A METHODOLOCICAL ISSUE: EX ANTE AND EX POST ANALYSIS IRRELEVANT TO KEYNES'S THEORY OF EMPLOYMENT

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1. Introduction

Ex ante and *ex post* analysis has been propounded in the thirties by Gunnar Myrdal, who introduced it in this way :

> [...] an important distinction exists between prospective and retrospective methods of calculating economic quantities such as incomes, savings, and investments; and [...] a corresponding distinction of great theoretical importance must be drawn between two alternative methods of defining these quantities. Quantities defined in terms of measurements made at the end of the period in question are referred to as *ex post*; quantities defined in terms of action planned at the beginning of the period in question are referred to as *ex ante*. (Myrdal 1939: 46-7)

Then, focusing attention on the relation between saving and investment, Myrdal argued that one may without any contradiction consider that, as they are made by separate agents, *ex ante* saving and investment decisions are not at parity in general while *ex post* saving and investment recorded in bookkeeping balance exactly:

> There is in fact no contradiction at all between the statement of an exact bookkeeping balance *ex post* and the obvious inference that in a situation when saving is increasing without a corresponding increase of investment, or perhaps with an adverse movement in investment, there must be a tendency *ex ante* to a disparity. (Myrdal 1939: 46)

This analysis has become a standard tool in macroeconomics. Yet, in his time, Keynes dismissed it. In a letter to Bertil Ohlin in January 1937 (Keynes 1937b: 184-5),

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he acknowledged that he had been thinking and lecturing in a similar vein in 1931 and 1932, but he had finally rejected this form of reasoning:

> So, after writing out many chapters along what were evidently the Swedish lines, I scrapped the lot and felt that my new treatment was much safer and sounder from the logical point of view. (Keynes 1937b: 184)

At the very most, he conceded to Ohlin that the distinction between *ex ante* and *ex post* quantities could be used for exposition (p. 185). But it goes without saying that he went on denying the relevance of Myrdalian analysis by which saving and investment are allowed to adjust *ex ante* to each other. However, the reference to *ex ante* and *ex post* analysis has become so usual in modern macroeconomics that the position of Keynes is currently considered as an oddity, if not a mistake. As Shackle put it,

> Myrdalian *ex ante* language would have saved the *General Theory* from describing the flow of investment and the flow of saving as *identically*, tautologically equal, and within the same discourse, treating their equality as a condition which may, or not, be fulfilled. (Shackle 1989: 51)

In the *General Theory* Keynes namely defined income as being identical to the value of current output and concluded that saving and investment are necessarily equal to each other (Keynes 1936: 63-65).[2] Nonetheless, the principle of effective demand to all appearances allows aggregate supply and demand to adjust to each other (on account of the definitions endorsed by Keynes, this amounts to allow saving and investment to adjust to each other),[3] their equation being conditional upon the level of employment offered by firms. Then, the reference to *ex ante* and *ex post* analysis might be not only a convenience but also a necessity: it should reconcile the identity and the conditional equation of aggregate supply and demand.

In what follows, I propose to examine Keynes's genuine reasoning. I shall argue that his dismissal of *ex ante* and *ex post* analysis is not an oddity at all: it is in accordance with

[2] "Income = value of output = consumption + investment.
Saving = income - consumption. Therefore saving = investment." (Keynes 1936: 63).

[3] Aggregate supply is made up of current output, the value of which equals income *i.e.* consumption + saving (according to the above definitions). Aggregate demand is the sum of aggregate demand for consumer goods (consumption) and aggregate demand for capital goods (investment). So, the equation aggregate supply = aggregate demand is equivalent to the equation saving = investment.

his theory of the effective demand and his rejection of the orthodox theory which considered employment as a variable determined within a comprehensive price system. Section Two examines a first set of arguments Keynes developed in direct relation to the principle of effective demand: the dismissal of *ex ante* and *ex post* analysis is coherent with the latter principle which, despite common interpreting, is not a process adjusting *ex ante* supply and demand. Section Three examines the arguments Keynes further opposed to *ex ante* and *ex post* analysis with reference to his formulation of the 'finance motive'. This principle confirms the identity of saving and investment (and so the identity of supply and demand), which therefore cannot be subject to any adjustment process (neither *ex ante* nor *ex post*). This line of reasoning is puzzling however, since the principle of effective demand presupposes a possible discrepancy between aggregate supply and demand. It will be suggested, in Section Four, that the principle of effective demand is linked to a theory of income distribution where profits are a redistributed share of factor income which is transferred to firms when prices exceed factor costs. So, the identity and the equilibrium condition are reconcilable: they relate to separate measurements of income and output, factor cost and prices.

2. A point of view in direct relation to the principle of effective demand

In his letter to Ohlin quoted from above, Keynes explained his rejection of the Swedish line in this way:

> My reason for giving it up was owing to my failure to establish any definite unit of time, and I found that that made very artificial any attempt to state the theory precisely. […] I used to speak of the period between expectation and result as 'funnels of process', but the fact that the funnels are all of different lengths and overlap one another meant that at any given time there was no aggregate realised result capable of being compared with some aggregate expectation at some earlier date (Keynes 1937b: 184-185)

In real economies different production processes are simultaneously underway which take more or less time and overlap one another. Some productions started in a preceding period come to an end in the current period, while others are started during the current period which are still underway when it is over. Hence, it is difficult to refer to a definite time period relevant for computing aggregate results which could be traced back to aggregate expectations reckoned at some earlier date. In his 1937 lectures Keynes confirmed the point at issue:

> When one is dealing with *aggregates*, aggregate effective demand at time *A* has no corresponding aggregate income at time *B*. All one can compare is the expected and actual income resulting to an entrepreneur from a particular decision. (Keynes 1937a: 180)

A priori, Keynes's argument is simply grounded on a practical difficulty relating to the adapting of the *ex ante* and *ex post* analysis, which would be suitable at a microeconomic level, for the macroeconomic level.[4] Since individual production processes are of different lengths and overlap one another, it would be arbitrary to divide time into *ex ante* and *ex post* phases for the economy as a whole. But this is not the whole story. Otherwise, the principle of effective demand might be jeopardised as well. According to the preceding quotations, to move on unambiguously from individual processes to production as a whole would require that all the processes be of the same length and start simultaneously, which is obviously unrealistic. How, then, could the principle of the *aggregate* effective demand be stated?

To sort things out, we have to consider a second argument displayed by Keynes. Let us quote the following passage in his 1937 lectures:

> *Ex ante* decisions in their influence on effective demand relate solely to *entrepreneurs'* decisions. *Ex ante* saving a very dubious concept -the decision don't have to be made. […] There is a law relating *ex post* investment and consumption. Money will be lost if *ex ante* decisions are not in conformity with this law. (1937a: 182-183)

This quotation clears up the link between the author's dismissal of *ex ante* and *ex post* analysis and his formulation of the principle of effective demand. According to him, the general public does not make *ex ante* decisions with regard to saving. Thus, there are no distinct supply and demand forces available, which would be based on the behaviour of two different categories of agents, entrepreneurs and individuals, and which would

[4] The difficulty examined here is distinct from the conundrums raised by the construction of aggregate demand and supply functions, which have been extensively examined in the Post Keynesian literature in the line of the pioneering works of S. Weintraub (1951) and P. Davidson (1962) .

adjust to each other and determine income. *Ex ante* is *solely* the domain of entrepreneurs decisions, with the latter having to foresee what the demand will be (otherwise they would loose money). In other words, employment (and thence income) determination is in no way analogous to price determination.[5] Actually, according to Keynes, there is a law governing the relation between (aggregate) supply and demand, but this law is *ex post* and is dependent on investment and consumption (with the latter being *ex post* variables).[6] All what entrepreneurs can do is to take this law into account in order to make accurate expectations. Then, the principle of effective demand is not challenged by the overlapping of individual production processes and the related impossibility of dividing time into *ex ante* and *ex post* phases: the *ex ante* and *ex post* analysis is irrelevant to it anyway.

A brief reference to Myrdal's *Monetary Equilibrium* shows that the Swedish economist also dealt with the question of the unit of time, which he proposed to solve by reducing the actual time-dimension of macroeconomic variables such as income, saving and investment to a point of time:

> Some of these quantities refer directly to a point of time. That is true of "capital value" as also of such quantities as demand and supply prices. Other terms - as e.g. "income", "revenue", "return", "expenses", "savings", "investments" - imply, however, a time period *for* which they are reckoned. But in order to be unambiguous they must also refer to a point of time *at* which they are calculated. (Myrdal 1939: 45).

Prices are quantities that directly refer to a point of time: they are determined at a point of time, after an *ex ante* adjustment process has taken place. As for the macroeconomic quantities, Myrdal proposed to refer to the point of time at which they are *calculated*. Nonetheless, how are macroeconomic quantities determined? Myrdal further explained that *ex ante* disparity and *ex post* balance are made consistent through prices changes, which result from the behaviour of economic agents which is based on *ex ante* anticipations:

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[5] For an extensive appraisal of this analogy see Schmitt (1972).

[6] "[…] income, investment and saving […] are *ex post* concepts" (Keynes 1937a: 1983).

> For these anticipations determine the behaviour of the economic subjects and consequently those changes in the whole price system which during a period actually occur as a result of the actions of individuals. (Myrdal 1939: 121)

Thus, while comparing Keynes's approach to Myrdal's, we get confirmation of our interpretation. As is well-known, Keynes's principle of effective demand is concerned with entrepreneurs expectations. According to this principle, entrepreneurs are ready to offer the volume of employment for which the proceeds they "expect to receive from the employment of N men" (Keynes 1936:25) meet "the expectations of proceeds which will just make it worth the while of [them] to give that employment" (*ibid.*: 24). Keynes called this particular value of the expected proceeds 'the effective demand' (*ibid.*: 25). At first sight, we could argue that Keynes and Myrdal simply disagreed with respect to the emphasis to be put on entrepreneurs' expectations. According to Myrdal the expectations of the general public (who asks for goods) deserve as much attention as entrepreneurs' anticipations. But both approaches are actually different from each other. Just as stated above, in Keynes's view there is no *ex ante* adjustment process between supply and demand. Contrariwise, according to Myrdal, expectations of the economic subjects determine *ex ante* supplies and demands whose adjustment determines the whole price system (and changes in it during a given period) and hence income, saving, consumption and investment. Thus, a clear cut line undoubtedly separates both approaches. According to Keynes, the sequence from entrepreneurs' expectations and decisions to income determination cannot be encapsulated in a global system of (simultaneous) equations. His dismissal of *ex ante* and *ex post* analysis helps us to understand this feature of his approach, which has been underestimated by Hicks when he initiated the IS-LM model and is still neglected by all those who limit Keynes's originality to adjusting quantities instead of prices. It is also, contrariwise, a justification to the well-known emphasis put by Post Keynesian literature onto (among other issues) the role of entrepreneurs expectations in a world of radical uncertainty[7] (entrepreneurs make decisions which have to take into account decisions by consumers at a time when the latter have not yet made any decision) and historical time.

[7] Notice that Kregel (1976), who analysed the role of uncertainty in Keynes's model, precisely came to the conclusion that Keynes's procedure "produces an alternative

3. Lessons from the finance motive

In his two 1937 articles on the theory of the rate of interest published in the *Economic Journal*, Keynes gave further reasons for his dismissal of the *ex ante* and *ex post* analysis. Let us quote the article published in December 1937:

> There is, however, no such necessity for individuals to decide, contemporaneously with the investment decisions of the entrepreneurs, how much of their future income they are going to save. To begin with, they do not know what their incomes are going to be, especially if they arise out of profit. But even if they form some preliminary opinion on the matter, in the first place they are under no necessity to make a definite decision (as the investors have to do), in the second place they do not make it at the same time, and in the third place they most undoubtedly do not, as a rule, deplete their existing cash well ahead of their receiving the incomes out of which they propose to save, so as to oblige the investors with 'finance' at the date when the latter require to be arranging it. [...] Surely nothing is more certain than that the credit or 'finance' required by *ex ante* investment is not mainly supplied by *ex ante* saving. (Keynes 1937d: 216-217)

The discussion focuses on the adjustment process between saving and investment posited by the Classical theory. But, as the definitions endorsed by Keynes in the *General Theory* make obvious, it amounts (as already mentioned in the introduction to this paper) to discussing the assumed adjustment process between aggregate supply and demand. Keynes insists that the general public does not make *ex ante* decisions contemporaneously with the investment decisions of the entrepreneurs. We already examined this argument. Thus we have a confirmation that the principle of effective demand is in no way supposed to determine employment by means of an adjustment process between *ex ante* supply and demand. However, this time round, the main argument is linked to Keynes's presentation of the 'finance motive'. In the article

approach to the concept of equilibrium which is, in addition, incompatible with the concepts of *ex ante* and *ex post*" (p. 222).

quoted from (1937d) and in a previously published one (1937c), examining the monetary environment of production, he namely stressed the fact that starting production usually requires that the banks undertake to finance firms.[8] As he put it, 'finance' takes (mainly) the form of credit lines (overdraft facilities) which entrepreneurs ask for and use to pay for their production costs. Defined in this way finance is unusual in that it does not involve raising funds from pre-existent savings: "But 'finance' has nothing to do with saving. [...] It does not absorb or exhaust any resources" (1937c: 209).[9]

Taking into account the finance motive reinforces Keynes's position. We notice anew that Keynes's theory of employment is a more complex process than expected. According to the 'finance motive', the actual sequence starts with unilateral decisions made by entrepreneurs who have to pay for the factors they employ. The principle of effective demand comes in at this stage: entrepreneurs make their decisions in accordance with their expected proceeds (and costs). At this same stage, individuals have not yet received the income they will spend on purchases, or save and provide for financing firms. It is only at a second stage, when factor cost is paid, that income becomes available. Then income, which is not taken out of a previous stock, represents a net addition to the stock of assets. More precisely, being paid in money income is necessarily deposited with a bank: it immediately defines a stock of saving. Of course part of this spontaneous saving will be consumed in the very near future. Nonetheless, in the meantime, income is actually saved.[10] This is what allows Keynes to distinguish between credit in the sense of 'finance' and credit in the sense of bank loans (cf. Keynes 1937c: 209). While banks provide 'finance' of their own - in the form of credit lines - in the meantime between "planning and execution", they become mere intermediaries

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8 According to Keynes, such finance may also be provided by the market (cf. Keynes, 1937c, pp. 208-209). His analysis of the relationship between investment and saving is not altered however (see Gnos, 2002).

9 An extensive Post Keynesian literature has examined the ins and outs of the 'finance motive'; see notably P. Davidson (1972) and J. Bibow (1995). I shall not expand on this issue here.

10 As Keynes stated in his *General Theory*, the bilateral character of banking implies that to the depositors' saving corresponds an equivalent investment: "The prevalence of the idea that saving and investment, taken in their straightforward sense, can differ from one another, is to be explained, I think, by an optical illusion due to regarding an

between individual depositors and firms as soon as credit lines are used in actual payments.[11] Thus, in opposition to Ohlin's view, Keynes was able to argue that 'finance' is a flow (the corresponding income is not taken out of a pre-existing stock but is created in payments) that results in the building up of a stock, both saving and investment, so that "there will always be exactly enough *ex post* saving to take up the *ex post* investment and to release the finance [...]" (1937d: 222).[12] Thus we have a confirmation that aggregate supply and demand are not subject to any adjustment process: they are necessarily equal (identical).

4. The identity and the equilibrium condition relating to separate measurements of income and output, factor cost and prices

Our troubles are not over yet: we notice a possible inconsistency in Keynes's story. Saving and investment, and therefore aggregate supply and demand, are identical. Then, how can we conceive the working of the principle of effective demand, which relates to a possible discrepancy between aggregate supply and demand? Hence, as I mentioned in the introduction to this paper, the objection that Shackle (1989) proposed to solve thanks to "Myrdalian *ex ante* language". However, as shown above, Keynes's dismissal of *ex ante* and *ex post* analysis is in coherence with his theory; then, we have to search for another solution.

In fact, this question has been discussed extensively in the late 1930s. Robert Heilbronner, who was a student at that time, wrote his thesis on this topic[13] and proposed to make a distinction between designed and undesigned investment and saving:

individual depositor's relation to his bank as being a one-sided transaction, instead of seeing it as the two-sided transaction which it actually is." (Keynes, 1936: 81).

[11] "The 'finance', or cash, which is tied up in the interval between planning and execution, is released in due course after it has been paid out in the shape of income, whether the recipients save it or spend it" (Keynes, 1973: 233).

[12] The interpretation on the 'finance motive' as given rise to a vast and controversial literature. Here, I make as a literal reading of Keynes's text as possible.

[13] I give these details here with reference to Mathew Forstater, who wrote comments on this paper prepared for a Conference held at the University of Notre Dame, May 2001. Referring to Heilbronner, Forstater recalled also that at Harvard University in the late

> […] writers who stress the shifts in the level of income as the variable which equates saving and investment should take pains to indicate that it is the designed flows that are so equated, but that the undesigned complements maintain the definitional equation at all times during the transition from one point of equilibrium to another. (Heilbronner, 1942: 828)

Earlier, Hawtrey had also proposed to separate undesigned increments (or decrements) in the stock of unsold goods from investment, so that the excess of saving over investment would have meant an undesigned increment in the latter stock. However Keynes, who mentioned this proposal in the *General Theory,* was not convinced “that this is the factor to stress” (Keynes 1936: 76). But this does not mean that he rejected the notion of undesigned investment to account for a possible discrepancy between aggregate supply and demand. In fact, he was discussing Hawtrey’s proposal with reference to the determination of the effective demand. In this view, according to him, the fundamental factor to stress is profit: “As I now think, the volume of employment […] is fixed by the entrepreneur under the motive of seeking to maximise his present and prospective profits” (Keynes 1936: 77). Then, undesigned stocks are not crucial as such. They only matter insofar as they have an impact on profits: entrepreneurs are unwilling to accumulate stocks because financing them is a charge impeding their present and prospective profits.

The emphasis on profits is very interesting and it points the way to the solution we are looking for. Although Keynes did not explicitly set out a theory of profit in the *General Theory*, he suggested much. In particular, he stressed the fact that the incomes defined by factor cost and profit are created in different ways. Factor cost is an expense met by entrepreneurs (Keynes 1936: 23). Profit is derived from the excess of prices over factor costs (*Ibid.:* 23).[14] So, we may consider that the principle of effective demand is tied in with a theory of income distribution where profits are a redistributed share of factor income, which is transferred from purchasers to firms when prices exceed factor costs (see Gnos, 1998). The identity and the equilibrium condition may then be easily reconciled. In accordance with Keynes’s presentation of the finance motive, supply and

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1930s such figures as Schumpeter, Samuelson, Sweezy, Hansen, S. Harris, Galbraith and others argued this question until they were “purple in the face”.

[14] I disregard, here, user cost that is paid by entrepreneurs but is no part of income.

demand are necessarily equal. This means that the payment of factor costs creates the money income which is necessary and sufficient to pay for output as a whole. In this respect, factor cost provides an exhaustive measure of both income and output. However, by the principle of effective demand, entrepreneurs are not ready to sell the output at a price equating their proceeds from sales to their factor cost. They require profits, the formation of which supposes that prices exceed factor costs. So, they offer the output at a supply price (which Keynes terms “the aggregate supply price”) high enough to recoup their factor costs and earn them a profit. But entrepreneurs cannot be sure that factor income recipients will be ready to pay the required price for any quantity of goods produced. They therefore have to determine the precise quantity of goods produced which they can expect to sell at a price (which Keynes terms “the aggregate demand price” or “proceeds”) meeting their supply price. The equality of supply and demand, as measured in prices, is then an equilibrium condition. All in all, the identity and the equilibrium conditions relate to separate measurements of income and output, factor cost and prices. Both measures are compatible with one another, however, because profits are a redistributed share of the income defined in the payment of factor costs: prices do not include any income over and above the income formed in the payment of factor costs.

To support my argument, I can also refer to the fact that Keynes discarded the usual reference made to prices, and especially to the general price-level. According to him, the price-level is "very unsatisfactory for the purposes of a causal analysis, which ought to be exact" (*Ibid.:* 39). He intended instead "to make use of only two fundamental units of quantity, namely, quantities of money-value and quantities of employment" (*Ibid.:* 41). Thus he proposed to measure output and its variations "by reference to the number of hours of labour paid for [...] on the existing capital equipment, hours of skilled labour being weighted in proportion to their remuneration" (*Ibid.:* 44). The amount of wages (making up the factor cost), which equals the quantity of employment multiplied by the wage-units, was consequently promoted to the rank of an adequate yardstick for measuring the whole output. Last but not least, the definition of profit as a redistributed share of wages fits in with the role that uncertainty and expectations play in Keynes's theory. Despite the fact that employment generates the income which is necessary and sufficient to pay for output, the profitability of production is subordinated to the sanction of markets, *i.e*. to actual proceeds of sale that entrepreneurs are condemned to forecast with varying fortunes.

5. Conclusion

As we know Keynes alerted his readers, whom he intended to persuade to re-examine the (neo)classical theory, that

> The difficulty lies, not in the new ideas, but in escaping from the old ones, which ramify, for those brought up as most of us have been, into every corner of our minds. (Keynes 1936: viii).

The fate of Keynes's dismissal of *ex ante* and *ex post* analysis is most likely representative of this kind of difficulty.

The principle of effective demand, which is at the core of the *General Theory*, determines the volume of employment entrepreneurs offer with reference to the proceeds they expect to receive from the output of a given amount of employment and to the proceeds that (for this same amount of employment) will make good their costs and pay them a maximum profit. To expound his theory, Keynes defined the expected proceeds as a function of the employment offered, which he called the "Aggregate Demand Function". Similarly, he defined the proceeds required as a function of the employment offered, which he called the "Aggregate Supply Function". Employment is reputed to be determined at the point of intersection of both functions (Keynes 1936: 25). For economists brought up in the neo-classical tradition, this presentation suggested that *ex ante* and *ex post* analysis, which is currently used to account for the adjustment process between supply and demand depicted by the theory of price, applies as well to Keynes's theory of employment. It has been all the easier for them to apply the Myrdalian analysis to Keynes's theory since the principle of effective demand treats the equality between supply and demand as an equilibrium condition while Keynes simultaneously posited supply and demand as identically equal: the recourse to *ex ante* and *ex post* analysis has been deemed not only convenient but also indispensable.

A scrupulous examination of the writings where Keynes explicitly dismissed the Swedish analysis displays a more original teaching. On the one hand, it turns out that the principle of effective demand does not amount to a process adjusting *ex ante* aggregate supply and demand. There is actually a law linking supply and demand. But this law takes place *ex post*. *Ex ante* is solely the domain of entrepreneurs' decisions, with the latter offering employment in connection with the proceeds they expect from sales. On the other hand, the presentation of the 'finance motive' allowed Keynes to confirm the identity of saving and investment he already stated in the *General Theory*. Given the common definitions endorsed by Keynes, this means that aggregate supply and demand cannot be subject to any adjustment process. This conclusion is puzzling however, since the working of the principle of the effective demand presupposes a possible discrepancy between aggregate supply and demand. The present paper suggests that the principle of effective demand is linked to a theory of income distribution where profits are a redistributed share of factor income - *i.e.* wages - which is transferred to firms when prices exceed factor costs. In this view, the payment of wages creates the money income which is necessary and sufficient to pay for the output: measured in wage-units, income (demand) and output (supply) are identical. However, the equality of supply and demand *prices* is conditional, the profitability of production (and hence the amount of employment offered by firms) being thus subordinated to the sanction of markets.

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