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KEYNES'S *GENERAL THEORY*, *TREATISE ON MONEY* AND *TRACT ON MONETARY REFORM*:
DIFFERENT THEORIES, SAME METHODOLOGICAL APPROACH?

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Abstract

In trying to assess the content and significance of Keynes's attempted revolution in economic methodology, historians have almost exclusively focused on the *General Theory*. By highlighting the legacy of the *Treatise on Probability* for Keynes's economic writings, this paper provides evidence of strong methodological continuity between the *Tract on Monetary Reform*, the *Treatise on Money* and the *General Theory*, despite radical differences in the theories. We argue that the novelty of Keynes's approach lies in offering a method of analysis that enables the reader to tackle the complexity of the economic material.

Keywords: John Maynard Keynes, economic methodology, economic theory, complexity, interdependence

JEL codes: B31, B40

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1. Introduction: On Keynes's revolution

John Maynard Keynes was perfectly and proudly aware, even before completing it, that *The General Theory of Employment, Interest and Money* was destined to “revolutionise ... the way the world thinks about economic problems” (*The Collected Writings of John Maynard Keynes*, hereafter referred to as CW, Vol. 28, p. 42). “I can't predict what the final upshot will be in its effects on action and affairs. But there will be a great change” (ib.), he wrote in a letter of 1935 to George Bernard Shaw. As known, history proved that Keynes was right. The emergence, with the *General Theory*, of modern macroeconomics itself was obviously a watershed in the history of the discipline, and Keynes evidently changed the way politicians used to think about economic problems in the golden decades of the Keynesian era, until the advent of stagflation and a theoretical counter-revolution led by Monetarism and later New Classical Economics. Still, despite considerable divergences in measuring the distance between Keynes and the Keynesians, historians of economic thought are aware that Keynes's work in economics cannot be reduced to Samuelson's Keynesianism (see Davidson 2009) and the IS-LM model sketched out by Hicks in 1937. Nor can Keynes's revolution be identified as one in policy. As Dimand (2010: 297) observes, this “has led to all too many reported sightings of precursors of Keynes, whenever someone is found to have proposed public works as a response to unemployment”. More, the post-war made Keynes's revolution coincide with Keynesian fine-tuning, but Keynes never advocated such policies and was certainly not a supporter of their mechanicism.

The Keynesian revolution has not coincided, in sum, with Keynes's desired revolution. Despite encouraging premises – a number of mainstream economists (see Posner 2009, Akerlof and Shiller 2009) turned to Keynes, in the years immediately following the subprime crisis, while addressing the failed state of macroeconomics –, even the ephemeral Keynesian resurgence of 2008-2009 seems to confirm the difficulty to grasp the revolutionary essence of Keynes's analysis. The return of fiscal stimulus packages after financial bailouts proved in fact short-lived – rather, what debt impasses such as the European one contributed to recover is a pre-Keynesian classical austerity doctrine (see Konzelmann 2014) –, while expansionary monetary policies are being implemented without addressing the vulnerability of the financial system and the likely cause of financial troubles, that is excessive deregulation. As regards economic theory, we still live in a state of crisis, to use Kirman's (2010) dictum (see Stiglitz 2011). A “Keynes comeback” (as distinct from traditional Keynesian policies, however fashionable again) aiming at throwing light on the crucial novelty of Keynes's economics has materialized only in the heterodox literature (see Davidson 2009, Skidelsky 2009, Clarke 2009, Bateman, Hirai and Marcuzzo 2010, Dimand, Mundell and Vercelli 2010, Backhouse and Bateman 2011; for reviews, see Economist 2009, Kirshner 2010).

Still, as late as 1999, the economist who first emphasized the gulf between Keynes and Keynesian economists, Axel Leijonhufvud, could still observe that “no general agreement was ever reached on what specific idea or ideas made [the *General Theory*] so revolutionary” (Leijonhufvud 1999: 16). The Post-Keynesian literature (Shackle 1967; Davidson 1972; Eichner and Kregel 1975; Minsky 1975) has long insisted on uncertainty as a key aspect of Keynes’s economics, and argued that Keynes had eliminated a relevant classical axiom, namely the “ergodic” axiom. By accepting this latter, the classical theory assumes the future to be predetermined by existing parameters, or “market fundamentals”, to which the economist can apply statistical probability analysis with a view to predicting future economic trends. The neoclassical synthesis did very little to avoid falling victim of the same criticism Keynes had addressed to the classical theory (which he saw as “one of those pretty, polite techniques which tries to deal with the present by abstracting from the fact that we know very little about the future”; CW 14: 115). While criticising Laidler's (1999) view of Keynes's contribution as a new and manageable synthesis of earlier ideas, Dimand (2010: 306) argues, however, that by singling out one out of four “building blocks” of the *General Theory* as the core of Keynes’s revolution, one “obscures the powerful synthesis that they jointly comprise”. Keynes would have provided a fundamental contribution to each of them (goods market equilibrium condition, with income as a key variable bringing saving and investment into equality; money market equilibrium condition, with the theory of liquidity preference; volatility of private investment, a fundamental role being assigned to uncertainty; and a theory of why labour markets do not clear).

This paper wants to identify a possible way out of the tension between the temptation of looking for a specific “revolutionary” trait and the need to avoid obscuring the multifaceted character of Keynes’s contribution to economic theory. In particular, it aims at suggesting an interpretation of Keynes’s “revolution” as primarily a methodological revolution, where “method” refers to the way itself of thinking in economics and of doing economic theory, rather than in specific aspects of this latter. The present paper situates therefore itself, in the framework proposed by Jespersen (2009: 16), within the specific post-Keynesian strand identifying “methodology” itself (as just defined) rather than uncertainty, or money endogeneity, as the distinctive aspect of Keynes’s economics and the cause of the “abyss” separating Keynes from the (neo)classics. To this general end, the following discussion of Keynes’s way of treating the economic material adopts an epistemological rather than ontological perspective. As O’Donnell (2011) has recently argued, the two perspectives identify two distinct Post-Keynesian approaches to Keynes’s concept of uncertainty but also contiguous issues such as his meaning of probability and the relation between uncertainty and the nature of the world under investigation. Leaving aside the ontological approach (based on a view of the state of reality as non-ergodic) and rather adopting the epistemological perspective, we choose to concentrate on Keynes’s logical, objective theory of probability, on his view of probability as a guide to form

reasonable beliefs to act in cognitive conditions of partial rather than complete knowledge. Developed by the so-called “Keynes-philosophy” literature (with seminal contributions by Lawson and Pesaran 1985, Carabelli 1988, Fitzgibbons 1988, O'Donnell 1989; the list was later enriched by Bateman and Davis 1991, Gerrard and Hillard 1992, Davis 1994, Dow and Hillard 1995, Bateman 1996, Arestis, Desai and Dow 2002, Runde and Mizuhara 2003, Backhouse and Bateman 2006, to name a few), the approach highlights the epistemological foundations of uncertainty in Keynes’s thought. Uncertainty derives from ignorance (absence of reasons or evidence, unknown probabilities), and low weight of argument (that is, confidence in probability assessment). But it also results from intrinsically unmeasurable probabilities and economic magnitudes, such as those Keynes identifies as inherently complex in chapter IV of the *General Theory* (e.g. real income and real capital) and in the *Treatise on Money* (general price level; see, in general, Carabelli 1992).

The epistemological perspective brings to the fore Keynes’s reflections on the specific “method” economists should adopt to treat the economic material. The Keynes-philosophy literature retraced in *A Treatise on Probability* both the distant roots of the emphasis posed by the mature Keynes on decision-making under conditions of uncertainty and, above all, the *loci* where to discover the methodological foundations of his economics. As Dow (2010: 269) writes, “it is now conventional to read the *General Theory* bearing in mind that it was written by the author of *A Treatise on Probability*”. On such bases, a recent wave of studies (Carabelli and Cedrini 2014, Marchionatti 2010, Dow 2010, Jespersen 2009, Togati 2006, Chick 2003, Chick and Dow 2001) has generally referred to complexity as a keyword of the *General Theory*, and emphasized the seminal role played by Keynes as a thinker of complexity in the history of economic thought. Keynes (and Marshall) did not make use of that “rigorous language that allows complicated concepts to be written in relatively simple, abstract terms”, helping the economist “to strip away complexity”, as Lazear (2000) would argue to explain the “imperialism” of economics over social sciences. While in the mainstream view “complexity may add to the richness of the description, but it also prevents the analyst from seeing what is essential” (ib.: 99-100), complexity seems conversely at the heart of Keynes’s economics.

Keynes’s anti-positivistic conception of economics sees it as a “moral” rather than a pseudo-natural science, one which deals with introspection and ethical values. As he wrote in his 1926 *Essay on Edgeworth*, “in psychics”, that is in social sciences, “we are faced at every turn with the problem of organic unity, of discreteness, of discontinuity – the whole is not equal to the sum of the parts, comparison of quantity fails us, small changes produce large effects, the assumptions of a uniform and homogeneous continuum are not satisfied” (CW 10: 262). The epistemological perspective on Keynes’s economics throws light on his concern for the problem of detecting a peculiar method suitable for the analysis of complex issues, and more in general, of how to make science in a complex, organically interdependent world (on which see also Chick 2003). Keynes went so far as to

claim that “the theory of economics does not furnish a body of settled conclusions immediately applicable to policy. It is a method rather than a doctrine, an apparatus of the mind, a technique of thinking, which helps its possessor to draw correct conclusions” (CW 12: 856; see Carabelli and Cedrini 2014).

In the *General Theory*, while giving life to a new approach to macroeconomics, Keynes literally “created the notion of an established orthodoxy” (Moggridge 1986: 357). Remarkably, the use of what may appear as an excessively comprehensive category is justified by the ambition of challenging the orthodoxy not only on the aspects of content, but also, perhaps in the first place, on methodological grounds. Keynes pointed at the inability of the classical theory to allow for the organic interdependence on which – a direct legacy of the *Treatise on Probability* – his own economics is built. His is a “general” theory because it avoids introducing tacit hypotheses of independence between variables (see Carabelli 1991; for a critical discussion of the generality of the *General Theory*, see Hodgson 2002). But to claim that full recognition of the complexity of the economic material, and the resulting elaboration of a peculiar method to tackle it, is the element that makes the *General Theory* so revolutionary is, somewhat paradoxically, a self-defeating argument. For the novelty of Keynes’s methodological approach to economics stems directly from conceiving economics itself, along lines established in *A Treatise on Probability*, as a way of reasoning, in the form of a non-demonstrative logic, about an economic material shaped by complexity and epistemological uncertainty. In other words, if one can assign to the *General Theory* a methodologically revolutionary character, it is because of the use of a “method” which should inform, in truth, not only the *General Theory*, but the whole of Keynes’s economic writings.

Despite radical differences in the theories, which reflect Keynes’s gradual abandonment of the orthodoxy but also different aims of the analyses and changing circumstances, we should therefore detect evidence of strong methodological continuity between Keynes’s works of economic theory (the *Tract on Monetary Reform*, the *Treatise on Money* and the *General Theory*). This paper wants to provide such evidence, and claims that what Keynes’s theory of economics offers in truth is therefore a method of analysis, one which expressly requires cooperation on the part of the reader, in the effort to emulate the author in coping with the complexity of the economic material. We thus paradoxically conclude by stressing that (part of) the revolution of the *General Theory* does not truly belong to it. Yet, for this same reason, future revolutionaries in economics would gain a whole method, in exchange for a book.

2. The “method” of the *General Theory*

Keynes’s conception of economics as moral science and “method” has deep roots in his thinking, to

be detected in the *Treatise on Probability* (originally drafted in 1907-1908 and finally published in 1921). There, Keynes rehabilitates probable knowledge as the general and commonest case of knowledge, as against determinism and the positivist attempt to found knowledge upon certainty. Therefore, in developing a logical approach to probability, one in which logical relations have an objective nature, Keynes focuses on arguments of non-demonstrative and non-conclusive character, which nevertheless provide reasons for holding probable beliefs. Economics itself, in this view, is an apparatus of probable reasoning, where “probable” refers exactly to the logical conception of probability exposed in the *Treatise*. It is a non-demonstrative way of reasoning, wherewith one cannot obtain infallible answers nor settled conclusions. More precisely, as Keynes argues in a letter to Harrod, economics is “a branch of logic” (CW 14: 296), of probable logic, where logic means a contingent (to cognitive circumstances) form of non-demonstrative reasoning relative to contexts of shifting reality. Consequently, Keynes thinks it is a necessary requisite of economics that economic theory must be logically correct: it is a duty of the economist, so to speak, to avoid logical fallacies in reasoning.

Although the *General Theory* is often portrayed as a cry against the empirical unrealisticness of the assumptions of the classical theory, the methodology of criticism there employed wants to demonstrate that this latter suffers of logical fallacies (see Carabelli 1991, Gerrard 1997). Keynes’s theory is general, he wrote, because it is concerned with the economic system as a whole, whereas the classics have made “important mistakes” while “extending to the system as a whole conclusions which have been correctly arrived at in respect of a part of it taken in isolation” (CW 7: xxxii). His criticism is therefore one of logical (ir)relevance, though not of logical consistency: those “mistakes” lie not in the “superstructure, which has been erected with great care for logical consistency”, but in “a lack of clearness and of generality in the premisses” lies the classical (xxi). Judgments of “logical irrelevance”, in the form of tacit assumptions of independence and homogeneity having the characteristic of universality in space and time, pervade the classical theory, but such “tacit assumptions are seldom or never satisfied” (378). The classics believe that real variables do not depend on changes in the value of money; they always consider the system as operating to its full capacity, and community income as constant in passing from the individual to the general level. In chapter 19, Keynes argues that the generality and validity of the fluidity-of-money-wages argument, on which the presumed self-correcting tendency of the economic system rests, depends on the possibility to transpose demand and supply schedules for different products of a given industry to industry as a whole. The further, required but tacit assumption of absence of changes in aggregate effective demand, however, reduces the analogy, writes Keynes, to an “*ignoratio elenchi*” (259), as Aristotle named the logical fallacy of argument provoked by the use of premises which are irrelevant to, and incapable of, establishing the truth of the conclusions.

In the *Treatise on Probability*, Keynes had attacked the classical theory of probability, in particular Bernoulli's principle of indifference, and the empirical approach to induction and statistical inference (see Carabelli 1988). Mathematical probability, he argued, should respect the limits of valid reasoning, and in particular, it should avoid introducing tacit assumptions of independence and homogeneity to a material whose nature does not permit their use (CW 8: 66). In the *General Theory*, Keynes suggests that the classical theory is "has no method of analysis wherewith to tackle the problem" (CW 7: 260) of the effect of reduced money-wages on employment. A different methodology is required (see Carabelli and Cedrini 2014; Gerrard 1997; Vercelli 1991), to avoid the simplicity of the classical theory and rather allows for "roundabout repercussions" (257), for different levels of dependence among the variables. Keynes forges a two-stage methodology, whereby "after we have reached a provisional conclusion by isolating the complicating factors one by one, we then have to go back on ourselves and allow, as well as we can, for the probable interactions of the factors amongst themselves" (297).

That Keynes believed this to be "the nature of economic thinking" – "any other way of applying our formal principles of thought (without which, however, we shall be lost in the wood) will lead us into error" (ib.) – needs explanation. In *A Treatise on Probability*, Keynes restricted the validity of analogical reasoning to cases in which the amount of "independent variety" made up by the system's constituents and the laws connecting them one to another is "limited" (CW 8: 280), that is inferior to the number of the system's members. Called upon to investigate a material that does not lend itself, as a rule, to the "atomic hypothesis" supporting mathematical calculus, nor to hypotheses of continuity, uniformity, measurability, homogeneity, proportionality. Wanting to explore "the complexities and interdependencies of the real world" (298), Keynes adopts the above recalled two-stage methodology to avoid the abuses of mathematical formalisation, which "assume strict independence between the factors involved and lose all their cogency and authority if this hypothesis is disallowed" (CW 7: 297). The choice made is an implicit criticism of both the unsatisfactory notion of interdependence as used in general equilibrium theory (where multicausality rests on connections between ultimate atomic factors) and the Marshallian partial-equilibrium analysis: the economist must use the *ceteris paribus* condition only to reach provisional conclusions, to be deliberately repudiated in the second stage of the analysis.

Therefore, the somewhat schematic summary of the "restatement" of the *General Theory* in chapter 18 is followed by three chapters wherein changes in money-wages, the employment function and the theory of prices and employment itself are studied through the use of the two-stage methodology. Keynes first introduces a *ceteris paribus* hypothesis as regards the three "independent variables" – as he defines them in chapter 18 –, namely the propensity to consume, the schedule of the marginal efficiency of capital and the rate of interest, and concludes that changes in money-

wages have no direct effects on employment. The classical theory stops at this point, with opposite results, biased by the above-recalled logical fallacy of composition. Keynes, on the contrary, allows for – and lists seven – “certain or probable repercussions” of money-wages changes on these three factors, to assess the “certain or probable tendency to affect employment” (ibid.). Thus, in a closed system, the resulting reduction of prices and income redistribution from entrepreneurs to rentiers will diminish the propensity to consume. Reduced money wages will decrease the marginal efficiency of capital if further wage-reduction is expected in the future, which will offset the otherwise positive effects of a reduction in liquidity preference. Finally, workers will likely resist wage-reduction in specific industries, compensating for the general tone of optimism the measure can produce on entrepreneurs, while the greater burden of debt will certainly exert a negative influence. Keynes adds that the proposed list of possible repercussions is not “a complete catalogue of all the possible reactions of wage reductions in the complex real world” (CW 7: 264). After discussing the very special conditions under which some of such repercussions may have positive effects on employment, he finds that there is no reason to believe that flexible wage policy can keep the economy at full employment.

Chapter 21 provides a vivid illustration of the analytical power of the two-stage methodology. In discussing the determination of the general price-level, Keynes initially adopts the “simplification of assuming that the rates of remuneration of the different factors of production which enter into marginal cost all change in the same proportion, i.e. in the same proportion as the wage-unit” (CW 7: 295). “Let us simplify our assumptions still further”, he then writes, and assumes, first, homogeneity and interchangeability of unemployed resources, and second, that all factors of production are content with the same money-wage so long as there is unemployment. Nevertheless, the economist must not content her/himself with a theory that assures changes in employment (prices) in the same proportion as the quantity of money so long as there is unemployment (when there is full employment, 296). Rather, he must concern himself with possible complications such as lack of proportionality between independent (effective demand) and dependent variables (quantity of money), heterogeneity and incommutability (of resources). Keynes then lists five complications, and considers each of them in turn, but stresses that they are not to be regarded as “independent” (297), for the resulting analysis would present “a deceptive simplicity” (298). Rather, he provides specific examples of how any of these complications affects each other. For instance, a change in the quantity of money influences the interest rate by altering the schedule of liquidity-preference, the schedule of marginal efficiencies and the investment multiplier. But liquidity-preference depends on the extent to which the new money is absorbed into industrial circulation, and this depends on the increase in effective demand and its distribution between rising prices, rising wages, and rising volume of output and employment. Here too, Keynes warns readers that the list of possible complications is

potentially endless (299).

3. Keynes's methodological revolution before the *General Theory*: The *Tract on Monetary Reform*

Keynes clearly attempted to overcome the limitations of the classical theory by means of a methodological discontinuity, allowing the proposal of a more *general* theory – or a truly general one. To summarize, this discontinuity lies in:

- a. adopting a methodology of criticism intended to detect tacit assumptions of independence;
- b. developing a two-stage methodology overcoming the limits of Marshallian partial equilibrium analysis to allow for change and variability;
- c. bringing complexity and interdependence to the fore of the analysis;
- d. contributing to economic theory by the offering of a “method rather than a doctrine”.

Now, nearly all accounts of Keynes's “revolution” in economic methodology (with the relevant exception of Hoover 2006, wherein however, the stress is posed on Keynes's presumed strategy of “singling out a causal nexus as the theoretical core of the analysis” – Hoover 2006: 86 –, contra the argument developed below in this article) tend to associate, indissolubly if not exclusively, this discontinuity with the *General Theory* itself. Point 4 above, however, indirectly reminds us that the *General Theory* is the result of a theoretical journey that began with the *Tract on Monetary Reform* in 1923 and passed through the *Treatise on Money* in 1930. Still, Keynes wrote the former under the influence of the “orthodoxy” of Alfred Marshall and Arthur Pigou, and in his *Treatise on Money*, he describes the new “fundamental equations” as “alternative” to the “real balance quantity equation” of the *Tract*. This latter mainly derives from articles published in the “Reconstruction Supplements” of the *Manchester Guardian Commercial*. The title leaves little room for doubt: in the book, Keynes concerns himself with currency reforms, their effects, and practical remedies. The only chapter built on previously unpublished material is the central and most theoretical one (“The theory of money”). Patinkin (1975: 254) sees it as “not really necessary for the book: its deletion would interfere very little with an understanding of the argument of the *Tract* at other points, as indeed Keynes indicated (*Tract*, p. 61n)”. In the author's intentions, however, the chapter lays “the theoretical foundations for the practical suggestions of the concluding chapters” (CW 4: 61).

As known, the Keynes of the *Tract on Monetary Reform* believes the quantity theory of money to be “fundamental” (ib.). Yet he also thought that the theory “is often misstated and misrepresented” (ib.). In particular, the “error often made by careless adherents of the quantity theory” (64) would rest on the introduction of tacit “further assumptions” (65) of independence. Keynes explains the quantity

theory of money recurring to the equation $n = p(k + rk')$, where n is the number of currency notes in circulation and p is the index number of the cost of living, that is the price of each of k “consumption units”. The public holds the equivalent of k consumption units in cash and a further k' in deposit accounts at their banks, while these latter keep liquid a proportion r of their liabilities k' . The fundamental problem with the theory as drawn from this “simple” (69) equation is that it “has been often expounded on the further assumption that a *mere* change in the quantity of the currency cannot affect k , r , and k' – that is to say, in mathematical parlance, that n is an *independent variable* in relation to these quantities” (65). Supporters of the theory take as independent variables whose value is affected by alterations in the quantity of currency notes in circulation: they fail to consider such repercussions, but the tacit assumption thereby introduced holds true in the long run only. And, according to Keynes’s famous dictum, “*in the long run we are all dead*” (ib.; emphases in the original): economists should adopt, both practically and theoretically, the short run optic as a guide to current affairs.

These repercussions bring about relevant consequences, at both the theoretical and practical level. “Actual experience” (ib.) shows in fact when n changes, k , k' and r change as well, which might have a decisive influence in producing “cyclical fluctuations” (69). The effect on p of changes in n is usually less than proportionate: but Keynes notes also that, when a further change in p in the same direction is expected, a large change in n , rubbing away the above-mentioned initial friction, would vice versa produce “a more than proportionate effect on p ” (ib.). A large change in p affects in fact individual fortunes, inducing agents to change their monetary habits, both to avoid similar losses in the future and to make gains before the new equilibrium is reached. Although only two of the “few, definite, analysable influences” (68) on prices, namely n and r , are under their direct control, central banks can exercise, through adequate bank rate policies, a stabilising influence on k and k' , or counterbalance their movements by acting on n and r .

Remarkably, Keynes adopts this same methodology of criticism to the “purchasing power parity” theory. In the article *The Theory of the Exchanges and “Purchasing Power Parity”* of 20 April 1922, which constitutes the basis of the book paragraph, Keynes wrote that many used the theory “as a mere counter, a substitute, not an instrument, of thought” (70, n3). An underlying problem of “further assumptions”, in fact, transforms the “the doctrine in its baldest form” (71) into a “patter-phrase” (70, n3) of little utility. What captures Keynes’s attention is the caveat accompanying the doctrine as generally applied – “*allowance being made for transport charges and import and export taxes*” (73, emphasis in the original) – and the related problem of “how to treat purchasing power over goods and services which *do not enter into international trade at all*” (74, emphasis in the original). For when the caveat is reduced to a linguistic expedient used to get rid of the potential complexity of the dynamics of internal and external purchasing power, and the analysis is restricted to goods that enter into

international trade, the theory becomes “a truism, and as nearly as possible jejune” (75). Exactly like the quantity theory of money, Keynes added in the article (75, n1). Thus, “the theory requires a further assumption for its validity”: goods that do not enter into international trade must move “in more or less the same proportions as those which do” (75), but this requires, in its turn, another set of limiting ifs (75-76). “So far from being a truism, it is not literally or exactly true at all; and one can only say that it is more or less true according to circumstances”. In the article, Keynes specifies that such criticisms must not be pushed too far: the “practical importance” of the required qualifications (the prices of the two classes of goods are governed by “deep economic and psychological causes which are not easily disturbed”, while divergences are “mainly” due to monetary causes) should not be “exaggerated” (78). Still, in so doing, he insists on the need to specify them clearly: the point to note is that, once brought to the light, simplifying assumptions appear to restrict the logical validity of the theory tacitly adopting them: while the theory claims universality, such assumptions set limits to its conclusions and reduce its generality.

4. Keynes's methodological revolution before the *General Theory*: The *Treatise on Money*

The *Treatise on Money* is divided into two volumes, devoted respectively to the “pure” and “applied” theory of money. The book addressed “a professional audience whose major concern was with the latest developments in monetary theory” (Patinkin 1975: 254). In this sense, the *Treatise* is truly an intermediate step in the path from the policy-oriented *Monetary Reform* towards the “almost exclusively” (255) theoretical work of the *General Theory*. The book develops a theoretical critique of its predecessor: in this latter, “ p , being the price of a consumption unit, represents our *quaesitum*, the purchasing power of money” (ib.), whereas in truth, Keynes admits in the *Treatise on Money*, it only measures the cash balances standard. Likewise, using the term “consumption units” for real balances, the *Tract* suggests – thus the Keynes of the *Treatise* – that cash deposits are used for consumption only, with consequent neglect of the abundance of possible alternative purposes.

In the *Tract*, Keynes invites “the reader whose interest in the theoretical foundations is secondary” (CW 4: 61) to pass on to the next chapter. Still, in that same chapter, Keynes establishes a direct relationship with his audience. While invoking bank rate policies to prevent price disturbances by stabilising k and k' , or at offsetting their fluctuations by acting on n and r , he apologizes for introducing a topic treated at length in the following chapter. In truth, he argues, such hints are necessary to “indicate to the reader what a long way we may be led by an understanding of the implications of the simple quantity equation with which we started” (69-70). There is an interesting parallel with chapter 20 of *A Treatise on Money*. There, Keynes allows “some readers” to leave the chapter out, though not for reasons of intrinsic difficulty or high doses of technicality: the “Exercise in

the Pure Theory of the Credit Cycle” proposed in the chapter “does not add to the previous argument but only illustrates it” (CW 5: 274). Still, the chapter ends up with directly inviting readers to continue the exercise by themselves, making use of “the general system of thought” there exemplified (292).

The chapter is, in truth, a key one in the *Treatise*. Credit cycle, with the accompanying fluctuations of employment and output, is the focus in the book: the price level is governed by the volume of money earnings of the factors of production and the relation between saving and investment. In particular, the price level of consumed goods exceeds (falls short of) the cost of production of such goods when the cost of production of new investment exceeds (falls short of) the volume of saving. Keynes sees therefore credit cycles as the by-product of “changes due to investment factors” (248). These result from divergences between the market rate (that may reflect different conditions in the loan market, or the need of maintaining equilibrium between foreign lending and the foreign balance) and the Wicksellian “natural” rate of interest (varying with fluctuations in the attractiveness of investment and saving). As Hoover (2006) notes, readers may easily find in the book examples of causal accounts: Keynes himself declares that the task of a monetary theory is “to exhibit the causal process by which the price level is determined, and the method of transition from one position of equilibrium to another” (120). The attempt to expose the principles of a disequilibrium dynamics evidently induced him to retrace causal connections between variables on occasion of practically every summary of the arguments dealt with at depth in the preceding chapters. Credit cycles make no exception: Keynes exposes the “normal course” (271) by clarifying the “order of events” in a causal sequence. Despite appearances to the contrary, however, there is plenty of evidence to suggest that the fundamental issue of the book does not lend itself to rigid causal structures.

The *Treatise on Money* is highly critical of Cournot’s “so many brilliant false analogies between the moral and the physical sciences” (71). Cournot is seen as the initiator, with Jevons and Edgeworth as main followers, of the dangerous tendency to isolate two presumed distinct – in truth interconnected and inseparable – influences (broadly speaking, those exercised by “money” and those due to “things”) affecting fluctuations in the prices of individual things. In a similar vein, after describing the “fundamental equations” and before summing up his argument about the saving-investment relationship, Keynes specifies “that we are dealing with a case of multiple equilibrium in which each element affects every other element more or less” (129). Discussing the influence of public disposition towards saving and hoarding respectively on the price level of consumption and investment goods, he maintains that it is “difficult to keep the causes and the results of the two types of decision disentangled, since they act and react on one another in a most perplexing way” (130). The only valid meaning of “independence” between the excess-saving and the excess-bearish factors is in fact that “any degree, positive or negative, of the one is compatible in appropriate attendant circumstances with any degree, positive or negative, of the other” (ib.). Keynes clarifies that due to

interdependence between factors, it is illusory to suppose that “the degrees of change in the quantity of money, the velocities of circulation, and the volume of output will [...] be related in any definite and predictable ratio to the degrees of change in the fundamental price levels” (133), as the acute phases of a credit cycle show.

The last chapters of book 1 of the *Treatise on Money* show a similar and equally intense concern for organic interdependence. Although credit cycles depend, for their occurrence, on disturbances produced by “investment factors”, “monetary factors” (such as a change in the supply of money or in the requirements of the financial circulation), and “industrial factors” (say, a change in the volume of output or in its cost of production) can play a decisive role. Monetary disturbances are usually due to changes on the supply side, inducing the passage from one equilibrium price level to another, while disturbances due to investment factors derive from changes on the demand side, producing an oscillation about a relatively constant price level. But Keynes argues that “the causes of disequilibrium [related to investment factors] are not always separated by a sharp line from [those due to monetary factors], and, after the initial stage has been passed, they shade off into one another. For a disturbance initially due to monetary factors will soon set up some disturbance on the investment side, and similarly a disturbance due to investment factors is likely [...] to cause some modification to monetary factors” (248). Excesses and defects in the cost of investment over the volume of saving are affected by the vicissitudes of costs of production, but, at the same time, divergences between the volume of saving and the cost of new investment are likely to trigger increases and decreases in the costs of production.

Hence, notes Keynes, what is usually referred to as “credit cycle” is in truth “a complex phenomenon resulting from the combined effects of changes in the costs of production and of the phases of the credit cycle proper”. He then distinguishes three types of credit cycles, according to the factors that might motivate the increase in investment (substitution of capital goods in place of consumption goods, or additional production of either capital or consumption goods). But he immediately adds that “those which actually occur are generally complex in type and partake of the character of all three” (252), and are accompanied by some measure of rising costs of production and rising price level of new investment goods relatively to their cost of production. Moreover, the resulting profits generate increased competition among entrepreneurs, thereby raising costs of production. Keynes holds that theoretically, it would be possible to identify the specific influence of commodity inflation, namely the excess of the cost of investment over the volume of saving, and distinguish it from such complications. But before summing up the characteristic phases of the cycle, he observes that “the possible varieties of the paths which a credit cycle can follow and its possible complications are so numerous that it is impracticable to outline all of them. One can describe the rules of chess and the nature of the game, work out the leading openings and play through a few

characteristic end-games; but one cannot possibly catalogue all the games which can be played. So it is with the credit cycle. We will begin, therefore, by examining the three openings and then proceed to an analysis of the characteristic secondary phase” (253).

Hence the exercise of the chapter's title, which, however artificial, illustrates the “method and ideas” of the previous chapters (*CW* 5, p. 274). It consists in describing a particular type of credit cycle by introducing a series of “simplifying assumptions” that are necessary “in order to rule out the various complexities which are usually present in actual life” (*ibid.*), but must be subsequently removed. The economist must “abate the rigour” (280) of, and finally remove the “limitations” (284) accompanying the simplifying assumptions initially introduced, to allow for “complications” which may be thought of as “non-essential” (275) only in respect to the initial purpose of the analysis, which is “to set out the essential mechanism” (*ibid.*). To grasp the philosophy of the exercise, it is to be noted that Keynes does not limit himself to enumerating simplifications which are necessary to draw the “standard case” (274) of a credit cycle (for instance, current savings equal net new investment; same duration of the productive process for all commodities, and so on). Some of the limitations introduced, in fact, are such that, in their absence, the case under investigation ceases to be simple and artificial and becomes complex. It is thus assumed that money costs of production are constant, and Keynes underlines that it would be possible to treat various anomalies in this respect, but they “do not lend themselves to a generalised description” (288). Nor can the economist always be content with removing a single limitation, since the non-fulfilment of the assumption, for instance that current savings equal net new investment, makes the cycle “more complicated, and one can only describe its exact course if one first makes an assumption as to its exact character” (285). Finally, and remarkably, the eight simplifying assumptions are not independent one from another. For instance, the removal of the no-hoarding hypothesis (288) or of the assumption of equal length of process for all commodities requires the author to distinguish between situations in which the eight assumption is met – the course of the credit cycle is correctly foreseen – and others in which it is not (289).

At the end of the chapter, to strike the imagination is not the normal course of the credit cycle described in the preceding pages with all the necessary reservations, but rather, quite to the contrary, Keynes’s intention to involve readers in an exercise whose explicit main rule consists in removing the simplifying assumptions immediately after eight provisional conclusions about the simplified problem are reached. In Keynes's words: “Evidently the possible ramifications and extensions of the foregoing argument are so numerous that one could continue for many more pages amplifying, qualifying and generalising it. Perhaps, however, it has been carried far enough to enable a reader, who has entered the general system of thought here exemplified, to apply it for himself to any further interesting cases which may occur to him” (292).

5. The *Tract*, the *Treatise* and the *General Theory*

As Patinkin (1975) has rightly observed, Keynes's "trilogy" in monetary theory is heterogeneous in substance, form and purpose. Still, a careful analysis of their methodological approach may reveal a rather surprising continuity between the three works. What has been referred to above as Keynes's methodological discontinuity, in other words, may not be a distinguishing feature of the *General Theory*.

A methodology of criticism intended to detect tacit assumptions of independence

In the *Tract on Monetary Reform*, Keynes criticises the simplistic formulations of the quantity theory of money and the purchasing power parity theory, demonstrating that they rest on the introduction of tacit assumptions of independence between the variables involved. By making such assumptions explicit, Keynes shows the limited logical validity of these theories, or the limited character of the conclusions one can legitimately infer from them. Of the same kind of those the Keynes of the *General Theory* saw at work in the classical theory, assumptions of independence detected in the *Tract* make the "simple" theories there criticised not relevant and naïve. De facto, they end up with assuming the absence of those possible complications that a theory is required to take into adequate consideration, if it is to avoid being labeled a "useless truism".

A two-stage methodology to allow for change and variability

The analysis of the quantity theory of money in the *Tract* reminds readers of the two-stage methodology applied by Keynes in the *General Theory*. In both cases, variables are only provisionally taken as independent, to be soon afterwards allowed to react (with "probable repercussions") to changes in other (previously taken as) independent variables. However, in the *Tract*, Keynes exposes only the *pars destruens* of his methodological approach to the complex economic material. It is rather in the *Treatise on Money* that readers can find the *pars construens*, and fully grasp the essence of the two-stage methodology later described, in the *General Theory*, as an illustration of the correct way of thinking in economics. In analysing credit cycles, Keynes makes simplifying assumptions of independence (proportionality, uniformity, homogeneity, continuity, and so on) but makes them explicit, contrary to competing theories, and then removes them, with the explicit aim of showing the implications of probable repercussions between variables.

The focus on complexity and interdependence

Keynes's writings fully demonstrate his awareness of the complexity of the economic material, and the *Tract on Monetary Reform* and the *Treatise on Money* make no exception. His concerns for organicism and interdependence are easily detectable in both *Indian Currency and Finance* and the *Economic*

Consequences of the Peace. This latter is an essay on organic interdependence, that of the European continent threatened by the probable disruptive effects of the dispositions of the Versailles Treaty (see Carabelli and Cedrini 2010). *Indian Currency and Finance* ends with Keynes warning readers of the “complexity and interdependence of fact” and “the coherence of the [Indian financial] system”, which, he writes, requires “the constant attention of anyone who would criticise the parts”, CW 1: 181-2; see Carabelli and Cedrini 2010-11). Yet theoretical writings (and the theoretical parts of policy-oriented essays) pose further difficulties, which Keynes attempted to address by developing the two-stage methodology. His attack to the simplicity of the quantity theory of money and the purchasing power parity theory is an attack to the rigidity of the causal connections they are built on. Although Keynes insists on the importance of discovering the “causal nexus” of a complex of events (Hoover 2006), the author of the *Treatise on Probability* is in truth employing, while proposing the two-stage methodology, a “strictly logical” (CW 29: 73) notion of “cause”, considering it as a rule to form propositions, a logical ground for believing. It is relative to particular circumstances and relies on a concept of *causa cognoscendi* – “the cause of our knowledge of the event” (CW 8: 308) – rather than one of *causa essendi* – “the cause why a thing is what it is” (ibid.). And it is this peculiar conception of cause which permits the analysis of a complex economic material, by establishing connections between arguments and propositions on the bases of notions of logical relevance, and of direct judgements of dependence or independence “for knowledge” (ibid.).

A method, rather than a doctrine

Linguistic analyses (Gotti 2009, 1994; Henderson 1995) have demonstrated, on the bases of the rhetorical expedencies used in the text, that “reader involvement” is a prominent feature of *The General Theory*, as if Keynes were asking readers to be “his collaborators in working out the final form and the exact meaning of a new economic theory” (Gotti, 2009: 298). Remarkably, in both the *Tract on Monetary Reform* and the *Treatise on Money* Keynes involves his audience in the development of his own theory (as demonstrated, for instance, by the shift to the plural person in the most theoretical parts of both essays, and by the use, documented in this same article, of flash-backs and flash-forwards). But the *Treatise* explicitly supplies readers with an exercise illustrating them how to apply the system of thought exemplified in the text: Keynes stimulates them to use his way of reasoning in economics, to further exploring the economic material. After all, as he openly admits, the list of possible repercussions between variables is never, and cannot be, complete. Readers are thus invited to participate in an open-ended theoretical game (remindful of Chick 2004 – and others – “open-system with temporary and partial closures” interpretation of Keynes’s economics): what Keynes offers is not a doctrine, providing “infallible answers” and “settled conclusions”, but a method, that is a way of reasoning in economics.

6. Different theories, same methodological approach

That the “trilogy” present a common methodological approach to the economic material and the interrelation between theory and method in Keynes’s thought pose the main problem of how to explain the transition between radically alternative theories (for a general discussion of the problem of continuity in Keynes’s thinking, see Gerrard 1992). As seen, the *Treatise on Money* explicitly criticizes the *Tract on Monetary Reform* for identifying the purchasing power of money with the price of a consumption unit, and for suggesting that cash deposits are used only for consumption. More in general, the Keynes of the *Treatise* refutes the inherited quantity theory of money, of which the Keynes of the *Tract* was a supporter, however critic of its “simplicity”. Likewise, Keynes certainly regarded the *Treatise*, at the epoch of writing, as his *magnum opus* (Clarke 2009), but was disposed to dethrone it only six years later. In the *General Theory*, Keynes ascribes “the outstanding fault of the theoretical parts” (CW 7: xxii) of his previous book to the “lack of emancipation from preconceived ideas”. The *Treatise* failed to deal with changes in the level of output and with the fundamental characteristic of a monetary economy, namely, the enormous influence of changing views about the future on the volume, not only the direction, of employment.

At the same time, there are strong connections between the three volumes, and the use of the term “trilogy” is justified. It is Keynes himself to insist on the most surprising and debated continuity (on which see Clarke 2009, Hirai 2008), the one between the *Treatise on Money* and the *General Theory* – as Dimand (1986: 431) has rightly observed, “the *General Theory* would have been a different book had Keynes not written the *Treatise* first”. In the preface to the *General Theory*, Keynes writes that although the reader could consider it as a “confusing change of view” (CW 7: xxii), the *General Theory* represents “a natural evolution in a line of thought which I have been pursuing for several years”. Exception made for the “preconceived ideas” and the resulting aforementioned problems, in fact, the *General Theory* does not repudiate its predecessor. As Cardim de Carvalho (2013) argues relating to the role of banks and central banks, the *Treatise* material enters the *General Theory* in the form of “technical monetary detail” which “falls into the background” (CW 7: xxii) of the *General Theory* analysis. True, the *Treatise* takes output as given, which is simply wrong for the Keynes of the *General Theory*. And it has even been claimed that the *General Theory* makes the concept itself of equilibrium within macroeconomics (as understood by the earlier Keynes himself) a useless theoretical concept (Jespersen 2009).

As seen, however, Keynes seems eager to warn his reader that the revolution in his thinking is in reality a “natural evolution”: the book, he wrote, “has *evolved* into what is primarily a study of the forces which determine changes in the scale of output and employment as a whole” (xxii, emphasis

added).

As Marcuzzo (2002) claims, substantiating Moggridge's (1992) acceptance of Keynes's own retrospective account, this evolution does involve abrupt transitions, to the extent that the issue of compatibility between the *Treatise of Money* and the *General Theory* remains somehow unsolved, and the quest for a solution may depend too heavily on the purpose of the analysis. Still, by concentrating on method, it becomes possible to suggest that that the opposition between the different factors of change recalled above is only apparent. An author may in fact express dissatisfaction with her/his own previous findings, owing either to technical and conceptual errors or, even more importantly, to the passing of time and changing circumstances, leading the author to reformulate not only models and theories, but above all and primarily, her/his own *quaesitum*, that which is sought for. Re-stating (chapters 1 to 17 of) *The General Theory* in chapter 18 (rightly believed to be of fundamental importance, although for different theoretical reasons from the ones here exposed, by Schackle 1967, Sardonì 1989-90, Harcourt and Sardonì 1994, and Fontana 2009), Keynes offers a seemingly rigid taxonomy of the variables employed, distinguishing between "given factors", "independent variables" and "dependent variables". Still, while making use of assumptions of independence, and implicitly employing Marshall's *ceteris paribus* condition, Keynes insists on the "extreme complexity of the events" (CW 7: 250), and cautions that none of the "independent" variables can be considered as an "ultimate atomic independent element" (247). Rather, the economist selects, "in a study so complex as economics, in which we cannot hope to make completely accurate generalisations, the factors whose changes *mainly* determine our *quaesitum*" (ibid.).

Keynes is here explicitly referring to national income and quantity of employment. But, as seen, he employs the same term in the *Treatise* on discussing critically the approach of the *Tract*, where the purchasing power of money is the "quaesitum" (CW 5: 200). In the *Treatise*, the *quaesitum* has changed, from the purchasing power of money to credit cycle, with the accompanying fluctuations of employment and output. The Keynes of the early Twenties saw monetary instability as a main exogenous source of crisis; the economic troubles of the second part of the decade convinced him that it should be treated as an endogenous factor. In his words, commenting the *Tract* in the *Treatise*: "it now seems to me that ... we cannot get any real insight into the price-making process without bringing in the rate of interest and the distinctions between incomes and profits and between savings and investment" (ibid.). In short, when *quaesita* change, theories change as well.

The Great Depression is evidently responsible for the "natural evolution" from the *Treatise* to *The General Theory*, but the argument here proposed suggests that the "externalist" view developed by Skidelsky (1996), among others, is misleading (see Carabelli and Cedrini forthcoming). Already in

the Harris Foundations lectures of 1931 had Keynes implicitly begun doubting the adequacy of the theoretical framework of the *Treatise on Money* for the new *quaesita* that emerged in the decade. A new theory was required. But the possibility of constructing new theories prompted by changed times and circumstances is not at odds with the continuity of “method” in Keynes’s writings here detected. Rather, it is Keynes’s conception of economics as a way of reasoning about the economic material, and the resulting non-demonstrative and open-ended logic that make this variety possible. Depending upon varying times and circumstances, different *quaesita* lead to formulate different sets of judgments of logical relevance. Hence, Keynes is free to modify his theories and models, exactly because models have a logical nature. Different *quaesita* induce him to select specific “semi-permanent or relatively constant factors from those which are transitory or fluctuating so as to develop a logical way of thinking about the latter” (CW 14: 296-97), knowing that variables to be taken as “independent” stem from judgments of relevance, and are not, “from any absolute standpoint” (p. 247), ultimate, atomic independent factors. And *quaesita* determine the focus of the analysis: that is investment, in *The General Theory*, which Keynes defined as “the *causa causans*”, the “factor which is most prone to sudden and wide fluctuation” (CW 14: 121). The economist can thus concentrate on those variables that, depending upon times and circumstances, can be “deliberately controlled or managed by central authority” (CW 7: 247).

This discussion invites one further and final speculation. As Clarke (2009: 147) has recently argued, Keynes’s revolution in *The General Theory* is “one prompted by his engagement with real-world economic policy debates but transcending them with an analysis that changed the paradigm”. This article has tried to show that Keynes’s was truly an attempted methodological revolution; and continuity of “method” between the *General Theory* and Keynes’s previous works would suggest, as hinted at above, that the revolution of the *General Theory* does not truly belong to it. In reality, the issue is more complicated than it may seem. There is, of course, a revolution of *The General Theory*, but its nature is methodological. More precisely, it lies in developing a general and powerful criticism of the classical theory on methodological bases – to the extent that the category itself of “classical theory” presupposes a common methodological outlook in those that Keynes sees as classical approaches – and, at the same time, erecting a new theory on the classical ruins. *The General Theory* demolishes the classical approach by applying the methodological criticism exposed in the *Tract* to the received ideas of the classical theory, and creates a new paradigm by investigating the theoretical possibilities to master the complexity of the economic material offered by the new way of reasoning illustrated in the *Treatise on Money*. A revolution in the revolution: one that occurred before the making of the “Keynesian revolution” and only indirectly inspired it, without being able to survive it.

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