A REASSESSMENT OF SCHUMPETER ON FISCAL POLICY FROM A DYNAMIC TAX INCIDENCE PERSPECTIVE[1]

Douglas Mair

Heriot-Watt University, Edinburgh, Inglaterra

Anthony J. Laramie

Merrimack College, Mass., EUA

1. INTRODUCTION

With the approach of a new millenium there is a natural temptation to engage in speculation as to what the next century may hold. The choice of 'Capitalism and Democracy in the 21st Century' as the theme of the 1998 conference of the International Joseph A. Schumpeter Society is clearly an invitation to reconsider the relevance of the ideas Schumpeter propounded in *Capitalism, Socialism and Democracy* (Schumpeter, 1943) in the context of the approaching millenium. Does the fact that Schumpeter's great prediction that the very success of capitalism would lead to its collapse and the emergence of socialism has so far not been borne out by the experience of the liberal representative democracies suggest that Schumpeter's vision should now be relegated to the dustbin of history? The answer we wish to suggest in this paper is no, it should not.

Economics has long been known as the 'dismal science' and there is currently no shortage of Cassandras holding rather pessimistic views of the prospects for capitalism (for example, Minsky and Whalen, 1997). Not all of these gloomy forebodings have been induced by the prospect of a new millenium. Nearly twenty five years ago, for example, no less an authority than Sir Samuel Brittan (1975) was predicting the demise of capitalism within the lifetime of people then adult and invoking Schumpeterian argu-

ments in support of his conclusion. While the events of the last decade in Eastern Europe and the former Soviet Union have suggested that it is socialism rather than capitalism that contains the seeds of its own destruction, thereby apparently vitiating Schumpeter, it seems to us that there are still important central ideas in Schumpeter which give rise to serious concern for the future of capitalism in the 21st century.

Our purpose in this paper is to re-examine the role of fiscal policy in the context of liberal representative democracies in the 21st century, with a view to assessing whether or not the contradictions which Schumpeter thought would lead to the demise of capitalism can be resolved. The question we address in this paper is the one which Schumpeter himself posed over 70 years ago – how should the fiscal system be modified so that it does not become a *deadweight,* but actually promotes economic development? (Schumpeter, 1926-1927). While Schumpeter identified this issue as the central issue of fiscal policy, he did not himself see any resolution except through the collapse of the tax state under the inexorable pressure of increasing public expectations for higher state spending from an increasingly narrow tax base.

We propose to show that the Schumpeterian *desiderata* of higher investment and faster economic growth are attainable under certain conditions by means of balanced changes in the structure of taxation. In other words, the fiscal system need not necessarily become the deadweight burden Schumpeter thought it would degenerate into, but may indeed promote more rapid technological development and faster growth, thereby satisfying public expectations of higher levels of economic performance. In our interpretation of Schumpeter, we seek to embed him in a paradigm that we think is compatible with his own style and vision. This is, of course, a difficult and, indeed, possibly dangerous approach to adopt. However, we think it is more appropriate to attempt this than to ascribe to Schumpeter arguments which he had specifically rejected as irrelevant (for example, Musgrave, 1992, or Feldstein, 1995).

In his various writings — *Crisis of the Tax State* (Schumpeter, 1918), his *Der Deutsche Volkswirt* articles of the 1920s, *Business Cycles* (Schumpeter, 1939) and *Capitalism, Socialism and Democracy* — Schumpeter had, in our opinion, reached essentially correct conclusions as to the dynamic effects

of taxation. What he failed to do, however, was consider adequately: (i) the macroeconomic effects of taxation shifting; and (ii) the economic and democratic implications of tax shifting. Once tax shifting is taken into account, not only do quite different economic consequences follow but also the conditions under which tax shifting are likely to occur raise fundamental questions concerning the democratic legitimacy of liberal representative democracies.

The principal difficulty Schumpeter faced in formalizing his ideas on fiscal policy was that the public finance paradigm of his day was partial equilibrium and static, which he rejected as irrelevant to an understanding of the dynamic consequences of taxation (Schumpeter, 1939, p. 47, 710-712). This created a dilemma for him as he also rejected the Keynesian paradigm as lacking essential dynamic properties. Therefore, if we are to attempt to analyze Schumpeter afresh it must be through the medium of a paradigm which is neither Marshallian nor Keynesian nor Marxist. For reasons we set out in more detail below, we think that it is both feasible and legitimate to interpret Schumpeter from the standpoint of Kalecki.

At first sight, this may appear a somewhat surprising approach to adopt. Kalecki, for example, is not generally recognized as a public finance economist. But he did publish (Kalecki, 1937) an early and, in our opinion, extremely important paper in which he argued that a consequence of the publication of the *General Theory* (Keynes, 1936) was that the theory of taxation had to be reconsidered. Perhaps surprisingly, he never developed this theme in his later work and, indeed, in most of his subsequent writings on the business cycle, he expressly assumed away any role for public spending and taxation. This early insight of Kalecki's has not been recognized in the mainstream public finance literature, and had been largely ignored by post Keynesians. The theoretical foundations of contemporary public finance theory remain firmly embedded in Paretian welfare economics.

Laramie and Mair (1996, 1997) have developed Kalecki's early recognition that the theory of effective demand requires a new approach to the study of taxation and have formulated a dynamic macroeconomic theory of taxation by integrating Kalecki's theories of taxation, income determination, income distribution, investment, business cycle and trend. In the process, they have incorporated taxation into a revised version of Kalecki's

theory of the cycle and trend (Laramie and Mair, 1998). This revision by Gomulka, Ostaszewski and Davies (1990) corrects the original version by incorporating 'rash capitalism' and the full effects of technical progress into Kalecki's model, thereby, in the opinion of Gomulka *et al.*, bringing Kalecki close to Schumpeter and away from Marx. As we show below, this dynamic 'Kalecki-Schumpeter' model generates the same conclusions as to the dynamic macroeconomic effects of taxation as Schumpeter had reached at an early stage in *Crisis of the Tax State*, but highlights the important differences which occur with and without tax shifting.

The introduction of tax shifting is important for two reasons. First, the macroeconomic effects of balanced changes in the structure of taxation are quite different with and without tax shifting. And, second, the ability of economic agents to shift taxes depends critically on the strength of the economic and political power they possess. Accordingly, the extent to which fiscal policy in the 21st century may be instrumental in stimulating more rapid economic growth without undermining at the same time the fabric of liberal representative democracies is an issue we address in this paper.

Adoption of a 'Kalecki-Schumpeter' approach is, in our opinion, relevant for the 21st century. This is because public finance theory essentially has not moved out of the static mode that Schumpeter rejected in *Business Cycles*. Contemporary theory has been preoccupied with optimal tax theorizing to the neglect of dynamics, as recognized, for example, by Stern (1992, p. 293): "The theory of optimal taxation has not had a great deal to say about dynamics and the theory of growth has been reticent on taxation".

The difficulty for contemporary theory arises because of important logical and theoretical difficulties it faces when it attempts to move outside a static framework. The microeconomic starting point for contemporary theory is Paretian welfare economics and the recognition that lump-sum taxes and transfers are the only non-distorting instruments to achieve efficiency objectives. The macroeconomic starting point is Harrod's (1939) warranted rate of growth equation as subsequently extended by Solow (1956) and Arrow (1962). In this family of growth theory models, the sole source of long-run growth in output per head is exogenous technical progress. But this is unsatisfactory from the point of view of understanding the determinants of growth and the design of relevant growth-augmenting

policies. Thus, the problem facing contemporary theory is how to integrate static optimal taxation theory into a growth theory in which the treatment of taxation has never been a central issue.

2. SCHUMPETER AND TAXATION

In this section, we outline briefly Schumpeter's thinking on taxation from *Crisis of the Tax State*, through his contributions to *Der Deutsche Volkswirt* to *Business Cycles*. Schumpeter's views on fiscal sociology are well-known and are discussed elsewhere (for example, Andic and Andic, 1984; Musgrave, 1992). We focus instead on the less well-known strictly economic aspects of Schumpeter on taxation.

Crisis of the Tax State

The three taxes discussed by Schumpeter in *Crisis of the Tax State* are: (i) a tax on entrepreneurial profits; (ii) a tax on interest; and (iii) a tax on wages. Schumpeter treats (ii) and (iii) as having identical effects so that he is effectively concerned with only two taxes. Taxation of monopoly profits can be safely ignored: "Monopoly profit (...) may be almost completely taxed away without unfavourable repercussions" (Schumpeter, 1918, p. 22).

On the taxation of entrepreneurial profits he writes:

> (...) entrepreneurial profit proper (...) arises in the capitalist economy whenever a new method of production, a new commercial combination or a new form of organisation is introduced (...) As it arises continuously so it disappears continuously through the effect of competition which, baited by profit, follows up immediately on the innovator. *If this process were taxed away, that element of the economic process would be lacking which at present is by far the most important individual motive towards industrial progress. Even if taxation merely reduced this profit, industrial development would progress considerably more slowly* (...). (Schumpeter, 1918, p. 22, emphasis added by authors)

And on the taxation of interest and wages he writes:

> (...) the tax cannot penetrate too deeply into the tax object. Since we are here considering taxation of all forms of capital yield and wages, we need not worry about a shift of capital and labour into alternative uses. And since we are dealing here with a problem common to all tax states, with a problem of

the system and not of a particular tax state, we shall disregard also the tendency of labour and capital to migrate to countries of lower taxation (...) But even so there are still two reactions which occur with capital and labour. *Insofar as they result in higher interest and wages which entrepreneurs have to pay, taxes counteract the expansion of production which would have occurred without them. Insofar, however, as these taxes are a charge on the income of the capitalists or the workers, they may even sometimes result in more saving and more work than without them.* But such cases are rare exceptions for capital and significant for labour only if the working day was relatively short prior to the imposition of the tax. *In all other cases, capital formation is paralysed and may even turn into capital consumption through lack of amortization and repairs.* (Schumpeter, 1918, p. 23, emphasis added by authors)

Thus, from as early as 1918, Schumpeter was concerned that taxation of profits, capital or wages might have adverse economic effects on technical progress and capital accumulation. As the highlighted passages indicate, he also recognized that quite different effects would follow if taxes were shifted.

Der Deutsche Volkswirt

Musgrave (1992, p. 94) identifies Schumpeter's main concerns in his *Der Deutsche Volkswirt* articles as: (i) the centrality of fiscal affairs in economic policy; and (ii) the recognition that taxable capacity is limited, above all, by a concern for capital formation. Fiscal policy was, for Schumpeter, the central plank of economic policy. What mattered in Germany in the 1920s and 1930s was the impact of taxation on the economy, on capital formation and on growth. The key requirement for Germany was to rebuild its depleted capital stock. Fiscal reform was necessary to achieve this but had to be implemented via revenue-neutral measures. However, the limits to taxable capacity had to be respected and because consumption could not easily be reduced, a rising tax to national income ratio would increase the pressure on capital formation and retard economic growth.

Business Cycles

For our purposes, the significance of what Schumpeter wrote on taxation in *Business Cycles* lies not so much in its policy implications but rather in the theoretical difficulties he identified. Schumpeter (1939, p. 710-712) identified two effects of taxes: (i) those of taxation as such, and (ii) those

which a system of taxation may have if it is, or is felt to be, an element of a general atmosphere of hostility to capitalist success.

He dismissed the first set of effects quite easily. He accepted the prevailing, well elaborated and widely accepted Marshallian partial equilibrium arguments on the effects of indirect taxes, but argued that the adoption of this theory limited its results to the case of small taxes and/or commodities of limited importance.

> The technical reason for this has an important counterpart in real life: wherever taxes are so small as to be amenable to analytic treatment by the calculus, they are also too small to affect the fundamental contours of economic behaviour as reflected in the budgets of firms and households and, hence, to interfere significantly with economic processes in general and their permanent results in particular. (...) *Most taxes cannot be handled by that [partial equilibrium] method* — further repercussions, more fundamental changes in the economic system. (...) must then be taken into account and, on the other hand, do interfere with the results of business processes, for example, with the steady rise in the standard of living of the masses as far as it is due to the working of the capitalist machine. (Schumpeter, 1939, p. 711, emphasis added by authors)

The principal fiscal problem of the time, as Schumpeter saw it, was not with the revenues required by the modern state but rather that these revenues must be raised

> (...) by heavy taxes framed not only with a view to minimum disturbance but regardless of disturbance, in some cases even with a view to maximising it. (Schumpeter, 1939, p. 711-712)

The most important effect of these 'heavy taxes' was on the sum total of private savings and investment.

> (...) as far as this goes, therefore, our opinion on how such taxes will affect 'progress' and 'industrial efficiency' depends on where we stand in the controversy about the importance and modus operandi of private saving. (Schumpeter, 1939, p. 712)

Herein lies the rub for Schumpeter. As the above passages from *Business Cycles* indicate, he clearly perceived the need for a general equilibrium macroeconomic approach to taxation and recognized the irrelevance of the

partial equilibrium Marshallian paradigm of his day. Musgrave (1992, p. 102) claims that Schumpeter saw the Walrasian system as the foundation of economic analysis. But Schumpeter (1939, p. 47) saw Walrasian, Paretian and Marshallian analysis as only a first approximation stopping far short of what was required for analysis in a continually changing economic environment. Indeed, he accepted that the Walrasian system would have to be abandoned. For Schumpeter, equilibrium analysis was neither necessary nor useful, and he rejected partial equilibrium analysis of taxation as being of little importance when considering macroeconomic effects.

So, where was Schumpeter to find a suitable dynamic macroeconomic paradigm? As is well known, he rejected Marx and Keynes:

> As with Marx, it is possible to admire Keynes even though one may consider his social vision to be wrong and every one of his proposals to be misleading. (Schumpeter, 1946, p. 518)

For Schumpeter, dynamics were the be all and end all of economics, and in *History of Economic Analysis* (Schumpeter, 1954, p. 1143-1144) he emphasized not only the importance but also the difficulty of developing dynamic theory. It was not enough to add dynamic qualifications to static theory. This was the essence of Schumpeter's dissatisfaction with Keynes. The Keynesian system was macrostatic and Keynes's assumptions of unchanging amounts of industrial equipment and methods of production precluded technological change — 'the essence of the capitalist process' — thereby excluding the salient features of capitalist reality.

3. SCHUMPETER AND KALECKI

Schumpeter was perfectly correct to reject Keynes as a source of inspiration for a dynamic macroeconomic theory of taxation. However, as we have shown in Laramie and Mair (1996, 1997), it is possible to develop from Kalecki a dynamic macroeconomic theory of taxation which has many of the attributes that Schumpeter would consider necessary.

Schumpeter and Kalecki are not names that one normally associates, but they do in fact have much in common. Both belong to the early 20th century Continental tradition of business cycle theoreticians, Schumpeter

as one of its founders, Kalecki as one of its later adherents. Schumpeter (1954, p. 114) regarded Kalecki, mistakenly, in our opinion, as 'another Keynesian' but the differences between Keynes and Kalecki are quite fundamental (see, for example, Feiwel, 1975; Sawyer, 1985; Reynolds, 1987). Whereas the *General Theory* was a static model developed in a Marshallian short period framework, Kalecki's whole approach was much broader and he sought to tackle long run problems. Keynes had little interest in problems of value and distribution, whereas Kalecki integrated price theory with distribution theory and the theory of output and employment as a whole. Kalecki placed a great deal of emphasis on the distribution of national income as between wages and profits and, thus, on the determinants of national income and its distribution. We consider that Schumpeter was quite mistaken to consider Kalecki as belonging to what he conceived to be the 'Keynesian system'.

There are at least four major areas in which Schumpeter and Kalecki are in general agreement: (i) each had the same vision of the nature of capitalism as being dominated by large firms exercising considerable monopoly power; (ii) they shared the same vision of the importance of dynamics and eschewed any concept of static equilibrium; (iii) both were sceptical of the relevance of neoclassical microeconomic theorising, Schumpeter recognising that it fell a long way short of what was required in an incessantly disturbed economic world, Kalecki regarding the concept of perfect competition as positively harmful; (iv) each made important early contributions to the development of public choice theory, Schumpeter in *Capitalism, Socialism and Democracy*, Kalecki (1943) on political business cycles. In light of these fundamental areas of agreement, it seems to us that there is no incongruity in seeking to interpret Schumpeter from a Kaleckian perspective.

To the extent that the names of Kalecki and Schumpeter are associated, it is through Schumpeter's rejection of Kalecki's pre-war business cycle theory as some sort of *perpetuum mobile* lacking any starting impulse:

> (...) some trouble, for instance, having occurred in the apple-growing industry at the time Adam and Eve dwelt in Paradise". (Schumpeter, 1939, p. 187)

There is some substance to this criticism of Kalecki. In his early work on business cycles, Kalecki worked with the case of no secular trend, princi-

pally for analytical convenience in order to make the analysis manageable and to focus on the cyclical elements. Kalecki himself admitted this weakness. In his last paper on business cycles he confessed that he had approached the theory of business cycles in

> a manner which I now do not consider entirely satisfactory: I started from developing a theory of the 'pure business cycle' in a stationary economy and at a later stage I modified the respective equations to get the trend into the picture. By this separation of the short-period and long-period influences *I missed certain repercussions of technical progress which affect the dynamic process as a whole.* (Kalecki, 1968, 1971, p. 166, emphasis added by authors)

4. KALECKI'S THEORY OF THE BUSINESS CYCLE AND TREND

Kalecki's somewhat belated incorporation of the 'repercussions of technical progress' into his later business cycle theory still left it in a rather unsatisfactory state at the time of his death. His concern was to develop a model which could be solved analytically but which could also explain the trend growth rate. Innovations play a critical role in generating an expansionary upward trend. In Kalecki's theory, the growth rate of output, g, is positively related to the rate of innovation-induced investment, ε, which, in turn, is positively related to the rate of innovation itself, m. As a consequence the growth rate of employment, g_L, is the difference between $g\varepsilon$ and m. When $m = 0$, then ε and g are zero and also $g_L = 0$. In the absence of innovations, the trend level of unemployment is constant and the trend rate of employment is increasing whenever $g_L > 0$. For this unemployment rate to remain constant, ε would have to be of a magnitude, ε^*, such that $g\varepsilon^* = g_L$.

Kalecki did not develop his theory sufficiently to say anything specific about the properties of ε, but his theory implies that if $g_L > 0$, then either the rate of innovation or the investment-inducing power of innovations would have to be sufficient to prevent the rate of unemployment from increasing. Gomulka, Ostaszewski and Davies (1990, p. 526) call this proposition that technological innovation is good for employment Kalecki's Growth Proposition, and it is this, they argue, that brings Kalecki close to Schumpeter and away from Marx.

Gomulka, Ostaszewski and Davies distinguish two types of capitalism — 'rash' and 'cautious' — and show that Kalecki's original Growth Proposition applies only in the case of 'cautious' capitalism, where: (i) investors only react slowly to changes in profitability; and (ii) either the rate of innovation is low or the response of investors to innovation is weak. The central proposition of Schumpeterian dynamics is that the response to innovations is the root of cyclical fluctuations. The 'cautious' capitalism of Kalecki's original Growth Proposition is, therefore, an inappropriate basis from which to link Kalecki and Schumpeter. Their joint emphasis on the role of innovations must be harnessed to Kalecki's Growth Proposition under 'rash' capitalism. The upshot of the Gomulka, Ostaszewski and Davies reformulation is to generalize Kalecki's theory to include both 'rash' and 'cautious' capitalism, thereby providing a basis from which to analyze the dynamic impact of tax policy from a Kaleckian-Schumpeterian perspective.

5. A DYNAMIC KALECKIAN THEORY OF TAXATION

This corrected version of Kalecki now makes it possible to consider the dynamic effects of balanced changes in the structure of taxation as they affect the stability of the economy over the cycle, the trend growth rate and the rate of unemployment (Laramie and Mair, 1998). The effects of two taxes, one on wage incomes and the other on profits, are considered in the context of balanced changes in government spending and tax revenue. As is shown in Laramie (1991) and Laramie and Mair (1996, 1997), the effect of taxation in a Kaleckian model is: (i) through the impact on the level of profits; and (ii) through changes in the distribution of income, thereby linking taxation with Kalecki's theories of income determination and income distribution.

Kalecki (1968, 1971, p. 174) argued that investment expenditure is determined by:
  • the level and change in the level of past profits;
  • the past level of investment expenditure;
  • an innovations factor.

The introduction of taxation into Kalecki's investment equation shows that taxation has an impact on investment through two channels: (i) the rate of depreciation; and (ii) the level of profits (Laramie and Mair, 1997,

p. 11). The impact of depreciation on investment is by affecting the real tax bill associated with older equipment. By means of new investment, technical progress results in increases in productivity which result in lower prices. This increases the real costs and lowers the real profits associated with existing equipment. The decline in real profits accelerates its obsolescence and stimulates investment in new equipment. An increase in the tax on profits will thus increase the rate of depreciation of existing equipment and lead to an increase in investment in new equipment.

The impact of taxation on the level of profits is through: (i) government purchases; and (ii) the share of wages in national income. An increase in government purchases, when accompanied by an identical increase in taxation, expands both national income and the wage bill through a balanced budget multiplier effect which may be reinforced or mitigated by changes in the income share of wages, depending on whether or not tax shifting occurs.

Tax shifting is allowed for through changes in firms' mark-ups in response to changes in taxation. This introduces Kalecki's 'degree of monopoly' theory of income distribution in which the share of wages in national income is the reciprocal of the mark-up which is determined by the institutional and environmental conditions under which firms are operating.

The macroeconomic effects of balanced changes in the structure of taxation with and without tax shifting in a Kaleckian model are derived as follows (Laramie and Mair, 1997). The investment equation is written as:

$$I_{t+1}/K^*_{t+1} = aS_{pt}/K^*_t + b[\Delta P_t/\Delta K_t - P^*_t/K^*_t]\Delta K_t/\Delta t + \varepsilon \qquad (1)$$

where I = investment, K^* = the trend capital stock, S_p = savings out of profits, P = profits, ε = rate of innovations-induced investment, and Δt = the time period over which changes in profitability are monitored for the purpose of making investment decisions. By deriving expressions for S_p and P, the impact of taxation on the trend rate of growth, stability and unemployment can be examined. To illustrate the impact of taxation, we assume non-zero worker saving and that taxes are levied on wages and profits.

We derive expressions for national income, Y, and profits, P. We define national income so as to include government purchases, G. National income is written as:

$$Y = I + C_1 + C_2 + G \tag{2}$$

where C_1 = consumption out of profits and C_2 = consumption out of wages.

Following Kalecki (1954), profits, ignoring the foreign sector, can be written as:

$$P = I + C_1 + G - T - V_s \tag{3}$$

where T = taxes and V_s = worker savings.

Assuming that:

$$C_1 = c_1(P) + A_1 \tag{4}$$

and

$$V_g = \alpha\square(Y) \tag{5}$$

where A_1 = a slowly changing function of time; V_g = pre-tax wage income and $\alpha\square$ the pre-tax wage share; and where:

$$T_v = t_v(V_g) \tag{6}$$

where T_v = wage tax receipts and t_v = the wage tax rate; and where:

$$C_2 = c_2(V_g - T_v) \tag{7}$$

where C_2 = consumption derived from wage income; and c_2 = marginal propensity to consume out of wage income.

Worker savings can be written as:

$$V_s = (1 - t_v)(1 - c_2)\,\alpha(Y) \tag{8}$$

Profits and national income can be rewritten as:

$$P = m_1(I) + \gamma_1(G) - \gamma_2(T) + M_1 \tag{9}$$

$$Y = m_2[I + G - c_1(T)] + M_2 \tag{10}$$

where

$$m_1 = [1 - (1 - t_v)\alpha] / [(1 - c_1) + (1 - t_v)\alpha(c_1 - c_2)];$$

$$\gamma_1 = [(1 - c_1) - (1 - t_v)\alpha(1 - c_1)] / [(1 - c_1)[(1 - c_1) + (1 - t_v)\alpha(c_1 - c_2)]];$$

$$\gamma_2 = [(1 - c_1) - (1 - t_v)\alpha c_2(1 - c_2)] / [(1 - c_1) + (1 - t_v)\alpha(c_1 - c_2)];$$

$M_1 = m_1 A_1;$

$m_2 = 1/[(1 - c_1) + (1 - t_v)\alpha(c_1 - c_2)];$

$M_2 = m_2 A_1.$

By supposing that $G = T$ and by relating the non-investment determinants of profits to the trend capital stock, K^*, equations (9) and (10) are rewritten as:

$$P = m_1(I) + n_1(K^*) \tag{9$\square$}$$

and

$$Y = m_2(I) + n_2(K^*) \tag{10$\square$}$$

where:

$$n_1(K^*) = M_1 + (\gamma_1 - \gamma_2)G \tag{11}$$

and

$$n_2(K^*) = M_2 + m_2(1 - c_1)G \tag{12}$$

Given equations (9$\square$) and (10$\square$), and by noting that savings out of profits is equal to total savings minus worker savings, $S_p = S - V_s$, and that total savings = investment ($S = I$), then, assuming $\Delta t = h$, equation (1) can be rewritten as:

$$
\begin{aligned}
I_{t+1}/K^*_{t+1} = &\{a\,[(1 - c_1) - (1 - t_v)\alpha(1 - c_1)]/[(1 - c_1) + \\
&+ (1 - t_v)\alpha(c_1 - c_2)] - bm_1 g^*_t\} I_t/K^*_t + bm_1/hK^*_t[I_t - I_{t-h}] + \\
&+ [a(1 - t_v)(1 - c_2)\alpha n_2 + \varepsilon]
\end{aligned}
\tag{1$\square$}
$$

where $g^* = I^*/K^*$ and $*$ denotes a trend level.

By multiplying equation (1$\square$) through by K^*_{t+1}, the general investment equation is written as:

$$
\begin{aligned}
I_{t+1} = &\{a\,[(1 - c_1) - (1 - t_v)\alpha(1 - c_1)]/[(1 - c_1) + (1 - t_v)\alpha(c_1 - c_2)] - \\
&- bm_1 g^*_t\} I_t [K^*_{t+1}/K^*_t] + (bm_1/h)[K^*_{t+1}/K^*_t][I_t - I_{t-h}] + \\
&+ [a(1 - t_v)(1 - c_2)\alpha n_2 + \varepsilon]K^*_{t+1}
\end{aligned}
\tag{13}
$$

The determinants of economic stability can be illustrated by examining equations (1$\square$) or (13). Equation (1$\square$) can be used to examine the determi-

nants of the trend rate of growth and its stability. By letting $g = I/K^*$ and by noting that

$$\Delta I_t = I_t - I_{t-h} = \Delta(g_t K^*_t) = \Delta g K^*_t + g_{t-h}\Delta K^*_t = \Delta g_t K^*_t + g_{t-h}(h)I^*_t,$$

the rate of growth is written as:

$$g_{t+1} = a\square g_t + [bm_l/h](g_t - g_{t-h}) + bm_l g_t(g_{t-h} - g_t) + \varepsilon\square \qquad (14)$$

where

$$a\square = a(1 - c_1)[1 - (1 - t_v)\alpha]/[(1 - c_1) + (1 - t_v)\alpha(c_1 - c_2)]$$

and

$$\varepsilon\square = \varepsilon - a(1 - t_v)(1 - c_2)\alpha n_2$$

For balanced growth to occur: $g_t = g_{t-h} = g_{t+1}$. Thus, the balanced growth rate g^*, can be written as:

$$g^* = \varepsilon\square(1 - a\square). \qquad (15)$$

This implies that the balanced growth rate is positive when $\varepsilon\square$ and $(1 - a\square)$ are both positive or both negative. If we assume that $\varepsilon\square$ is positive, then for the balanced growth rate to be positive, $(1 - a\square)$ must also be positive. For $(1 - a\square)$ to be positive, $a\square$ must lie between zero and one (when: $(1 - c_1)(a - 1) < (1 - t_v)\alpha[a(1 - c_1) + (c_1 - c_2)]$).

Having set out the basic Kaleckian model, we now proceed to consider the effects of taxation on stability, growth and unemployment.

Taxation and stability

A sufficient condition for a stable growth rate can be found. In terms of equation (14), the conditions for stability can be written as:

$$h > h^* = 2b[1 - (1 - t_v)\alpha]/[(1 - c_1) + (1 - t_v)\alpha(c_1 - c_2) - $$
$$- a(1 - c_1)[1 - (1 - t_v)\alpha]] \qquad (16)$$

where h^* is a rational number. By differentiating h^* with respect to changes in the rates of tax of wages and profits, it is possible to consider the impact of changes in these tax rates on stability. A change in any parameter that increases h^* relative to h increases the tendency for the growth rate to be un-

stable. Tax shifting is allowed for through the change in the impact of the mark-up on the wage share, α. The wage share is written as:

$$\alpha = 1/k \tag{17}$$

where k is the mark-up.

The change in h* with respect to a change in the tax rate on wages or profits is given as:

$$dh^*/dt_i = \partial h^*/\partial t_i + (\partial h^*/\partial a)(\partial a/\partial t_i); \tag{18}$$

where i = v and p. Thus:

$$dh^*/dt_v = [2b(1 - c_2)(\alpha + (1 - t_v)\alpha^2(k_{tv}))]/[1 - c_1 + \\ + (1 - t_v)\alpha(c_1 - c_2) - a(1 - c_1)[1 - (1 - t_v)\alpha]]^2 \leq \geq 0; \tag{19}$$

and

$$dh^*/dt_p = [2b(1 - c_2)(1 - t_v)\alpha^2(k_{tp})]/[1 - c_1 + \\ + (1 - t_v)\alpha(c_1 - c_2) - a(1 - c_1)[(1 - t_v)\alpha]]^2 > 0; \tag{20}$$

where k_{tv} (≤ 0) = the change in the mark-up with respect to a change in the wage tax rate and k_{tp} (≥ 0) = the change in the mark-up with respect to a change in the profits tax rate.

If the mark-up is constant with respect to changes in the rates of tax on wages or profits, equation (19) is strictly positive and equation (20) is zero. If wage earners are able to shift the wage tax through a reduction in the mark-up, this effect will dampen the tendency for the growth rate to be unstable. As implied in the profit function, equation (9□) above, any parameter change that increases profits, given current investment, increases future profits. The increase in the wage tax, through a balanced budget effect, assuming worker saving is positive, results in higher profits and higher future investment and, therefore, increases the volatility of investment. If workers are able to shift the tax, then the decline in the mark-up results in higher wage income and higher worker savings. The rise in worker savings reduces profits, given current investment, and thus reduces future investment and dampens the volatility of investment. When the profits tax is shifted, worker saving declines increasing the current level of profits, given the current level of investment, and the volatility of future investment is heightened.

Taxation and the balanced rate of growth

By differentiating equation (15) with respect to a change in the rate of tax on wages and profits, it is possible to consider the impact of taxation on the balanced rate of growth:

$$dg^*/dt_i = (\partial g^*/\partial \varepsilon\square)[(\partial \varepsilon\square/\partial t_i) + (\partial \varepsilon\square/\partial \alpha)(\partial \alpha/\partial t_i)] + $$
$$+ (\partial g^*/\partial(1-a\square))[\partial(1-a\square)/\partial t_i + (\partial(1-a\square)/\partial \alpha)(d\alpha/dt_i)] \qquad (21)$$

where i = v and p; and where:

$$\partial g^*/\partial \varepsilon\square = 1/(1-a\square) \leq \geq 0; \qquad (22)$$

$$(\partial \varepsilon\square/\partial t_v) + (\partial \varepsilon\square/\partial \alpha)(d\alpha/dt_v) = an_2(1-c_2)(\alpha + (1-t_v)\alpha^2 k_{tv}) \leq \geq 0; \quad (23)$$

$$(\partial \varepsilon\square/\partial t_p) + (\partial \varepsilon\square/\partial \alpha)(d\alpha/dt_p) = an_2(1-c_2)(1-t_v)\alpha^2 k_{tp} \geq 0; \qquad (24)$$

$$\partial g^*/\partial(1-a\square) = -\varepsilon\square/(1-a) \leq \geq 0; \qquad (25)$$

$$(\partial(1-a\square)/\partial t_v) + (\partial(1-a\square)/\partial \alpha)(da/dt_v) =$$
$$= -a\alpha(1-c_2)(1-c_1)[1-(1-t_v)\alpha k_{tv}]/$$
$$/[1-c_1 + (1-t_v)\alpha(c_1-c_2)] \leq \geq 0; \qquad (26)$$

$$(\partial(1-a\square)/t_p) + (\partial(1-a\square)/\partial \alpha)(d\alpha/dt_p) =$$
$$= -a(1-t_v)(1-c_1)(1-c_2)\alpha^2 k_{tp}/[1-c_1 + (1-t_v)(c_1-c_2)]^2 < 0; \qquad (27)$$

By combining equations (22), (23) (25) and (26), we derive:

$$dg^*/dt_v = g^*a(1-c_2)\{a(1-c_1)[\alpha + (1-t_v)\alpha^2 k_{tv}]/$$
$$/[1-c_1 + (1-t_v)\alpha(c_1-c_2)]^2\} + n_2[\alpha + (1-t_v)\alpha^2 k_{tv}]/\varepsilon\square \leq \geq 0; \qquad (28)$$

and by combining equations (22), (24), (25) and (27) we derive:

$$dg^*/dt_p = g^*a(1-c_2)(1-t_v)\alpha^2 k_{tp}\{(1-c_1)/$$
$$/[1-c_1 + (1-t_v)(c_1-c_2)]^2\} + n_2/\varepsilon\square \geq 0; \qquad (29)$$

The signs of equations (28) and (29) are indeterminate. To consider further the effect of taxation on the balanced rate of growth, suppose: (i) that the mark-up is constant with respect to changes in the rates of tax on wages and profits; (ii) that $\varepsilon\square > 0$; and (iii) $1/(1-a\square) > 0$ (thus, $g^* > 0$). Under

these conditions, equations (22), (23) and (26) are positive, equation (25) is negative, equations (24) and (27) are zero and g^* is positive.

As a consequence, the impact of a change in the rate of tax on wages on the rate of growth, g^*, depends on the strengths of two effects: (i) a trend capital stock to savings effect, as reflected in the impact of a change in the tax rate on $\varepsilon\square$ and the impact of $\varepsilon\square$ on g^*; and (ii) an investment to savings effect, as reflected in the impact of a change in the tax rate on current profits and savings out of profits and future investment. Given the above assumptions, the capital stock to savings effect and the investment to savings effect are both positive with respect to a change in the rate of tax on wages. An increase in the rate of tax on wages reduces the level of worker savings and increases the level of profits and savings out of profits, given the trend capital stock and the current level of investment. This effect causes both $\varepsilon\square$ and $a\square$ to increase simultaneously (($1 - a\square$) to decrease). If the wage tax is shifted, then these effects are diminished. The shifting of the wage tax results in an increase in worker savings, a reduction in savings out of profits, and a decline in the balanced growth rate.

The change in the balanced growth rate with respect to a change in the profits tax rate is zero, if the mark-up is constant with respect to a change in the tax on profits. If the mark-up is positively related to the tax on profits, then the shifting of the profits tax reduces worker savings and results in higher profits and savings out of profits, which in turn increases the balanced growth rate.

Taxation and long period unemployment

We examine first the impact of taxation on the trend growth rate in employment when the growth rate is stable. As implied above, assuming initially no government sector, the growth rate of output, g^*, is positively related to the rate of innovation-induced investment, ε, which is positively related to the rate of innovation, μ. Thus, the growth in employment, g_L, can be written as:

$$g_L = g^*(\varepsilon(\mu) - \mu); \tag{30}$$

Assuming that g^* is less than the 'natural' growth rate (the growth rate in the labour force plus the rate of innovation), the growth rate of employ-

ment is demand-determined, determined by ε, and is less than the 'natural' growth rate of employment. When there is no government sector and when $\mu = 0$, then ε and g are zero and $g_L = 0$. Under this condition, assuming that the labour force is growing, the trend level of unemployment is increasing and the trend level of employment is constant. For the trend unemployment rate to remain constant, ε would have to be of a magnitude ε^* such that $g(\varepsilon^*) - \mu = g_L$.

With the modifications we have identified above, we now rewrite the trend rate of growth of employment. In the foregoing discussion, the national income multiplier, m_2, was implicitly held constant. Thus, the trend growth rate in output was identical to the trend rate of growth in investment, g^*. Since we are allowing for changes in tax rates, and, therefore, in the income multiplier, the rate of growth in output can be rewritten as:

$$g^*Y = g^*(t_v, \alpha, \varepsilon(\mu)) + m_2(t_v, \alpha); \tag{31}$$

where $m_2(t_v, \alpha)$ is the shock effect of a change in the income multiplier. Since $g^*Y = g_L + \mu$, the growth of employment can now be written as:

$$g_L = g^*(t_v, \alpha, \varepsilon(\mu)) - \mu + m_2(t_v, \alpha); \tag{30□}$$

As equation (30□) suggests, the impact of tax policy on the trend rate of employment is through two channels: (i) g^* (the trend rate of capital accumulation); and (ii) m_2 (shocks to the income multiplier). We now consider both of these channels.

The impact of taxation on g^* has been described above. Given the rate of innovations and the rate at which these innovations are absorbed into new investment, increases in the rate of tax of wages will increase the trend rate of employment when: (i) a balanced budget constraint is imposed; and (ii) the tax *is not shifted.* By contrast, an increase in the rate of profits tax increases the trend rate of unemployment only when the tax *is shifted* (again assuming a balanced budget constraint).

However, changes in the respective tax rates also shock the rate of growth of employment. The national income multiplier is inversely related to changes in the rates of tax on wages and profits when the wage tax *is not shifted* and the profits tax *is shifted.* Thus, following an increase in either tax, the trend rate of growth of employment may decline, via the shock to the

multiplier, but then be restored to a higher growth rate as a result of an increase in the trend rate of capital accumulation.

When the growth rate is *unstable*, quite different results are obtained. We use the average of the floor and ceiling levels of investment to approximate the trend. The floor level of net investment is defined as the difference between the innovations-induced gross investment, εK^*_t, and the depreciated capital stock δK^*_t, i.e.:

$$I_t \geq \varepsilon K^*_t - \delta K^*_t = I^f_t \tag{32}$$

where I^f_t = the floor level of net investment.

The ceiling level of net investment, as determined by available resources, is written as:

$$I_t \leq [1/m_2](y_t(L_t) - n_2 K^*_t) = I^c_t; \tag{33}$$

where y = labour productivity; L = supply of labour; I^c_t = the labour-constrained ceiling level of investment.

Since the average of the ceiling and floor levels of investment approximates the trend level of investment, long-run unemployment will occur as the economy moves along the long-run trend. As a consequence, the trend rate of unemployment will be smaller the smaller is the gap between the floor and the ceiling. By defining the gap as the difference between the ceiling and the floor, we obtain:

$$GAP = I^c_t - I^f_t; \tag{34}$$

or

$$GAP = yL/m_2 - [n_2/m_2 + \varepsilon - \delta]K^* \tag{34□}$$

By assuming that the rate of innovations-induced investment and the rate of capital depreciation are given, the change in the gap with respect to changes in the tax rates on wages and profits (i = v, p) is given as

$$dGAP/dt_i = (\partial GAP/\partial m_2)(dm_2/dt_i) + (\partial GAP/\partial K^*)(dK^*/dt_i) \tag{35}$$

where:

$$\partial GAP/\partial m_2 = (1/m_2)^2[n_2 K^* - yL] < 0; \tag{36}$$

$$\partial GAP/\partial K^* = \delta - \varepsilon - n_2/m_2 \lessgtr 0; \tag{37}$$

$$dm_2/dt_v = (c_1 - c_2)[t_v\alpha + (1 - t_v)\alpha^2(k_{tv})]/$$
$$/[1 - c_1 + (1 - t_v)\alpha(c_1 - c_2)]^2; \tag{38}$$

$$dm_2/dt_p = (c_1 - c_2)[(1 - t_v)\alpha^2(k_{tp})]/[1 - c_1 + (1 - t_v)\alpha(c_1 - c_2)]^2 \tag{39}$$

$$dK^*/dt_v = (1/n_2)\{(c_1 - c_2)[A_1 + (1 - c_1)G][\alpha + (1 - t_v)\alpha^2 k_{tv}] +$$
$$+ (1 - c_1)[1 - c_1 + (1 - t_v)\alpha(c_1 - c_2)Tt_v]\}/$$
$$/[1 - c_1 + (1 - t_v)\alpha(c_1 - c_2)]^2 \lessgtr 0; \tag{40}$$

$$dK^*/dt_p = (1/n_2)\{(c_1 - c_2)(1 - t_v)[A_1 + (1 - c_1)G]\alpha^2 k_{tp}\} +$$
$$+ (1 - c_1)[1 - c_1 + (1 - t_v)\alpha(c_1 - c_2)T_{tp}\}/$$
$$/[1 - c_1 + (1 - t_v)\alpha(c_1 - c_2)]^2 \lessgtr 0; \tag{41}$$

where T_{tv} = the change in tax receipts with respect to a change in the wage tax rate and T_{tp} = the change in tax receipts with respect to a change in the profits tax rate.

The impact of a change in the rates of tax on wages and profits has an indeterminate impact on the gap between the ceiling and the floor and, therefore, on the average rate of unemployment over the long period. However, by making four assumptions, we can then make some approximations in order to consider the effects of taxation: (i) suppose the rate of capital depreciation is less than the sum of the rate of innovations-induced investment and the capital coefficient in the income equation divided by the income multiplier; (ii) suppose that neither tax is shifted; (iii) suppose that the marginal propensity to consume out of wages, c_1 is greater than the marginal propensity to consume out of profits, c_2; (iv) suppose that the income multiplier is positive. The change in the ceiling to floor gap is still indeterminate but we are now able to focus on two offsetting effects that determine the impact on the gap of a change in the respective tax rates.

With respect to a change in the rate of tax on wages, the first term in equation (35) is strictly positive and the second term is indeterminate. Since we have assumed that the change in the gap with respect to the change in the trend capital stock is positive, the sign of the second term depends on how a change in the rate of taxation of wages impacts on the trend capital stock. Ignoring the shifting effect, two effects determine the impact

of a change in the tax on wages on the trend capital stock: (i) a multiplier effect; and (ii) a balanced budget multiplier effect. The multiplier effect reflects how a change in the rate of tax on wages has an impact on the income multiplier. Given our third assumption above, an increase in the tax rate on wages reduces the income multiplier and, thus, the capital stock. This effect is countered by the balanced budget effect, which we expect to be positive. Assuming the multiplier effect is greater than the balanced budget multiplier effect, the change in the capital stock with respect to a change in the rate of taxation of wages is negative. Given our other assumptions, the change in the gap between ceiling and floor with respect to a change in the rate of taxation of wages is positive. An increase in the rate of taxation on wages under a balanced budget constraint results in higher long period unemployment.

With respect to a change in the rate of tax on profits, the first term in equation (35) is zero, since we have assumed no tax shifting (the income multiplier is constant with respect to a change in the rate of profits tax). The sign of the second term depends on the impact of a change in the rate of profits tax on the trend capital stock. With the income multiplier constant, the change in the rate of profits tax has an impact on the trend capital stock through a balanced budget effect. We have assumed this effect to be positive and, therefore, the change in the capital stock with respect to a change in the rate of profits tax is positive. The change in the gap between the ceiling and the floor is positive with respect to a change in the rate of profits tax.

The impact of taxation on the rate of unemployment over the trend when the growth rate is unstable remains an empirical question. However, given the assumptions we have made above and with a balanced budget constraint, an increase in either of the rates of tax on wages or on profits will result in an increase in the rate of unemployment in the long period. An increase in either tax rate will increase the gap between the floor and the ceiling of the business cycle.

We summarize the effects of increasing the rates of taxation of wages or profits with a balanced budget constraint.

Taxation and stability: (i) *with no tax shifting*, a balanced increase in a tax on wage income will result in greater instability and a balanced increase in a profits tax will have no effect; (ii) *with tax shifting*, a balanced increase in a

tax on wage income will dampen instability and a balanced increase in a tax on profits will lead to greater instability.

Taxation and the trend growth rate: (i) *with no tax shifting*, a balanced increase in a tax on wage income will lead to an increase in the balanced rate of growth and a balanced increase in a profits tax will have no effect; (ii) *with tax shifting*, a balanced increase in a tax on wages will result in a decline in the balanced rate of growth, and a balanced increase in the taxation of profits will increase the balanced rate of growth.

Taxation and unemployment: if the trend growth rate in output is stable, then: (i) *with no tax shifting*, a balanced increase in a tax on wages will lead to an increase in the trend rate of unemployment and a balanced increase in a tax on profits will have no effect; (ii) *with tax shifting,* a balanced increase in a tax on wages will have no effect on the trend rate of unemployment and a balanced increase in a tax on profits will lead to an increase in the trend rate of unemployment.

In describing the stability characteristics of Kalecki's growth theory, it is possible to distinguish two types of capitalism — rash and cautious. Cautious capitalism arises when (i) investors react slowly to changes in profitability (b is relatively small or h is relatively large in equation (16)); and (ii) either the rate of innovation is low or the response of investors to innovations is weak. The results of our Kaleckian tax model suggest that fiscal policy can counter or reinforce the nature of capitalism. For example, an increase in the taxation of wages that is *not shifted*, coupled with a balanced budget constraint, heightens the tendency to instability. The same is true of an increase in the rate of profits tax, if the tax is *not shifted* and the balanced budget constraint is maintained. Furthermore, our analysis suggests that structural deficits or surpluses heighten or dampen stability, but that the ultimate effect on stability of fiscal policy, in particular changes in taxation, depends on the reaction of the mark-up and the marginal propensity to save out of wage income.

Having corrected Kalecki's theory of the business cycle along the lines suggested by Gomulka *et al.*, and thereby rendered it essentially 'Schumpeterian', we have identified the effects of the taxation of wages and profits on the stability of the business cycle, its trend rate of growth and the rate of unemployment. Of critical importance is what happens with and without

tax shifting. Two important sets of implications follow from this analysis: (i) taxation and fiscal policy can modify the very nature of capitalism; and (ii) the incidence and effects of balanced changes in the structure of taxation can have a major impact on the structure of the business cycle, the balanced rate of growth and long period unemployment.

6. SCHUMPETERIAN IMPLICATIONS OF KALECKIAN TAX THEORY

How do the results of the Kaleckian analysis of the previous section square with those of Schumpeter presented in section 2? Looking first at the effects of an increase in the taxation of profits, the analysis indicates no change in the growth rate with *no tax shifting* but an increase in the growth rate with *tax shifting*. This accords with Schumpeter's conclusion in the passage from *Crisis of the Tax State* which we cited above that industrial progress would proceed more slowly *than if the tax were shifted*. Similarly, if an increase in the taxation of wages *is shifted*, which is what Schumpeter postulates will happen if entrepreneurs have to pay higher wages, then Schumpeter's prediction that output will be lower than in the absence of the tax is confirmed by the Kaleckian model — *shifting* of the tax on wages will result in a decline in the rate of growth.

The Kaleckian tax regime which would be consistent with rash Schumpeterian capitalism is one in which taxes on profits *are shifted* by firms, thereby heightening the volatility of future investment, increasing the growth rate and decreasing the long run rate of unemployment. The Kaleckian tax regime which would *not* satisfy Schumpeter's criteria is one in which wage earners are able *to shift* taxes on wages successfully, thereby dampening the volatility of future investment, reducing the rate of growth and leading to higher unemployment. Thus, Schumpeter's 'worst case' scenario would occur under conditions of *no shifting* of taxes on profits and *full shifting* of taxes on wages.

This Kaleckian analysis suggests that it is possible for governments to pursue fiscal policy which is compatible with Schumpeterian-type capitalism. Schumpeter's concern had been that the ever increasing expectations of the electorate would lead to an increasing socialization of the national product and an erosion of entrepreneurial drive. Critics have argued that

orthodox Keynesian demand management policies of increasing government spending and reducing taxation during recessions lead to expectations of continually increasing levels of government spending which politicians then find it difficult to reverse when economic conditions improve. However, Kaleckian analysis suggests that for any given level of government expenditure it is possible to pursue stabilization and growth objectives by balanced changes in the structure of taxation as between taxation of wages and profits. Thus, Kaleckian fiscal policy can achieve Schumpeterian desiderata without any increase in the volume of government spending or any increase in taxation. This is clearly what Schumpeter was advocating in his *Der Deutsche Volkswirt* articles (see above) but he lacked the theoretical framework through which to develop the appropriate policy implications. Thus, collapses of tax states need not be a spectre for representative liberal democracies in the 21st century.

However, this Schumpeter-Kalecki Promised Land of the 21st century will only occur if firms are able fully to shift any increases in the taxation of profits and wage earners are unable to shift any increases in the taxation of wages. Tax shifting in a Kaleckian model occurs when firms are able to adjust mark-ups to compensate fully for any increase in tax liability. Their ability to do so depends, in Kaleckian terminology, on the 'degree of monopoly'. The interpretation of the term 'degree of monopoly' is one of the more controversial aspects of Kaleckian economics and it has been frequently criticized as tautological. However, provided the 'degree of monopoly' is interpreted as *reflecting*, but not *defining*, the institutional and environmental conditions under which firms operate, then no question of tautology arises (Reynolds, 1985, 1994).

Kalecki (1954) gave some examples of factors which he thought might influence the 'degree of monopoly' and suggested industry concentration, advertising and sales promotion expenditures, the ratio of overhead to prime costs and the extent of trade union power. However, this list is by no means exhaustive and could embrace a much wider range of political, economic, legal, cultural and ethical dimensions. Schumpeter's concern, for example, about the existence of 'an atmosphere of hostility towards capitalist success' (see above) can be interpreted as relating to an environment where the 'degree of monopoly' is low and firms find it difficult eco-

nomically, legally, morally or politically to increase mark-ups to recover higher tax liabilities. Indeed, the collapse of the tax state may be argued to happen as a result of the inability of entrepreneurs to shift the 'heavy burden' of taxation because of a low 'degree of monopoly'.

Thus, successful Schumpeterian type capitalism in the 21st century would appear to depend on the existence of a political and economic environment in which governments are able to resist pressures to increase their levels of spending, where firms are able to recover fully any increases in taxation and where wage earners are wholly constrained from recouping any increases in taxation. This implies that if capitalism is to flourish in the 21st century, it can only do so in an environment which, in Schumpeterian terminology, avoids the adverse effects of the 'heavy taxation' of savings and investment. It implies that the only desirable Schumpeterian changes in the structure of taxation are those which reduce the taxation of profits relative to wages. The extent to which such a change in the structure of taxation would result in an increase in investment depends on its effect on savings. This is an issue on which Schumpeter had no clearly defined stance (see above). There is no such equivocation in Kalecki. He insisted throughout that investment must precede savings:

> Now, it is clear that capitalists may decide to consume and invest more in a given period than in the preceding one, but they cannot decide to earn more. It is, therefore, their investment and consumption decisions which determine profits and not vice versa. (Kalecki, 1971, p. 152)

Evidence of the effect of taxation on investment in a Kaleckian model is provided by Laramie, Mair, Miller and Stratopoulos (1997) in a study of the impact of taxation on quarterly gross private non-residential fixed investment in the United States over the period 1983-1993. This study found that in all specifications of the model, both with and without lagged values of the dependent variable, the signs of the coefficients on the wage tax rate variable were consistently negative and significantly different from zero, whereas, although the cumulative effect of the average profits tax rate variable was significantly different from zero, none of the average profits tax rates coefficients was significantly different from zero. For the US, the effect on investment of changes in average wage tax rates has swamped the effect of changes

in average profits tax rates. Moreover, United States data show that the average tax rate on wages has been drifting upwards in recent years at the same time as investment's share of Gross Domestic Product has been falling.

7. THE FUTURE OF LIBERAL REPRESENTATIVE DEMOCRACY IN THE 21st CENTURY

Our analysis suggests a dilemma for governments in the 21st century. If they seek to pursue Kalecki-Schumpeter type fiscal objectives of stimulating investment and growth within a balanced budget framework by reducing the 'heavy burden' of taxation on profits, they run the risk of achieving the exact opposite. This dilemma is reminiscent of a concern raised by Sir Samuel Brittan (1975). Brittan's thesis was that liberal representative democracies suffer from internal contradictions which are likely to increase over time. The two endemic threats to liberal representative society which Brittan identified were: (i) the generation of excessive expectations; and (ii) the disruptive effects of the pursuit of group self-interest in the market place.

Excessive expectations are generated by the democratic aspects of liberal representative democracies; the disruptive effects of group self-interest arise, Brittan argued, from elementary economic logic and are not directly connected with the political structure. The two are linked by a formula which Brittan, using a term suggested to him by Bertrand de Jouvenel, described as the excessive burden placed on the *'sharing out'* function of government (emphasis in the original by Brittan, p. 130). This function is defined as the activities of the public authorities in influencing the allocation of resources, both through taxation and expenditure policies and through direct intervention in the market place. The growth of expectations imposes demands for different kinds of public spending and intervention which are incompatible both with each other and with the tax burden people are willing to bear. At the same time, in their pursuit of 'full employment' without currency collapse, governments are tempted to intervene directly in the determination of pre-tax incomes. But these attempts come to grief when they come up against the demands of different income groups for incompatible income shares.

A quarter of a century ago when Brittan advanced this thesis, it could, with considerable justification, be argued that the United Kingdom was its best exemplar. Indeed, its manifestations in other countries were usually described by the term 'English sickness'. Now, it may be argued that the policies of successive Conservative governments from 1979 to 1997, particularly those of Baroness Thatcher, have cured the United Kingdom of the 'English sickness'. A massive programme of privatization has rolled back 'the frontiers of the state', public expenditure's share of national income has fallen by 6 per cent since 1975, and Chancellors of the Exchequer have striven manfully, though not wholly successfully, to reduce the burden of taxation.

All this has been achieved with the apparent approval of the electorate. Indeed, the British Labour Party was only able to win the 1997 General Election by substantially remodelling itself as 'new Labour'. It was elected on a manifesto of maintaining, at least in the medium term, the aggregates of the public spending programmes it inherited from the Conservatives. The Labour Party has striven hard to rid itself of the reputation as the party of high spending and high taxation. British governments have substantially disengaged from their 'sharing out' function over the last quarter of a century without provoking a collapse in the system of liberal representative democracy. Thus, it might appear that Brittan's prognostication of a collapse of the system of liberal representative democracy, at least in the United Kingdom, within the lifetime of people then adult in the mid-1970s was either premature or alarmist.

Our analysis suggests that that there are still grounds for concern. While British governments to a significant degree have disengaged from one aspect of the 'sharing out' function, i.e. direct intervention in the market place, there still remains the issue of seeking to resolve incompatible claims over income shares. By and large, politicians have sought to sweep this issue under the carpet by invoking the 'trickle down' argument. However, to the extent that 'trickle down' effects legitimize a redistribution of income towards the higher income groups, this is only valid if there then follow increases in investment and economic growth. There are serious doubts as to whether this has happened in the United Kingdom in recent years.

Mair, Laramie and Toporowski (1998) have used Weintraub's (1979, 1981) consumption coefficient to elucidate trends in the sectoral and func-

tional distributions of income in the United Kingdom between 1972 and 1995. The consumption coefficient, a, is defined as the ratio of total consumer expenditure, C, to income from employment, W, i. e., $a = C/W$. The consumption coefficient has two important roles in Kaleckian economics. The first is a theoretical role as it simplifies and generalizes Kalecki by making it possible to relax Kalecki's simplifying assumption that workers do not save (Weintraub, 1979). Another important theoretical role is in developing a demand-side theory of income distribution that integrates Kaldor, Kalecki and Robinson (Weintraub, 1981). Laramie and Mair have made extensive use of the consumption coefficient in developing their Kaleckian model of taxation discussed above.

However, for present purposes, it is the empirical role of the consumption coefficient which is of greater interest. Weintraub (1981, p. 14-15) decomposes the consumption coefficient into its constituent elements. First, the consumption function is expressed as:

$$C \square aW \square c_w W + c_r \lambda \Pi + c_\theta \Theta \tag{42}$$

where a = the consumption coefficient; c_w = average propensity to consume out of pre-tax income from private sector employment; W = total pre-tax wages; c_r = average propensity to consume out of pre-tax distributed profits; Π = pre-tax profits; λ = corporate profit payout ratio; c_θ = average propensity to consume out of transfer payments (including wages and salaries of government employees); and Θ = transfer payments (including wages and salaries of government employees). Dividing both sides by W yields:

$$a \square c_w + c_r \lambda \Pi \square + c_\theta \Theta \square; \tag{43}$$

where $\Pi \square = \Pi/W$ and $\Theta \square = \Theta/W$.

Analysis of the right hand side of the identity in equation (43) allows consideration of the factors that are influencing a and the consequent economic implications.

To calculate the right hand side of equation (43) from national income data for the United Kingdom, we substitute for the Kalecki-Weintraub class-based income concepts of 'worker income' (wages) and 'capitalist income' (profits), the national income definitions of 'total income from [private sector] employment (= 'worker income') and 'total non-employment

Table 1. Consumption Coefficient (C/W = c_w + c_rR□ + c_θΘ□) – UK 1972-1995

Year	C/W	c_w	c_r	R□	Θ□	c_θ
1972	1.328	0.721	0.480	0.377	0.436	0.978
1973	1.303	0.710	0.471	0.385	0.418	0.985
1974	1.273	0.684	0.401	0.369	0.440	1.002
1975	1.222	0.654	0.348	0.335	0.465	0.970
1976	1.248	0.657	0.355	0.358	0.484	0.958
1977	1.274	0.682	0.394	0.344	0.486	0.940
1978	1.284	0.680	0.399	0.351	0.489	0.949
1979	1.284	0.679	0.452	0.364	0.475	0.926
1980	1.277	0.644	0.438	0.356	0.503	0.908
1981	1.328	0.668	0.445	0.369	0.556	0.892
1982	1.376	0.679	0.459	0.387	0.582	0.891
1983	1.423	0.693	0.475	0.402	0.603	0.893
1984	1.417	0.687	0.466	0.424	0.600	0.888
1985	1.417	0.693	0.473	0.423	0.578	0.907
1986	1.458	0.708	0.507	0.430	0.580	0.917
1987	1.474	0.724	0.561	0.435	0.567	0.892
1988	1.489	0.739	0.613	0.453	0.533	0.887
1989	1.453	0.726	0.596	0.457	0.500	0.909
1990	1.396	0.688	0.575	0.450	0.492	0.912
1991	1.394	0.690	0.567	0.445	0.526	0.859
1992	1.409	0.671	0.548	0.466	0.563	0.857
1993	1.430	0.687	0.597	0.466	0.554	0.839
1994	1.430	0.699	0.649	0.462	0.517	0.833
1995	1.422	0.680	0.640	0.505	0.508	0.825

C/W = total consumer expenditure/income from private sector employment; c_w = average propensity to consume out of income from private sector employment; c_r = average propensity to consume out of non-employment income; R□ = non-employment income/income from private sector employment; Θ□ = transfer income (including government wages and salaries)/income from private sector employment; c_θ = average propensity to consume out of transfer income (including government wages and salaries).

income [income from self-employment, rent, dividends and net interest]' (= 'capitalist income'). As a result, we substitute R□ (total non-employment income/income from private sector employment) for Π□ in equation (43). We present in Table 1 our calculations of *a* and its constituents c_w, c_r, R□, c_θ and Θ□ for the United Kingdom for the period 1972-1995.

The table shows that from a level of 1.33 in 1972, *a* dipped to 1.22 in 1975. Thereafter, it rose steadily from 1975 to a peak of 1.49 in 1988, before slipping for a short period to 1.39 in 1991, from which it has risen again to around 1.42-1.43 in the mid 1990s (see Table 1). Looking at the elements of *a*, c_w has remained little changed over the period at around 0.7. Compensating changes in c_θ and Θ□ have cancelled each other out. The movement in *a*,

particularly since 1975, has been driven by two forces: (i) a rise in R□; and (ii) a rise in c_r. From a low of 0.34 in 1976, R□ has increased continuously to around 0.45 in the late 1980s and stood at over 0.5 by 1995. Thus, there has been a significant shift in income distribution in favour of 'capitalist income' in the United Kingdom over the past twenty years or so. This has been rein-forced by an increase in c_r which has risen, more or less continually, from a level of 0.35 in the mid 1970s to around 0.65 in the mid 1990s. Thus, there have been two reinforcing factors at work over the past twenty years in the United Kingdom, an increase in the income share of 'capitalist income' and an increase in the average propensity to consume out of that income. This change in the distribution of income identified by a accords with the findings of other studies of income distribution in the United Kingdom (for example, Jenkins and Cowell, 1994; Jenkins, 1995; and Goodman and Webb, 1994).

Weintraub (1981, p. 15) conjectured that "a dances to R□ tunes". If it does, then there is support for what Weintraub calls the Kaldor-Kalecki-Robinson (K-K-R) proposition that "profits are virtually a prisoner of in-vestment outlays" (Weintraub, 1981, p. 16). This can be expressed as:

$$R = I + W(a - 1) \tag{44}$$

If $a = 1$, then follows what Weintraub labels the "profound" K-K-R theo-rem that I = R. Examination of Figure 2 shows that in the United Kindom over the period 1972-1995 profits have indeed been "the prisoner of in-vestment outlays", particularly for the period up to 1989. This would ap-pear to provide support for Kalecki's proposition that capitalists' income depends on capitalists' spending ('workers earn what they spend; capitalists spend what they earn'). However, Figure 3 also shows that while investment turned down sharply after 1989, 'capitalist income' (R) continued to rise. Despite the fall in investment after 1989, Figure 3 shows 'capitalist income' and 'capitalist consumption' still continuing to rise. We suspect that the reason for the continuing rise in R is to be found in the behaviour of the UK housing market in the late 1980s and early 1990s (Lee and Robinson, 1990; Muellbauer and Murphy, 1997; Levin and Wright, 1997).

The rise in the consumption coefficient in the United Kingdom over the past twenty years suggests that, holding other things constant, the levels of aggregate profits and national income have been pushed up. However, the

rise in a has been accompanied by higher business mark-ups and a reduction in the share of wages (income from employment) in national income. These latter effects, with a greater than 1, will have a negative effect on current profits, with adverse effects for future investment and growth.

8. CONCLUSION

We think that Schumpeter was right to be concerned about the future of capitalism, though for rather different reasons from those he advanced in *Capitalism, Socialism and Democracy.* His analysis of the dynamic effects of taxation as early as *Crisis of the Tax State* was essentially correct but did not go far enough either in terms of integrating it into a dynamic macroeconomic framework or in considering the economic and social implications of tax shifting. Schumpeter was correct to reject the public finance paradigm of his day as inadequate for the purpose of understanding the dynamic effects of taxation. Our principal task in this paper has been to show that a fully integrated dynamic theory of tax incidence developed from Kalecki provides an approach which meets Schumpeter's objections to Marshallian and Keynesian analyses. Schumpeter and Kalecki shared a common commitment to the study of dynamics and this is incorporated into Kalecki's theory of taxation.

Using Kalecki as a medium, we have been able to demonstrate the effects on stability, growth and unemployment of balanced changes in the structure of taxation. Under certain tax shifting conditions, it would be possible to use fiscal policy both for stabilization and for promoting long term growth without adding to the 'heavy' burden of taxation. However, we are doubtful if the required conditions will hold in practice.

An irony of Schumpeter's vision in *Capitalism, Socialism and Democracy* is that to the extent that governments in liberal representative democracies have responded to Schumpeter's warning of the inevitability of socialism, they have laid themselves open to another, possibly greater, danger. The 'sharing out' function of government which Sir Samuel Brittan saw as the Achilles heel of the liberal representative democracies is still their most vulnerable target. The British electorate has viewed with equanimity, even approval, disengagement by the state from the provision of a range of goods

and services. However, in the United Kingdom at least, there has a the same time been a significant redistribution of income in favour of the upper income groups in recent years which the government has done little to redress. There is now the double jeopardy of rising income inequality, and the social tensions to which that may give rise, compounded by the evidence from a Kaleckian analysis that the increased income of the higher income groups is being used to fund consumption and not investment. It may yet be the greed of the capitalist class that will lead to its downfall.

ABSTRACT

In *Capitalism, Socialism and Democracy,* Schumpeter presaged the demise of capitalism. However, it has still survived. The paper re-examines Schumpeter's views on fiscal policy as propounded in *Crisis of the Tax State.* These are interpreted in the light of a Kaleckian theory of dynamic tax incidence and found to be essentially correct. Schumpeter, however, had not appreciated the economic and social significance of tax shifting and its implications for income distribution. In the light of recent trends in income distribution in the United Kingdom, there is concern that future investment and growth may be prejudiced by a rising propensity to consume out of capitalist income. Schumpeterian tax analysis raises a question mark over the future of capitalism in the 21st century.

RESUMO

Em *Capitalismo, socialismo e democracia,* Schumpeter previu o fim do capitalismo. Este, porém, tem sobrevivido. Este artigo reexamina a visão de Schumpeter sobre a política fiscal, tal como proposta em *A crise do Estado fiscal.* Ela é interpretada à luz da teoria kaleckiana sobre incidência dinâmica do imposto, essencialmente correta. Schumpeter, entretanto, não havia percebido a importância econômica e social dos repasses de impostos e suas implicações para a distribuição de renda. À vista das tendências recentes na distribuição de renda no Reino Unido, existe a preocupação de que o investimento e o crescimento possam ser prejudicados por um aumento da propensão a consumir dos capitalistas. A análise schumpeteriana dos impostos coloca um ponto de interrogação sobre o futuro do capitalismo no século XXI.

NOTE

1. This paper was presented at the seventh conference of the International Joseph A. Schumpeter Society "Capitalism and Democracy in the 21st Century", June 13-16 1998, Vienna, Austria.

REFERENCES

ANDIC, F. M., ANDIC, S. (1984) "An exploration into fiscal sociology: Ibn Khaldun, Schumpeter and public choice". *Finanzarchiv,* 43, 454-469.

ARROW, K. (1962) "The implications of learning by doing". *Review of Economic Studies,* 29, 155-173.

BRITTAN, S. (1975) "The economic consequences of democracy". *British Journal of Political Science*, 5, 129-160.

FEIWEL, G. R. (1975) *The Intellectual Capital of Michal Kalecki.* Knoxville : University of Tennessee Press.

FELDSTEIN, M. (1995) "Fiscal policies, capital formation and capitalism. The Joseph Schumpeter Lecture". *European Economic Review*, 30, 399-420.

GOMULKA, S., OSTASZEWSKI, A., DAVIES, R. (1990) "The innovation rate and Kalecki's theory of the trend, unemployment and the business cycle". *Economica*, 57, 525-540.

GOODMAN, A., WEBB, S. (1994) "For richer, for poorer, the changing distribution of income in the UK, 1961-1991*". Fiscal Studies,* 15, 4, 29-62.

HARROD, R. F. (1939) "An essay in dynamic theory". *Economic Journal*, 49, 14-33.

JENKINS, S. P. (1995) "Accounting for inequality trends: decomposition analyses for the UK, 1971-1986". *Economica*, 62, 29-63.

―――, COWELL, F. A. (1994) "Dwarfs and giants in the 1980s: trends in income distribution". *Fiscal Studies,* 15, 1, 99-118.

KALECKI, M. (1937) "A theory of commodity, income and capital taxation". *Economic Journal*, 47, 444-450.

―――. (1943, 1971) "Political aspects of full employment". Reprinted in: *Selected Essays in the Dynamics of the Capitalist Economy*. Cambridge : Cambridge University Press.

―――. (1954) *Theory of Economic Dynamics*. Londres : Unwin University Books.

―――. (1968, 1971) "Trend and business cycle". Reprinted in: *Selected Essays in the Dynamics of the Capitalist Economy*. Cambridge : Cambridge University Press.

KEYNES, J. M. (1936) *The General Theory of Employment, Interest and Money*. Londres : Macmillan.

LARAMIE, A. J. (1971) "Taxation and Kalecki's distribution factors". *Journal of Post Keynesian Economics*, 4, 583-594.

―――, MAIR, D. (1996) "Taxation and Kalecki's theory of the business cycle". *Cambridge Journal of Economics*, 20, 451-464.

———, ———. (1997) "A Kaleckian theory of taxation". *International Papers in Political Economy*, 4, 1, 1-43.

———, ———. (1998) "The impact of taxation on economic stability, growth and unemployment: a Kaleckian perspective". Heriot-Watt University, mimeo.

———, ———, MILLER, A. G., STRATOPOULOS, T. (1997) "The impact of taxation on gross private non-residential fixed investment in a Kaleckian model". *Journal of Post Keynesian Economics,* 19, 2, 243-256.

LEE, C., ROBINSON, B. (1990) "The fall in the savings ratio: the role of housing". *Fiscal Studies*, 11, 1, 36-52.

LEVIN, E. J., WRIGHT, R. E. (1997) "Speculation in the housing market?". *Urban Studies*, 34, 9, 1419-1437.

MAIR, D., LARAMIE, A. J., TOPOROWSKI, J. (1998) "Weintraub's consumption coefficient: some economic implications and evidence for the UK". *Cambridge Journal of Economics* (forthcoming).

MINSKY, H., WHALEN, C. J. (1997) "Economic insecurity and the institutional prerequisites for successful capitalism". *Journal of Post Keynesian Economics,* 19, 2, 155-170.

MUELLBAUER, J., MURPHY, A. (1997) "Booms and busts in the UK housing market". *Economic Journal*, 107, 1701-1727.

MUSGRAVE, R. A. (1992) "Schumpeter's crisis of the tax state: an essay in fiscal sociology*". Journal of Evolutionary Economics,* 2, 89-114.

REYNOLDS, P. J. (1984) "An empirical analysis of the degree of monopoly theory of income distribution". *Bulletin of Economic Research*, 36, 59-84.

———. (1987) *Political Economy: A Synthesis of Kaleckian and Post Keynesian Economics.* Brighton : Wheatsheaf.

———. (1996) "Kalecki's theories of pricing and distribution". In: J. E. King (ed.) *An Alternative Macroeconomic Theory: The Kaleckian Model and Post Keynesian Economics.* Dordrecht : Kluwer.

SAWYER, M. C. (1985) *The Economics of Michal Kalecki.* Londres : Macmillan.

SCHUMPETER, J. A. (1918) *The Crisis of the Tax State.* Graz, Leipzig : Leuschner and Lubensky.

———. (1927) *Der Deutsche Volkswirt* (var.).

———. (1939) *Business Cycles,* v. I and II. Nova York : McGraw-Hill.

———. (1943) *Capitalism, Socialism and Democracy.* Londres : Unwin University Books.

———. (1946) "John Maynard Keynes". *American Economic Review,* 36, 510-518.

———. (1954) *History of Economic Analysis.* Londres : Allen and Unwin.

SOLOW, R. M. (1956) "A contribution to the theory of growth". *Quarterly Journal of Economics,* 70, 65-94.

STERN, N. (1992) "From the static to the dynamic: some problems in the theory of taxation". *Journal of Public Economics*, 47, 2, 273-297.

WEINTRAUB, S. (1979) "Generalising Kalecki and simplifying macroeconomics". *Journal of Post Keynesian Economics,* 1, 101-106.

———. (1981) "An eclectic theory of income shares". *Journal of Post Keynesian Economics*, 4, 10-24.