MACROECONOMIC OUTCOMES OF CHANGING BARGAINING RELATIONSHIPS IN OPEN ECONOMIES. THE FEASIBILITY OF A WAGE-LED ECONOMY RECONSIDERED

by

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Abstract. An important issue in neo-Kaleckian growth theory is whether higher employment and growth can be promoted by increasing the wage share or whether growth and equity are conflicting objectives. It has been argued that profit-led growth regimes are more likely in an open economy, at least in the short-run. This paper reconsiders this question, by developing a macroeconomic model for the medium-run where distribution and inflation are caused by conflicting nominal income claims. In this context, we show that the strict alternative between wage-led and profit-led growth is misguided, and that an expansion of real wages and employment is feasible when enduring income policies are established. Hindrance to these policies is reminiscent of the political opposition to permanent full-employment envisaged by Kalecki. Our analysis suggests that the slowdown of capital accumulation typical of the neoliberal era, is due to recently promoted anti-labour reforms. We have also compared our results with neo-Keynesian macroeconomic models which share the same emphasis on the role of institutions in the labour market.

Key words: Profit-led growth, Wage-led growth, Conflicting-claims, Kaleckian models, Stagnation theory, Income policies.

JEL classifications: E11, E12, E20, E25, E64

1. Introduction

A crucial question in demand-led growth theories is how income distribution between wages and profits affects the growth rate. It dates back to the great classical tradition (Ricardo and Marx), and to the ‘underconsumptionist’ thinking of the early nineteenth century. While the former asserted that a high profit rate is the main stimulus for investment and growth, the latter affirmed that low wages would lead to depressed consumer demand and to overall economic stagnation. Michal Kalecki (1954, 1971) and his followers considered the combination of these two effects in economies with excess capacity and oligopolistic firms. Steindl (1952) and the next
The generation of Kaleckians strengthen the ‘stagnationist’ view, considering investment both as exogenous and as endogenous, until Bhaduri and Marglin (1990) showed that the stagnation is not necessarily a result in the Kaleckian model, especially when an open economy is highly dependent on foreign trade. Since then, some analysis has been devoted to exploring the conditions needed for growth to be either wage-led or profit-led. \[2\]

The focus of this paper is on how the openness of an economy to foreign price competition may eventually reverse the positive relation between wages and the growth rate. This problem has been adressed by Bhaduri and Marglin (1990) and by Blecker (1989, 2002). These authors showed that an increase in real wages may not cause domestic expansion because the associated rise in prices hurts international competitiveness and spur capital flight. Surprisingly enough, the supply-side “New Keynesian” models used in modern mainstream macroeconomics come to a similar conclusion.

The implication is that workers must accept a lower wage share (and lower real wages) to increase competition in foreign markets, allowing faster accumulation and eventually increasing employment. Since globalization has opened most countries to international trade, this view has gained popularity.

Now, during one of the most serious world-wide crises in modern history, it is difficult to maintain that this crisis is due to high labour costs after two decades of wage restraint and of widening income inequality. Rather, we could argue that cutting labour to promote export-led growth, though effective for certain economies in the short run, contributes to global stagnation in the long run, once persistently applied to most countries. To understand this problem, we need to carefully revise the conditions of the reversal of growth regimes by looking at a longer time frame.

Given the generally acknowledged presumption that the domestic component of demand is wage-led, we wanted to re-examine the conditions under which a growth regime may be transformed into a profit-led growth regime because of foreign trade. A closer analysis of this question raises issues about the role of income distribution and incomes policies.

While Bhaduri and Marglin, as well as Blecker, made a short-run analysis, taking distributional relations as exogenously given, our model shifts the analysis to


2 Blecker (2002) offers a detailed survey of the neo-Kaleckian models and an analysis of the conditions under which a given outcome will be obtained. Taylor (2004, ch. 7) looks at this argument in depth and covers the most recent ideas in structuralist macroeconomics. On the empirical ground, attempts to identify different regimes of accumulation, whether wage-led or profit-led, has not yet given conclusive results. A recent econometric analysis for six OECD countries, which contains a survey of the previous empirical literature, is given by Hein and Vogel (2008)
the medium run where the endogenous formation of wages and prices based on conflicting-claims can respond to changes in output and employment. This enables to introduce feedback from growth and employment into the distributive shares and to underline the importance of institutional and policy-related wage- and price-push factors.

Moreover, we have adopted the notion of medium-run equilibrium as position of provisional equilibrium (Chick and Caserta, 1997; Setterfield 1997), or as a macroeconomic regime in which the economy runs "functionally in an institutional state of rest" (Cornwall and Cornwall, 2001; Setterfield and Cornwall, 2002). 3

Our findings confirm actually that for an individual economy endowed with (a) high export elasticities and (b) low imports requirements a redistribution toward profits stimulates capital accumulation, a partial refutation of stagnationism. A serie of qualifications emerges, however, that tends to redefine this result. Firstly, in order become profit-led, an economy must possess both these requirements. Larger economies, not to say of the world economy, remain wage-led. Secondly, to be fully successfull, an export-led strategy needs to be accompanied by labour markets reforms that reduce domestic inflation by dampening the distributive conflict. Finally and more importantly, once the distribution of income takes its proper place in the medium run and acquires flexibility, it becomes clear that the onus of foreign competition can as well fall on the profit share and that income policies may improve competitiveness. Here is the point where income policies assume all their importance since, as it will be shown, also the flexibility of the profit share may as well concur to improve competitiveness. Some comments on the decline of the profit share and its link with a state of full employment will also be given.

Our model can be compared with neo-Keynesian macroeconomic models which also emphasize the role that institutions play in labour markets and income distribution, even if in a different way.

Troughout the paper we will indicate these differences by contrasting our results with Carlin and Soskice’s model (Carlin and Soskice, 2006). This underlines the fact that profit share flexibility, ignored in neo-Keynesian models, may add to wage share flexibility and so stimulate growth without giving up fair income distribution.

The paper is structured as follows. Section 2 presents the basic assumptions of the effective demand side and the distributive side of the model for the closed economy. It describes how output and growth interacts with distribution emerging from market,

3According to this approach an economic episode is characterized by a relatively stable institutional framework, which is the prime determinant of macro performance. In turn, economic performance evolves slower because of endogenous forces that leads in the long run to necessary changes. It allows us consider that change may be generated by learning or by the passage of time. Therefore, change may develop not only following exogenous shocks but also endogenously as a result of slowly occurring causes.
institutional and social forces. An important relationship between capital stock growth and the wage share, called the distributive curve, is also discussed. An initial comparison with the NAIRU models on the cost of disinflation is also given.

Section 3 extends the model to the open economy and analyzes the conditions for a wage-led regime to switch to a profit-led regime. We then look at expansionary policies that rise the wage share and maintain a balanced trade even for export-led economies. We then discuss the relevance of income policies and suggest that profit share flexibility encounters the same kind of political opposition as that used against permanent full employment described by Kalecki (1943). We finally remark on productivity changes.

Finally, Section 4, drawing on Cornwall ans Cornwall’s evolutionary approach, proposes an interpretation of the current neoliberalism along the lines of Kalecki’s political business cycle. We suggest that among the true causes of the macroeconomic sluggishness are restrictive economic policies that keep down real wages and prices. The decline in workers’ ability to defend their income has further enhanced the stagnationist drive in developed economies.

2. Wage-led and profit-led regimes in a closed economy

2.1. The effective demand side. Assume the Classical view that in a two-class economy, wage earners do not save and all saving comes from profits (at the constant rate \( s_\pi \)), and that a part of total saving is borrowed by the government to finance its own consumption. This leads to our starting point, the Cambridge equation, reinterpreted as a saving function (expressed as a proportion of the capital stock)

\[
g^s = s_\pi (1 - \omega) u - b
\]

where \( g^s \) is the rate of accumulation made possible by realized savings, \( \omega \) the wage share (thus, \( 1 - \omega \) is the profit share), \( u \) is the output-capital \( Y/K \) ratio used as a proxy of the rate of capital utilization, and \( b \) is government budget deficit as a proportion of the capital stock \( K \). Equation (1), nonlinear in \( \omega \) and \( u \), is at the core of the demand side of the model. A great clarification in the analysis is obtained by taking its linear form

\[
g^s = s_0(b) - s_1(s_\pi) \omega + s_2(s_\pi) u
\]

with \( s_1, s_2 > 0 \). Moreover, \( ds_1/ds_\pi > 0 \), and \( ds_2/ds_\pi > 0 \). As it will be clearer later, equation (2) allows us to distinguish neatly whether the growth of the economy will

4 For a survey of the Kaleckian growth models see Setterfield (2002), especially the third section.
be wage-led or profit-led. The meaning of these three parameters $s_0$, $s_1$, and $s_2$, is the following.

$s_0$ is a shift parameter that depends negatively on $b$, the government borrowing, and will be used to examine the effects of fiscal policy. $s_1$ measures the influence that a change in the wage share has on savings. It is a distributive effect and it is one of the central features of all post-Keynesian models. Notice that $s_1$ will be higher (lower) the greater (lesser) $s_\pi$ is. On the other hand, $s_2$ measures the average saving propensity on total income; as such, it increases with $s_\pi$.  

To complete the demand side of the model, we have adopted a linear version of the investment function suggested by Bhaduri and Marglin (1990)

$$g^d = g_0 + g_\pi (1 - \omega) + g_\omega u$$

where $g^d$ is the investment demand in proportion to the capital stock (ignoring depreciation for simplicity). The intercept term $g_0$ is the autonomous rate of growth of capital due to entrepreneurs’ 'animal spirits', or to the state of business confidence; $g_\pi$ and $g_\omega$ reflect the sensitivity of investors to the profit share and to capacity utilization, respectively.

From the goods market equilibrium $g^s = g^d$ (saving equals investment) we derive the equilibrium rates of growth and capacity utilization.

$$g^s = s_\pi (1 - \omega) u + s_\omega \omega u - b$$

which allows positive savings from wage earners. In this case, equation (2) would become:

$$g^s = s_0 (b - s_1 (s_\pi, s_\omega) \omega + s_2 (s_\pi, s_\omega) u$$

with $\partial s_1 / \partial s_\pi > 0$, $\partial s_1 / \partial s_\omega < 0$, and $\partial s_2 / \partial s_\pi > 0$, $\partial s_2 / \partial s_\omega > 0$. Though the Kaldor saving function appears to be more general, it brings workers’ capital ownership into the picture, thus unnecessarily complicating the model for our purposes. See Pasinetti (1983) for Kaldor’s saving function.

The form of this equation which representing independent entrepreneurial decision to invest, the hallmark of all Keynesian models, has been subject of considerable debate. See Bhaduri and Marglin (1990), Marglin and Bhaduri (1990), Lavoie (1992), Mott and Slattery (1994) and, for a review, Blecker (2002). Here we prefer the Bhaduri-Marglin specification which make investment an increasing function of the wage share rather than the profit rate (as in the standard Kalecki-Steindl investment function). This is due to simplifying the analysis, mainly centered on income shares. None of the qualitative results obtained depend on using the investment function (3) instead of the Kalecki-Steindl version.
The Keynesian stability condition requires that the common denominator in (4) and (5) is positive, i.e., that $s_2 > g_u$. It is the familiar condition that saving growth is more responsive than the desired investment growth to changes in the rate of capacity utilisation. Differentiating for $\omega$, we obtain

$$\frac{dg^*}{d\omega} = \frac{g_us_1 - g\pi s_2}{s_2 - g_u} \quad \text{and} \quad \frac{du^*}{d\omega} = \frac{s_1 - g\pi}{s_2 - g_u} \quad (6)$$

We will now refer to the relation between $g$ and $\omega$ drawn by equation (4) as the effective demand curve (ED). Adopting Blecker (2002) terminology, we can say that an economy has a ‘wage-led’ growth regime if $dg^*/d\omega > 0$, and a ‘profit-led’ growth regime if $dg^*/d\omega < 0$. In the first case, workers can benefit from faster growth – which will eventually increase employment opportunities – by struggling for a higher wage share. In the latter case, there is a trade-off between growth and the wage share. Blecker refers to a ‘stagnationist’ regime when capacity utilization is positively related to the wage share ($du^*/d\omega > 0$), and to an ‘exhilarationist’ regime when capacity utilization is inversely related to the wage share ($du^*/d\omega < 0$). We therefore have a wage-led growth regime when $s_1/g\pi > s_2/g_u$, and a profit-led growth regime when $s_1/g\pi < s_2/g_u$. Stagnationism occurs when $s_1 > g\pi$, while exhilarationism implies that $s_1 < g\pi$.

The combinations of parameters causing all the possible regimes are shown in Figure 1. A high distributive effect on saving ($s_1$) and a high accelerator effect on investment ($g_u$), coupled with a low average saving propensity ($s_2$) and a low sensitivity of investment to the profit share ($g\pi$), lead to the wage-led growth regime (region I, where $s_1/g\pi > s_2/g_u$). Given the stability condition, a wage-led growth regime is always stagnationist. \(^7\) However, when $s_1$ and $g_u$ are relatively lower than $s_2$ and $g\pi$, respectively, we have the profit-led regime (regions II and III, where $s_1/g\pi < s_2/g_u$). A profit-led growth regime may be stagnationist (region II) as well as exhilarationist.

\(^7\)From $s_1/g\pi > s_2/g_u$ and $s_2 > g_u$ we have that $s_1 > g\pi$, the condition for stagnationism.
(region III), according to Blecker’s terminology. A parameters’ combination in region IV brings to instability. For the exhilarationism case investment must respond relatively stronger than saving to changes in the profit share.

We can now turn to the distributive side of the economy to create a medium-run model. By addressing to the medium run we confine our attention to the distributional effects on growth rates: of capital and output and, given the rate of labour productivity, also of employment. The crucial condition for any ‘class compromise’ that sustains capitalism is growth and technological improvements. It is the prospect of improving workers’ material well-being in the future, in term of real wages, employment and working conditions. Only growth justifies profit as a necessary condition under capitalism, for investment and continued production, consumption and employment. For this reason we will refer only marginally to the rate of capacity utilization, and we will focus mainly to the rate of growth of capital stock which, in the medium-run equilibrium, equals the output growth rate. Therefore, the meaningful distinction is that between wage- and profit-led growth, and the term stagnationism will be used unambiguously to indicate a wage-led growth regimes.

2.2. Money-wage dynamics, inflation, and distribution. So far, income distribution has been taken as exogenous. In this section we introduce the social forces that set the evolution of nominal wages and prices into a bargaining process where each side attempts to maintain its preferred income share. Money-wage dynamics emerges from labour relations where workers bargain for the nominal wage to meet given targets according to the following expression.
\[
\frac{\dot{w}}{w} = \epsilon(\omega^d - \omega) + \epsilon_p \frac{\dot{p}}{p} + \epsilon_a \alpha
\]  

(7)

The relative change per time unit in money wages \( w \) is the sum of three elements. The first is the nominal increase needed to fill the discrepancy between the actual and the desired wage share \( \omega^d \). As we will see later \( \omega^d \) is subject to change with labour market conditions. \( \epsilon \) is a positive parameter representing the speed of wage adjustment and depends on the workers’ bargaining power. The second term is a provision for inflation compensation and is proportionate to current inflation \( \dot{p}/p \). We assume that workers are not able to incorporate expected future inflation in their current bargaining. The parameter \( \epsilon_p \) is the rate of price ’indexation’. It can be derived from automatic escalator clauses and is generally less than unity.

Finally, the third term states that a fraction \( \epsilon_a \in [0, 1] \) of the rate of labour productivity growth \( \alpha \) is immediately transferred to higher money wages to contrast the decline of labour relative income. Wages increasing with productivity are often a common bargaining claim.\(^8\) All these three parameters, \( \epsilon, \epsilon_p, \) and \( \epsilon_a \) can be conceived as an expression of workers bargaining strength, exerted both through direct action in regular negotiations, in strikes or in union mobilizations and indirectly in accordance with regulations, laws or previous agreements. The simple exponential lag formulation of the first term, which introduces a stabilization factor in wage setting, is justified by the idea that bargaining is a costly process and that efforts tend to relax the closer targets are.\(^9\)

For the pricing behaviour of firms we have adopted the following Kaleckian postulate of the mark-up pricing rule for an imperfectly competitive economy (Kalecki, 1971)

\[
p = \frac{w}{a}(1 + \mu)
\]  

(8)

\(^8\) Labour productivity is here taken as exogenous to keep the model tractable. See Naastepad (2006) for the relevance of endogenizing productivity in demand-led growth models.

\(^9\) The three additive terms of equation (7) may seem redundant. This is the case when \( \epsilon \to \infty \), that is when the workers are assumed to instantly adjust their wages both to the current price level and to productivity changes, which would necessarily imply that \( \epsilon_p = \epsilon_a = 1 \). Workers would then be able to obtain instantly the real wage they desire. This unrealistic hypothesis is excluded if \( \epsilon \) is finite, as it is in our model. In effect, with the exception of redundancy, all these three terms may perform distinct roles in the wage bargaining process.
where \( a \) is the average productivity of labour, and \( \mu \) is the target mark-up. The target profit share \( m^d \) is given by \( m^d = \mu / (1 + \mu) \).

Like workers, firms try to close the gap between the actual and target profit share by increasing prices. The price change equation is then given by

\[
\frac{\dot{p}}{p} = \delta [m^d - (1 - \omega)]
\]

where \( \delta \) is the speed with which firms respond to cost changes and that depends on their market power. In a steady state equilibrium the labour share of output \( \omega \) (as well as the profit share) is constant and this requires that wage inflation equals price inflation plus the rate of labour productivity growth (\( \alpha \)). Therefore, we have

\[
\frac{\dot{\omega}}{\omega} = \frac{\dot{w}}{w} - \frac{\dot{p}}{p} - \alpha = 0
\]

From equations (7), (9) and (10), it follows that the steady-state equilibrium wage share must be

\[
\omega^* = \theta_w \omega^d + \theta_f (1 - m^d) - \theta_a \alpha
\]

where

\[
\theta_w = \frac{\epsilon}{\epsilon + \delta(1 - \epsilon_p)}; \quad \theta_f = \frac{\delta(1 - \epsilon_p)}{\epsilon + \delta(1 - \epsilon_p)} \quad \text{and} \quad \theta_a = \frac{1 - \epsilon_a}{\epsilon + \delta(1 - \epsilon_p)}.
\]

Both \( \theta_w \), \( \theta_f \) \( \in [0, 1] \), and \( \theta_a \geq 0 \). Since \( \theta_w \) and \( \theta_f \) add up to one, the equilibrium wage share is a weighted mean of \( \omega^d \) and \( (1 - m^d) \), less a term connected to the rate of labour productivity growth. Thus, the wage share depends on the relative bargaining strength of workers and firms, as measured by the weights \( \theta_w \) and \( \theta_f \), and neither sides aspiration will be completely fullfilled. Notice that the rate of growth of labour productivity always has a diminishing impact on the equilibrium wage share, unless \( \epsilon_a = 1 \), i.e., unless workers can increase money wages exactly in line with productivity.

In steady state the rate of price inflation \( \dot{p} \), after some manipulations, can be written as
\[ \hat{p} = \delta \theta_w AG - \delta \theta_a \alpha \] (12)

where \( AG = (\omega^d + m^d - 1) \) can be called the aspiration gap (Rowthorn, 1977) and indicates how far workers and firms aims are inconsistent with each other. Equation (12) shows that the inflation rate is proportional to the size of \( AG \). Moreover, the faster wage and price adjustments take place (parameters \( \epsilon, \epsilon_p \) and \( \delta \)), the higher this proportion is. In addition, if \( \epsilon_a < 1 \), the labour productivity growth \( \alpha \) always leads to a reduction in inflation. As in any conflict model, inflation makes competitive claims consistent with each other and is determined by the market power of the two sides.

We can now endogenize the workers and firms’ aspirations. Let us first deal with the unions’ target. We will assume that the wage share sought by workers is positively related to the rate of change in employment. Workers’ self-confidence depends on the fear of loosing their jobs. It rises when employment accelerates and it weakens when it slows down. Declining employment prospects threaten employed workers (insiders) more than a given rate of unemployment (Lavoie, 1992, ch. 7.5; Screpanti, 2000). With neutral technical progress, the growth rate of employment is equal to the difference between \( g \) and \( \alpha \). This leads us to the following function

\[ \omega^d = \omega_0 + \rho (g - \alpha) \] (13)

where \( \omega_0 \) is an autonomous effect on \( \omega^d \) (such as the militancy or other political and institutional effects). \( \rho \), a positive parameter, reflects the rate at which the target wage share is revised when the employment rate changes. \(^{10}\)

As to firms, we assume that their target is also influenced by the rate of growth of capital (Eichner 1976; Lavoie, 1992, ch. 7.5). Firms set higher profit margins to meet the requirements of internal funds needed when accumulation accelerates. We can then render \( m^d \) endogenous as follows

\[ m^d = m_0 + \sigma g \] (14)

Here, \( m_0 \) is a positive constant that assures that \( m^d \) is positive even when \( g = 0 \), while \( \sigma \), also positive, renders the target mark-up pro-cyclical.

\(^{10}\)The true definition of the rate of change of employment \( g_e \) should be: \( g_e = g_u + g - \alpha \), where \( g_u \) is the rate of growth of \( u \). This equation however, complicates unnecessarily the model if we consider that in a steady state \( g_u = 0 \).
Substituting equations (13) and (14) in (11) we find a relationship between $g$ and the equilibrium wage share $\omega^*$ which can be written as:

$$
g^* = -\frac{\theta_w \omega_0 + \theta_f (1 - m_0)}{\theta_w \rho - \theta_f \sigma} + \frac{1}{\theta_w \rho - \theta_f \sigma} \omega^* + \frac{\theta_w \rho + \theta_a}{\theta_w \rho - \theta_f \sigma} \alpha
$$

(15)

Following Taylor (2004), we can name the locus traced in the $(\omega, g)$ plane by expression (14) as the "Distributive Curve" (DC). Each point on this curve represents equilibrium values of $g$ and of $\omega$ at a stable inflation rate. Its slope depends on the sign of $\theta_w \rho - \theta_f \sigma$, i.e., on whether labour’s bargaining power becomes weaker or stronger than firms’ in the medium run.

There are two main positions in the macroeconomic debate according to which price inflation would accelerate more ($\theta_w \rho < \theta_f \sigma$) or less rapidly ($\theta_w \rho > \theta_f \sigma$) than wage inflation as accumulation increases. The first is the forced saving macroeconomic adjustment (FSA) often associated with supply-side restrictions on output due to the approaching of the economy to full capacity utilization or to full employment. Prices changes faster than wages, the markup rate rises and income distribution adjusts endogenously to force enough savings to compensate for excess demand. In this case, given the direct relationship between capacity utilization and capital growth rates, the DC has a negative slope.

The second position however suggests a positive slope for the DC that recalls Goodwin’s real wage curve (RWC). This position arises from many different tendencies in economic theory. One of these, perhaps the most important, dates back to Marx-Kalecki-Goodwin line of thought on income distribution. Both Marx, with his idea of a "reserve army", and Kalecki (1971) stressed the unions’ bargaining power as an important factor affecting real wages. Goodwin (1967) expresses the growth rate of real wages as directly proportional to the employment share, which in turn depends on capital stock. A rising DC slope is also found in the "social structure of accumulation" approach, where high employment leads to profit squeeze and in new Keynesian economics (Blanchflower and Oswald, 1994; Layard, Nickell and Jackman, 1994). Likewise, an upward sloping 'wage setting curve' relating real wages to the employment level is found in Carlin and Soskice (2006) even if their curve is only virtual. All these approaches suggest that the DC should be an upward-sloping curve.

The DC curve in these theories is often referred to business cycle movements in income distribution. This model however, describes the growth process and income generation in a medium-run macroeconomic regime, with a historically specific

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11 See Gordon (1994)
and relatively persistent institutional framework.\(^{12}\) Therefore, our equations refers rather to trends across cycles characterized with relatively stable labor market institutions. The equilibrium described by this model is then conditional on the workers' aspirations and bargaining power.

Here we have adopted a positively sloped DC, i.e., we look at the real wage curve variant of the model (this implies that \(\theta_w \rho - \theta_f \sigma > 0\)). This is because forced saving adjustment is probable in a cyclical movement when the economy nears full employment, whereas the typical medium run position of a modern economy is characterized by large capacity margins and unemployed labor.\(^{13}\)

### 2.3. Effective demand and the distributive curve in the closed economy.

Our model is now summarized by the ED curve (equation 4), and by the DC curve (equation 14). Both curves are increasing in the \((\omega, g)\) plane, but for stability the DC slope must be higher than the ED slope (see Figure 2, where the arrows indicate the forces acting on the system). Stability implies that

\[
E_{g,\omega}|_{ED} \times E_{\omega,g}|_{DC} < 1
\]  

where \(E_{g,\omega}|_{ED}\) is the elasticity of \(g\) with respect to \(\omega\) measured along the ED curve, while \(E_{\omega,g}|_{DC}\) defines the elasticity of \(\omega\) with respect to \(g\), measured along the DC curve.

The interpretation of condition (16) is straightforward. In an economy where real wages growth promotes accumulation \((E_{g,\omega}|_{ED} > 0)\) and accumulation encourages wages \((E_{\omega,g}|_{DC} > 0)\), by the RWC hypothesis, this mutual reinforcement cannot go beyond a given threshold for stability to be maintained. This means that in a wage-led economy, stability imposes a limit on workers' bargaining strength, i.e.,

\[(\theta_w \rho - \theta_f \sigma) < 1/E_{g,\omega}.\]

Within this limit, any increase of workers' bargaining strength increases the accumulation rate, the wage share as well as in the rate of inflation. The effects of parametric shifts are summarized in Table 1.

Demand managed policy (an upper shift of the ED curve) can be used to increase employment, growth, and the wage share, but it also increases inflation. The reverse is true for contractionary policy. Since inflation is the result of inconsistent targets, demand management affects these targets by stimulating or depressing growth.

\(^{12}\) Besides the authors cited in the introduction, this approach belongs also to the French Regulation School which centers on the concept of mode of regulation: an accumulation regime that does not fit either to the short nor to the long run of traditional analysis. See Boyer (2004) for a short but incisive survey.

\(^{13}\) According to Kalecki (1971, p. 137) "The reserve of capital equipment and the reserve army of unemployed are typical features of capitalist economy at least throughout a considerable part of the cycle ".
Therefore, inflation depends on the intensity of the conflicting-claims as well as on the rate of accumulation, as shown below

\[ \dot{p} = \delta \theta_w AG_0 + \delta \theta_w (\rho + \sigma)g - \delta (\theta_w \rho + \theta_\alpha)\alpha \]  

(17)

where \( AG_0 = \omega_0 + m_0 - 1 \).

Unbearable inflation rates may then appear well before a capacity utilisation limit is reached. To fix a target inflation rate according to any monetary rule means fixing the wage share.

Lastly we can consider the effect of increased productivity growth on \( g \), on \( \omega \) and on \( \dot{p} \). From equation (15), we can see that the DC curve shifts upwards when \( \alpha \) increases. This leads to a fall both in \( g \) and \( \omega \). This may appear surprising, but it reflects the logic of the model. An increase in labour productivity reduces employment growth, restrains workers’ claims and reduces consumption demand. In addition, we can see from (17) that the higher workers’ bargaining strength is, the more productivity growth reduces inflation.

2.4. A brief comparison with NAIRU models. At this stage, before extending our analysis to the open economy, we can briefly compare the assumptions and results of this model with the NAIRU models. For clarity, we will take the New Keynesian model of Carlin and Soskice (2006) (CS) as a benchmark.

One remarkable feature of the CS framework lies in the emphasis given to wage bargaining in an imperfectly competitive market. Surprisingly, wage- and price-setting decisions in CS, affect the inflation rate but not income distribution. As a consequence, any influence of income distribution on aggregated demand is totally
Table 1. Effects of parametric changes in the wage-led growth regime with a Real Wage Curve in the closed economy.

<table>
<thead>
<tr>
<th></th>
<th>g</th>
<th>ω</th>
<th>(\dot{p})</th>
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</thead>
<tbody>
<tr>
<td>Workers’ parameters bargaining strength: (\omega_0, \epsilon, \rho, \epsilon_p, \epsilon_a)</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<tr>
<td>Firms’ parameters bargaining strength: (m_0, \delta, \sigma)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fiscal policy parameter: (b)</td>
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<td>+</td>
<td>+</td>
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<tr>
<td>Saving propensity: (s_2)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Investment function parameters: (g_0, g_\pi, g_u)</td>
<td>+</td>
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</tr>
<tr>
<td>Labour productivity rate: (\alpha)</td>
<td>-</td>
<td>-</td>
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</table>

denied. This comes from very specific assumptions. One of them is that in the short run prices are set immediately after wages without any lag. In our bargaining framework, i.e., \(\delta \to \infty\), so that firms always and instantly achieve their target \(m^d\).

Looking at expression (11) and ignoring productivity growth, this means setting \(\theta_w = 0, \theta_f = 1\) and \(\omega^* = 1 - m^d\). The equilibrium wage share then becomes residual to the desired profit share. A short-run equilibrium position with \(AG \neq 0\) is allowed, at the cost of a proportionate but finite increase or decrease in inflation (as prescribed by a typical short run type Phillips curve) while the DC curve becomes a vertical line with abscissa \(1 - m^d\). In the medium period, CS allow workers to fully index nominal wages to prices (as in the monetarist unemployment theory), i.e, \(\epsilon_p = 1\). As a result, in the medium run the only possible equilibrium position implies that the aspiration gap is null given that outside this condition, inflation accelerates or decelerates indefinitely needing immediate intervention by monetary authorities (and the Phillips curve becomes vertical).

This is an institutionally conditioned equilibrium since it incorporates the automatic intervention of the government or of economic authorities as a guarantee for stability. As in the short run, in the medium run the workers’ struggle for higher wages is frustrated and their efforts only contribute to increase inflation. Given that the real activity level (in our analysis \(g\)) remains fixed at \(AG = 0\), there is only one possible equilibrium couple \((\omega^*, g^*)\) and the DC curve collapses to a single point. Firms are assumed to have unlimited power to fix prices in the goods market, while workers are assumed to be have unlimited power to fix money wages in the labour
market. Therefore, the CS model appears to be a particular case of the conflicting-claims approach with the singularity that workers can exercise influence only after a time lag compared to firms, which gives the latter the upper hand.\textsuperscript{14}

2.4.1. The cost of disinflation: transitory or permanent? An important prediction of NAIRU models is that the rate of inflation can be reduced at a temporary cost of increasing unemployment. Following a restrictive policy that cuts inflation to the target rate, the employment and the activity level can be restored by cutting interest rates and maintaining the lower inflation rate. Comparing the two models on this topic allows us to see the differences between them. We can reformulate this disinflation argument in Figure 3.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure3.png}
\caption{Disinflation in NAIRU models}
\end{figure}

On the right side of Figure 3, the economy is at $A'$ and the corresponding rate of inflation, shown on the left side, is $\hat{p}_0$, at $A$ on the short run Phillips curve $PC_0$. The government then use policy to shift the economy to $B'$ in order to trigger lower inflationary expectations. This brings inflation down to $F$ in the short run, at the cost of a slower growth rate. Once inflation has fallen, the Phillips curve shifts gradually to $PC_1$ while the central bank can safely cut the interest rates to stabilize the growth again to $A'$. The economy then moves from $F$ to $B$, with stable reduced inflation rate such as $\hat{p}_1$. The cost in term of employment and growth is limited to the short period.

The same disinflation policy, in our model, causes different outcomes as well as different dynamics as in Figure 4.

\textsuperscript{14}The disappearance of references to classical or heterodox economists from the most recent edition is indicative of the changed attitude of these two authors.
Here, after the fall in $g$, caused by the deflationary policy, the economy shifts from $A'$ to $F'$, on the right of the figure, while inflation falls from $A$ to $F$ along the curve $PC_0$, on the left side. In this situation no automatic mechanism is used, such as the downward revision of workers’ inflation expectations. However, to mimic the CS dynamics as close as possible, let us concede that a long and painful recession permanently weakens worker’s bargaining power. In this case, the $PC$ curve shifts right to position $PC_1$, while a simultaneous leftward shift occurs also to the $DC$ curve, say, to position $DC_1$. An expansionary policy could then push the economy to $B'$, regaining the initial level of the growth with a reduced inflation $\hat{p}_1$ (the corresponding shift in the $ED$ curve in Figure 4 has been omitted). The wage share, however, will decrease from $\omega_0$ to $\omega_1$.

The differences compared to the CS story, are remarkable. Attempts to reduce inflation by creating a recession may take a long time, i.e., the time needed for introduce structural changes (such as anti-union labour laws, downsizing, increased nonstandard employment, and so on) designed to weaken workers’ resistance. More importantly, disinflation may cost workers a permanently reduced wage share, as the situation in the 1980s and 1990s seems to suggest.

3. **Wage-led and profit-led regimes in an open economy**

The purpose of this section is to find out whether and to what extent international competition potentially make it more difficult for growth to be wage-led.

3.1. **Opening the goods market.** We extend the analysis of the goods market equilibrium by including exports and imports. In order to concentrate only on essential aspects we have adopted the *workshop economy* hypothesis, i.e., the economy
processes intermediate and raw material imports into final products for domestic use or export. To simplify the case as much as possible, we have ignored the difference between trade balance and current account. The trade balance in real terms, \( bt \), may be written as

\[
bt = x(\theta) - \theta \frac{u}{h}
\]  

(18)

where \( x(\theta) \) is the export function in real terms; \( \theta \equiv (p^e x e) / p \) is the real exchange rate, and \( h \) is the output-raw materials ratio, assumed constant. \( p^e \) is the foreign price level and \( e \) is the nominal exchange rate, assumed to be either fixed by government policy or else determined by financial factors. The import function in real terms is given by \( \theta (u / h) \) given that the volume of imports inversely depends on \( h \) and directly on the degree of capacity utilization \( u \). Equation (1) now becomes

\[
g^s = s_\pi (1 - \omega - \frac{\theta}{h}) u - b - bt
\]  

(19)

where the profit share is now \( 1 - \omega - \theta / h \), being \( \theta / h \) the share of output claimed by the foreign sector. Here we assume that \( \partial bt / \partial \theta > 0 \), so that the Marshall-Lerner condition holds. Taking into account equation (18), the linearization of equation (19) now gives

\[
g^s = s_0 - s_1 \omega + s_2 u - s_3 (E_x) \theta
\]  

(20)

where the new term, \( s_3 \theta \), represents the impact that the real exchange rate has on \( g^s \), the short run equilibrium rate of accumulation. \( s_3 \) may be called the competitiveness effect which is positive, according to the Marshall-Lerner condition.\(^{15}\) A rise in competitiveness improves the trade balance and reduces \( g^s \), given the amounts of saving and of government borrowing. Moreover, \( s_3 \) can be conceived as a function of the elasticity of demand for exports \( (E_x) \), with \( \partial s_3 / \partial E_x > 0 \). Now \( s_2 \), in equation (20), sums up the effects of the income leakages caused by both saving and import propensities.

When some raw-materials are imported, the price equation (8) for an open economy becomes

\(^{15}\)Given our assumption on imports, the condition that a rise in competitiveness may improve the balance of trade, is a bit more stringent than the usual since it requires that elasticity of the only demand for exports is greater than one.
\[ p = \left( \frac{w}{a} + \frac{ep^x}{h} \right)(1 + \mu) \] (21)

where \( ep^x/h \) is the unit cost for imports. From equation (21), the distributional identity is: \( \omega + m + \theta/h \equiv 1 \), where \( \theta/h \) is the real cost for imports per unit of output, i.e., the share of output claimed by the foreign sector. Given this three-way distributional conflict among workers, firms and the rest of the world on total output, the investment function (equation 3) must be reformulated as follows

\[ g^d = g_0 + g_\pi (1 - \omega - \frac{\theta}{h}) + g_u u \] (22)

Now putting \( g^* = g^d \), from the solutions of equations (20) and (22) we obtain the \( ED \) curve for the open economy that changes to

\[ g^* = A + B \omega + C \theta \] (23)

where the constant \( A \) and the coefficient \( B \) correspond exactly to those in equation (4), while the new coefficient \( C \) is given by

\[ C = \frac{1}{(s_2 - g_u)} (g_u s_3 - \frac{g_\pi s_2}{h}) \]

It measures the impact on \( g \) due to a change in the real exchange rate. Its sign depends on the prevalence of two contrasting forces acting on investment when the real exchange rate depreciates. One \( (g_u s_3) \) is positive and comes from the Marshall-Lerner effect on export demand, via the accelerator coefficient. The other \( (-g_\pi s_2/h) \) is negative and derives from the fall in the profit share caused by the increasing real cost of imports. We assume that normally the first will overcome the second and therefore that \( C \) is positive. Thus we can consider \( C \) as a net Marshall-Lerner effect on the rate of accumulation. Notice however that \( C \to 0 \) as \( (s_3 \to 0, h \to +\infty) \). In other words, the impact of changes in \( \theta \) on the effective demand evaporates when larger and more closed economies are considered.

3.2. Wage and price setting in the open economy. Firms’ price change equation is now

\[ \frac{\dot{p}}{p} = \delta [m^d - (1 - \omega - \frac{\theta}{h})] \] (24)
Taking into account the money-wage dynamics given in equation (7), at the steady state equilibrium the wage share is now

\[ \omega^* = \theta_w \omega^d + \theta_f (1 - m^d - \frac{\theta}{h}) - \theta_a \alpha \]  

(25)

where the parameters \( \theta_w, \theta_f \) and \( \theta_a \) are identical to those in equation (11). Substituting equations (13) and (14) in (25) we obtain the DC curve for an open economy

\[ g^* = F + G \omega + H \theta + L \alpha \]  

(26)

The constant \( F \) and coefficients \( G \) and \( L \) are those given in equation (15), while coefficient \( H \) is as follows

\[ H = \frac{\theta_f}{h(\theta_w \rho - \theta_f \sigma)} \]

\( H \) measures the impact of changes in the real exchange rate on the rate of accumulation through income distribution. In the RWC case it is positive: any increase in \( \theta \) that increases the foreign share must be accompanied by a rise in \( g \) to maintain the wage (and the profit) share constant. \( H \) is greater the greater is the imports requirement is (the lower \( h \) is).

3.3. Competitive claims equilibrium in an open economy: the competitiveness curve. The introduction of a third competitor, besides workers and firms, introduces a new requisite for the medium run equilibrium. Not only must the domestic shares and inflation rate be constant, the real exchange rate must also be constant. For \( \theta \) to be constant, home inflation must equal world inflation (\( \hat{p}^x \)) plus the depreciation of nominal exchange rate (\( \hat{e} \))

\[ \hat{p} = \hat{p}^x + \hat{e} \]  

(27)

Considering that the expression for the aspiration gap is now \( AG = \omega^d + m^d + \theta/h - 1 \), substituting in equation (27) from equations (12), (13) and (14), and solving for \( g \), we can trace a curve in the \((\theta, g)\) space that we call the competitiveness curve (CC) as in Figure 5 below. At any point on the CC curve, the real exchange rate, the domestic income shares and inflation, are all constant. Its expression is given by
\[ g = Q - T\theta + R\alpha \quad (CC \text{ curve}) \]  

(28)

where the following, all positive, are the coefficients

\[
Q = \hat{p}x + \hat{e} + \delta\theta_w(1 - \omega_0 - m_0) /
\delta\theta_w(\rho + \sigma) \\
T = \frac{1}{h(\rho + \sigma)} \\
R = \frac{\theta_w\rho + \theta_a}{\theta_w(\rho + \sigma)}
\]

The CC curve establishes a trade-off between \( g \) and \( \theta \). When \( g \) increases and AG amplifies, workers and firms put greater effort in bargaining, thus pushing up domestic inflation. This reduces foreign competitiveness, i.e., the real exchange rate. At points above the CC, home inflation is above world inflation, at points below the opposite is true. Looking at parameter \( T \), we can see that the CC curve is steep in either or both of the following two cases: when a mild struggle for income distribution (low value of \( \rho + \sigma \)) mitigates the inflationary impact of growth, and when high import requirements (a low \( h \)) greatly reduces production costs as the real exchange rate rises. In contrast we have a flat CC curve when bargaining competition is stronger (a high value of \( \rho + \sigma \)) or when there are low import requirements (a high \( h \)).

To summarize, highly conflictual economies, as well as highly import-dependent ones, face an unfavorable trade-off between growth and competitiveness. As expected, the positivity of coefficient \( R \) means that increased labour productivity is always favourable to a growing domestic economy.

At this point, we can represent the equilibrium of the open economy in the \((\theta, g)\) space, by compacting the ED and the DC curve into a single aggregate demand curve \((AD)\) relating the equilibrium growth rate \( g \) to the real exchange rate \( \theta \). This new AD schedule, simplifies the analysis of the growth regimes in open economies. Solving equations (23) and (26) \((ED \text{ curve and } DC \text{ curve, respectively})\) we obtain the AD curve in the \( \theta g \)-diagram

\[
g = \frac{AG - BF}{G - B} + \frac{CG - BH}{G - B}\theta - \frac{BL}{G - B}\alpha \quad (AD \text{ curve})
\]

(29)

Since the common denominator in (29) is positive for stability, the AD curve slope depends on the sign of the expression \( CG - BH \). From expressions (6) we already know that \( a \) in a closed wage-led regime \( B \) is positive (remember that \( \frac{dg}{d\omega} \equiv B \)) and \( G \) and \( H \) are also positive if the RWC hypothesis holds. Even if \( C \) positive, \( CG - BH \) can still be negative, i.e., a real exchange depreciation may have a contractionary
effect on $g$. This happens when the expansive effect on exports ($CG$) is more than counterbalanced decreased domestic demand caused by the fall in the wage share ($BH$). We have ignored this possibility of contractionary devaluation, which is a real scenario for developing economies where export elasticities are low,\footnote{On this point see Taylor (2004, p. 253 and following).} to uphold the switching regime thesis. We then assume that the $AD$ schedule has an upward slope.

In Figure 5, an open economy medium-run equilibrium is represented by $A$, where the $AD_0$ and the $CC_0$ schedules cross.

3.4. The effects of wage and profit claims in the open economy. Our interest is to understand whether the influence of real wages on growth, positive for wage-led closed regimes, can be reversed by international trade. Using now this $\theta g$ diagram we can look for an answer. For simplicity let us consider the effects of an increase in workers claims that takes the form of an increase in $\omega_0$. In Figure 5, the $AD$ curve then shifts left given that increased real wages boosts domestic demand; at the same time inflation soars above world inflation reducing competitiveness. The $CC$ curve shifts leftwards too, from position $CC_0$ to position $CC_1$.

![Figure 5. Effects of real wage increases in the open economy](image)

The final equilibrium position essentially depends on the size of the shift of the $AD$ curve. With a shift to $AD_2$, the economy is pushed toward point $B$, since increased...
domestic demand is sufficiently strong to outweigh the contractionary effects of decreased competitiveness, and the growth regime remains wage-led. With a shift to $AD_1$, however, the new equilibrium will be $C$, as worsened trade balance dominates increased consumption, leading to a fall in $g$. This is the case where an upward push on wages undermines growth, as shown by Bhaduri and Marglin (1990), and Blecker (1989; 2002). We can now look at the circumstances which favour these two results.

From the solutions of the system of equations (28)-(29) we can show that

$$\frac{\partial g^*}{\partial \omega_0} = \frac{M}{N}(s_1 - h s_3)$$  (30)

where $M = g_u/[h(\rho + \sigma)(s_2 - g_u)(\theta_\omega \rho - \theta_f \sigma)]$ and $N = (G - B)T + (CG - BH)$. Since $M$ and $N$ are positive expressions (see Appendix A), the sign of expression (30), i.e., the type of growth regime, depends on the sign of the expression $(s_1 - h s_3)$, where the distributive effect $s_1$ is confronted with foreign trade parameters.

### Table 2. Foreign trade structures and possible macroeconomic regimes

<table>
<thead>
<tr>
<th>High import dependence (low $h$)</th>
<th>Low import dependence (high $h$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High export elasticities (high $s_3$)</td>
<td>$\partial g^*/\partial \omega_0 &gt; 0$</td>
</tr>
<tr>
<td>$s_1 \leq h s_3$</td>
<td>$s_1 &lt; h s_3$</td>
</tr>
<tr>
<td>Low export elasticities (low $s_3$)</td>
<td>$\partial g^*/\partial \omega_0 &lt; 0$</td>
</tr>
<tr>
<td>$s_1 &gt; h s_3$</td>
<td>$s_1 \leq h s_3$</td>
</tr>
</tbody>
</table>

Table 2 shows how different combinations of foreign trade parameters concur to determine the outcome. Only for economies with high export elasticity and a relatively low dependence on imports (i.e., a relatively high $h$ ratio) we can say that the expansive of wages reverts because of foreign trade. An economy with low export elasticities and high import dependence maintains a wage-led demand structure. In all other cases the outcome is undetermined.

Note that when trade structures are competitive (i.e., $s_1 < h s_3$), $|\partial g^*/\partial \omega_0|$ is lower the higher $\rho$ and $\sigma$ are (see Appendix A). This means that the rise in $g^*$ associated with a reduced wage share becomes smaller as the aspiration gap widens. Therefore, to grow from foreign trade, a strategy of cutting unit labour costs must be complemented by relaxing both the response of money wages to employment ($\rho$) and the response of prices to growth ($\sigma$). This explains the rationale behind wage
bargain reforms designed to reduce workers’ relative bargaining power. They substitute disciplinary effects created by unemployment with the insecurity created by the institutional environment (Setterfield, 2005).

Finally, we can see that $s_3$ and $h$ are likely to be related to country size, the first inversely and the latter directly. As $s_3 \to 0$ and $h \to +\infty$, the expression $s_1 - hs_3$, if negative, switches sign. The larger the economy, the higher the probability that it does not change its wage-led character. So, the argument of international trade leading to a profit-led regime cannot apply to the world economy or to the group of the world’s biggest economies nor to a world of coordinated economic policies where wage increases are simultaneous. By the same token, the search for competitive advantages through policies that slow real wages can depress the entire global economy.

Here the comparison with the CS model is immediate. Given its assumptions, a wage increase does not influence aggregate demand given that the distributive effect null, and there will be no shifts in the $AD$ schedule. But since home prices rise in line with money wages, price competitiveness falls. In Figure 5, the fall in $\theta$ depresses export demand and the economy moves along the $AD$ curve from $A$ to $D$, its final position, with reduced accumulation. Increased real wages cannot but hurt growth.

The moral of this story is that international competition compels workers in different countries to compete with each others for growth and employment. However, in this three-way distributional fight the burden of the competition can as well fall on firms through decreased profit share. In fact, differentiation of $g^*$ with respect to $m_0$, yields

$$\frac{\partial g^*}{\partial m_0} = -\frac{M}{N}\left(\frac{hg_ua h s_3 - g_2 s_2}{g_u}\right)$$

which turns out to be negative given that the term in brakets is positive, assuming $C > 0$. It follows that an alternative to cutting wages for increased international competitiveness is to cut profit margins.

3.5. **Real wages, trade balance and adjustment policies.** The intersection of the $AD$ curve and the $CC$ curve gives a medium-run equilibrium with constant inflation and stable distributive shares that only fortuitously will balance trade. Experience suggests that this can last for a long time, but the persistence of current account surpluses or deficits can lead government to adjust economic policy in response to market or political pressures. In this section we wanted to find out whether and to what extent the need to balance trade can alter the typology of growth regimes.
Assuming the Marshall-Lerner condition, a consequence of a rise in real wages, as in Figure 5, is that the current account balance necessarily worsens. The trade balance condition in the $\theta g$ diagram is represented by a curve (the $BT$ curve) that shows the combinations of $\theta$ and $g$ at which trade is balanced: $x(\theta) = \theta (u/h)$. This is positively sloped: an increased $\theta$ raises exports and requires a higher capacity utilization rate (and hence a higher $g$, given $\omega$) to rise imports and maintain trade balance. In addition, the Marshall-Lerner condition establishes that it is steeper than the $AD$ curve as in Figure 6, where three possible $BT$ curves are drawn which corresponds to different $\omega$ levels. To the left of the $BT$ curve there is a trade deficit and to the right there is a trade surplus. The $BT$ curve shifts right when $\omega$ rises, it shifts left when $\omega$ falls. A country at point $A$ in Figure 6 is in a medium-run equilibrium but has a trade surplus if the wage share is $\omega_1$. It has a trade balance if the wage share raises to $\omega_2$, and it runs a trade deficit if the wage share raises further to $\omega_3$.

![Figure 6. Medium run equilibria and trade balance.](image-url)

A key result in the CS model is that "in an open economy, a rise in employment can only be sustained in the long run by a fall in real wages", which hold true whatever the accompanying fiscal policies are. This definitive conclusion rests once again on the assumption concerning the timing of price setting: firms instantaneously and completely pass every cost increase to prices, so that profit margins are always...

\[17\] Carlin and Soskice (2006, pag. 401). According to the timing assumption of the authors the long run equilibrium refers to medium-run equilibria characterized by trade balance.
safeguarded. Our model suggests rather that it is possible to raise real wages and accumulation, maintaining a balanced trade.

Imagine that our economy finds in a medium run equilibrium with trade balance at point \( A \) in the left panel of Figure 7 (where, in the right panel, the corresponding \( ED-DC \) curves have been drawn). Consider a policy that encourages agreements between employers and employees to settle for lower increases in both nominal wages and prices. It is an income policy like those traditionally addressed to reduce inflationary pressure associated with any given level of demand. Reduced domestic inflation is not only a benefit in itself, since it also boosts competitiveness and net exports. Suppose that this income policy can be achieved through a joint reduction of \( \omega_0 \) and \( m_0 \) to, respectively, \( \omega_0' \) and \( m_0' \), that causes the \( CC \) curve to shift from position \( CC(\omega_0, m_0) \) right to position \( CC(\omega_0', m_0') \) as shown in the left panel of Figure 7.

**Figure 7.** An income policy combined with fiscal expansion: a rise in employment is compatible with both a constant wage share and balanced trade.

If, at the same time, the government undertakes an expansionary fiscal policy (i.e. increasing the budget deficit from \( b \) to \( b' \)) the \( BT \) curve will shift right from position \( BT(\omega_A, b) \) to \( BT(\omega_A', b') \) while the \( AD \) curve will shift left from position \( AD(\omega_0, m_0, b) \) to \( AD(\omega_0', m_0', b') \). A new equilibrium will be reached at \( B \), with increased \( g \) and \( \theta \) but still with a trade balance. In the right panel, both the increased government deficit and increased competitiveness (always assuming that \( C > 0 \)) will push the \( ED \) curve left from position \( ED(b, \theta^A) \) to \( ED(b', \theta^B) \). While the joint decreases in \( \omega_0 \) and in \( m_0 \) exercise on the \( DC \) curve opposing forces which will tend to compensate for each other, the increase in \( \theta \) will push it left (since \( H > 0 \), given the RWC assumption). The net result will be a leftward shift of the \( DC \) curve from
position \( DC(\omega_0, m_0, \theta^A) \) to position \( DC(\omega'_0, m'_0, \theta^B) \). At the new equilibrium position \( B \) the wage share will be unchanged.

Some remarks are in order here. Firstly, the wage share could even increase due to this policy: the example portrayed in Figure 7 has been chosen to make the point. Secondly and more importantly, constant or increased wage share as well as increased foreign share, given that \( \theta \) raises, imply that the profit share decreases. Thus, the burden of this manoeuvre falls on the profit share. However, since production, capacity utilization and capital accumulation all increase, the volume of profits may also increase.\(^{18}\)

3.6. Reflections on the political aspects of profit share flexibility. We need to discuss whether a decreased profit share (or profit margins), caused by policy devoted to expanding both employment and real wages, may raise political or ideological problems given that profit is capitalism’s prime mover. Although a proper discussion of this issue is beyond the scope of this paper, here are some brief remarks.

The neo-Keynesian theory rarely mentions the possibility of a fall in the profit share. It is silent on it notwithstanding the substantial abandonment of the decreasing labour demand curve. Carlin and Soskice begin their explanation of the price-setting behaviour of firms with the neoclassical decreasing marginal product labour curve. However, they argue, various types of product market imperfection cause the firm’s price-setting real wage curve to lie below the competitive labour demand curve. This curve moreover, may be horizontal whatever the level of employment is, for many reasons, such as the constancy of marginal product of labour, a fixed mark-up applied to average costs over the business cycle, menu costs and a falling mark-up to discourage new entries. These factors cannot be found in the neoclassical labour demand equation. Firms may alter their profit margins but a fall in mark-up is considered only in connection with exogenous “changes in competitive conditions”, and never as a consequence of a bargaining process. At most, policies refer to accords accompanied by various institutional arrangements for wage setting, where only unions are asked to reduce their claims. The exercise of market power,

\(^{18}\) Reformulating the \( ED \) curve in terms of the rate of capacity utilization we have that:

\[
u^* = \frac{g_0 + g_x - s_0}{s_2 - g_u} + \frac{s_1 - g_x}{s_2 - g_u} \omega + \frac{h s_3 - g_x}{h(s_2 - g_u)} \theta.
\]

From the assumption that the domestic demand is wage-led and from the assumption that the economy is competitive in foreign markets (i.e. \( s_1 < hs_3 \)) the coefficients that multiply respectively \( \omega \) and \( \theta \) are both positive since \( s_1 > g_x \) and \( hs_3 > g_x \) (see footnote at page 6). Therefore, either an increase in \( \theta \) or \( \omega \) or both, necessarily increase \( u^* \).
however, disrupts the hypothesis of perfectly competitive markets so that the constancy of the profit share is not justified.

From a conflicting claims perspective, inflation is the main obstacle to expanded employment and real wages. Authorities may restrain monetary or fiscal policy if inflation is "too high" so that wage earners have to cope with reduced employment. Income policies, the only way to control inflation without reducing effective demand, have met growing opposition and experience suggests that their implementation has raised a host of difficulties. In practice, after initial acceptance and effectiveness, income policies have been imposed as a part of deflationary packages, rather than part of expansionary programmes, and this inefficient implementation has led to their breakdown. Their failure has been ascribed to inescapable 'prisoner's dilemma'-type situations in tripartite wage agreements among employers, unions and government and to the difficulties in creating new institutions and making new social deals work efficiently.

However it is political and not economic considerations, which have played a part in their abandonment. Restoring free market adjustments in the name of efficiency has covered up opposition to the primary aim underlying income policies, i.e., obtaining domestic prices consistent with external equilibrium at full employment. By the early 1970s the spread of neoliberalism to economies outside the United States has erected "practical and ideological barriers against social bargains" (Cornwall and Cornwall, 2001, p.260).\textsuperscript{19} We argue that this is the same kind of opposition as the opposition to permanent full employment so clearly described in Kalecki’s far-seeing 1943 essay, since a high level of employment and a declining profit share are concomitant outcomes of the same political and socio-economic climate.

Income policies, active labour market policies and a strong and enduring political commitment to full employment, are part of those "social and political changes" that Kalecki envisaged as necessary to maintain full employment. Kalecki’s paper has been mainly recognised as a seminal essay in the theory of the political business cycle, but we share Steindl’s opinion (Steindl, 1979 ) that Kalecki’s concept of a 'political business cycle' should more properly be understood as a 'political trend' since, without new institutions, full employment, "labour discipline" and stable prices are basically incompatible in laissez-faire economies, at least under democracy.\textsuperscript{20}

\textsuperscript{19} Even the long and successful experiment of the Rhen-Meidner model for Sweden, an approach for combining a full employment economy with relatively low inflation, was abandoned in the early 1990 under the growing power of Swedish business, the pressure from neoliberal globalization dogma and the neoliberal requirements imposed to join the European Union (Meidner, 1997).

\textsuperscript{20} For a reinterpretation of Kalecki’s theory as a longer-run political business cycle see Cornwall and Cornwall (2001, ch. 12).
In the current declining neoliberal epoch, growing unemployment and the progressive weakening of organised labour have been used to control inflation and wages.

3.7. **The impact of a change in productivity.** A successful way to compete in foreign markets and to reconcile economic growth to trade balance is, of course, increased labour productivity. It has an identical positive effect on competitiveness as the income policy, but its distributional consequences are different. Increased labour productivity allows a rise in competitiveness, through decreasing home prices, thus improving both the trade balance and aggregate demand.

![Figure 8. Effects of an increase in labour productivity.](image)

Figure 8 shows these effects, always assuming that the Marshall-Lerner condition holds. In the left hand panel, starting from an equilibrium position such as $A$ with trade equilibrium, an improvement in labour productivity from $\alpha$ to $\alpha'$ leads to a parallel outwards shift in the $CC$ curve and to a move down in the $AD$ schedule to the south-east. The new equilibrium is thus at $B$, characterized by higher growth, a higher real exchange rate and a trade surplus (since the $BT$ curve shifts leftwards).

In the right hand panel of Figure 8 the implications for the wage share in the $ED$-$DC$ intersection diagram are shown. From the initial equilibrium at $A$ the $ED$ curve moves leftward because of two negative impacts on the wage share, both due to an increase in the labour productivity. The first is direct and depends on the effect that the slowdown in employment exerts on $\omega^d$. This impact can be reduced but never annihilated. That is, even if workers transfer entirely to money wages the increase in labour productivity (i.e. when $\epsilon_a = 1$, or else when $\theta_a = 0$) these direct effect remains negative. The latter effect is given by the squeeze on the domestic shares as $\theta$ increases. In addition, net exports soar and the $ED$ curve also shifts left until a new equilibrium is reached at $B$, with a lower wage share.
In the above analysis, the rate of growth of labour productivity, kept exogenous to maintain the model as simple as possible, affects the rates of growth. However we know that direct links influencing \( \alpha \) from the opposite direction exist, i.e., from the output growth rate (Kaldor-Verdoorn law), from employment growth rate (Bhaduri, 2006) and from the real wage increases (Sylos Labini, 1984). It follows that the introduction of all these circular causation can only strengthen the feasibility of a wage-led economy.

4. From the collapse of the social bargain to the slowdown of accumulation: interpreting changes in the performance of Neoliberalism

However limited this model is, we have used the concepts developed here to suggest a stylized explanation of the recent historical performance of a group of industrialized countries in terms of accumulation and income distribution. Figure 9 offers a simplified view of the empirical pattern of this relation, measured between 1967 and 2003 for two groups of high-income countries. The only difference between them is the inclusion or not of the United States. The values of the two variables for the 16 OECD economies considered have been averaged and then smoothed through the Hodrick-Prescott filter to better discern their broad movements. The database employed is taken from the Extended Penn World Tables (EPTW 3.0).  

Adopting the periodization in Cornwall and Cornwall (2001) the time interval considered includes: (a) the final part of the so-called golden age, the undisputed successful long-term era after World War II, from 1967 to 1973; (b) the period from 1974 to 1981 that coincides roughly with the critical transition period of the Great Inflation, and (c) the neoliberal era, from about 1982 onward.

With this periodization, we have explained the movements in the two variables with the aid of \( ED \) and \( DC \) curves analysis. These movements take roughly the form of an inverted C-shaped curve.  

The capital growth rate is continuously decreasing, with the exception of the latest period from 1986 to 2003 where it recovers very modestly. This recovery is due however, mainly to the United States: as shown in Figure 9, the rate of capital growth of the other 15 countries stabilizes, in this period, around a poor 2 per cent. The wage share, however, increases steadily up to

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21 Marquetti, Adalmir and Foley, Duncan. Extended Penn World Tables: Version 3.0. Economics Department, New York, New School, 2008. The original data are quantities measured in terms of commensurate real units of account based in international purchasing power parity. The 16 countries here are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Greece, Ireland, Italy, Japan, Netherlands, Spain, Sweden, United Kingdom and United States. Both variables in the figure are means of the respective national series weighted by their correspondent real GDP.

22 An inverted C-shaped curve is obtained also by using the rate of growth of the GDP in place of the rate of growth of capital.
1977-78, and declines continuously after. This fall in the wage share is undoubtably one of the most distinctive traits of the neoliberal era. We will distinguish: (a) the north-east downward branch of the inverted C-shaped curve, which embraces the final part of the golden age as well as part of the Great Inflation period, from (b) the subsequent east-south downward branch corresponding with the final part of the transition period as well as with the neoliberal epoch up to 2003.

(a) The first north-east branch includes the transition from an episode of high growth and near full employment to another of slow growth and high unemployment. The breakdown of Bretton Woods in the early 1970s and balance of payments problems were met by the implementation of restrictive policies during the 1970s. Restrictive policies were also carried out towards the end of the decade and in the early 1980s, especially to fight the wage explosion and the emergence of a strong inflationary bias, caused by labour’s increasing bargaining power after a prolonged period of near full employment. In this crucial period wage escalation, similar across economies, preceded and amplified the effects of the oil price shocks and exerted pressure on profits redistributing income towards wages. In most western economies the restrictive policies together with the exercise of a market power strategy by workers
Figure 10. From the golden age to the neoliberal era: shifts in the effective demand curve and distributive curves.

and firms following the breakdown of social bargain, caused stagflation to crop up. Only in few other cases did an enduring social bargain strategy contain unemployment and inflation at least until the late 1980s or early 1990 (Cornwall and Cornwall, 2001, ch. 11-12).

All this accounts for the fall in the rate of growth and the increase in the wage share up to the second half of the 1970s. 23

We can interpret this movement as follows. Let us assume that $A$ in Figure 10 is the position of our economies at the beginning of the transition period in early 1970s. The impact of restrictive policies is shown by the $ED$ shifting from $ED_0$ to $ED_1$, while increased labour aspiration caused by high employment as well as favourable institutional conditions is shown by a shift in the $DC$ from $DC_0$ to $DC_1$: the economies then follow a path from $A$ to $B$.

(b) The east-south branch of the inverted C-shaped curve concerns the beginning and maturity of the neoliberal era, characterized by a deep reshaping of wage determination and income distribution. Retreat from full employment, the push for so-called "flexible" labour markets and the erosion of the welfare state are all factors that contributed to create an environment that makes worker's employment and income insecure. While collective bargaining institutions were systematically weakened, the enhanced capital mobility of globalization has allowed employers to drive

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23 According to most studies, an outward shift of the Phillips curve occurred in this period.
harder bargain through the threat of moving production abroad or outsourcing.\footnote{Choi (2006) finds evidence that there was a significant negative impact of U. S. foreign direct investment on union workers’ bargaining outcomes.}

In terms of our model, this uninterrupted fall in the bargaining power of organized labour is consistent with a strong leftward shift in the $DC$ curve from position $DC_1$ to $DC_2$ in Figure 10: the equilibrium position moves from $B$ to $C$, with a lower growth rate and a lower wage share.

This suggests is that there exists a structural stagnationist bias during the mature neoliberal period. Consolidated in all industrialized countries, the institutional framework of neoliberalism has remained sufficiently stable for long enough to reveal its structural impact on macroeconomic outcomes. The continued decline in the wage share (and its corollary of growing income inequalities, increased job insecurities and loss of social safety nets) has undermined the expansion of aggregate demand imparting a drive toward stagnation. This is particularly true for the European Union which has been growing only feebly and with little response to repeated doses of deregulation and interest rates cuts (Stockhammer, 2004; Hein and Schulten, 2004, Glyn, 2006).

A different story, apparently, applies to the USA where the 1990s brought the new economy boom and a productivity rebound. The emergence of an exhilarationist investment-pull regime generated in this period by an extraordinary burst in information technologies, however, proved to be short-lived as the bubble’s expectations imploded and aggregate demand showed insufficient to absorb the additional capacity created (Stiglitz, 2003). Moreover, also the consumption boom in the 1990s and early 2000s, despite a deteriorating income distribution, was also generated by increasingly unsustainable compensation mechanisms such as rising stock prices, increased household borrowing and reduced household saving rates (Goodley, 1999; Palley, 2002 ).

As all long-standing economic performances, according to the evolutionary-Keynesian approach, the systemic aggregate demand shortage that generates the present crisis calls for political solutions and new institutional arrangements that will eventually move the economy towards a new growth episode.

5. Conclusion

Our model has attempted to reconsider the question "are profits necessarily the driving force of growth in an open economy". It has many limitations. Among others, it ignores monetary and financial aspects (and hence the presence of rentiers
as a further competitor in income distribution). Nonetheless, the extension to a medium-run conflicting-claims macromodel of distribution has produced the following results. (1) Competitive gains in the international product market, in order to grow at the expenses of other countries, may be pursued in a single country provided with high export elasticities and low import requirements, through wage restraints. It cannot be said, however, that this turns a wage-led economy into a profit-led one, since the same result can as well be obtained through aggregate mark-up cuts. The inflexibility of profit margins is not justified in this context. The uneven development of the world economy is the outcome of this process. (2) A strategy of multilateral wage cuts, pursued in all countries will lead to a world-wide slowdown of growth. On the other hand, an increase of money wages may lead to rapid growth at the cost of high inflation. (3) The only escape from the growth-inflation dilemma is the creation of income policies institutions which are committed to full employment and fair or growing wages in exchange for reasonable profitability for investment.

This last observation leads to the Kaleckian "political aspects" of the issue. It is a naive idea that stagnationism implies that there is no necessary antagonism between capitalists and workers organizations. Income policies, like full employment policies, are expression of a difficult compromise: they imply a particular organization of political relations and of the state itself. Apart from the practical difficulties to build and keep these institutions alive as the current welfare state crisis demonstrates, their creation would tend to override profit as the only condition for accumulation, i.e. what gives big business its hegemony over society.

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25 The complex relation that had formed among income distribution, stagnation and financial-ization is object of newer analysis in the post-Keynesian field. See (Palma, 2009).
A.1. The sign of $\frac{\partial g^*}{\partial \omega_0}$ in the open economy model is given by the sign of $(s_1 - hs_3)$. The solution for $g$ of the system of equations (28)-(29) is given by

$$g^* = \frac{1}{N} [(AG - BF)T + (CG - BH)Q + ((CG - BH)R - BLT)a]$$  \hspace{1cm} (1)

where $N = (G - B)T + (CG - BH)$. Differentiating (1) with respect to $\omega_0$ and $m_0$, respectively, after simplification, yields

$$\frac{\partial g^*}{\partial \omega_0} = \frac{M}{N} (s_1 - hs_3) \quad \text{and} \quad \frac{\partial g^*}{\partial m_0} = -\frac{M}{N} \left(\frac{hs_3 g_u - g_u s_2}{g_u}\right)$$  \hspace{1cm} (2)

where $M = g_u/[h(\rho + \sigma)(s_2 - g_u)(\theta_u \rho - \theta_f \sigma)]$.

The proof that the sign of $\frac{\partial g}{\partial \omega_0}$ depends on the sign of the expression $s_1 - hs_3$ is given in the following three steps by showing that expression $M/N$ is positive.

(1) The following conditions hold.

(I) $(\theta_u \rho - \theta_f \sigma) > 0$ (RWC hypothesis);
(II) $(G - B) > 0$ (stability condition, given the RWC hypothesis);
(III) $(CG - BH)/(G - B) > 0$ (upward sloping $AD$ curve).
(IV) (II) $\land$ (III) $\Rightarrow$ $(CG - BH) > 0$.

(2) From (I) it follows that $M > 0$.
(3) From (II) and (IV) it follows that $N > 0$.
Therefore, $M/N > 0$.

An identical result can be given also for the $FSA$ case. The sign of $\frac{\partial g^*}{\partial m_0}$ is always negative because $(hs_3 g_u - g_u s_2) > 0$ as implied by the assumption that $C > 0$.

A.2. How $|\frac{\partial g}{\partial \omega_0}|$ depends on $\rho$ and $\sigma$. Differentiation of expression (2) with respect to $\rho$, after substitutions and manipulations, yields

$$\frac{\partial}{\partial \rho} \left(\frac{\partial g^*}{\partial \omega_0}\right) = \frac{g_u^2(s_1 - hs_3)^2}{(s_2 - g_u)^2 [1 - \rho B + hC(\rho + \sigma)]^2} > 0$$  \hspace{1cm} (3)

Differentiating (2) with respect to $\sigma$ gives

$$\frac{\partial}{\partial \sigma} \left(\frac{\partial g^*}{\partial \omega_0}\right) = -\frac{g_u hC(s_1 - hs_3)}{(s_2 - g_u) [1 - \rho B + hC(\rho + \sigma)]^2}$$  \hspace{1cm} (4)
We need to distinguish the profit-led growth case \((s_1 < hs_3)\) from the wage-led case \((s_1 > hs_3)\).

From the profit-led condition, it follows that both (3) and (4) are positive. Hence an increase in \(\rho\) as well as in \(\sigma\) reduces the positive impact on \(g^*\) due to a decrease in \(\omega_0\). Increasing levels of \(\rho\) and \(\sigma\) mean a wider aspiration gap \(AG\) and a higher domestic inflation rate, which partially eliminates the gain from reduced wages.

From the wage-led condition it results that (3) always remains positive, but (4) becomes negative. Hence, while an increase in \(\rho\) enhances the positive impact on \(g^*\) of an increase in \(\omega_0\), an increase in \(\sigma\) tends to reduce it.

A.3. The sign of \(\partial u^*/\partial \omega_0\) in the open economy model. Putting \(g^* = g^d\) from equations (20) and (22) and solving for \(u\) we obtain

\[
u = U_1 + U_2 g + U_3 \theta\]

where

\[
U_1 = \frac{s_0 g_\pi - s_1 (g_0 + g_\pi)}{s_1 g_u - s_2 g_\pi}; \quad U_2 = \frac{s_1 - g_\pi}{s_1 g_u - s_2 g_\pi} \quad \text{and} \quad U_3 = \frac{g_\pi (s_1 - s_3 h)}{h (s_1 g_u - s_2 g_\pi)}.
\]

Adding this to equations (23), (26) and (28) in the text (the \(ED\), \(DC\) and the \(CC\) curves, respectively) we obtain the linear system that gives the general solutions for \(u^*, g^*, \omega^*\) and \(\theta^*\). From the solution for \(u^*\), that we omit for brevity, after substituting and simplifying, we get

\[
\frac{\partial u^*}{\partial \omega_0} = \frac{M (s_1 - hs_3)(1 - g_\pi \sigma)}{N g_u} (6)
\]

Comparing expressions (2) and (6) makes it is apparent that \(\partial u^*/\partial \omega_0\) has the same sign as \(\partial g^*/\partial \omega_0\) when \(g_\pi \sigma < 1\). It has the opposite sign when \(g_\pi \sigma > 1\). The interpretation of this result is simple. Consider the most particular case: in which \(\partial g^*/\partial \omega_0 < 0\) (i.e. the case of the profit-led regime, via foreign trade) and \(\partial u^*/\partial \omega_0 > 0\); here an increase in \(\omega_0\) makes \(g\) fall and \(u\) rise. This may happen when the depreciation of the real exchange rate caused by the rise in wages reduces investment but not consumption. In this case, increased domestic consumption more than compensates for decreased investment (from where we get the decrease in \(g\)) thus making the rate of capacity utilization rise. This occurs when a (relatively) high \(\sigma\) is associated with a (relatively) high \(g_\pi\) (and thus \(g_\pi \sigma > 1\)). A high \(\sigma\) implies that the fall in \(g\) reduces greatly \(m^d\) dampening the rise in domestic inflation and the rise in \(\theta\) to the detriment of the profit share. A high \(g_\pi\) implies a relatively large decrease
in investment when the profit share falls. This parameters’ configuration appears unlikely for a domestically wage-led economy.
References


[38] Steindl, J. (1952), Maturity and Stagnation in American Capitalism, Oxford, Blackwell.


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