KALECKI'S THEORY OF INCOME DETERMINATION: A RECONSTRUCTION AND AN ASSESSMENT[1]

ALBERTO CHILOSI
DIPARTIMENTO DI SCIENZE ECONOMICHE
SEDE DI SCIENZE POLITICHE
VIA SERAFINI 3 - 56126 PISA (ITALY)
E-MAIL: chilosi@sp.unipi.it

ABSTRACT

The paper considers the legacy for modern macroeconomics of Kalecki's theory of income determination. The latter is reconstructed in its analytical constituent parts referring in detail to the original sources. The critical appraisal of its historical relevance is made from the vantage point of the specific strain of contemporary New-Keynesian macroeconomics that is also based, after a long historical gap, on imperfectly competitive microeconomic foundations. Important elements of Kalecki's theoretical construction have been a lasting, even if usually unacknowledged, legacy to the toolkit of modern macroeconomics.

[1] Revised version of a paper originally written for the Kalecki Memorial Conference, Warsaw 1999. A shortened version will be published in the forthcoming book of proceedings (Sadowski and Szeworski, 2003). In the preparation of the present version I have taken advantage of useful remarks by Giuseppe Ciccarone and an anonymous referee.

INTRODUCTION

Kalecki's theory of income determination is notable for having been built, unlike Keynes', on imperfectly competitive foundations. This constitutes a clear advantage both under the profile of realism as well as of interpretative power. An imperfectly competitive framework most naturally leads to the issue of the incomplete exploitation of productive capacity, since an imperfect competitor is typically constrained in what he perceives to be able to trade. At the price he sets he would obviously like to trade more and, if he is a producer, only partially exploits his productive capacity. In the real world an imperfect competitor feels his sales, and his opportunities for profit, to be intrinsically constrained by insufficient demand, and tends naturally to believe that a policy increasing demand should improve the results of his business. This can contribute to form social support for expansionary policies.[2]

In the early post-war years the theory of income determination was usually formulated, following Keynes' lead, under the assumption of perfect competition.[3] This approach found its consecration in the so-called neo-classical synthesis that dominated the fifties and sixties. With the quest for the microfoundations of macroeconomics, which started at the end of the sixties, the appropriateness of building macroeconomic theory on imperfectly competitive foundations, with price-maker agents, was eventually rediscovered. According to Benassy's account of the evolution of macroeconomic theory, "after a slow start in the mid 1970s, the macroeconomics of imperfect competition has become an established and rapidly expanding field of research".[4] It is remarkable that this quote completely ignores Kalecki's pioneering contributions of the thirties. As a matter of fact, in Benassy's extensive anthology of the macroeconomics of imperfect competition (Benassy, 1995) Kalecki's name is mentioned only once (in Oliver Hart's path-breaking article of 1982). In the Dixon and Ranking 1994 survey on "Imperfect Competition and Macroeconomics" Kalecki is not even mentioned. In this paper we will address two questions: 1. Why was Kalecki's lead not

---

[2] On the other hand expansionary policies in context of "monopolistic markets" may simply lead to inflation rather than increased employment, as already expounded in the early thirties by Gunnar Myrdal, in the theoretical context of Wicksellian cumulative processes. Cf. Myrdal, 1933, pp. 444-454, and especially 450-452, corresponding respectively to pp. 143-158 and 153-154 of the 1939 English version.

[3] In the thirties imperfect competition played some role, besides Kalecki's macroeconomics, in Harrod's macroecoeconomic theoretical framework of his *Trade Cycle* (1936), where it was instrumental in deriving the "Law of the Decreasing Elasticity of Demand"(cf. in particular pp. 16-22).

[4] Benassy, 1995, p. xi.

followed and why did the imperfectly competitive foundations of macroeconomic theory become an established area of mainstream economic research only more than forty years after his first contributions in the area were published in the international arena? 2. What kind of relationship do the more recent macroeconomic models based on imperfectly competitive foundations have with Kalecki's theoretical framework, and in what do the assumptions and conclusions of more recent models differ from Kalecki's?

An additional objective of this paper is to present a reconstruction of Kalecki's theory of income determination that takes into account the various formulations through the evolution of his ideas, considering in a precise way the origin of the different building bricks, and discusses some of the crucial points. From this I will start.

KALECKI'S THEORY OF INCOME DETERMINATION[5]

The theory of profits

Two types of causal links

The logical structure of Kalecki's macroeconomic theory, which is instrumental for his explanation of the cyclical functioning of the economic system, implies a sequence of causal links of two different types, the one acting in historical, the other in logical time. The first leads to a disequilibrium process (the cycle), the second (which is formally a-temporal, since is exhausted in the same time period in which it takes place) to the determination of short-run economic equilibrium.

The first, which refers to the relationship between present time investment and previous investment orders, is based on three simplifying assumptions, allowing the determination of investment by investment orders with a time lag: 1. Investment needs a given temporal lag for completion; in other words the possibility of investment through the purchase (not corresponding to previous orders) of machines and other investment goods produced in the same time period is ruled out. 2. Investment orders are always fulfilled (there are no unforeseen slow-downs or accelerations in the construction of plants). 3. There are no unforeseen variations in inventories.[6] These simplifying assumptions, and the circumstance that investment decisions temporally precede investment, result in a causal link

[5] In this section I draw some arguments from my "Introduzione" in Chilosi (1979), and from Chilosi (1988).

[6] Indeed, inventories are assumed to be constant (cf. CWI, pp. 69 and 493).

whereby cause temporally precedes effect. It should be noted that the first assumption refers to technology, while the other two are equilibrium conditions.

On the other hand, the link between current investment and the other short run economic variables leads to the determination of the latter (investment orders among others) as a function of the former (investment), which is in the short run exogenous but is obviously endogenous in the theoretical set-up beyond the short-run. Investment decisions in turn constitute the final term of a causal chain that shows its effects in the present time, as well as the initial term of a causal link that extends into the future, as it leads to the determination of future investment.

Let us see now how the nexus between investment (exogenous in the short-run) and the other variables of macroeconomic equilibrium is explained.

Investment, investment orders and profits in macroeconomic equilibrium.

Kalecki's model of income determination can be split in two parts. In the first we have the theory of profits, where the latter, given a set of specific behavioural hypotheses, are functionally determined by current investment. As in the short-run the capital stock is exogenous, profits determine the profit rate and, from the latter, together with the size of the capital stock, investment orders follow.[7] In the second, "distribution factors" provide the link between profits, wages and national income.[8]

The first part of the theory is of special interest because of Kalecki's specific interpretation.

The relationship between profits (P) and investment (I) is:

(1) $$P = (a + I)/(1 - c),$$

[7] In principle, while the capital stock may well be taken as exogenous in the short run, its relative price, and therefore the profit rate for any value of profits, is not. One may not simply value the capital stock at historical or constant prices, since what matters for the determination of investment orders is the value of the profit rate at *current* prices. In order to overcome this difficulty one may resort to the usual simplification in macroeconomic models that only one good is produced, in the physical units of which everything can be measured. This is very un-Kaleckian, however, as Kalecki was not interested in model building *per se*, but in modelling for understanding reality. As in other instances, Kalecki's way out was empirical: in 38-39 Kalecki mentions the fact that the changes in the relative prices of consumer and investment goods "are in general small" since, even if the production of investment goods undergoes greater fluctuations and therefore "wage rates in investment goods industries might be expected to fluctuate more, due to stronger changes in employment ... this is not the case, because trade unions are strongest in the heavy industry." (Ibid, p. 251.)

[8] See *Theory of Economic Dynamics*, in CWII, p. 240.

where c is capitalist marginal propensity to consume and a their exogenous consumption. The equation is the consequence of two specific assumptions:

1. Capitalist consumption is a linear function of profits:

(2) $$C = a + cP.$$

An analogous linear consumption function for the whole economy is often assumed in macroeconomic theory. Kalecki's priority in this respect is notable, since this part of his theory dates back to 1933.

2. Workers consume what they earn, no more, no less. As a consequence capitalist saving is equal to investment. Since investment corresponds to the realization of previous investment orders, and capitalists consume along their consumption function, we have the equality between ex-post investment, intentional investment and intentional saving. Moreover profits (capitalist income) are equal to the sum of capitalist consumption and investment, which together are the outcome of capitalist decisions concerning consumption and investment. The first types of decisions are current, while the latter were taken in the past:

(3) $$P = C + I.$$

The causal interpretation of the relationship between investment and profits

Equation (3) is given a causal interpretation by Kalecki: "What is the significance of this equation? Does it mean that profits in a given period determine capitalist consumption and investment, or the reverse of this? The answer to this question depends on which of these items is directly subject to the decisions of capitalists. Now, it is clear that capitalists may decide to consume and to 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."[9]

As we have seen, in Kalecki's theory capitalist consumption and investment decisions, as well as workers' decisions to consume their wages, are supposed to be fully implemented, so that realized and intentional overall consumption and investment are exactly equal. Thus we have equilibrium in the goods market, given the hypothesis that production is equal to demand, as supply is "elastic"; this means production decisions are geared to satisfy current demand, whatever its level (at least until full capacity level is reached).[10] Moreover this takes place at constant prices: the implicit aggregate supply function is horizontal up to full capacity, which is usually never reached. This latter characteristic is founded, as we shall see in a moment, on the assumed behaviour of

[9] From *Theory of Economic Dynamics*, in CWII, pp. 239-40.

[10] Ibidem, p. 241.

imperfectly competitive firms and on the hypothesis of constant variable costs. This is the aspect of the theory that is of specific relevance from the vantage point of the microeconomic foundations. There are no microeconomic foundations, in the modern sense, in the theory of profits. The latter in fact is based on the short-run exogeneity of real investment and the assumption of a capitalist consumption function, closely resembling the theory of income determination through the static multiplier, later produced by Keynes in the *General Theory*.

In the above I have tried to clarify the aggregate theoretical setup and to make explicit some of Kalecki's implicit assumptions. It is worth stressing however that the above interpretation of equation (3) strictly depends on Kalecki's specific assumptions. Suppose for instance that, as seems more realistic, production is not made on demand, but in order to satisfy *expected* demand, and that this applies also to investment. As a consequence investment is *not* fully determined by decisions taken in the past and the production of investment goods is also undertaken to satisfy *expected* demand in the current period. Then capitalist earnings in eq. (3) do not depend on capitalists' actual investment and consumption decisions, but on their production decisions. The more they decide to produce, the greater the amount of profits that can be accounted for on their production, the greater the sum of their consumption and of their saving, and the greater the consumption of workers engaged in production. The part of national income that is not used for consumption is accounted for as investment (in plants, machines and inventories) and corresponds to capitalist saving. If, following Kalecki, the issue of "unexpected accumulation or running down of stocks", is belittled, as "the importance of this factor ... seems to have been frequently exaggerated",[11] we have a kind of Say's law, according to which production creates its own demand.[12] However, if one admits that parts of profits can be kept in money assets, instead of being (voluntarily) spent for investment and consumption purposes, this leads to the possibility of the build-up of unsold goods in the form of unwanted inventories, which is of substantial consequence for further economic developments, since we are out of equilibrium. It is clear at this stage that in Kalecki's theory the role performed by eq. (3) is not simply that of "an identity in the sense that it is fulfilled in all circumstances", although "*not* a tautology since it represents the exchange process operating on the market of investment and consumer goods".[13] Rather it derives from specific, and not completely evident,

---

[11] *Theory of Economic Dynamics,* in CWII, p. 240.

[12] On the issue of Say's law versus the principle of effective demand in Keynesian models, see Costa, 1979.

[13] Quoted from the *Essays in the Theory of Economic Fluctuations* (CWI, p. 253). This passage echoes Keynes' treatment in the *General Theory* (Keynes, 1936, p. 63: "the equivalence between the quantity of saving and the quantity of investment emerges from the *bilateral* character of the transactions between the

equilibrium assumptions. Of particular relevance is the hypothesis of the absence of unwanted inventories. Were the equation merely an accounting and not an equilibrium relation, no justification could be given to the capitalist consumption function, neither to the functional relation tying investment orders to (among others) profits.[14] An analogous remark applies to the conclusion, reached by subtracting capitalist consumption from both sides of (3), that investment is equal to capitalist saving and that "the rate of interest cannot be determined by the demand for and supply of new capital because investment 'finances itself'".[15] This is no wonder, since the rate of interest is neither included in capitalist consumption function nor in the investment function.[16] It is in general true, even if not particularly interesting, that any investment, as long as it takes place, is somewhat, voluntarily or involuntarily, financed by somebody and that aggregate saving, since it is what is left over from income after consumption, equals aggregate investment, as an accounting quantity (including therefore unintentional investment in inventories, or, in other terms, unsold goods). In Kalecki's special framework the above equations refer both to accounting and to intentional variables and therefore the flow of voluntary saving is equal to that of intentional investment.[17]

The causal structure of Kalecki's short-run macroeconomics

As we have seen, the above, self-contained, part of the theory has the task to determine profits and capitalist consumption, given investment decisions taken in the past and implemented in the present. What is required at this stage is to determine: 1. Investment decisions. 2. The complement to profits in national income, this means wages, and therefore national income itself. The level of the latter, in turn, determines employment.

A part of the theory that is structurally independent from the determination of profits has the task to explain, through the "degree of monopoly", the "distribution factors", namely in the end the

---

producer on the one hand and, on the other hand, the consumer or the purchaser of capital equipment"), but is in broad agreement with the approach of Kalecki's earlier works before 1936. In *The Theory of Economic Dynamics* the treatment is less clear-cut, but not devoid of the same ambiguities (see CWII, p. 244).

[14] Cf. the discussion of the different formulations of Kalecki's theory of investment in Chilosi (1979), pp. 30-38.

[15] Kalecki, *Theory of Economic Dynamics* (1954), in CWII, p. 244.

[16] On the rate of interest and monetary factors in Kalecki's macroeconomics, see the thorough discussion by Sawyers (2001).

[17] For a thorough discussion of the issue of the relation between accounting and intentional saving and investment in macroeconomic theory, see Lipsey (1972) and the literature quoted there.

distributive shares, and thus, given profits, to arrive at the determination of the level of national income. The causal structure of Kalecki's macroeconomic theory becomes clear at this stage -- everything, in the short run, is hierarchically determined by investment, according to the following scheme:

(4) $I(t) => P(t)$: $P(t) = (I(t) + a)/(1 - c)$

(5) $P(t) => Y(t)$: $Y(t) = P(t)/(1 - w)$

(6) $P(t) => D(t)$: $D(t) = D(P(t), K(t))$

(7) $D(t) => I(t+1)$: $I(t+1) = D(t)$,

where w is the share of wages in national income, which is obtained through the consideration of the "degree of monopoly" and of "distribution factors" (salaries are included, in the first formulations, in profits), D investment orders and K capital (exogenous in the short run). We may note that (4) derives from the solution of the subsystem given by equations (2) and (3), where the interdependence between capitalist consumption and profits, given investment, is established.[18]

---

[18] As well known, the constituent parts of Kalecki's theory have undergone continuous reformulation, and therefore the successive versions differ. In the text above I have presented Kalecki's model in its simplest and most straightforward form. In this footnote I report the sources of the above four equations and their transformation through the main stages of the evolution of Kalecki' theory. (The issue of the determination of w and of the "distribution factors" will be considered in the following section.) (4) can be found in *Próba Teorii Koniunktury* (1933: in CWI, p. 69). One may arrive at the same equation through a linear specification of capitalists' (and salary earners') consumption function that was formulated in general form in the *Essays in the Theory of Economic Fluctuations* (1939; in CWI, p. 265). In *The Theory of Economic Dynamics* a temporal lag between profits and capitalist consumption is introduced. Thus the equation becomes: $P(t) = (I_{t-\omega} + a)/(1 - c)$, where ω is a temporal lag (1954; in CWII, p. 248). (5) is taken from *Essays* (CWI, p. 258). In 1954 it changes into $Y(t)=B/(w-\alpha)$, where B and α are constants and w is here the share of wages and salaries together in national income. This formula may be derived by supposing that the sum of wages and salaries together is a linear function of national income (CWII, pp. 236-237). (6) is based on *Próba* (cf. CWI, pp. 69 and 176). In 1939 investment decisions are considered as a function of income: D(t)=f(Y(t)), (*Essays,* in CWI, p. 310), which, in its turn, is a function of current investment (ibid, p. 259). The more complicated 1954 formulation is: $D=aS+b\Delta P/\Delta t-c\Delta K/\Delta t+d$, where in this case D are investment decisions, S gross saving, and a, b, c, and d are constants (CWII, p. 283). (7) is based on *Próba* (CWI, p. 77), on *Essays* (p. 126) and on the 1954 formulation (CWII, p. 281), taking as a time unit half plants'

The distribution factors and the "degree of monopoly"

Two important aspects of Kalecki's theory remain to be discussed:

The first refers to the determination of investment orders. This is essential for the theory of the cycle, but is unimportant for short-run equilibrium, since in the short run investment is exogenously determined by investment orders taken in the past. I will therefore not consider this aspect.[19]

The second is the determination of the share of profits in national, as we are going to show, to the more modern macroeconomic theories based on imperfectly competitive foundations The explanation of the L-shaped aggregate supply curve is also a related feature.

The share of profits in national income[20]

In 1933 the determination of the share of profits in national income was based on an aggregate relationship between the degree of utilization of productive capacity *Y/K* and the profit margin *P/Y*. This relationship was derived from the assumed positive functional relationship between the rate of utilization of productive capacity *Y/K* and the rate of profit *P/K*. Because, tautologically, *P/K = P/Y K/Y*, both *K/Y* and *P/Y* are considered to be a function of *P/K*. Since in any period *K* is given (from the past) and *P* is determined by *I*, which in turn is determined by past investment orders, this determines the degree of utilization or productive capacity Y/K, and the average profit margin P/Y, and thus the profit share in national income. Given P this leads to the determination of national income.[21] In the 1933 theory we already have a number of features that we will encounter in later formulations: 1. The profit margin provides the link between the theory of profits and the theory of distribution and of national income determination. 2. The (implicit) assumption of L-shaped cost

---

construction time, which makes up the horizontal distance between the curve of investment decisions and that of investment.

[19] For a consideration of Kalecki's theory of investment decisions (which is based on his principle of increasing risk) in the light of modern developments in the non-perfectly competitive approach to the theory of credit markets, and asymmetric information, see Mott (1998). A discussion by the present author of the principle of increasing risk and of its historical roots is contained in Chilosi (1982).

[20] I concentrate on the versions of the "distribution factors" of the thirties for two reasons: 1. Being coached in the framework of the theory of imperfect competition, *cum* profit maximization, of the thirties, they share a good deal of the basic theoretical background of modern imperfectly competitive macroeconomic models. 2. They seem preferable to the hazier and more arbitrary versions of the later years. But of course the last point is a matter of taste.

[21] For a detailed discussion of the 1933 theory see Chilosi, 1989, pp. 105-106.

functions.[22] However we do not yet have a theory based on firms' imperfectly competitive behaviour.

In 1938-39 the theory of distribution is based on two cornerstones:

1. The assumption of L-shaped cost curves. 2. The hypothesis that the average "degree of monopoly" (where the latter is given by "ratio of the difference between price and marginal cost to price",[23] and is equal to the reciprocal of the elasticity of demand under imperfect competition, as a consequence of the equality of marginal revenue and marginal cost) is a constant, since it is a reflection of the competitive structure of the economy and does not change unless there is a change in the latter.[24] The constancy of the average degree of monopoly implies the constancy of the share of gross profits (together with overheads, which may be disregarded at first approximation) in national income, and, conversely, the constancy of the share of wages, conforming to the empirical regularity known as "Bowley law", that was very popular in the thirties.

Even if the above does not exactly correspond to the more articulated (and somewhat muddled) formulation of the theory of Kalecki in '38-'39, where the cyclical patterns of raw material costs also enter the picture, it seems to me a convenient simplification which does not betray the spirit of the theory.[25]

If one of the above two elements is not present, the conclusion does not hold. If the elasticity of demand (and therefore "the degree of monopoly") changes with the change in demand (and production) for any given price, the L-shaped cost curve does not bring about the perfect elasticity of the supply curve up to full capacity output. Conversely, even if the demand curve of the representative firm shifts isoelastically, in correspondence to the new equilibrium price, so that the average degree of monopoly remains constant, the aggregate supply curve cannot be L-shaped when the variable cost curve is not.

The importance of the L-shaped supply curve and of the constancy of the degree of monopoly lies in the closure of the theory it provides.[26] In general, the degree of monopoly (i.e. the inverse of the elasticity of demand) is equal to the ratio of gross profit to price on the last produced unit only. Thus

---

[22] Cf. ibidem, p. 106.

[23] In CWI, p. 239.

[24] As well known, in the later versions the marginalistic connotations of the "degree of monopoly" are abandoned, together with the hypothesis of profit maximization by firms.

[25] On the relevance of the assumption of L-shaped cost curve see Chilosi, 1989.

[26] The relevance of the assumption of the L-shaped prime cost curves in Kalecki's theory of distribution is stressed by Kaldor (1980 [1955-56], p. 224).

it cannot be used to determine the distribution of net income between wages and profits (supposing, for simplicity, that labour is the only variable input). However, if it is constant for any level of production and the (average and marginal) variable cost curve of the representative firm is horizontal up to full employment, the degree of monopoly gives the share of gross profits in the total value of production. Therefore, if the level of profits is given (by the theory of profits), the constant degree of monopoly and the L-shaped cost curve make it possible to determine the share of wages in national income, and thus to arrive at the determination of the level of national income and production.

If intermediate inputs and raw materials are considered, the change in the relative price of the latter alters the share of wages in national income for any level of the degree of monopoly. But "the fluctuations in the prices of 'basic raw materials' in relation to wage costs, though strong, are ... only slightly reflected by changes in manual labour's relative share".[27] Moreover there is a tendency in the trade cycle for the degree of monopoly to move in an opposite direction to the relative price of raw materials. As a consequence "in the business cycle there seems to be a steady tendency for the conflict of these two forces to keep the fluctuations in relative share of manual labour within narrow limit."[28] The L-shaped aggregate supply curve that is implicit in the above means that increases in income and employment must not be accompanied by a decrease in real wages (contrary to what is the case in the *General Theory*).

Kalecki's thesis of the countercyclical behaviour of the degree of monopoly has been vindicated by recent theoretical as well as empirical studies. In Bils (1987), who quotes Kalecki, the countercyclical behaviour of the degree of monopoly is offset by the tendency to pro-cyclical behaviour of labour costs, due in particular to the greater use of overtime during booms, so that (p. 838) "output price fails to respond to the cyclical movement in marginal cost". Kalecki's contention that during recessions oligopolies behave more collusively than in booms, defending profit margins, also finds theoretical justification in a game-theoretical framework (see Rotemberg and Saloner, 1986). (For a synthesis of this and other theoretical considerations that explain a countercyclical behaviour of the degree of monopoly, see Stiglitz, 1984.)

---

[27] Ibidem, p. 246.

[28] Ibidem, p. 247.

The 1936 formulation of the theory of income determination

In the formulation of the theory of income determination contained in Kalecki's 1936 review article to the *General Theory*[29] we have the grafting of the 1933 theory of profits on the behaviour of the representative imperfectly competitive firm, where, unlike Kalecki's later contributions, no assumption of constant variable costs is made. Instead the cost functions of firms are the usual U-shaped ones. This raises some questions as to the compatibility of the macro and micro equilibrium conditions, since there is no apparent mechanism leading to their simultaneous satisfaction. The theory of profits determines profits as a function of investment. At the same time profits are also given by the sum of the areas between the marginal revenue and marginal cost curves facing the imperfectly competitive firms. Thus, there is no guarantee that a configuration of marginal cost and marginal revenue curves exists such that the sum of the relevant areas adds up to the required level of profits, leading to the satisfaction of the microeconomic equilibrium conditions. If however the supply curve of the representative firm is horizontal and the degree of monopoly constant, the solution to the problem becomes trivial: investment determines profits and the latter unambiguously determine the size of the area between the supply curve and the cost curve.[30] Thus the level of production and the distribution of national income are unequivocally determined. At the same time, given profits, wages are given because the "distribution factors" (the degree of monopoly) are given, and the sum of profit and wages is equal to aggregate demand. The price level is independent of the level of effective demand and we have, unlike in the *General Theory*, a true "fixprice" economy.[31] We may thus understand the logical foundation (which accompanies that derived from the empirical study of statistical data) of Kalecki's later theory of distribution factors. The relevance of this issue may also explain the elaborate theoretical and empirical research[32] leading to the justification of the L-shaped supply curve at the industry level in Kalecki (1939-40).[33]

---

[29] See CWI, pp. 223-232. Originally it was published in Polish in the main periodical of Polish economists (*Ekonomista*).

[30] It must be stressed however that the above assumptions, leading to a horizontal supply curve, even if they simplify matters considerably, are not necessary conditions for the compatibility between micro- and macroeconomic equilibrium.

[31] This at least if money wages do not change. If money wages change the price level changes too, but still the distribution factors govern the relationship between profits and wages.

[32] Discussed at length in Chilosi, 1989.

[33] "The Supply Curve of an Industry under Imperfect Competition", *Review of Economic Studies*, 7 (1939-40), 2, pp. 91-122; in CWII, pp. 51-78.

The above considerations are not explicitly made by Kalecki, but they may be seen to be implicit in the logical development of his research.

WHY KALECKI'S LEAD IN BUILDING A MACROECONOMIC THEORY BASED ON IMPERFECTLY COMPETITIVE FOUNDATIONS WAS NOT FOLLOWED FOR SO LONG

It is rather puzzling that for more than forty years after Kalecki had adopted a more realistic imperfectly competitive approach his lead was not followed, and the mainstream[34] macroeconomic theory of income determination continued to be based, somewhat incongruously, on the hypothesis of perfect competition. What were the reasons? The most trivial one is that modeling imperfect competition is in general more complicated than modeling perfect competition. Another is that, if an underemployment equilibrium exists in the case of perfect competition, it could be presumed that it would exist even more under imperfectly competitive conditions, that is much further away from the Walrasian model. But this is not the end of the story. There are a few more specific reasons, which may be conjectured:

1. Kalecki's theory of income determination is intrinsically embedded in his theory of the trade cycle. This may have misled the readers who would not immediately perceive that Kalecki had an alternative income determination theory that could be considered separately from his trade cycle theory. While the Keynesian trade cycle theory appeared after the *General Theory*,[35] Kalecki's appeared before the latter, and this obscured his achievement as far as the theory of income determination is concerned. Paradoxically, one may maintain that on this account Kalecki was belittled because he went further too soon.[36]
2. Some of Kalecki's most relevant contributions of the thirties were not later republished in the parts where their imperfectly competitive foundations are expounded. In particular, his original presentation of the theory of income determination based on imperfectly competitive foundations, contained in his review article of the *General Theory,* remained unknown and untranslated in the West until 1979.[37] Its basic framework was incorporated in his 1937 version

[34] I am not considering here post-Keynesian theorizing, which has been heavily influenced, in particular, by Kalecki's theory of profits.

[35] In case of Harrod (1936) immediately after.

[36] Cf. Osiatynski's considerations on this point in CWI, p. 466.

[37] It was translated and commented for the first time in Chilosi (1979).

of trade cycle theory, but not highlighted as an autonomous contribution.[38] Moreover Kalecki later repudiated all the parts of his theory that were explicitly based on maximizing behaviour, albeit in an imperfectly competitive framework, and which, because of this, could better appeal to "mainstream" macroeconomic theorists. Those parts were never included in the re-editions of his selected works that took place in his lifetime.[39] Thus, the development of Kalecki's non-competitive framework did not provide a suitable background for the more modern mainstream macroeconomic theorists who were building on imperfectly competitive foundations.

3. The strict dichotomy between workers, who consume everything they earn, and capitalists, who save a constant part of their incomes, while complicating the model of income determination does not really appeal to our times, since it hardly corresponds to the complex social structure of modern industrial societies. Manual workers, to the determination of whose share in national income (in conformity with Bowley's law) the 1938-39 theory of distribution factors was geared, are more and more a smaller and decreasing share of the labour force. Unlike the supply curve, the theory of profits, which was an essential part of his theory of income determination to which Kalecki gave particular emphasis, is unrelated to the competitive structure of the economy.
4. The introduction of imperfect competition in macroeconomic theory follows as a theoretical development from the initial quest for the microeconomic foundations of macroeconomic theory that started at the end of the sixties, and focused during the seventies on the so-called non-Walrasian models. Thus the genesis of imperfectly competitive based macroeconomic models seems to follow the intrinsic logic of development of the theory rather than being inspired by suggestions from the past. Moreover the more recent development of imperfectly competitive founded macroeconomic models is highly dependent on the analytical framework provided by Dixit and Stiglitz in 1977, with the use of the two-tier utility function,[40] which snugly leads to the formalization of the imperfectly competitive structure of an economy with isoelastic demand

---

[38] "A Theory of the Business Cycle", *Review of Economic Studies*, 1936-37, pp. 77-97; reprinted in CWI, pp. 529-557.

[39] It is also notable that in those re-editions Kalecki carefully suppressed all occurrences of the term "equilibrium" and all the references to Keynes. On this point see Chilosi (1989), p. 118.

[40] Typically a homothetic, often specified as a Cobb Douglas (see in particular Weitzman, 1985, p. 938; Blanchard and Kiyotaki, 1987, p. 649) separable function of a homothetic, typically CES (as in Weitzman,1985; Blanchard and Kiyotaki,1987), function of a set of imperfectly substitutable goods and real money balances. A further argument of the utility function may (as in Blanchard and Kiyotaki,1987) or may not (Weitzman,1985) be leisure.

functions. This certainly constitutes a more powerful theoretical instrument for rigorously pursuing Kalecki's search for the determination of the equilibrium of an industry and of an economy under imperfectly competitive conditions, than the tools available to Kalecki in the thirties.[41] In the next section we will compare the overall theoretical results.

THE IMPERFECTLY COMPETITIVE NEW-KEYNESIAN MACROECONOMIC MODELS AND KALECKI'S MACROECONOMIC THEORY

Even if the new imperfectly competitive macroeconomic models are based on more complex analytical foundations, they present considerable similarity—albeit usually not acknowledged—with specific aspects of Kalecki's theoretical framework, which have by now become so ingrained in the toolkit of modern economics to lose the original Kaleckian connotations. This applies in particular to the use in a macroeconomic context of Lerner's notion of the degree of monopoly and the constancy of the latter in the short-run, as resulting from isoelastic and isoelastically shifting demand curves.

Without going into technical details let us see what the main conclusions of those models are and what relations they bear with Kalecki's.

The various contributions differ in assumptions and in model construction, but the basic conclusions are the following:[42]

1. Imperfect competition in the goods market leads per se to various degrees of underutilization of resources (in particular labour). This is hardly surprising: it is a simple generalization in a general equilibrium framework of what could be very simply shown in a representative firm context.[43] But, unless there are some rigidities, there is no involuntary unemployment. In case of imperfect competition in the labour market there is involuntary unemployment, however (and this is a also straightforward generalization of what could be argued in partial equilibrium). In Kalecki the emphasis is on underutilization of resources and unemployment, not because of imperfection of competition, but because of insufficiency of effective demand.

---

[41] Needless to say, the use of utility functions to derive demand functions would have been most un-Kaleckian in any case.

[42] It must be stressed that these conclusions refer specifically to those new macroeconomic models that are based on imperfectly competitive foundations, such as, for instance, the widely referred one by Blanchard and, Kiyotaki (1987).

[43] Cf. Dixon and Rankin, 1994, p. 194; Ardeni et alii, 1996, pp. 61-62.

2. Monetary policy aimed at increasing effective demand may or may not lead to an increase in income and employment depending on the existence or absence of some kind of rigidities. Imperfect competition per se does not lead to Keynesian (Kaleckian) results, but rigidities that do not lead to Keynesian results in the perfectly competitive framework (such as those arising from menu costs), lead to Keynesian conclusions under imperfect competition. This seems puzzling since one would expect that monetary expansion would in any case raise the demand curve for the representative producer, bringing about an increase in production. But this does not happen unless, because of some sort of nominal rigidity, the cost curves are not shifted upward in the same proportion.[44] (One can reason in this respect on the basis of the graphical presentation of the representative imperfectly competitive producer equilibrium, as in Kalecki's model of his 1936 review article on the *General Theory.*)
3. Expansionary fiscal policy may or may not lead to an increase in employment and effective demand, depending on the concrete specifications of the model.[45]

Despite some differences, the role of nominal rigidities in generating unemployment equilibria does not seem to differ much in case of presence or absence of imperfect competition. In the fix-price traditional Keynesian models of the Keynesian cross and of the Hicksian IS-LM framework the rigidities were nominal. The fix-price assumption certainly corresponds better to the Kaleckian framework of the horizontal aggregate supply curve, with constant variable unit cost and constant markup, than to the perfectly competitive framework of the *General Theory*. In the latter an increase in employment was accompanied by an increase in price level and a decrease in the real wage. In the *General Theory* the relevant rigidity was that of the *nominal* wage rate (even if it has been much debated whether this was really the essential point). In other terms, employment could increase only as long as workers were victims of money illusion.

In Kalecki the relevant rigidities leading to involuntary unemployment equilibria are rather of a real nature and can be found in the theory of profits, in the exogeneity of *real* short-run investment and in the constancy of the degree of monopoly, which is supposed to be given by the conditions of competition only, which are unaffected by, or do not systematically respond to, monetary shocks.[46]

---

[44] See Dixon and Rankin, 1994, p. 178. This would happen, in particular, if workers are "fooled" by unanticipated monetary expansion.

[45] A model where the use of fiscal policy is not empowered to bring about higher employment and effective demand is for instance that of Snower (1983).

[46] According to Mott (1998, p. 264), the real rigidity that matters in Kalecki is the "price-cost mark-up rigidity".

Indeed, monetary shocks cannot affect either real capitalist consumption (which depends on real profits only and is independent of private wealth) or investment, which depends on past decisions that are unaffected in any case by monetary factors. A decrease in wages, given a constant degree of monopoly, results in a corresponding decrease in prices. If the level of investment is assumed to be given in real terms this leads to a reduction in nominal profits and constancy in the level of real profits. Thus, national income and employment remain unchanged. On the other hand, the same considerations lead to a different result than that mentioned above in the framework of the imperfectly competitive New-Keynesian models, as far as fiscal policy is concerned: in Kalecki there is no crowding out by assumption (since monetary factors do not matter) and public expenditure adds to private expenditure, arbitrarily increasing national income up to the assumed full employment level, provided at least that it is not financed through wage income or wage goods taxation.[47]

CONCLUSION: AN ASSESSMENT OF KALECKI'S CONTRIBUTION TO MODERN MACROECONOMICS

Kalecki's theory of income determination is notable for linking the theory of distribution, on the one side, and the theory of income determination, on the other. The theory of income distribution is based, notwithstanding the sometimes heroic simplifications on which it rests, on the basic idea that the structure of distribution in a market economy depends on the structure of market imperfections and of market power. This is an important idea which leads to a deep understanding of the way the capitalist economy actually works and which constitutes a lasting contribution to modern economics. Another important idea which can be derived in Kalecki's theoretical framework is that by reducing the extent of market power and market imperfections it is possible to increase, ceteris paribus, the level of national income and of employment. Indeed, in his theoretical framework, for any given level of profits, determined by the exogenously given (in the short-run) level of investment, the lower is the degree of monopoly, the greater is the level of employment and national

---

[47] For fiscal policy in Kalecki the primary reference is to his "Theory of Commodity, Income and Capital Taxation", *Economic Journal*, vol. 47, n. 3, 1937, pp. 444-50; reprinted in the slightly modified 1971 version in CWI, pp. 319-325. The article is rather muddled as to the treatment of profit taxation (see Asimakopolous' remarks reported in CWI, p. 562). In particular, to prove the expansionary impact of expenditure financed by profit taxation some kind of balanced budget multiplier argument would have been required. Instead Kalecki assumes, rather incongruously given his hypotheses, the independence of capitalist consumption expenditure from profit taxation in the short run, with the effect of making capitalist consumption a function of gross and not of net profits, and therefore unaffected by taxation.

income, and the greater the share of wages in national income. This contributes to the rationale for keeping market power in check with anti-trust legislation and easing the restrictions on access to markets, while increasing the extent of the latter.[48]

Important pieces of his theoretical construction, such as the basic idea of building the theory of income determination on imperfectly competitive foundations, the implicit assumption of the isoelastic transposition of demand curves and his use of the notion of the degree of monopoly have been a lasting legacy to the toolkit of modern economics in general and modern macroeconomics in particular.

However, the idea that by increasing demand real income can increase up to full employment without adverse inflationary consequences may have corresponded to the conditions of the thirties, but certainly not to those of more recent times. There seems to be a wide consensus today (apparently not shared by the more extreme rational expectation monetarists only) as to the fact that with expansionary policies there is in general a tendency in the short run both for inflation and national income and employment to rise, but the subsequent costs of the process in raising inflationary expectations *may* not be worth the short-run increase in employment. At the same time, the rise in inflation may not occur if on the supply side there are forces such as increasing returns, fast technical progress, ongoing market liberalization and increasing international competition ("globalization") that lead to elasticity of supply.[49] Moreover, because of hysteresis, greater short-run price stability may bring about increased long-run unemployment (possibly the European case), and this choice may likewise be considered as objectionable. Policy makers and the public cannot be content to be concerned with the consequences of their actions in the short run only, since in the long run, and especially in the middle run, "we are *not* all dead", even if policy makers themselves, though alive, could by then have been voted out of office.

These same considerations point to some practical futility of what seems to be the basic theoretical mover in the construction of imperfectly competitive new-Keynesian models, namely the issue of whether the introduction of imperfect competition *per se* brings about the existence of involuntary

---

[48] For instance, in a Kaleckian perspective one should have favoured the European Monetary Union, if this were eventually to lead to greater competition and lower degree of monopoly. The abdication of autonomous monetary policies by the single European states would not matter, since in his theoretical framework monetary factors are of no importance. A different consideration would obviously apply to the limitations on budget deficits envisaged by the Maastricht criteria.

[49] A good case in point may be the expansion of the American economy under the Clinton presidency. An enlightening non-technical discussion of related arguments can be found in Solow and Taylor, 1998.

unemployment, even under rational expectations. The answer to this question is negative, but however turns out to be positive if some kinds of monetary rigidities (such as menu costs) are considered. This seems of interest if seen in the framework of the ongoing theoretical debate of Keynesians (New- or otherwise) against Monetarists but of little relevance for understanding the issues of macroeconomic policy in a real world, inevitably full of rigidities and imperfections, especially of an informational nature, where the existence of involuntary unemployment is a simple fact of life, but where the simple existence of unemployment cannot be considered *per se* a justification for Keynesian (Kaleckian) policies.

In contrast, Kalecki was always much concerned, in his theoretical constructions, with burning real world policy issues. Yet his basic message, that demand creation by governments could provide the solution to the unemployment issue, a solution which in capitalist economies would remain unimplemented in practice for the political difficulties it implies,[50] has proved of non-lasting value, aside from its continuing ideological impact. Moreover, the idea that inflation pertains only to the realm of distribution and that it is in any case associated with the full utilization of productive capacity and full employment, as conveyed in particular by his 1955 treatment of hyperinflation,[51] conveys a potentially dangerous message. (This is especially borne out by his conclusion that hyperinflation would eventually be stopped merely because of the impossibility of further squeezing the incomes of the rentiers, and not because of its disruptive consequences on all aspects of the functioning of a market economy.) There are plenty of examples where inflation has been accompanied by heavy unemployment and low utilization of productive capacity, even by negative growth rates. Kalecki was writing well ahead of the stagflationary experiences of the seventies, which have contributed to deeply changing our appraisal of inflationary phenomena, but he should

---

[50] On this point see in particular his famous 1943 contribution founding the concept of a political business cycle ("Political Aspects of Full Employment", in CWI, pp. 347-356).

[51] In CWII, pp. 90-95. It is interesting to note that a similar remark could be addressed to the usual textbook presentation of the natural rate of income and unemployment. If the Phillips curve is depicted in a monetarist perspective as a vertical line corresponding to the natural unemployment level, and money is considered a simple veil, inflation, being perfectly expected, has no real consequences. In order to graphically convey the idea that high inflation has negative real consequences, even if it is perfectly expected as an average (so that there are no systematic errors of forecast, conforming to the rational expectations paradigm), the vertical Phillips curve should be made to bend rightwards after a certain level, because of the increasing natural rate of unemployment corresponding to decreasing (possibly negative) productivity growth.

have witnessed the disruptive consequences of the hyperinflationary experiences of the twenties. However he was deeply affected by the deflationary experience of the thirties, and this was the challenge his intellectual power was addressing. One cannot really blame Kalecki for having been a man of his times.

REFERENCES

Ardeni, Pier Giorgio, Andrea Boitani, Domenico Delli Gatti and Mauro Gallegati, "La «nuova economia keynesiana»: risultati e problemi aperti". In: Marcello Messori (ed.), *La nuova economia keynesiana*. Milano: Il Mulino, 1996, pp. 49-144.

Bénassy, Jean-Pascal (ed.), *Macroeconomics and Imperfect Competition*. Aldershot: Edward Elgar, 1995.

Bils, Mark, "The Cyclical Behavior of Marginal Cost and Price", *American Economic Review*, vol. 77, 1987, n. 5, pp. 838-855.

Blanchard Olivier Jean, and Nobuhiro Kiyotaki, "Monopolistic Competition and the Effects of Aggregate Demand", *American Economic Review*, Sept. 1987, pp. 647-666.

Chilosi, Alberto (ed.), *Kalecki: Antologia di scritti di teoria economica*. Bologna, Il Mulino, 1979.

Chilosi, Alberto, "Breit, Kalecki, and Hicks on the Term Structure of Interest Rates, Risk and the Theory of Investment". In Mauro Baranzini (ed.), *Advances in Economic Theory*. Oxford: Basil Blackwell, 1982, pp. 8O-89.

Chilosi, Alberto, "Nessi e Interpretazioni causali nella macroeconomia di Kalecki", *Quaderni di Storia dell' Economia Politica,* 1988, pp. 361-370.

Chilosi, Alberto, "Kalecki's Quest for the Microeconomic Foundations of his Microeconomic Theory", in: M. Sebastiani (ed.), *Kalecki's Relevance Today.* London: McMillan, 1989, pp. 101-120.

Costa, Giacomo, "Il 'principio della domanda effettiva' è la legge di Say?", *Rivista di Politica Economica,* vol. LXIX, n. 2, February 1979, pp. 169-195.

Dixit, Avinash and Joseph Stiglitz, "Monopolistic Competition and Optimum Product Diversity" *American Economic Review*, 67(3), June 1977, pp. 297-308.

Dixon, Huw and Neil Rankin, "Imperfect Competition and Macroeconomics: A Survey", *Oxford Economic Papers*, 46 (1994): 171-199.

Harrod, Roy F., The Trade Cycle : An Essay. Oxford: Clarendon Press, 1936.

Hart, Oliver, "A Model of Imperfect Competition with Keynesian Features", *Quarterly Journal of Economics*, February 1982, pp. 109-138.

Kaldor, Nicholas, "Alternative Theories of Distribution". *Review of Economic Studies,* vol. XXIII, no. 2, 1955-56; reprinted in Nicholas Kaldor, *Essays on Value and Distribution,* sec. ed., London: Duckworth, 1980, pp. 209-236.

Kalecki, Michal, *Collected Works of Michal Kalecki. Vol I, Capitalism:Business Cycles and Full Employment* (edited by Jerzy Osiatynski), Oxford: Clarendon Press, 1990 (CWI).

Kalecki, Michal, *Collected Works of Michal Kalecki. Vol II, Capitalism: Economic Dynamics.* Oxford: Clarendon Press, 1991(CWII).

Keynes, John Maynard, *The General Theory of Employment, Interest and Money.* London: McMillan, 1973 (1936)

Lipsey, R. G., "The Foundations of the Theory of National Income: An Analysis of Some Fundamental Errors", in: Maurice Peston and Bernard Corry, *Essays in Honour of Lord Robbins*. London: Weidenfeld and Nicolson, 1972, pp. 3-42.

Mott, Tracy, "A Kaleckian View of New Keynesian Macroeconomics". In: Roy J. Rotheim (ed.), , *New Keynesian Economics/Post Keynesian Alternatives.* London: Routledge, 1998, pp. 262-272.

Mott, Tracy, "In what sense does Monopoly Capital Require Monopoly?" in John Davis (ed.) *The Economic Surplus in Advanced Economies*. Aldershot: Edward Elgar 1992, pp. 114-129.

Myrdal, Gunnar, "Der Gleichgewichtsbegriff als Instrument der geldtheoretischen Analyse". In: Friedrich A. Hayek (ed.), *Beiträge zur Geldtheorie*. Wien: Verlag von Julius Springer, 1933, pp. 360-487.

Myrdal, Gunnar, *Monetary Equilibrium*. London: William Hodge & C, 1939.

Rotemberg, Julio J. and Garth Saloner, "A Supergame Model of Price Wars during Booms". *American Economic Review*, vol. 76, 1986, no. 3, pp. 390-407.

Sadowski, Zdzislaw and Adam Szeworski, *Kalecki's Economics Today.* London: Routledge, forthcoming in September 2003.

Sawyers, Malcom, "Kalecki on Money and Finance", *European Journal for the History of Political Economy*, 2001, vol. 8, no. 4, pp. 487 - 508.

Snower, Dennis J., "Imperfect Competition, Underemployment and Crowding-Out", *Oxford Economic Papers*, 35, 1983, pp. 245-70.

Solow, Robert M., and John B. Taylor, *Inflation, Unemployment, and Monetary Policy*. Cambridge: MIT Press, 1998.

Stiglitz, Joseph E., "Price Rigidities and Market Structure". *American Economic Review*, 74, 1984, 2, pp. 350-355.

Weitzman, Martin L., "The Simple Macroeconomics of Profit Sharing", *American Economic Review,* 75 (1985), 5, pp. 937-953.