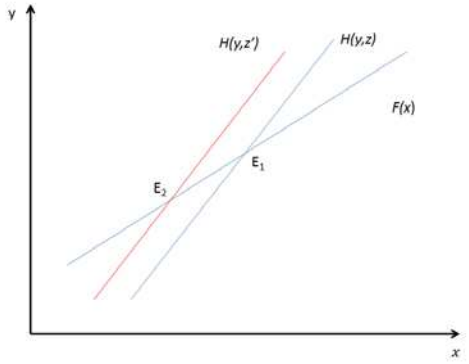

Figure 3b

Figures 3a and 3b: Effects of a shift in the *H*-curve.

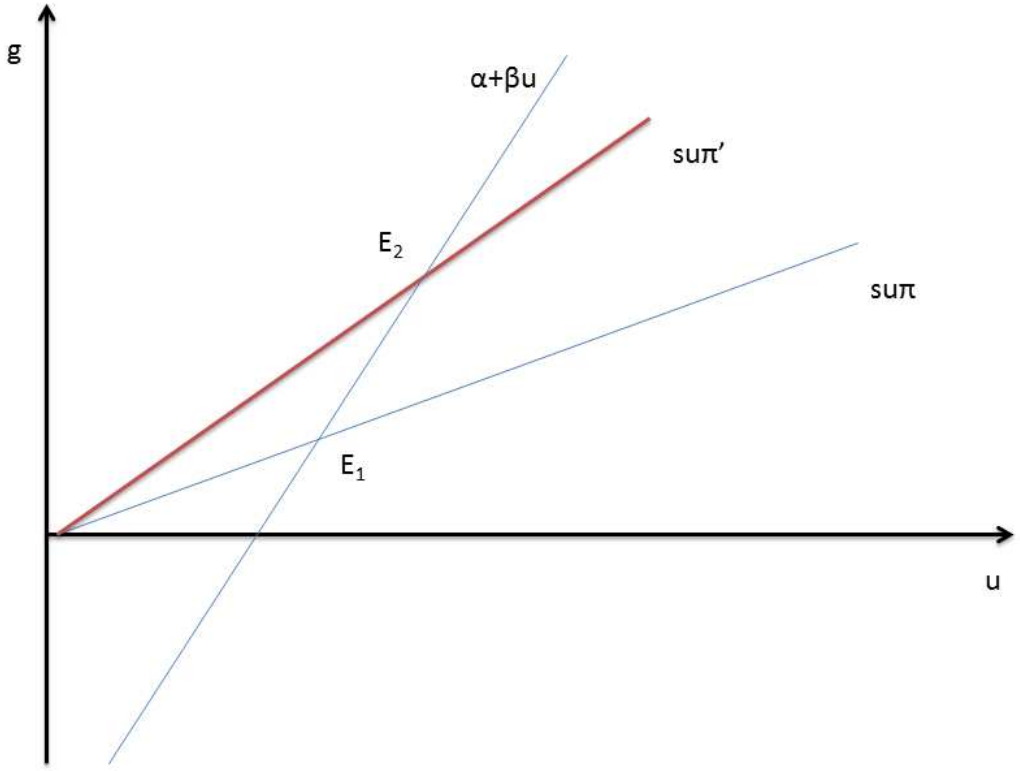

Figure 4: Effects of a rise in the profit share in the Marglin-Bhaduri model (without the Keynesian stability condition).

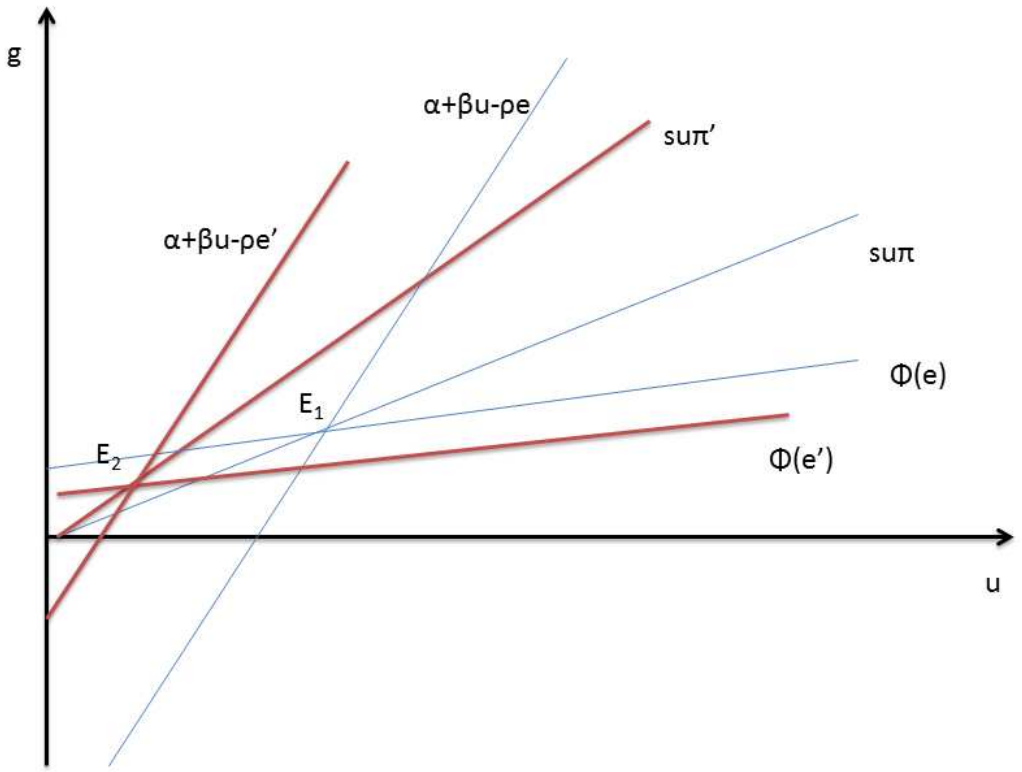

Figure 5: Effects of a rise in profit share in the labor constrained Marglin-Bhaduri model.