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Effective demand, investment and dynamics: The relevance of Kalecki for macroeconomic theory

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Abstract

Mainstream Macroeconomics has withdrawn completely from its remote origins in Keynes and Kalecki, replacing the principle of effective demand (P.E.D.) with supply economics, investment with savings, and dynamics with equilibrium as a norm This article discusses, in the event of Kalecki's centenary, the importance of his contribution for the reconstruction of a macroeconomic theory capable of (i) explaining, through P.E.D., the basic causal relations amongst economic variables without any reference to equilibrium; (ii) thus invalidating the false relevant role ascribed to savings; and (iii) bringing macrodynamics back to the core of the analysis of the capitalist economy.

Keywords: Macroeconomic dynamics; Kalecki; Effective demand; Investment and savings

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1. Introduction

The contribution of Kalecki to economic theory is not restricted to Macroeconomics; however, it is in this area that his theory is most perfectly expressed. The aim of this article is to review three macroeconomic theoretical questions - which have an important impact on economy policy - in which his intervention was notable, and which because of their radicalness and originality continue to be of interest.

The first question - from the logical viewpoint as well -, to be discussed in the following section, is the formulation of the principle of effective demand. In his main work Kalecki[1] puts forward an elegant formulation of this principle (curiously without developing it), which is simpler and more general than Keynes' and which highlights the singular causal relation spending-income, which, with crystalline logic, dispenses with the habitual notions of equilibrium so dear to economists of various backgrounds. After being expelled from the macroeconomic paradise of elementary economic relations, the notion of equilibrium disappears without trace.

The following section deals with an old subject, as controversial as it is crucial for macroeconomic theory, especially in heterodox Keynesian versions: the savings-investment relation. More than once, within the same chapter, Kalecki presents us with an obvious demonstration - which is essentially similar to that of Keynes, just more simple and direct - of how investment (amongst other variables in the general case) determines an equal and simultaneous amount of savings, which represents the release of an equal sum of liquid resources. Therefore savings, condemned to be equal to investment, has no economic importance at all, contrary to the common sense opinion, prevalent until now, of economists, including many who call themselves Keynesians.

The fourth section concludes with a brief revision of how Kalecki sees the dynamics of the capitalist economy as a central aspect of its operation, especially in relation to instability and fluctuations of the level of activity. His theory of the business cycle does not exhaust the theme of economic dynamics in capitalism (nor does it have this intention), but it has the merit of pointing to, in an analytically robust form, a radical theoretical result: the capitalist economy, operating in routine economic conditions and with a stable structure, *does not* tend towards a stationary state and/or a general equilibrium, but towards *fluctuations* (in other words, it is dynamically unstable); and that long term growth, whatever its temporal trajectory, depends crucially on the autonomous factors of demand (basically autonomous investment).

2. Effective demand, causality and equilibrium

The perception that the principle of effective demand (P.E.D.) really is a *principle*, in the sense of a necessary prerequisite for the formulation of macroeconomic theories, as much because of its generality (as an "anti-Say's Law") as for its essentiality (which establishes the basic causal relations in Macroeconomics), was present in both Keynes[2] and Kalecki[3]. However, in Keynes it is, to a large extent, obscured by the difficulty of the author in explaining it clearly in a context in which he intends,

[1] KALECKI (1954), chp. 3.
[2] KEYNES (1936), chp. 3.
[3] KALECKI (1954), *ibidem.*

paradoxically, to emphasise the *ex ante* determination of production and of employment[4]. For Kalecki, instead, employment level remains only potential, an implicit outcome of the validation of a certain volume of production through sales (demand); the exclusive focus of the *ex post* result allows what is essential to be clarified - that P.E.D.[5] consists of the *unilateral determination* of revenues (income) through expenditure; in other words, by the fact that in mercantile transactions the only autonomous decision is that of *spending* (to purchase, to convert money into a commodity)[6].

The remarkable insight of Kalecki, in the famous passage in the beginning of chapter 2, is that, faced with the accounting equality between gross profits and capitalist expenditure in investment and consumption[7], he asks himself about the meaning of the equation - that is, the sense of its *determination*, if it is from profits to expenditure or vice-versa. He concludes, contrary to common sense, that it runs from expenditure to revenue (in this case profits) - because capitalists *cannot* decide to change what they earn, rather they can only decide what they will *spend* (in investment or consumption); therefore, it is the amount of their expenditures that determines their (aggregate) income and not the contrary.

The lucidity expressed in the idea of even *formulating* this question is remarkable, whether for discovering the possibility of a *unilateral causal* determination in a simple accounting equality, or because a common economist would, at most, guess that some 'equilibrium' relation should be implicit. But the notorious laconicism of Kalecki can, perhaps, have been counterproductive here, by not explaining or developing the theoretical implications of a proposition that is, at the same time, so fundamental and so surprising. The usual resistance to new ideas, which Keynes in a similar context lamented so much, tends to reject this type of formulation, although not explicitly, as idiosyncratic or biased, as too far outside the canons of a science that claims to be serious - which unfortunately, is identified by the majority of economists with the systematic and compulsive use of the notion of equilibrium.

It would be an inestimable loss not to attempt to develop and generalize such a rich idea, so that its scope can become clearer. In this sense, some time ago I made an attempt to systematize Kalecki's version of P.E.D. in what appeared to me to be the most simple and general context possible, in order to clearly explicate the logical and theoretical conditions, which are *strictly necessary and sufficient* for its validity[8]. In short, by stripping the basic proposition of the unilateral causality from expenditure to income of its particular theoretical clothing - the type and level of aggregation; the *ex ante* components of revenues; the concept of value added; the relation with income distribution; and many other possibilities which are relevant in their own context, but have nothing to add to P.E.D. itself - the *essence* of the principle can be reached. It can then be redefined at a level of generality which can make it compatible with various different theoretical specifications, and, precisely because of this, to a certain extent make it 'pre-theoretical': a kind of "anti-Say's law" - as basic and general as the latter would be if it was true; only it is not axiomatic because it is a theorem, *i.e.*, a demonstrable theoretical proposition.

The most simple formulation is the following: in a given mercantile - and *therefore* monetary, were money performs all its functions (a medium of circulation, unit of account, means of payment) - economy, in every transaction of purchase and sale there only exists *one autonomous decision*: *to*

[4] This emphasis is perfectly justifiable given the author's concern with the level of employment, which is determined *ex ante*; the problem, given that effective *demand* was the main concern, is the lack of a clear result.
[5] Never clarified by the author.
[6] For this point see POSSAS (1987), pp. 50 ss.
[7] Abstracting public expenditure and the trade balance, and under the simplified hypothesis that workers 'do not save' - that is, their propensity to consume is equal to one: KALECKI (1954), *ibidem*, p. 46.
[8] POSSAS (1987), *ibidem*.

spend. Consequently, every expenditure *determines* a revenue of equal amount. By aggregation, total expenditure in a given accounting period is always equal and determines total revenue.

The extreme simplicity, in a controversial theme, needs to be explained. Therefore, some observations about this formulation need to be made, all in the sense of showing what is *not* necessary for the P.E.D. to be valid:

(i) It is *not* necessary to assume a fully developed *capitalist economy* (with capital, profits and wage labour), but only a 'simple' mercantile economy, in Marx's sense, implying the basic condition that it is a *monetary*, not a barter, economy - which is clearly a general condition applicable to a mercantile economy[9]. It therefore can be assumed that money possesses all of its inherent functions, except the typically capitalist function of an *asset* (in this case currency) through which money may become capital. The implication of the presence of money in a mercantile economy is that, according to Marx, it is an *obligatory* intermediary for all exchanges, and becomes no longer just a means, but rather an *end* for each individual producer who has to deal with the market - without which a society based on the social division of labour cannot reproduce itself[10]. Hence an *asymmetry* exists between money and commodities, and therefore between the *expenditure* (purchase) and the *revenue* (sale), according to which *only the expenditure*, which presumes the possession of universal purchasing power - the *end-point* of every exchange process -, can result from an effectively *autonomous* decision, in the sense that it can *freely dispose of* this purchasing power. These properties are of course present in capitalism, as the most developed form of mercantile economy, which is the reason why P.E.D. is *a fortiori* valid in a capitalist economy.

(ii) It is *not* necessary to formulate P.E.D. in *aggregate* terms, nor does it imply a strictly macroeconomic concept; in fact the formulation above is the most 'microeconomic' possible, at the level of each individual transaction. The aggregate result is a mere *corollary*: given that in each operation of buying and selling the expenditure determines the revenue, during an arbitrary accounting period the *total expenditure* always will be *equal to* and will *determine total revenue.*

(iii) It is *not* necessary to formulate P.E.D. in terms of value added or *income*: the causal relation is established at a more generic level, starting with the asymmetry between money and commodities and therefore between expenditure and revenue. The usual reference to income is a consequence of the habit acquired in macroeconomics, at least since Keynes[11] and also adopted by Kalecki, of working, for convenience, with aggregates expressed in terms of income or value added to avoid possible double accounting, or to minimize the difficulties of non-ambiguous measurement of aggregates when expressed in terms of value of production. In the same way, it is simply a matter of analytical convenience to treat the aggregate product in terms of the components of the sectoral product of finished goods - consumption and investment in Keynes, investment and dismembered consumption between capitalists and workers in Kalecki. The 'expenditure' which 'determines the income' is not only in finished goods!

(iv) It is *not* necessary to relate P.E.D. to - and as a result to refute Say's law on the basis of - the *consumption function*, and in particular Keynes' assumption of a marginal propensity to consume

[9] It is sufficient to remember the opinions of Marx and Keynes. Marx, in particular, showed in *The Capital* how a mercantile economy is transformed by logical necessity (and not just historic) into a *monetary* economy. Keynes wrote in a similar vein, with, however, a more limited scope and only in posthumous texts.

[10] This economy is governed, as Marx states, by the simple form of circulation of commodity C-M-C, in which money *is already necessarily* an intermediary in exchange - *even though* every exchange, in the last instance, aim at the consumption (productive or not) of the exchanged commodities, and not, as in developed capitalism, at the increase of capital value, expressed by Marx in the capitalist form of circulation M-C-M', where M' > M.

[11] See KEYNES (1936), chp. 3, p. 24, note 2.

of less than one[12]. The existence of a consumption function of income is completely irrelevant to the validity of P.E.D.. Whatever is *spent* (or is not), it is *not income* (a *flow*) - whose *only* necessary relation with expenditure is to be *determined* by it[13] -, but some amount of *purchasing power* (a *stock*), which can be more or less influenced by previous income (depending mainly on the level of wealth of each agent), and which can certainly be affected by many other variables, especially credit. In this sense, and from a purely logical point of view, *every expenditure is autonomous* regarding previous income - including consumption. The hypothesis of a strict consumption function of income, nowadays more disputed than ever, is an empirical question, irrelevant for the validity of P.E.D. or for the invalidity of Say's law.

(v) It is *not* necessary to resort to '*hoarding*', in the classical and Marxist jargon, or to 'liquidity preference', in Keynesian terminology, or any other type of monetary 'leakage' of income between a given revenue and subsequent expenditure, to validate P.E.D. and invalidate Say's law - exactly for the same reasons that have just been highlighted. The essential *autonomy* of all and any expenditure (and not only investment) in relation to previous income, due to the possibility in principle of spending indeterminately *more* or *less* than it in a given subsequent period - given that, it is worth repeating, one spends not 'income', but rather, *from* a given *purchasing power*, which may have only a partial and indirect relation with previous income – renders *irrelevant* the traditional question, nowadays rarely posed, of 'how much' of a previous income is spent or not.

The same applies to the old related question of the presence of money as an obligatory intermediary of exchange in a mercantile economy as *the* condition that would allow the supremacy of P.E.D. over Say's law. It is true that the presence of money, as Marx showed, is sufficient to reject Say's law[14], and thereby, to show the theoretical possibility of crisis, in the context of a simple mercantile economy. It is also true, as has been shown, that it is essential to the demonstration of P.E.D.; *but not in isolation*, rather *in conjunction* with the remaining constitutive elements of a mercantile economy, notably the social division of labour and the absence of a conscious co-ordination of the exchange process (which Marx labelled the 'anarchy of production'). Consequently, it would be an error to consider it in any way *the* only responsible factor for crises, unemployment, etc.; it was this theoretical error which led to a long tradition of the incorrect identification of P.E.D. with the supposed 'problem' of 'insufficiency of effective demand' in the heterodox field of Marxists and left-wing Keynesians. P.E.D. has no intrinsic downward bias as to the level of economic activity. Income and employment are *always* derived from effective demand, be it high or low, and as a consequence, agents decide autonomously to spend, based on their expectations.

(vi) Finally, it is *not* necessary - rather it is *highly misleading* - to express P.E.D. in terms of *equilibrium*, whether between supply and demand (aggregate or not), between product and income, between investment and savings, or even in terms of 'equilibrium of consumers' (to assume that they are operating on the basis of a given consumption function and that this, for example, maximizes some inter-temporal utility function). One of the properties which gives greater robustness to P.E.D. is that it is *independent* of any hypothesis of equilibrium, of whatever type, and is even compatible with any pattern of rationality that might be adopted - including irrational behaviour![15] All that is needed is that the *realized expenditure* - for whatever motive - *determines* income and, by extension (in a temporal

[12] To the contrary of what HANSEN (1953), chp. 1, assumes.

[13] Instantaneously defined in an isolated transaction in an accounting period when aggregated.

[14] But it is not, to the contrary of what some Marxist authors think, a demonstration *avant la lettre* of P.E.D.. The latter inverts the causality of Says' law, being, therefore, more than just a refutation of this. It demonstrates not only that Say's law is wrong, but that *its opposite is true*, which makes it - repeating the previous expression - an "anti - Say's law".

[15] Even though these can not, or should not, be considered relevant to economic analysis.

sequence of short periods, which Keynes, but not Kalecki, discusses), the level of activity, including employment, of an economy.

The importance of this conclusion cannot be overestimated. In more general and abstract terms what is being highlighted, mainly through Kalecki's insight in his own particular manner of expressing P.E.D., is that equilibrium *is not* a *necessary* concept from the point of view of the *theoretical determination* of variables in Macroeconomics[16], even if it had some other sense (something which I do not believe). The basic *determination* of these variables, including the *quantitative* dimension, is established on the basis of a *unilateral causal* relation, from expenditure to income, whatever the level of aggregation or whatever the chosen division of sectors and income classes. The basic equations of Kalecki's Macroeconomics - and also, to a certain extent, of Keynes' - are accountable relations with the implicit addition of a *unilateral determination* of revenue/product by spending. Therefore, for example, national income (*Y*), broken down by Kalecki into gross profits (*P*) and wages (*W*),

$$Y = P + W \qquad (1),$$

is seen, in the general case (including government and the external sector), as equal by accounting definition, *but also as determined by*, the expenditure associated with the components of product, as indicated by the arrow in the equation below:

$$Y \equiv I + C_k + C_w + G + (X - M) \qquad (2),$$

where, as is usual, *Y* is income, *I* investment, C_w workers' consumption (or that based on wages), C_k capitalist consumption (or that based on profits), (*X* - *M*) the balance of foreign trade between exports (*X*) and imports (*M*) of goods and services, and *G* public expenditure.

In the simplified case, in which Kalecki leaves out government and the external sector, the previous equation is reduced to:

$$Y \equiv I + C_k + C_w \qquad (3);$$

this, jointly with (1) and still assuming that the propensity of workers to consume is equal to one (or $C_w = W$), results in the previously mentioned equation of profits, with the same unidirectional causality of capitalists' expenditure towards their income:

$$P \equiv I + C_k \qquad (4).$$

***

With the discarding of the notion of equilibrium and the establishment of a distinct type of relation of determination, I believe that it is possible to clearly identify the benefits, whether '*affirmative*' or '*restrictive*', of the introduction of P.E.D. in this form and at this basic level of macroeconomic analysis. The *first* ('affirmative') case includes two chief results: (1) the causal emphasis on *demand*, present as much in Keynes as in Kalecki, that the Marshallian 'scissors', so attractive to orthodox economists, rejects on principle, and which was rapidly deprived of its character by subsequent neoclassical macroeconomic theory, so much so that today the discipline has actually inverted the original emphasis[17]; and (2) the opening for *dynamic* analysis, which had only remained latent in Keynes but very well developed by Kalecki - as we shall see in the last section -, has been greatly facilitated by the exclusion of equilibrium, which as well as being mistaken is theoretically

[16]Neither in Microeconomics, by the way; but this aspect will be left aside here.

[17]Macroeconomics of 'aggregate supply' - analytically absent in Keynes and completely absent in Kalecki - has been increasing in importance since the advent of the Phillips curve, which as is well known, had already become predominant in the macroeconomic policy debate in the 1960s.

unnecessary and very problematically compatible with dynamics analysis. In the *second* ('restrictive') case, one can highlight the greater ease in clarifying the motives which should lead to the rejection of various equivocal interpretations made by the dominant macroeconomic approaches - whether they are Pre-Keynesian, Neoclassical Keynesian (including the so-called New Keynesians), Anti-Keynesian (like the so called New Classicals), or just conventional - of aggregate Macroeconomics, especially of savings and its relation with investment, as we shall see in the following section.

3. The savings-investment relation

Apart from the multiplicity of conceptualisations to which savings were subject in economic theory, its accounting definition, at least, has become consensual through the diffusion of social accounting techniques, especially after the work of Keynes. It is now broadly accepted that savings - which can be real or nominal, gross or net, as well as other accounting details which we can leave aside - can be defined as an income flow corresponding to the difference between disposable income (after tax) and consumption. This means that divergences about its conceptualisation and economic significance will reflect *theoretical* differences, and *not* merely differences of accounting definition.

Kalecki showed that[18], in the general case, aggregate savings are determined through the income equation (2): introducing taxes minus transfers (represented below by *T*) and subtracting them from both sides of the equation one gets disposable income; and subtracting total consumption (of workers and capitalists) from both sides gives total savings (*S*):

$$S \doteq I + (X - M) + (G - T) \qquad (5).$$

It is essential to note in the above equation, as a logical result of P.E.D., the *permanence* of the unilateral *determination* from expenditure to income (represented by the arrow), as much as in equation (2) - in this case, from *investment*, added to the *trade balance* and the *public deficit*, to *savings.* Obviously, in the special case where both the government's and the foreign sector's balances were zero, savings would be equal to investment - in addition to being necessarily *determined* by it.

As before, it is worth emphasizing what, although often rooted in common sense, *does not* characterize savings *nor* their relation with investment:

(i) Savings *do not finance* investment in any intelligible theoretical sense. First, because they do not precede, either temporally or logically, investment (logically *ex ante* savings do not exist); it is by definition a flow of revenue *simultaneous* to investment[19] and *determined by it*. Second, because investment is financed by *credit,* which is *a stock* - of purchasing power, created *ex nihilo* by the banking system - that logically and temporally *precedes* investment; on the other hand, credit is usually

[18] KALECKI (1954), chp. 3.

[19] One of the most subtle questions in economy theory, not always treated with the necessary caution, is the difference between stocks and flows. In Economics, unlike Physics, flows are not normally defined as time derivatives of stock, but as *instantaneous* results of performed transactions - measured as much by outlays (spending) as by revenues (income, product, etc.); every flow, to the contrary of stocks, 'disappears' in the moment when it is created. At the aggregate level, they are defined as the sum of individual flows during an arbitrary *discrete accounting period* - no longer instantaneous, because the transactions are not normally synchronised. Savings, like investment, is by definition a *flow*, and *not a stock, unlike credit*. Like any flow, it is defined at the disaggregate level (of individual transactions) instantaneously, and at the aggregate level in the same accounting period in which one wants to define the investment which determines it, in the simplified case (leaving out the foreign sector and the government). Only *purchasing power*, which is by definition a stock resulting from liquid reserves or created by *credit*, can *finance* (in the sense of providing liquidity for an outlay) any expenditure, including investment.

essential to make investment viable due to the latter's usually high amount *vis-à-vis* the current net revenue capitalized by firms.

The assumption, sometimes found amongst Post-Keynesians, that savings, although unimportant to finance investment, may be important for its funding, by extending the period needed to make investment feasible on a significant aggregate scale, involves a conceptual error. What contributes to this is 'saving' in the colloquial sense, sometimes associated with investment in funds, which represents a stock that has nothing whatsoever to do with the macroeconomic flow called 'savings'. At most it indirectly makes a marginal contribution, depending on the *if*[20] and *how* the stock of wealth derived from savings is transformed into a financial investment. On the other hand, when Kalecki states that "investment finances itself"[21] he is, in the slightly imprecise way he coins phrases to make an impact, calling attention to two aspects: (1) that savings *do not* finance investment; and (2) that the actual expenditure realized in the purchase (eventually financed) of investment goods creates instantaneously profits, and with them savings, and last but not least, makes an equal amount of liquidity accessible to all capitalists in the banking system[22].

(ii) Savings are *not* a result of voluntary '*acts*' on the part of economic agents: they are, like any other income variable, strictly *residual*, that is, *determined by other variables* (of *expenditure*). Furthermore, this is explicitly stated by Keynes in *General Theory*[23], where, as is well known, he changed completely his conception in respect to the *Treatise on Money*, altering it to one essentially identical to that of Kalecki. For this reason, the determination of whatever amount, individual or aggregate, of savings *cannot*, in the name of any theoretical option, and *for logical reasons* derived from P.E.D., *be the object or result of the will or decision of agents* - as for example, in the neoclassical form so widely spread nowadays, postponing consumption to a future date and lending the corresponding resources as an increasing function of the interest rate. In brief: according to P.E.D. one cannot decide what one will earn, but only what one will spend; therefore, *one cannot decide* the *difference* between what one earns - in this case income - and what one spends - in this case consumption. What is called in daily life 'savings', as seen before, is not at all savings in the technical sense: it is a *capital outlay*, or in other words, a decision about the composition of a portfolio by an agent, and therefore, relative to his *stock* of wealth, and to not a possible *flow* - previous by definition, and already economically extinct - of *savings* which had been achieved. Savings are as *residual* and *involuntary* as income[24].

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[20] It is not at all obvious that savings 'converts' themselves - the inverted comas derive from the fact, which is worth insisting, that the flow of savings had *already* disappeared when the wealth to which it corresponded is invested, and the corresponding investment *already* determined - in financial assets, let alone tied with investment funds. It is often usual that stocks of wealth are maintained outside the banking system - even in liquid form, albeit more frequently in durable goods and real estate.

[21] KALECKI (1954), chp. 3, p. 50.

[22] In KALECKI (1935), pp. 28-30, a more detailed description of the mechanism of the simultaneous creation of profits, savings and liquidity by expenditure in investment can be found. The well known statement of KEYNES (1937a) about the distinction between saving, credit and the correspondent liquidity - the famous '*finance*' motive for retaining liquidity associated with investment -, as well as the logical impossibility of '*ex ante* savings', is as, if not more, clarifying.

[23] KEYNES (1936), chp. 6, pp. 64-5.

[24] Keynes, *ibidem*, states, when concluding the chapter in an identical form to Kalecki's previously referred to famous passage about the determination of profits, that "a decision to consume or not to consume is in fact within reach of the individual; such as a decision to invest or not to invest". But the amount of income and savings are unable to "... assume an independent value resulting from a distinct set of decisions taken without reference to the decisions about consumption or investment. According to this principle, the conception of *propensity to consume* substitutes, in what follows, the propensity or disposition to save" (p. 65: original italics).

As a corollary, it is worth questioning here one of the most elementary analytical instruments used in 'open' Macroeconomics. Returning to equation (5) which determines total savings, we can follow the conventional view: the redefinition of total savings as *private* savings (which is valid), denoting it as S_p; and defining analogously the term (T - G) as 'government savings' (S_g), and the trade deficit (M - X) as 'external savings' - in this case simply for symmetry. Therefore, regrouping the terms, one obtains:

$$S_p + S_g + S_x = I \quad (6).$$

It is worth noting that, although this form of presentation is not formally 'wrong' - it is merely a derivation from the equation of savings with redefinitions -, it can be used, and in fact it is often used for erroneous interpretations, the more dangerous since they are not at first sight incompatible with P.E.D. First, since the determination relation, symbolized by the arrow, has *disappeared*, one finds on *both* sides of the equation autonomous components of expenditure: after all, it is not by being labelled as 'dis-saving' that the public deficit and the external surplus cease to be determined by autonomous expenditure... Second, because equation (6) is an invitation - generally accepted by economists of various theoretical backgrounds - to the wrong interpretation that the left side, 'total savings', by means of the contribution of each of its 'components', *finance* the right side, investment. Furthermore, it is almost always (wrongly) argued that the savings 'efforts' of the private, public and external sectors are *complementary*.

This is a triple error: first, because, as has been seen, savings are always involuntary and cannot result from anyone's efforts. Second, as shown in the previous item, it does not finance any expenditure. Third, and more subtly, such 'components' *are not complementary among themselves,* as the form of presentation appears to suggest: the change of position in the equation, of government deficit and the trade balance, does not prevent them, *along with investment*, to continue to *co-determine* (private) *savings*! Therefore, for example, in no case could a possible fall in 'private savings' - which is nothing else but total savings in the usual definition adopted by Kalecki - be reinforced by an increase in either 'government savings' or 'external savings'. *To the contrary*; given the amount of investment, such increases would necessarily have the effect of *diminishing further still* private savings! The causality involved only becomes clear by returning to equation (5), where it can be seen that private savings is *determined* by investment and by the two other 'dis-savings', and have no possibility of any independent change at all. Therefore, in equation (6), while, on the one hand, private savings cannot be modified independently, on the other hand, any autonomous change in 'external' and 'public' savings will fatally imply an *inverse* change *of the same amount* in private savings for a given investment; in the same way that a change in investment will *ceteris paribus* cause a *direct* effect *of equal magnitude*, *only* on private savings and *not* on the other two components, which are basically[25] autonomous. The rigorous conclusion seen through P.E.D. is that, for a given level of investment, private savings *are determined* by the other two 'savings'components, *varying inversely with each one*. In other words, the supposed complementarity between the components of savings is merely deceptive appearance: private savings *always* decrease *pro tanto* when faced with either an autonomous increase in public and external 'savings', or an autonomous reduction in investment.

(iii) Finally, savings *do not* require any notion of *equilibrium* to be defined. This is not just a matter of the notorious rejection of the (neo)classical notion that savings-investment equality results, through an adjustment of the interest rate, in a position of equilibrium, as in the theories of 'loanable funds' and similar ones, rejected as much by Keynes as by Kalecki. Macroeconomic common sense considers essential for this rejection that savings must *not* be a function of the interest rate - which

[25] However, there can be, in subsequent periods, a growing effect on imports and on public revenues, thereby also increasing, to a certain extent, these 'savings'.

certainly is a sufficient condition, but one which is badly formulated. According to the previous arguments, based on P.E.D., savings *are not a function of anything* - by the simple reason that they are *completely determined* by investment (in the simplified case; *mutatis mutandis* in the general case). However, the conventional Keynesian tradition - the same reasoning exists in Kalecki, but it is attenuated by the explicit presence of income distribution - adds that it is a function of the level of income, as a consequence of the consumption function: if this is a function of income, it cannot be denied that the same applies to savings, its complement in relation to income. Neither can it be denied that in various passages in the General Theory Keynes openly assumes this position.

How can this apparent contradiction be reconciled? By recognizing that it *is* apparent. On the one hand, accounting and P.E.D. jointly assert (in the simplified case) that savings are *always equal* and *determined* by investment. On the other hand, adopting a consumption function *does not* imply assuming that consumption is *always* a *desired (intended)* proportion of income - or that consumers will always be in some 'equilibrium'. This can only happen, and even then subject to a *trend* and not just a logical possibility, given the 'necessary time' for consumption and income to adjust to such levels that the difference between them will be equal to the given investment (the same applies to Kalecki's model, once the necessary adjustment to the given income distribution is made) - obviously the well known multiplier mechanism, present as much in Keynes as in Kalecki[26]. The 'necessary time' for the adjustment is *indeterminate*, and can fall *between zero and infinity*; the multiplier is a *potential* mechanism, typical of comparative statistics and because of this without a precise temporal definition, since it depends totally on how short term expectations (linked to production decisions) behave, as well as assuming that investment is constant throughout the adjustment[27].

Therefore, consumers can remain *indefinitely* in 'disequilibrium' regarding their decisions to consume as a proportion of their current (or past, or even future) income, even if one assumes the existence of this type of consumption function (which is very debatable); or, in other words, *involuntary* amounts of savings can be *indefinitely* held, without causing any problems, either for the hypothesis that a given consumption function *exists* at the individual level and consequently at the aggregate level, or (even less) for the accounting and causal determination of P.E.D., for which *savings remain continually equal to investment*! The 'time' the multiplier effect 'takes' to be completed is a false question, as much from the logical point of view (as it is only a potential, and not a dynamic, effect), as from its implications on the determination of savings[28]. This should not be surprising, if we consider that seen through P.E.D., *income is as involuntary as savings*. Why then should we find it strange that consumers may remain indefinitely in disequilibrium with regard to the proportions of *income* that they consume or save, if *all* that they can decide is to *consume*?

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It follows that the *whole* weight of the theory falls back on to *investment*, and *none* on to *savings*, in a way which is completely contrary to the common sense of both 'laymen' and economists. The *savings-investment* 'relation' simply *disappears* for whatever theoretical effect or practical relevance, in detriment to the tons of paper produced about it. The central economic problem for the analysis of the operation of the capitalist economy, as Kalecki correctly identified, returns to the theory of the *determinants of investment* and its effects. This will be outlined in the following section.

[26] For the latter see *ibidem*, chp. 5.

[27] In this respect POSSAS (1987), pp. 88-91.

[28] An extensive debate about this has prospered in the Post-Keynesian field, starting with a well-known article by ASIMAKOPOULOS (1983). The essence of the debate, with the exception of some specific interventions, is hindered by the misunderstanding of what should constitute the consumption function *of income* (and by implication a 'savings fund') and a possible 'consumer equilibrium' in the context of P.E.D..

4. Investment, dynamics and instability in the capitalist economy

For the founders of Macroeconomics investment was the central variable for explaining the functioning of the capitalist economy taken as a whole, whether by its impact on the determination of the level of activity, or by its dynamics[29]. This centrality certainly does not derive from the weight of investment in the product of a capitalist economy, which is inferior to that of consumption; but from its much greater *autonomy* in relation to the level of activity[30], which makes it a key variable for the endogenous determination, not only of the *level* of activity but also of its *variations*, of its *fluctuations* and even of its possible *instability*.

It is to be regretted that this type of theoretical insight has been dissipated over the years, to the point that contemporary Macroeconomics does not highlight at all the analysis of investment, almost to the same extent that the theoretical centrality of demand, justified by P.E.D., has been relegated to, at most, a footnote in the recent History of Economic Thought. This is because the crucial role of investment as a macroeconomic variable derives precisely from the original emphasis put on *demand* as a determinant of the level of activity. The multiplier effect, not by chance almost completely abandoned in textbooks as well as in current macroeconomic analysis, is only the most didactic and well-known illustration of the link between the macroeconomic determinant role of investment (as compared to consumption and other autonomous components of aggregate demand), and P.E.D. as the principle responsible for the causal determination of the level of economic activity.

Although Kalecki did not manage to elaborate a theory of investment as complete and sophisticated as that of Keynes, mainly because of the monetary and financial scope of the latter, he had at least the merit of stating it in a way *directly* oriented towards its *dynamic* effects[31]. On the other hand, his biggest defect in comparison with Keynes is the absence of an explicit discussion of expectations[32].

On the other hand, it is vital to highlight what I believe to be a *central methodological premise* (although one that is mostly implicit), not just of Kalecki's model of investment, but rather of the *whole* of his theory of capitalist economic dynamics: *the stable economic structure* - meaning the absence of changes of technology, productive structures, market structures, and economy policy. As will be seen below, such underlying assumptions help to understand more precisely not only the *scope of the theory*, but also much of what can appear at first sight as its *limitations.*

Throughout successive forms of presentation the Kaleckian model of the determinants of investment maintains some basic points. As to the structure of the model, investment (particularly in fixed capital) is a function of (i) the *level* of activity, in general through the influence of the internal

[29] This does not apply to Kalecki only, but also to Keynes. That the latter did not develop a theory of dynamics did not prevent him having a clear idea about its importance and about the role of investment in it; see for example, KEYNES (1936), chp. 22.

[30] As shown by Keynes, due to the fact that it depends on long term expectations which are essentially volatile in the presence of uncertainty.

[31] As well as for having avoided some of the ambiguities of neoclassicial origin present in Keynes, mostly concerned with the concept of the marginal efficiency of capital and the hypothesis that it decreases with the level of investment. Although all of this can, in my view, be theoretically clarified – see POSSAS (1987), pp. 137 ss. -, the ambiguities and the neoclassical appearance (more than the contents) put many non-orthodox authors off Keynes, especially Marxists and Neo-Ricardians.

[32] This is perhaps a dated problem: it was not usual at that time to explain expectations in depth; in general it was implicitly assumed that they were somewhat adaptive or corrective. Nowadays such procedures are considered unacceptable. Anyhow, to have expounded the question is an undeniable merit of Keynes, even if one disagrees with specific points of his analysis.

accumulation of profits by firms, which tend to a certain extent to re-invest them; (ii) the *variations* of this level, usually expressed in terms of changes in the profit rate; and (iii) the *exogenous* components, related to investment opportunities which are not derived from current activities, basically dictated by the rhythm of innovations and other sources of structural change.

In the 1954 version, which I consider the most complete, this model is expressed by the following equation (aggregated, but reflecting the individual decisions of entrepreneurs), well known to students of Kalecki[33]:

$$F_{t+\tau} = aS_t + b\Delta P_t / \Delta t - c\Delta K_t / \Delta t + d \quad (7),$$

where *F* is the investment in fixed capital; τ the average time lag between orders and the set up of new investment; *S* gross aggregate savings, taken as a proxy of internal accumulation of profits by firms (profits retained for capitalizing); K_t the stock of capital at the end of period *t*; and the independent term *d* captures the autonomous decisions to invest (which the author associates with the 'factors of development', basically innovations and other investments which are independent of the current level of activity[34]). The three structural components mentioned above are present here: the term aS_t expresses the influence of the current *level* of activity; the combination of $b\Delta P_t/\Delta t$ with $-c\Delta K_t/\Delta t$ expresses the influences of the *changes in the level* of activity; and the term *d* represents the *autonomous* components of investment.

Concerning this well known equation it is enough to note briefly that:

(i) the first term basically intends to capture the positive influence of the self-financing capacity of firms on their decisions to invest, whether directly, or, mainly, to allow for a reduction in its indebtedness and thus to facilitate new loans without running into an 'increasing risk' of insolvency associated with rising debt[35];

(ii) the second and third terms taken together represent a linearization of the rate of change of the profit rate. Given the assumption adopted by Kalecki throughout his macroeconomic model, of a *stable* economic *structure*, it follows that such variations are only describing the *conjunctural* factors that affect the profit rate - essentially the *degree of utilization* of productive capacity. Therefore the most coherent interpretation (suggested by the author himself) is that the term in ΔP expresses *ceteris paribus* the positive effect on investment of a higher degree of utilization of capacity, while the term $-\Delta K$ expresses the negative effect of a larger idle capacity, so that they represent jointly the net effect of changes in the degree of utilization;

(iii) the independent term *d*, as mentioned, condenses all the autonomous components of investment, that is, those which are not directly affected by current or routine economic activity. Its exogenous treatment in the model is coherent with the systematic analysis of the stable economic structure adopted by the author, under which all factors of structural change *must* be explained *ad hoc*. It especially encompasses investments in innovations and those of long maturation, whose expected profitability cannot result from the projection of current results.

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[33] KALECKI (1954), chp. 9.

[34] KALECKI (1954), chp. 15.

[35] Obviously, a 'pre-Keynesian' (or 'pre-Kaleckian') regression to the supposed influence of saving upon investment is out of question; the term appears as a proxy of firms' internal savings (a certain fraction of total private savings), which, in turn, seeks to indicate its capacity to retain profits and consequently to self-financing. The problem in this term is the inadequate specification of such influence, which in my view should be expressed not in terms of a linear function of a continuous variable, but of a *restriction*, and therefore nonlinear. As specified by Kalecki it results, strangely, in a tendency towards automatic reinvestment, even in the absence of market motives to invest – *i.e.*, when the other terms on the right side of (7) are zero.

It is convenient at this point to make a theoretical digression. In comparison with Keynes' theory, the main lacunae in Kalecki's model are the absence of any treatment of the interest rate and the formation of long term expectations. As to the former, a prior discussion of the author[36] justified leaving it aside as much for its stable long term behaviour, as for the assumption that monetary policy is also stable and not very restrictive (so that the interest rate does not hinder investments)[37]. As to expectations, the problem is somewhat more complex. Actually, Kalecki's investment and business cycle models have been accused by different authors, from Schumpeter to Post-Keynesians, of having little historicity and excess of 'mechanism', part of which is due, at least from the Post-Keynesian point of view, to the absence of an analysis of expectations. In the present case, I believe that there is a misunderstanding, which can be satisfactorily resolved.

It is worth returning again to Kalecki's assumption of a *stable economic structure* in almost all of his models and to briefly look at a possible implication of this for the analysis of expectations. In first place, it is necessary to admit that the author simply *did not* introduce expectations into any of his models; at least not in an explicit form, which in my opinion is open to serious criticisms. What I want to point to is another aspect, which I believe to be more relevant: his model *is entirely compatible* with the adoption of a hypothesis of expectations which nowadays would be called 'adaptive expectations' - which is, besides, more or less implicit in all the main Neo-Keynesian models of economic growth and business cycles, from Harrod-Domar to Pasinetti, that adopt a simple version of the investment function based on the so-called 'accelerator' mechanism. In its different versions, it corresponds basically to the modern concept of 'adaptive' expectations, implicitly containing projections and/or corrections of the former expectations as a function of recently observed market results[38].

Kalecki's investment model, although not strictly of the accelerator type, essentially follows the same criteria, particularly visible in the components of the equation which capture the *observed* variations of the profit rate as a proxy of the variations of the *degree of utilization* of productive capacity (item (ii) above). This is because these variations can be interpreted as *expected*, by means of a simple *projection* of what is observed. The *rationale* of forming expectations in this manner can be explained by a remarkable insight of Keynes in his analysis of long term expectations, particularly under the 'hard' or 'Knightian' uncertainty (not reducible to risk) systematically adopted by Keynes.

The reasoning involves two stages: first, the formation of long term expectations under uncertainty, *in conditions of relative stability of the relevant variables*, tends to follow a pattern *shared* by the most part of the market (labelled 'convention' by Keynes)[39]. Second, the *simplest* imaginable form of 'conventional' behaviour in the formation of these expectations consists of the *projection*, to the next period, of the behaviour of recently observed rates of growth of the market - which Keynes called the 'practical theory of the future'[40] - also coinciding, specifically, with the simplest possible form of 'adaptive expectations'. Consequently, given the premise of *stable structure* in Kalecki's model, the adoption of projective criteria in his model is justified as implicitly containing 'conventional'

[36]KALECKI (1954), chp. 7.

[37]A brief commentary about the difference in scope of Keynes' and Kalecki's theories fits in here. The latter is not obliged to introduce the interest rate into his analysis just because a general theoretical discussion on investment is outside its scope, in which case it would certainly involve financial assets and money, and consequently interest as an *alternative* return to capital, as in Keynes, and not just as the financial cost of investment, as in Kalecki.

[38]In this respect see POSSAS (1987), pp. 117-124.

[39]KEYNES (1936), chp. 12. Although the author formulated this concept in reference to the formation of expectations in financial markets, the general context of the analysis of long term expectations which characterizes this chapter as a whole, as well the actual content of the concept, justify, in my opinion, extending it completely to long term expectations in product markets and, therefore, to the analysis of productive investment.

[40]KEYNES (1937b), p. 114-115.

expectations, of an adaptive type of one period. In this manner Keynes, paradoxically, can help to provide a theoretical foundation for a type of model which the majority of 'purist' Keynesians - the Post-Keynesians - consider theoretically as its 'antipode' and even primitive, because of the absence of explicit expectations.

Returning to Kalecki's model, the next step in the direction of a complete dynamic model is to add to the investment equation (7) some sort of inverse relation between the level of activity and investment - that is, from investment to income, in the style of Neo-Keynesian models of growth and cycle based on the multiplier-accelerator interaction. This is what Kalecki does, whose model of the business cycle, although it does not strictly adopt an accelerator type investment function, can be considered as structurally part of the same 'family' as the Neo-Keynesian models. To do this, he returns to his own multiplier which is unfolded in two stages: the effect of investment variations on profits (given the propensity of capitalists to consume), and the effect of this on income (given the sectoral distributive parameters which explain the aggregate share of wages and profits in income)[41]. Then, adding the change in stocks to investment, substituting both of the multiplier effects in equation (7), converting ΔK into investment in fixed capital and *S* into investment and rearranging the terms, Kalecki finally obtains the following dynamic equation expressed in terms of net investment *i* (leaving aside the formal steps):

$$i_{t+\theta} = \frac{a}{1+c} i_t + \mu \frac{\Delta i_t}{\Delta t} + g \qquad (8),$$

where $\theta \approx \tau$, parameter μ is a direct function of the multiplier[42] and *g* is an increasing function of the autonomous component of investment *d* and an inverse function of the depreciation of fixed capital[43].

This second-order linear difference equation, with constant coefficients and a constant independent term (although it can change in the 'long run'), has as a possible solution (although not necessarily, depending on the parameter values) a path of *fluctuations* around a *trend* defined exogenously by component *g*. Kalecki intuitively explores, without formalizing, the properties of this time path, especially assuming that the parameters, with realistic values, allow fluctuations to take place.

Nevertheless, it is very easy to obtain a *formal solution* from this point, which allows a more precise interpretation to be given of the behaviour of the trajectory as a function of the parameter values. Without trying to reproduce here all the details[44], it is sufficient to note that equation (8) can easily be put into the canonic form of a difference equation, just by introducing the following additional condition:

$$\Delta t = \theta = 1 \qquad (9),$$

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[41] KALECKI (1954), chp. 5.

[42] The expression is μ = [1/(1-*q*)] [*b*/(1+*c*) + *e*/(1-α')], where *q* is the propensity of capitalists to consume, *b* and *c* are parameters of the investment function - equation (7) above -, α' is the incremental share of wages and salaries in income, modified by the incidence of taxes on profits, and *e* is an accelerator coefficient (incremental capital/output ratio).

[43] The expression is: *g* =*d'* - δ [1-*a*/(1+*c*)], where *d'* = (*c*δ + *d*)/(1+*c*), δ being the depreciation of fixed capital and *d* the independent term of (7), corresponding to the autonomous (long term) components of investment. Kalecki assumes *g*=0, arguing that he initially intends to deal with what he calls the 'automatic business cycle', without a trend. The procedure appears to me to be unnecessary, as it can confuse the reader by giving the false impression that what is being referred to is an economy that can fluctuate around a stationary level of activity (which he refers to in Marxist jargon as 'simple reproduction'), when he is simply referring to the *fluctuations component* (the homogeneous solution of differential equations) of the path of a normally non-stationary capitalist economy.

[44] See POSSAS (1987), pp. 149 ss.

which actually involves *two* conditions: (i) taking the average interval of reaction of entrepreneurs, Δ*t*, to the behaviour of the degree of utilization of capacity, as *equal* to the time lag θ between orders and construction of new capacity, under the sensible assumption that they take the *same* period θ both to form their expectations about the next period during which the new investment will be operating, and as an 'investment period', that is, the normal interval between two consecutive decisions to invest; and (ii) taking the *same* time interval as the time unit of the model (*t*=1) - in place of, for example, a mere accounting period, as is more usual.

If we define conventionally $\Delta i_t = i_t - i_{t-1}$ and replace it in (9), after rearrangements and a redefinition of time lags, equation (8) is reduced to:

$$i_{t+2} - (\mu + \frac{a}{1+c}) i_{t+1} + \mu i_t = g \qquad (10).$$

This is a canonic second-order linear difference equation with constant coefficients and a constant term (*g*), whose homogeneous solution has the form of *fluctuations* - which Kalecki sought to explain - if and only if its characteristic roots are conjugate complex, which impose the following condition on the parameters:

$$\frac{a}{1+c} < 2\sqrt{\mu} - \mu \qquad (11)^{45}.$$

Once this condition for fluctuations is met - which is what interested Kalecki -, the complete solution of the model, or its resultant time path, is given by the sum of the homogeneous solution with the particular solution:

$$i_t = Ar^t \cos(\omega t + \varepsilon) + \bar{i} \qquad (12),$$

where *A* depends on scale, on ε and the initial conditions; ε is an arbitrary phase constant; $r = \sqrt{\mu}$ is the amplitude parameter of fluctuations; $\omega = \frac{2\pi}{T}$, where *T* is the period of fluctuations expressed in investment periods, ω being a function[46] of the parameters μ and $\frac{a}{1+c}$; and $\bar{i}$ is the particular solution (trend), as already mentioned an increasing function of the autonomous component of investment *d*, and consequently of the 'development factors'.

Furthermore, the occurrence of explosive, regular or damped paths - whether they are cyclical or not - only depends on parameter μ; when, respectively,

$\mu > 1$, $\mu = 1$ and $\mu < 1$.

The result of this business cycle model - which I consider Kalecki's best[47] - points to some interesting conclusions, of which I intend to highlight one of a 'modelistic' kind, and another two, much more important, theoretical ones.

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[45] Note that this condition involves, as a *necessary* condition (not sufficient) for fluctuations to occur, that *a*/(1+*c*) < 1, which is highlighted more than once in an intuitive manner by Kalecki.

[46] The expression is $\omega = \cos^{-1}\left[\frac{\mu + \frac{a}{1+c}}{2\sqrt{\mu}}\right]$

[47] The author's ultimate cycle model, developed in KALECKI (1968), practically does not differ in its formal structure from that of 1954; fluctuations continue depending on investment being a function of the level of

(i) Even considering that Kalecki's model is theoretical, and not an applied one, and therefore should be immune to criticisms about its degree of realism, or the precision of its results, it passes the plausibility test of the trajectory which it generates. In fact, by taking the actual data used by the author throughout the whole of his book and using extreme values for each of the parameters involved, the following most likely intervals for the basic parameters of the model, μ and $\frac{a}{1+c}$, are obtained:

$$0{,}75 < \mu < 1{,}12 \quad \text{and} \quad 0{,}6 < \frac{a}{1+c} < 0{,}8;$$

which gives, for the parameters of amplitude and fluctuation period respectively:

$$0.87 < r < 1.06 \quad \text{and} \quad 9.3 < T < 14.5.$$

Note that these values are quite 'well-behaved'. The amplitude parameter *r* is around 1, which means, in the case of the necessary condition for fluctuations being fulfilled - which also does not require any heroic hypothesis[48], unlike the majority of accelerator models -, that the fluctuations will be almost regular. The fluctuations period *T* is around 11 investment periods; assuming that these last on average not far from one year, one gets something near a ten-year period (Schumpeter's 'Juglar' cycle) for fluctuations, exactly what business cycle models have for decades been searching for[49].

(ii) The *first central theoretical conclusion* that can be drawn from Kalecki's model, not always well understood, is that the dynamics, so to say, 'associated with effective demand' of the capitalist economy - that is, leaving aside technical progress and structural changes - is characterized by the occurrence of *fluctuations*. This basically means two things: *first*, that it is possible to explain the business cycle *just* by the 'routine' behaviour of the level of activity, without the powerful weapons of structural change and of technical progress, to the contrary of what Schumpeter maintained[50]; and *second*, that even under *stable* structural conditions (which also assumes the absence of non-conventional or unusual *strategies* on the part of agents - including innovations), the economy *still does not tend* towards equilibrium in the strict sense, and even less towards stationary equilibrium. Faced with the methodological stickiness of orthodox theory to the centrality of equilibrium, it is hard to exaggerate the importance of this result. It can be viewed as *a dynamic property of the capitalist economy associated with a stable structure*: which is that the economic system is *dynamically unstable*[51]. In a way, it is as if, *equilibrium not* having been introduced through the main door (as a

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activity and its changes, and the trend continues depending on the autonomous components of aggregate demand, notably of investment. On the other hand, it presents, in my opinion, a theoretical backward move in trying, without success, to make endogenous the effects of technical progress, obscuring the previously clear result that technical progress, although still 'endogenous' in the economic sense, is related to the trend and not to the cycle.

[48] It is enough to take the same value intervals of μ and assume, taking Kalecki's arguments, that $a/(1+c) < 1$, and apply them to the fluctuation condition (11) to see that it is being easily fulfilled. It is also worth noting, as Kalecki does in chp. 13 of the same book, that even if the parameters do not determine endogenous fluctuations, or dampen them, the simple presence of random exogenous shocks (due to innovations and external factors) allows them to proceed, even if in a more irregular form.

[49] This is because long cycles, or those of the Kondratieff type, are much more controversial and, moreover, are only with difficulty submitted to an explanation solely based on the effects of effective demand analysed by Kalecki and by Neo-Keynesian models; they rather require the introduction of technical progress and structural change, in the style of Schumpeter.

[50] Maybe for this reason he reacted aggressively against models which he called *perpetuum mobile*, implicitly referring to Kalecki and possibly to Frisch, as if they were 'effects without a cause': see SCHUMPETER (1942), chp. 4, p. 139. There is a misunderstanding here: the 'cause' of a cycle in Kalecki is evidently *structural*, similar to the oscillation models in physics, and not an 'efficient' or *ad-hoc* cause, as in Schumpeter, for whom each cycle is a single one and has a historically determined 'cause'.

[51] About this see VERCELLI (1991), chp. 3.

methodological assumption in the neoclassical format), it *no longer returns* by itself in any other point of the analysis[52].

(iii) The *second central theoretical conclusion* of Kalecki's[53] model is that the dynamics of the capitalist economy can essentially be conceived as being formed by *two theoretically distinct* components - in other words, not just by an expositive or analytical resource: the component associated with the working of '*effective demand*', that is, the behaviour of the current level of activity, capable of producing (even though not necessarily - it depends on the parameters) *fluctuations*; and the trend component, associated with *structural change*, derived from the operation of the 'factors of development', especially through innovations in general and technical progress in particular, which certainly are *endogenous* to the economy (even though they are exogenous to the model) and which produce potentially unstable trajectories from the structural point of view, given the *structural change* (of parameters, from the formal point of view) which they encourage[54].

Of course, the particular form of these trajectories is not pre-determined: depending on the parameters and the exogenous hypotheses of structural change, the component of 'effective demand' might not present fluctuations, while that of the 'trend' can appear as a long wave, of the Kondratieff type or something similar. What is important here is not the particular form of the time path, but the distinct *causal principle* of the operation of these components along the trajectory.

The *combination* of these two components produces, finally, an *integrated* dynamic trajectory, even though the specific causes cannot be strictly unified by a unique or common causal principle[55]. This combination occurs in the additive form of a sum of the effects only under the simplifying assumption (initially assumed by Kalecki but which can be relaxed) that the dynamic difference equation is linear and particularly that the independent term changes only in the 'long run', which is clearly not a realistic hypothesis. Otherwise, relaxing these simplifications, the model evolves in an effective, more complex, interaction between the components, which however does not introduce additional conceptual problems[56].

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[52] It is said that, symptomatically, there is not in the *whole* of Kalecki's book *a single reference* to the notion of equilibrium! The only explanation is that Kalecki was not an economist...

[53] This interpretation is mine: it is not clear that the author himself drew these conclusions, whether because he believed less in dealing with purely theoretical dynamic properties than with explaining a phenomenon which was apparently real - that of business cycles with trends -, even though at his time they appeared to be less and less empirically observable; or whether because he was still unsatisfied with his own conclusions, so much so that he returned to the question of the integration of trend and cycle in 1968, without, in my opinion, much success.

[54] For the concept of structural instability see VERCELLI (1991), chp. 4.

[55] This subject - the 'integration' between trend and business cycle – raised controversy at that time, in which Kalecki took part to some extent. In my view, curiously despite the author's own opinion, his 1954 model had *already* resolved the problem – in a sense showing that there was no problem to be solved. On the one hand, the need of a 'unified theory' is a chimera without great significance, because after all investment is but one, whether it is impelled by the logic of accumulation outlined by Marx, or whether it is treated at the more analytical level of Keynes' general theory of investment in capital assets. What is being dealt with is just the recognition that the *motives* associated with the increase in productive capacity ('induced' investment) and the technological modernization of equipment ('autonomous' investment) have *distinct* causal explanations. On the other hand, the requisite of analytical or 'modelistic' integration can be satisfied without major conceptual difficulties, just with a certain degree of technical complexity when the simplifying assumptions of linearity and constant trend are relaxed, and even then, only for the effect of working out applied versions of the model. Kalecki himself outlined a mathematical treatment of this interaction in chp. 14, as well as in his 1968 model.

[56] The resulting trajectories in more complex conditions of interaction can nowadays be more easily obtained, with specific hypotheses of behaviour of the autonomous components of aggregate demand and of the parameters, by means of computer simulations.

Interpreting in this way the dynamic trajectory, the emphasis is being put, less on what was the central object of Kalecki's in his book (*Theory of Economic Dynamics*) and throughout his macroeconomic *oeuvre*, which, as is widely known, was the dynamic effects of effective demand; and more on the *combined* and eventually *complex* (involving interactions) character of this trajectory, whose causality is, as the author himself recognised, *necessarily multiple*. That he dedicated only two chapters of the book (14 and 15) to 'development' – *i.e.* to long run trends -, and furthermore having treated them analytically as exogenous, does not at all change the *essential* conclusion, that his theory of the business cycle, more than any other, undertakes the task of revealing clearly that, *in the absence of any 'development factors'*, the capitalist economy *does not* present a positive *trend* - one of the most important historical achievements of capitalism -, and therefore would exhibit a path of *fluctuations around a stationary state*! It would be difficult to find greater praise for the crucial importance of technical progress in an author who practically did not discuss it, and who sometimes was accused of neglecting it completely... Schumpeter would not have done better.

5. Conclusion

In this essay I have tried to briefly show the importance - and, as well, the relevance - of Kalecki's almost forgotten contribution to some of the central subjects of macroeconomic theory: the principle of effective demand, the savings-investment relation and macroeconomic dynamics, which were present at no less than the foundation of the discipline, and which were a continuous preoccupation of the author until the end of his life.

The importance of his contribution derives from the clarity of thought and depth of analysis which make his propositions and most basic insights true reference points for Macroeconomic Theory; even though his excessive brevity and a curious mixture of theory with *ad hoc* propositions in his models can, at times, make comprehension more difficult than necessary.

Concerning the relevance of his contribution, much effort is not needed to perceive that in all of these great subjects, contemporary macroeconomics, which is more than ever dominated by mental (as well as political) conservatism, has little to say, having abandoned them a long time ago. Even when something is said - as in the case of the habitual banalities about savings, including attributing to it an ill-fitted role as a factor of growth and economic development - it is in the opposite direction, a return to pre-Keynesian and pre-Kaleckian concepts. Or, as in the field of macroeconomic dynamics, it has withdraw completely from the primacy of demand, logically derived from the principle of effective demand, and methodologically focused on the concept of equilibrium, abandoned by Kalecki.

The return to Kalecki should not be, however, just a simple nod of recognition and of justice to an important economic thinker not widely known and prematurely forgotten; but a gesture of critical, and *consequently* scientific, survival in a discipline essential to social life and for public action in capitalism, but which has dissipated itself through the loss of scientific substance and lack of direction, at the same time as it has filled itself with conventional knowledge.

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