

# The Shaky Supply Side. On Neoclassical “Anomalies” in Macroeconomic Theory <sup>1</sup>

“... Chapter 2 ... is the portion of my book which most needs to be revised.”

John Maynard Keynes (1939)

Ever since Keynes published his *General Theory* in 1936, there has been a remarkable proliferation of attempts at reconciling his theory with the basic postulates of neoclassical economics, namely the rationality axioms, the axiom of maximisation (of utilities and profits) and the concepts of general equilibrium. These research efforts indicate that economists have paid little notice to Keynes' warning that “the difficulty lies, not in the new ideas, but in escaping from the old ones, which ramify, for those brought up as most of us have been, into every corner of our minds” (Keynes 1964: viii).

Some non-orthodox economists will claim that the first attempt of this kind was Hicks' IS-LM-interpretation of Keynes' theory (Hicks 1937).<sup>2</sup> However, the harmonisation view that came to predominate for about three decades after the second world war was the *neo-classical synthesis* which was given its clearest expression by Paul A. Samuelson:

“By proper use of monetary and fiscal policies, nations today can successfully fight off the plague of mass unemployment and the plague of

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<sup>1</sup> Revised version of a paper presented at the 14th National Research Conference of the Norwegian Economic Association, Oslo, January 1992, and at the J.W. Goethe University, Frankfurt am Main, 16th June 1992. I am indebted to Amit Bhaduri, Bertram Schefold, Anders Skonhoft, an anonymous referee and participants in Oslo and Frankfurt for most helpful comments on an earlier draft of the present paper. The term “anomalies” in this context was – as far as I know – originally introduced by THOMAS KUHN (1970: 66ff.).

<sup>2</sup> Cf. for example LEIJONHUFVUD (1968; and 1969: esp. 12-18).

inflation. With reasonably stable full employment a feasible goal, the modern economist can use a 'neoclassical synthesis' based on the combination of the modern principles of income determination and the classical truths. Paradoxically, successful application of the principles of income determination does result in a piercing of the monetary veil masking real conditions, does dissipate the topsy-turvy clashes between the whole and the part ... and does finally validate the important classical truths and vanquish the paradox of abortive thrift" (Samuelson 1967: 581).

In the 1960s, some economists began to give a less enthusiastic picture of the neoclassical synthesis. In a famous paper, Robert Clower argued that Keynes' macro-analysis contradicts Walras' Law, and that a synthesis of Keynesian and Walrasian theory therefore appears to be logically inconsistent (Clower 1965). Some years later, Axel Leijonhufvud complained that "we use 'Walrasian' models for the first type of question [relative prices and resource allocation – R.S.] and 'macro-models' for the second [employment and income determination – R.S.]: and we act as if this schizophrenic State of the Arts was something that we are willing to live with indefinitely" (Leijonhufvud 1969: 25).

Much of the research activity within macroeconomic theory in the last two decades can be interpreted as attempts, in various directions, to overcome what Leijonhufvud called the "schizophrenic State of the Arts". The research programmes of "New Classical" as well as "New Keynesian" macroeconomics have aimed at bringing Keynesian theory into harmony with the basic neoclassical postulates. These attempts have resulted in colourful bunches of new and "modern" theories, the "New Classical" group assuming market-clearing and most of the flowers in the "New Keynesian" group assuming non-market-clearing. We have the theory of rational expectations, real business cycle theory, principal-agent theory, theory of Classical versus Keynesian unemployment, menu-cost theory, insider-outsider theory, efficiency wage theory, etc.

Neither the relationship of these new theories to Keynes' own theory nor their empirical relevance and realism appears to be clarified before they enter the textbooks, which is a sign of the ever shorter product life cycle within economic theory-making. On the other hand, such proliferation of new macroeconomic theories may give rise to some worry, since even basic theoretical and empirical

questions concerning the main body of Keynes' own theory do not seem to have reached clarification. This applies especially to the "supply-side" of macroeconomic models, for which Keynes to a large extent accepted and reproduced the neoclassical axioms in his *General Theory*. In this respect, it is notable that neither the "New Classics" nor the "New Keynesians" take much notice of Keynes' important article of 1939, where he self-criticised precisely the supply-side assumptions in his *General Theory*. This paper will deal with some of these problems, making references particularly to Keynes' 1939 article and to empirical studies with a bearing on the supply-side postulates in macroeconomics.

### The Macro Production Function

Most textbooks assume a short-term macro production function with the "quantity of labour" in the economy as the only independent variable. This production function serves as basis for deriving the aggregate supply (AS) schedule. When  $Y$  is the (net) domestic product (per annum) and  $L$  is the "quantity of labour" (measured, for example, in man-hours per year), the production function may be written as

$$(1) \quad Y = Y(L)$$

If the "representative firm" is to maximise profits under perfect competition in the neoclassical meaning, the following conditions have to be satisfied: Function (1) must be continuously differentiable in its domain, and  $Y'(L) > 0$ , whereas  $Y''(L) < 0$  at every point of the domain of the function.

Keynes himself did not use such a macro production function, defining "output" as one single-valued "real" variable. Apparently, one major reason for his avoidance of this kind of aggregation was that changes of the relative prices of investment goods and consumer goods did play a role in his theory.<sup>3</sup> But on the other hand, in his

<sup>3</sup> Keynes chose to express aggregate output in labour units (KEYNES 1964: Ch. 4). This aspect of Keynes' *General Theory* is discussed *inter alia* by LEIJONHUFVUD (1968: 130-185).

*General Theory* Keynes expressly accepted the particular implications of the macro production function which we discuss here.

The macro production function (1) is generally presented as a special case of the long-term production function with labour, "capital" and technical progress as the independent variables. In the short term, the "quantity of capital" and techniques are assumed to be constant.

However, the condition  $Y''(L) < 0$  may be claimed to be satisfied only when all factors of production are fully utilised. In a Keynesian situation there is, in general, idle production capacity; and an increase in output is associated with both an increase in employment and an increase in the rate of capacity utilisation, with the result that the marginal product of labour need not decline. In other words, there is no reason to assume that  $Y''(L) < 0$  in the short term (*cf.* Keynes 1939: 41; Garrison 1984: 117; and Sylos Labini 1988).<sup>4</sup>

The macro production function became no less problematic as a result of the critique of neoclassical capital theory which followed in the wake of Piero Sraffa's *Production of commodities by means of commodities* (1960). That critique showed, among other things, that the differentiability of the macro production function is not granted except in the case of a one-commodity economy. Moreover, it was shown that, at full capacity utilisation, no unique relation between "capital intensity", *i.e.* "quantity of capital" per worker, and the rate of profits can be logically established. The "capital intensity" may just as well rise as decrease when the rate of profits increases. Conversely, the quantity of labour at a given "quantity of capital" may rise as well as decline when the real wage increases. As a consequence, there is no logically founded demand function for labour, with the demanded quantity of labour increasing when the real wage is decreasing (*cf.* for example Garegnani 1972: (esp.) 277; Garegnani 1978: 350-51; and Weeks 1989: 143-161).

The neo-Ricardian critique is based on pure logic. Viewed against that background, it is remarkable that it has not been accepted and taken account of by the whole economics profession. However,

<sup>4</sup> It should be recalled that  $Y'(L)$  and  $Y''(L)$  are *partial* derivatives with respect to labour, *i.e.* the quantities of "capital" and all other factors are kept *constant* and full capacity utilisation is presupposed. SYLOS LABINI (1988) discusses the problems arising from these assumptions.

many prominent neoclassical economists have accepted the critique. For example, Frank Hahn wrote the following admission on the neoclassical macro production function: "This construction ... Sraffians claim to be not logically watertight except in the single good economy. In this they are generally correct" (Hahn 1984: 379).

### The Postulate of Increasing Marginal Costs

From the neoclassical short-term macro production function with diminishing marginal productivity of labour it follows that the "representative firm" faces increasing marginal costs. (Some writers deduce this postulate without reference to the macro production function, assuming that the means of production in an economy consist of different vintages with different productivities. When production increases in the short term, it is assumed that vintages with lower productivity will be taken into use. Hence, a rising marginal cost schedule and a corresponding aggregate supply curve emerge.)

Under perfect competition, the assumption of diminishing marginal productivity of labour and rising marginal costs is furthermore necessary for the postulate of profit maximisation. On the other hand, this assumption can, of course, be dispensed with without harming the postulate of profit maximisation when it is assumed that each firm faces a downward-sloping demand curve under some kind of imperfect competition, as for example in the menu-cost theory. In view of this, the postulate of profit maximisation – which we will return to later – may appear to be more basic to and indispensable for neoclassical theory than the assumption of rising marginal costs.

But in any event, whether the rising marginal cost curve holds true should be an empirical question. Let us therefore turn our attention to the empirical evidence. Since the mid-1930s, numerous econometric studies of the short-term relationship between costs and volume of production have been carried out, especially within the manufacturing sector. Well-known names behind such studies are Joel Dean (1936 and later), Alfred Neal (1942) and Bjarke Fog (1956). These studies conclude unanimously that there is a linear relation between variable costs and the volume of production. In other words,

marginal costs are constant and not increasing within the relevant production intervals (for a summary, see Yordon 1987).

In 1949, Joe S. Bain gave the following summary of the econometric short-term cost studies so far:

“One striking finding of such cost studies has been the apparent linearity, over wide ranges of output, of the short-run total production cost functions of observed firms, implying a constant short-run average variable and marginal cost except at extremely small or large outputs” (Bain 1949: 140).

Since then, comprehensive studies of costs and pricing strategies of industrial firms have been carried out by, among others, Herbert A. Simon. He gives this summary of some of his main findings:

“Through detailed study of pricing by multiple interviews throughout the firm we begin to get a picture of the informational constraints that hedge in the pricing process and give it form. We learn, for example, that whatever the shape of the real world, the world that his accounting figures reveal to the businessman is usually one of *constant marginal costs, virtually up to the point where output equals full capacity*. With this knowledge, the businessman’s wariness of price competition takes a new interpretation, quite different from that given it by classical theories of monopoly and imperfect competition” (Simon 1962: 10. My italics).

I could add more references: however, the conclusion would remain the same. *Empirical studies do not confirm the neoclassical postulate of increasing short-term marginal costs*. By contrast, such studies vindicate that short-term marginal costs are constant.

### The Postulate of the Countercyclical Variability of Real Wages

Equally problematic is another implication of the neoclassical macro production function, which is logically closely related to the postulate of increasing marginal costs, viz. that real wages will decline as production and employment increase, and vice versa.<sup>5</sup> In other

<sup>5</sup> To the extent that these postulates are derived from the macro production function, they are, of course, two sides of the same coin: because diminishing marginal

words, real wages are supposed to vary countercyclically. Also this neoclassical postulate, which Keynes accepted explicitly in his *General Theory*,<sup>6</sup> has not been supported by econometric studies. Only a few years after he had published his major work, Keynes was challenged on this point by Dunlop (1938), Kalecki (1939) and Tarshis (1939). In his reply to these critics he noted that “in my *General Theory* I was accepting, without taking care to check the facts for myself, a belief which has been widely held by British economists up to the last year or two” (Keynes 1939: 34). Moreover, he wrote that he had been “brought up upon” the empirical evidence provided by Alfred Marshall, based on data for the years 1880-1886 (*ibid.*: 35, 38).

In 1939, Keynes had access to data for the longer period 1880-1914, subdivided into nine periods of recovery and depression. He found that, according to this data,

“Marshall’s generalisation holds for the periods from 1880 to 1884 and from 1884 to 1886, but for no subsequent periods. It seems that we have been living all these years on a generalisation which held good, by exception, in the years 1880-86, which was the formative period in Marshall’s thought in this matter, but has never once held good in the fifty years since he crystallised it!” (Keynes 1939: 38).

Keynes concluded that

“Whatever a more complete inquiry into the problem may bring forth, it is evident that Mr. Dunlop, Mr. Tarshis and Dr. Kalecki have given us much to think about, and have seriously shaken the fundamental assumptions on which the short-period theory of distribution has been based hitherto; – it seems that for practical purposes a different set of simplifications from those adopted hitherto are preferable” (Keynes 1939: 50).

It should be noted that Keynes, with reference to Kalecki (1939), suggested *constant real wages* as an alternative to the postulate

productivity of labour implies increasing marginal costs (which are equal to money wages divided by the marginal productivity of labour), the two postulates stand or fall together. However, the countercyclicity of real wages does not need to be derived *a priori* from the macro production function. For example Alfred Marshall, who had a practical turn of mind, argued that real wages would vary countercyclically because, in his assumption, money wages would be stickier than prices. Whether this is the case, is, in any event, as Marshall himself emphasised, an empirical question.

<sup>6</sup> “The wage is equal to the marginal product of labour” (KEYNES 1964: 5). «... real wages and the volume of output (and hence of employment) are uniquely correlated so that, in general, an increase in employment can only occur to the accompaniment of a decline in the rate of real wages ... the real wage earned by a unit of labour has a unique (inverse) correlation with the volume of employment” (*ibid.* 17).

of countercyclical variation of the level of real wages in short-period situations of less than full employment: "... we shall not often go far wrong if we treat real wages as substantially constant in the short period (a very helpful simplification if it is justified)" (Keynes 1939: 43).

Because of Keynes' assumptions of diminishing marginal productivity of labour and countercyclical variability of real wages in his *General Theory*, in a situation of unemployment, he felt that an increase in effective demand would imply a fall of real wages. Since there was involuntary unemployment, so that workers were off their supply curve and employment demand-determined, the fall of real wages would not result in demand for higher money wages. In the *General Theory* the fall in the real wage was a *result* of rising output and employment due to increased effective demand, not the cause. Nevertheless, critics of Keynes could claim that increased employment was basically a result of the lowering of real wages.<sup>7</sup> Against this background, it appears to me that Keynes had good reason to claim that refutation of the postulate of countercyclical variation of real wages would not weaken his theory, but rather strengthen it:

"That I was an easy victim of the traditional conclusion because it fitted my theory is the opposite of the truth. For my own theory this conclusion was inconvenient, since it had a tendency to offset the influence of the main forces which I was discussing and made it necessary for me to introduce qualifications, which I need not have troubled with if I could have adopted the contrary generalisation ..." (Keynes 1939: 40).

In order to elaborate this point, he referred to his earlier controversies, especially with Arthur C. Pigou. In those debates Keynes had argued that "the good effect of an expansionist investment policy on employment" was due to the stimulus that such a policy would give to effective demand. On the other hand, Pigou "and many other economists" had argued that the increase in employment was caused by a reduction of real wages due to the price increase associated with an expansive investment policy. In other words, such a policy would, according to Pigou and others, give a

<sup>7</sup> This view has been widespread until recently. It is, for example, a major point in Milton Friedman's criticism of Keynes. Friedman argues that the diminishing marginal product labour demand curve "does play a critical role" in Keynes' theory, "... leading him [Keynes] to regard a reduction in real wages as a necessary condition [sic!] for a rise in employment" (FRIEDMAN 1977: 155-156). Obviously, Friedman cannot have read Keynes' 1939 article. Regarding this point, see GARRISON (1984: 115-118).

positive employment effect, "by deceiving, so to speak, the working classes into accepting a lower real wage, effecting by this means the same favourable influence on employment which, according to these economists, would have resulted from a more direct attack on real wages" (Keynes 1939: 40). Pigou's argument was based precisely on the neoclassical postulate of diminishing marginal productivity of labour and the consequent countercyclicity of real wages, while assuming that workers would always be on their supply curve so that only "voluntary unemployment" could exist. In his 1939 article, Keynes therefore commented with obvious satisfaction:

"If, however, it proves right to adopt the contrary generalisation, it would be possible to simplify considerably the more complicated version of my fundamental explanation which I have expounded in my *General Theory*. My practical conclusions would have, in that case, *a fortiori* force" (Keynes 1939: 40-41).<sup>8</sup>

This was, as far as I can see, the first confrontation in history between an economist who argued that unemployment in industrialised capitalist economies is "Keynesian", *i.e.* caused by inadequate effective demand, and economists who argued that it is "Classical", *i.e.* due to too high real wages. And it is worth noting that in 1939 it had become perfectly clear to Keynes that the theory of Classical unemployment stands or falls with the postulate of diminishing marginal productivity of labour, the consequent countercyclicity of real wages and the postulate of profit maximisation:

"If the falling tendency of real wages in periods of rising demand is denied, this alternative explanation must, of course, fall to the ground" (Keynes 1939: 40).

Indeed, compared to what Keynes wrote in 1939, the works of Malinvaud, Barro and Grossman and others in the 1970s and 1980s do not appear to have brought much new knowledge to light.<sup>9</sup>

<sup>8</sup> In a footnote to this comment Keynes added that the simplifications would apply especially to "Chapter 2, which is the portion of my book which most needs to be revised". The title of Chapter 2 is "The Postulates of Classical Economics", and it was in this chapter that he explicitly accepted the (neo-)classical postulate that the real wage equals the marginal productivity of labour and is countercyclical. See my quotations from Chapter 2 in footnote 6.

<sup>9</sup> It should be noted that MALINVAUD (1977) and other disequilibrium theorists classify unemployment according to the level of real wages. At a "low" level of real

In view of the importance of the problem, the discussion in the late 1930s between Dunlop, Kalecki and Tarshis on the one hand and Keynes on the other has not been followed up by many econometric studies. However, the studies that exist do not support the neo-classical postulate of countercyclical real wages (*cf.* for example Bodkin 1969).<sup>10</sup> A recent study by Juliet B. Schor, covering nine countries over the period 1955-1980, concludes that real wages have varied procyclically, but with a stronger procyclical variability before 1970 than in the subsequent period (Schor 1985: 460-462).

Arthur M. Okun gave the following summary of his preoccupation with empirical studies in this field:

“According to the model, the movement of both productivity and real wages should be countercyclical. ... In sharp contrast, empirical research strongly suggests that real wages are essentially noncyclical, productivity procyclical and labor’s share countercyclical. ... It is fair to summarize the consensus as finding no detectable significant cyclical pattern in real wages” (Okun 1981: 16).

If Arthur Okun had lived long enough to read Schor’s study, he would possibly have made some modification of his summary. However, one thing stands firm: *econometric studies do not support the neoclassical postulate of countercyclical real wages.*

### Mark-up Pricing and the Question of Classical versus Keynesian Unemployment

Under the assumption of perfect competition, marginal cost pricing falls together with the postulate of increasing marginal costs. But in the case of imperfect competition where each firm faces a downward-sloping demand curve, the postulate of profit maximisation can still be retained in the absence of rising marginal costs,

wages, unemployment is Keynesian; at a “too high” level it is Classical. (I will return to this classification later.) An excellent review and critique of disequilibrium theories is given by ROTHSCHILD (1981).

<sup>10</sup> One study which might appear to confirm the postulate of countercyclical real wages (CHRINKO 1980) has been shown to have methodological mistakes which are warned against even in a “Beginner’s Guide” in econometrics (CASSIDY 1981: 141 and YORDON 1987).

provided that the derivative of the marginal cost curve is larger than the derivative of the marginal revenue curve.

On the other hand, econometric studies have shown that the price formation in capitalist economies, except parts of the primary sector, is best represented by a mark-up model where prices are equal to direct unit costs, which are constant in the short run, multiplied by a mark-up factor. In many of these studies it has also been shown that short-term changes of demand generally has no significant impact on prices. The mark-up is, in other words, independent of demand, at least as long as there is considerable idle capacity in the economy (*cf.* for example Kalecki 1954; Godley and Nordhaus 1972; Coutts *et al.* 1978; Sylos Labini 1979a). This finding contradicts not only the assumption of perfect competition in the neoclassical sense, but – in general – even the postulate of profit maximisation irrespective of the degree of competition.<sup>11</sup>

On the other hand, constant variable costs and mark-up pricing seem to be entirely compatible with the concept of competition in Classical political economy. As is well known, the Classical economists, in particular Ricardo, assume that the productivity of labour and marginal costs are constant in the short term. Diminishing returns are assumed only in (parts of) the primary sector. Competition between capitals of different sectors appears as a tendency of the rate of profits to become uniform through the flow of capital between sectors, which will imply different mark-ups in the different sectors. In other words, in Classical political economy, “the mark-up ... represents not an arbitrary monopolistic charge but the result of a competitive process ...” (Schefold 1983: 246).

It is worth noting that many disequilibrium theorists, among others Malinvaud, appear to acknowledge mark-up pricing as an *empirical* fact. Malinvaud writes that “there is now a wealth of econometric literature” showing that

“... quantitative adjustments are the first signals of changes in the demand-supply relationship. Shifts in the relative prices come later and in a less apparent way. ... Quarterly changes in the prices of manufactured goods have a very good fit with a simple model stating a constant rate of

<sup>11</sup> I emphasise “in general”, because there are few general rules without exceptions. One obvious exception in this context, assuming imperfect competition and constant marginal costs, is the special case of (downward-sloping) linear demand functions intersecting the price axis at a fixed point.

mark-up above costs. ... The conclusion therefore emerges that short-term quantitative adjustments are much more apparent and influential than short-term price adjustments" (Malinvaud 1977: 9-10).

This sounds as good post-Keynesian theory. But Malinvaud appears to accept only half of the empirical evidence. He does not seem to acknowledge that variable unit costs are constant, or may even decline, when output increases in the short term. Instead of referring to empirical studies on this point, he resorts to a thought experiment. He assumes that the means of production in an economy consist of vintages with different productivities. When production increases at idle capacities, vintages with ever lower productivity will be taken into use, and *vice versa* when production declines. (Malinvaud 1977: 49-51).

On Malinvaud's assumptions, a rising "aggregate" marginal cost curve emerges. This curve is equivalent to the rising aggregate supply schedule which is derived from the macro production function. Only the disguise is different. And when production is "supply-determined", the usual neoclassical implication follows that, "the real wage is equal to the productivity of labour on the marginal equipment" (Malinvaud 1977: 52).

Malinvaud might just as well have based his reasoning on the traditional textbook macro production function and the assumption of profit maximisation. When the price level is denoted by  $P$ , the aggregate supply function at less than full employment and a given level<sup>12</sup> of money wages,  $w^*$ , may be represented as:

$$(2) \quad P = w^*/Y'(L)$$

Malinvaud does not make any reference to the comprehensive empirical evidence showing that variable unit costs are constant, or may even decline, when production increases in the short term. Neither does he make any note of factors which could counteract or neutralise the implications of his vintage assumption, for instance economies of scale, even in the short term, of administrative work, inventory keeping and use of energy and raw materials.

<sup>12</sup> This static picture, assuming "given money wages" at less than full employment, which is convenient for my present purpose, may be said to represent Keynes' basic model, but it does not at all do full justice to his theory. Keynes believed that an expansion of employment (in a situation of involuntary unemployment) could create

In order to make a distinction between Keynesian and Classical<sup>13</sup> unemployment, Malinvaud and other disequilibrium theorists seemingly need a fix-price assumption, with empirical reference to mark-up pricing, *as well as* an assumption of increasing marginal costs. To my understanding, this must be the reason why they do not make any reference to the empirical evidence of *constant* marginal costs, "virtually up to the point where output equals full capacity" (Simon 1962: 10).

Let us now make the customary and realistic assumption that employment is demand-determined as long as there is unemployment, so that the aggregate supply curve (AS) corresponds to formula (2) up to full employment and full capacity utilisation. Moreover, we assume that money wages become perfectly flexible at full employment, implying that the AS-curve becomes vertical. We also assume, to begin with, that the aggregate demand curve (AD), which is derived in the customary manner from the IS-LM-schedules, intersects the AS-curve precisely at the Walras-point,  $W$ , representing full employment output,  $Y_f$  (cf. Figure 1a).

According to Malinvaud and other disequilibrium theorists, when the AD-curve is moved to the left of the Walras-point (e.g. due to an exogenous change of investment, public expenditure or money supply), there will be Keynesian unemployment at the price levels where a horizontal line indicating the price level intersects the AD-curve to the left of the AS-curve. Under these circumstances, production is *demand-determined* in the Walrasian sense (cf. Figure 1a-b). With regard to this case, Malinvaud apparently argues that the price level ( $P$ ) in his fix-price model corresponds to the empirically observed mark-up pricing.

Moreover, when the AD-curve is once more moved to the left of the Walras-point, there will be Classical unemployment at those price

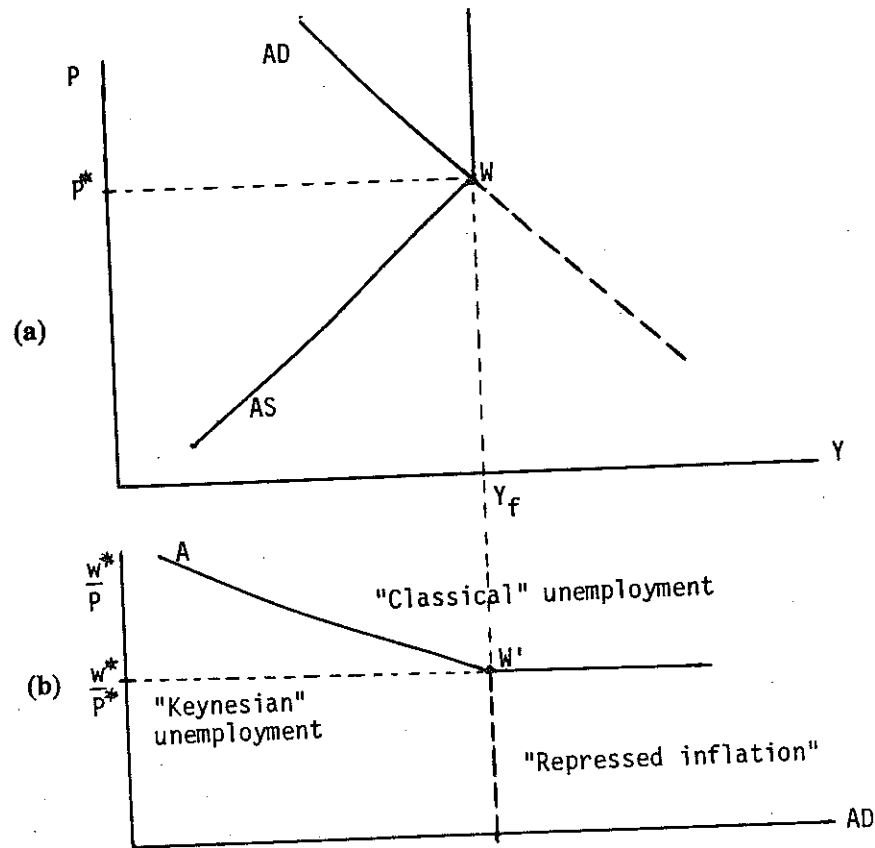
upward pressure on money wages and that inflation could therefore occur even before (near) full employment was reached. Thus, there could be precisely the negative relationship between unemployment and inflation that A.W. Phillips first observed in the 1950s (cf. GARRISON 1984: 121-126).

<sup>13</sup> It is misleading to claim that *classical* unemployment is due to "too high" real wages at diminishing productivity of labour and correspondingly increasing marginal costs. The classical economists assumed constant productivity of labour and constant marginal costs in the short term. Unemployment would be due to a low rate of capital accumulation at a given real wage, determined - physically and socially - as a subsistence minimum. Ricardo was particularly clear on this point. He assumed diminishing returns expressly only in agriculture. This would not imply "classical" unemployment, but a differential land rent which would accrue to the land owners. Malinvaud's "classical" unemployment is, in short, entirely *neoclassical* (cf. SRAFFA, ed., 1951: 12-20 and 67-78).

levels where the horizontal line indicating the price level intersects the AS-curve to the left of the AD-curve. At these price levels, where production is *supply-determined* in the Walrasian sense, there will also be an element of "Keynesian" unemployment due to inadequate effective demand, represented by the horizontal distance between the intersection point of the AD- and AS-curves and the Walras-point, W.

Finally, when the AD-curve is moved to the right of the Walras-point, there will again be Classical unemployment at price levels  $P < P^*$ , alternatively  $w^*/P > w^*/P^*$  (cf. Figure 1a-b).

FIGURE 1



In situations of Keynesian unemployment, the marginal productivity of labour exceeds the real wage, in other words,  $w^*/P < Y'(L)$  except at the price level corresponding to the point of intersection between the AD- and the AS-curves, where the real wage becomes equal to the marginal productivity of labour. On the other hand, in situations of Classical unemployment, the real wage equals the marginal productivity of labour, *i.e.*  $w^*/P = Y'(L)$  throughout.

In the Keynesian unemployment regime the AD-curve is real, representing *effective* demand. But in the Classical unemployment regime, where production, incomes and employment are supply-determined, this curve becomes purely imaginary. The AD-curve suggests an analogy with the demand curves of microeconomic theory, but it is not a demand curve in that sense. This curve merely shows the size of aggregate output in the economy at different price levels, provided that aggregate output (and hence employment) is determined by effective demand.

On the other hand, actual incomes, and hence "effective demand", in situations of Classical unemployment must be (co-) determined by the actual level of production, which is in turn "supply-determined". In view of these problems, there is no sense in speaking of "excess demand" for goods and "rationing on the goods market" in situations of Classical unemployment. The analogy with neoclassical microeconomic theory on the aggregate level is not tenable.<sup>14</sup>

In a situation of Classical unemployment, prices are equal to marginal costs since real wages are equal to the marginal productivity of labour. In other words, we are in a situation of apparent *marginal cost pricing*. A change of unemployment regime brought about by an incremental change of effective demand at a given real wage level, corresponding to a break through the curve A - W' in Figure 1b, seems to imply a *change of pricing mechanism*. In the "Keynesian regime" there is apparently supposed to be mark-up pricing, but in the "Classical regime" prices are equal to marginal costs. However, the marginal cost pricing in the Classical regime is quite peculiar. Prices are equal to marginal costs, but prices (and production) do not rise although there is supposed to be excess demand. In other words, prices are assumed to be fixed *and*, at the same time, equal to

<sup>14</sup> A further discussion of this point is beyond the scope of this paper. However, it is elaborated in SKARSTEIN and SKONHOFT (1993, forthcoming).



marginal costs. Whatever explanation is given for this strange combination, it has no similarity whatsoever with the empirically shown mark-up pricing.

Moreover, this combination contradicts essential aspects of Keynes' *General Theory*, while being more in line with Pigou's reasoning. In his *General Theory*, Keynes assumed money wages to be exogenously determined, through a bargaining process between employers and workers, and more or less rigid.<sup>15</sup> Furthermore, he assumed prices to be flexible, so that the price level and the real wage would be endogenously determined by the intersection point of the AD- and AS-curves.<sup>16</sup> His assumption of increasing marginal costs implied that an increase of effective demand would cause output, employment and the price level to rise, while the real wage would decline, which becomes evident from Figure 1.

In the *General Theory*, Keynes shows that in a situation of unemployment, there is no need of "deceiving the working classes into accepting a lower real wage" when demand increases, as Pigou thought, because the real wage exceeds the marginal disutility of labour (which is Keynes' definition of involuntary unemployment). In other words, the workers are off their supply curve; the labour market is the only market which is not cleared, and the workers wish to sell more of their labour power even at a lower real wage. Quite in contrast to the views of Pigou, Milton Friedman and numerous economists of our times, there is no "money illusion".<sup>17</sup> (It may be noted that non-clearing only of the labour market also contradicts "New Keynesian" theories, which seem to take Walras' Law for

<sup>15</sup> For a qualification on this point, see footnote 12.

<sup>16</sup> Robert J. Gordon has rightly pointed out that it is quite implausible, as Keynes does, to assume that wages (which constitute an essential element of marginal cost) are sticky while all other prices are perfectly flexible (GORDON 1990: 1153). But Keynes escaped from precisely this contradiction in his 1939 article. On the other hand, as Gordon (*ibid.*) also pointed out, it is just as implausible for money wages to be perfectly flexible while prices are sticky, as is assumed in much of the menu-cost literature.

<sup>17</sup> Keynes already emphasised this point in the *General Theory* (KEYNES 1964: 14-15), and even more strongly in his 1939 article (KEYNES 1939: 40). Here one may ask how the queue of workers is ordered. My answer is that workers are different even when they receive exactly the same wage (attained, for example, through collective bargaining). Such differences pertain to, for example, individual skills, dexterity, experience and reliability. Moreover, in practical life we can observe that workers are fired (after negotiations between trade unions and employers) according to the principle of Last-in-First-out, and/or older workers have to retire (with some remuneration) before they have reached their pension age.

granted and postulate that there must be excess demand in some market(s) if there is excess supply in one market.)

Here it should also be noted that, according to Keynes, the (downward) rigidity of money wages cannot be a cause of unemployment. A reduction of the money wage will, of course, imply a shift to the right of the AS-curve. But under the quite realistic assumption that wage earners' marginal propensity to consume is considerably higher than that of profit earners,<sup>18</sup> a reduction of money wages will imply a shift to the left of the AD-curve. Hence, both money wages and prices will fall. As a consequence, a process of debt deflation may be triggered off, whereas the impact on output and employment is, at best, quite unpredictable<sup>19</sup> (Keynes 1964: 257-271).

The combination of rising marginal costs and price rigidity in disequilibrium theories of the Malinvaud type was pointed out and criticised by Richard Kahn many years ago. Kahn noted that this combination "is the consequence of mixing assumptions about the shape of the cost curves and the degree of price flexibility which are inconsistent with one another. ... The whole notion of sticky prices based on the studies of the real manufacturing world to which Malinvaud refers early in his lectures, cannot be squeezed into the textbook notion of rising cost curves. *If, on the other hand, one wishes to justify the assumption of sticky prices by returning to reality, then one must assume constant or falling variable costs*" (Kahn 1977: 383. My italics).

Some three years later, Malinvaud published another book which may be considered as an implicit response to Kahn's criticism (Malinvaud 1980). In that book he introduces a capacity constraint, and he defines "Classical unemployment" as situations where full capacity output is lower than both effective demand and full employment output. On the other hand, he defines "Keynesian unemployment" as situations where effective demand is lower than both full capacity output and full employment output.

<sup>18</sup> Keynes makes this assumption in Chapter 19 of his *General Theory* (Keynes 1964: 262). Data from the United States indicates that the marginal propensity to consume of wage earners is about unity, whereas the marginal propensity to consume of profit earners including (retained profits of) business corporations is not higher than 0.2 (*cf.* ARENA 1965; SATO 1971; MOORE 1973). In a study of households (*i.e.* excluding retained profits in business corporations) in ten OECD countries, KOSKELA and VIREN (1984) found a marginal propensity to consume of wage earners of 0.58, and of business entrepreneurs of 0.30.

<sup>19</sup> This point is further elaborated in SKARSTEIN and SKONHOFT (1993, forthcoming).

This distinction is not compatible with Keynes' theory which assumes that full employment output approximately equals full capacity output, so that situations of unemployment in capitalist industrialised economies are also characterised by idle capacities. Even more significantly, Malinvaud's new definition of "Classical unemployment" has nothing to do with his original concept which hinges upon diminishing marginal productivity/rising marginal costs and the real wage rate, not upon a capacity constraint. In Malinvaud's new classification, the notion of "Classical unemployment" as an opposite to Keynesian unemployment, caused by a too high real wage rate, disintegrates.

The disequilibrium economists' theory of Classical unemployment rests on the very same shaky foundation as Pigou's theory. As soon as the assumptions of rising marginal costs and profit maximisation are abandoned and the empirical fact of short-term constant variable unit costs is accepted, "this alternative explanation must of course", to use Keynes' formulation, "fall to the ground". Assuming mark-up pricing, the supply curve in Figure 1a will simply be a horizontal line up to (near) full employment, and production and employment will in the short term be determined exclusively by effective demand. Classical unemployment becomes, as Richard Kahn states, "impossible".<sup>20</sup>

An important implication of the theory of Classical unemployment is that mass unemployment may be caused by too high real wages and not by deficient effective demand. Without much empirical reference, it has also been claimed that unemployment in the industrialised capitalist countries since the mid-1970s has, by and large, been Classical, and that the means to cure it is, therefore, not demand management (through fiscal and/or monetary policy) but *reduction of real wages*.<sup>21</sup>

But econometric studies do not support this argument. For example, a comprehensive study of 14 OECD countries over the period 1979 to 1984 showed that unequal growth of real wages or

<sup>20</sup> It should be noted that mark-up pricing does *not* imply that inflation at idle capacities and unemployment cannot exist. On the assumption of constant marginal costs and mark-up pricing it can be shown that inflation results from a distribution struggle between wage- and profits earners, in other words, class struggle in the economic sphere. This view is quite in line with the analyses of, for instance, Latin American structuralists. However, a discussion of this issue is beyond the scope of this paper.

<sup>21</sup> Most economic theories have, implicitly or explicitly, also a political purpose. The theory of Classical unemployment does not appear to represent any exception in this regard.

unequal real wage rigidity did not contribute significantly to the different rise of unemployment among countries. On the other hand, it turned out that different fiscal and monetary policies could explain virtually the whole difference in unemployment. This was also evident in a comparison between Western European countries and the United States:

"The results indicate that over the period 1979-84, differences in fiscal and monetary policy account for about 100% of the 3.3 percentage point increase in the gap between unemployment in Europe and the United States" (McCallum 1986: 949).

In other words, it was not, as many neoclassical/monetarist economists have claimed, "Eurosclerosis", *i.e.* wage rigidities, strong trade unions, high public expenditures etc., but quite to the contrary the governments' austere fiscal and monetary policies which caused the comparatively high growth of unemployment in many European countries in the early 1980s (MacCallum 1986: 957).<sup>22</sup>

## Conclusions

Keynes' great and epoch-making theoretical contribution was his *theory of effective demand*. In his *General Theory* he elaborated that theory in great detail – as the theories of money, finance and investment (with strong emphasis on uncertainty), the consumption function and the multiplier theory. His main theoretical innovation was to demonstrate that, in the short term, aggregate output and employment are determined by effective demand *alone*. After Keynes, no textbook in macroeconomics can avoid his theory, albeit in a revised and watered-down form.

<sup>22</sup> MacCallum compares his results with other studies on this issue. To the extent that these studies are comparable, they appear to give the same result. This applies, for instance, to a study by LAYARD and NICKELL (1985). On the other hand, advanced econometric methods do not seem to be required in order to show that unemployment is not "Classical". Economists who have their feet on the ground apparently only need to observe crude macro-data. Here I would like to draw attention to the Norwegian economist Odd Aukrust who made the point most succinctly and clarifying (AUKRUST 1984).

On the other hand, Keynes accepted and reproduced much of the neoclassical "supply-side" postulates in his *General Theory*. Towards the end of the 1930s, he faced empirically substantiated criticism on this point. As I have shown, in responding to this criticism he became quite sceptical about the neoclassical supply-side postulates. However, in the subsequent decades, the discussion between Keynes and his critics was not followed up by many of the economists who became most influential within macroeconomic theory.

In this paper I have tried to show that it is precisely the neoclassical remnants in *The General Theory* which lack an empirical foundation and which may give rise to ambiguities in interpretations of Keynes' theory. In spite of that, these postulates have enjoyed a safe existence in the mainstream macroeconomic edifice. On the other hand, Keynes' theory has faced increasingly stronger criticism from the neoclassical side for lacking a "microeconomic foundation", and most of the theoretical efforts by neoclassical, "New Keynesian" and "New Classical" economists have been to reconcile macroeconomics with the basic postulates of neoclassical theory, having Walras' Law as an indispensable corner-stone.<sup>23</sup>

The major premise underlying this research project is that Keynes' macroeconomic theory cannot be a "proper" (Frank Hahn) theory without having its "microeconomic foundations" in the neoclassical axiomatic-deductive system. In other words, neoclassical micro-theory is accorded superiority; and if Keynesian theory cannot be derived from or reconciled with these "microfoundations", it is no "proper" theory (cf. Rothschild 1988). On the other hand, advocates of general equilibrium theory admit frankly that "the 'equilibrium' story is one in which empirical work, ideas of facts and falsification, played no role at all" (Weintraub 1983: 37). Because of its lack of empirical anchorage, neoclassical theory appears as an idealistic, axiomatic-deductive system, as "model-Platonism" (Albert 1971).

<sup>23</sup> Suffice it to quote two prominent neoclassical economists: Frank Hahn: "... Keynesian economics ... is plainly in need of proper theoretical foundations" (HAHN 1977: 25). One may easily guess what meaning Hahn gives to the words "plainly" and "proper" in this context. E. Roy Weintraub: "... general equilibrium theory is coextensive with the theory of the microfoundations of macroeconomics ... There should be little argument about the proposition that some sort of revived, reconstituted general equilibrium theory is the only logically possible general link between microeconomics and macroeconomics" (WEINTRAUB 1977: 1, 19; my italics).

The mainstream discussion of supply-side problems, *i.e.* "microfoundations", in macroeconomics in recent years has been largely un-Keynesian by its emphasis on neoclassical postulates and its lack of empirical support. But even the most sophisticated formal models are of little help if empirical experience is disregarded. In order to make further progress, building on the best elements within the Keynesian tradition, macroeconomic theory should not be subjected to neoclassical dictates, but liberated from them. Instead of being based on *a priori* neoclassical axioms, it should be informed by reality.

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