



The Epochs of Marginalism:A Methodological Perspective

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ABSTRACT

Marginlist revolution is one of the epochs in the history of economic thought during the nineteenth century. It has been changed vibrantly the prologue of the programs of economic ideas during the nineteenth century history of economic ideas. The change had been occurred almost every part of economic perspectives and made economic thinking in a new direction on value and distribution theory. Thisparadigiam shift is called Neo-Classical economics. Understanding this evolutionaryNeo-Classical way of thinking will give more light on economics theory and its discourse on its methodological part. This article is speaking on the evolutionary natures of this marginlist thinking both at the methodological and historical point of view.

1. Introduction

Marginal Revolution as a concept, as a technique and to be as an instrument it has been spoken and covered a wide range of economics of thought in the nineteenth century. It is generally accepted that the British Classical economists of the first half of the nineteenth century constituted an identifiable school of economic thought. They shared a distinctive framework of economic ideas, shaped by a particular set of axioms and theories and generally characterized by a strong bias towards economic policies favoring economic individualism and laissez fair. Generally, in the nineteenth century economists who drew their basic assumptions and techniques from the same textual sources from Adam Smith, David Ricardo, Nassau Senior and John Stuart Mill. (Deane Phyllis 1984)) But they are not

cleared the doubt remains in the twentieth century about whether economics is science or not? The marginal revolution, applied by historians of economic thought to the methodological changes that took place in orthodox economics in the fourth quarter of nineteenth century. It really means that it has to be changed the epoch of the characteristics of scientific temperament from classical economics to scientific aptitude of by neo classical school of economic thought. This evidence that how these three members of the marginalist revolutionaries who have been become come to be the common perception of regarding to investigate the movement of scientific nature. For almost two decades after 1871, few people recognized the similarity of the books written by three "revolutionaries" Jevons, Menger and Walras. Jevons died in 1882 without knowing that Menger had published a work on utility theory in 1871 strikingly similar to his own. (Caldwell Bruce 2013)

In fact one of the leading historians of the modern economic profession has perceptively argued that the marginalist revolution is most profitably viewed in four ways: as an autonomous intellectual development, as the product of philosophical change; as the result of economic and institutional changes in the western world in the late nineteenth century, and as a part of a powerful counterattack against Marxism and socialist politics at the time. Certain followers of the marginalist tradition, including one of its leading practitioners in the US, held the approach to be an explicit and entirely persuasive critique of the Marxian theory of exploitation to the extent marginalist analysis were applied to the problem of income distribution. Whatever the philosophical and scientific foundations of marginalism might have been, its success owed a great deal to the process of professionalization that emerged in the economic field in the last two decades of the nineteenth century. The rabid acceptance of marginalism, not simply among economists in their work but especially as part of the field's teaching agenda, demonstrates that fact. From 1893 and 1907, leading American economics textbooks increasingly utilized marginalist analysis in the presentation of core ideas in the field. The main emphasis in these works was to introduce students to the concept of marginal utility as a means to understand market demand. By 1908, and carrying on for the next two and a half decades, authors extended their use of marginalist ideas to emphasize explanations of the distribution of income between capital and labor -this by means of the notion of marginal productivity. Toward the end of the interwar period both marginal utility and marginal productivity had been accepted as essential parts of the introductory training of economics students.- as exemplified by their utilization in the best

known and most often used texts. These developments taken together constituted a trend in the teaching of economics that continued well through the latter half of the century. (Bernstein AMichael.p.42)

2. The Genesis of Marginal Revolution

Those who interpret the marginal revolution of the 1870s as a paradigm change in this sweeping sense usually fall into one of two schools of thought. On the face of it, the marginal revolution in economics fits rather uneasily into the grand role of a total Gestalt shift. For one thing the three agents in the so-called revolution -Jevons, Walras, and Menger did not share their the same constellation of beliefs, values, techniques etc. (Deane Phyllis 1984) It is debatable indeed whether Menger and his followers were even marginalists in the sense in which this term is generally applied to Jevons, Walras and the Neo- Classical school generally, (ibid) The reality of revolution does not depend on all its agents being cast in the same mould. It remains true that the work of Jevons, Walras and Menger marked the beginnings of a major change in economists' views on the scope and methodology of their discipline. The change can plausibly be categorized as a paradigm -shift in the narrower sense of Kuhn's concept ie., as a pervasive change in the typical criteria, exemplars and procedural rules accepted as normal by professional economists, which brought with it new ways of formulating , ranking and tackling the critical unsolved problems on the academic research agenda. The key to the paradigm shift thus interpreted was the application of marginal analysis.

The year 1871 saw the publication of Menger's Grundsätze (Principles of Economics) and Jevons' Theory of Political Economy followed three years later by Walras 'Elements of Pure Economics, The striking similarity in the basic approach of these three books, coupled with the fact that each writer developed his ideas in total ignorance of the others' works, suggest that the existence of some underlying historical force to which they were all responding. (Caldwell Bruce 2013) Menger, Jevons and Walras each made subjective satisfactions as the starting point of the explanation of relative prices. The leading novelty in their works was the replacement of the labor theory by the marginal utility theory of value, (ibid). The concept of marginal utility, however, goes back to the writings of Senior, Lyoyd and Longfield in the 1830's although only Lyoyd made any substantive use of the notion. It

was independently rediscovered by Dupuit in 1844, by Gossen in 1854, and by Jennings in 1855 and all these three writers employed it to throw light on consumer behavior. And while Jevons, Menger and Walras published their works almost simultaneously in the 1870/s Jevons had publicly announced his discoveries as early as 1862. If there is any unique historical causes for the rise of marginal utility economics, it is to be found somewhere around the middle of the century rather than in the 1870's.(ibid) In Menger, Jevons and Walras marginal utility is the unifying principle of all economic reasoning. The significance of marginal utility theory was that it provided the archetype of the general problem of allocating given means with maximum effect.(ibid) But it was these introduction of marginal analysis as such that marked the true dividing line between classical theory and modern economics.

The essence of the economic problem was to search for the conditions under which given productive services were allocated with optimal results among competing uses, optimal in the sense of maximizing consumer's satisfactions. This ruled out considerations of the effects of increases in the quantity and quality of resources, as well as the dynamic expansion of wants, effects that the classical economists had regarded as the sine qua non of improvements in economic welfare. The emphasis on allocation with maximum effect is much stringer in the Lausanne and Austrian Schools than in the English School dominated by Marshall. Nassau Senior had already brought the notion of utility squarely back into his theory of value in the 1840s. Stanley Jevons presented his brief account of General Mathematical theory of political Economy to the British Association for the Advancement of Science in 1854 a book which elaborated two basic laws -1.the principles of diminishing utility; and 2. Maximization as the aim of all human conduct – and formulated them in full geometrical and algebraic terms. (Deane Phyllis 1984).

In 1871 Jevons published his Theory of Political Economy which was an attempt to produce an explicitly mathematical theory of economic science inspired by Bentham's felicific calculus. In the same year the Austrian encomiast Menger produced his Principles of Economics also elaborating a subjective theory of value. Menger made his theory of value hinge on marginal utility as the determinant of the ratios at which goods were exchanged though he was no mathematicians and relied on a careful precise verbal logic. In 1874 the

French economist Walras published the first part of his *Elements of Pure Economics* which presented marginal utility analysis in formal mathematical terms as a set of demand and supply functions with a determinate equilibrium. Alfred Marshall in the 1870s had already begun to graft marginal utility analysis on to the Ricardian system, (ibid) Thereafter the so called marginal revolution involved a wide ranging transformation of the characteristic of methodology of analytical economics by means of what was essentially a mathematical tool derived from the calculus, (ibid)

For Walras the conscious analogy with physical science and the concept of equilibrium were essential features of a new kind of methodology which helped to determine not only the techniques of analysis appropriate to economic theory but also, in the end the kind of questions on which the theoretical normally focused. Later the historical school meant indeed to revolutionize the methods of the science; but this revolution ended in compromise even in Germany .So far as these influences went, general economics remained, in scope and method, substantially what it had been before. But its analytic core, for which term value and distribution become increasingly popular, experienced a revolution of its own which was to subside into typical Classical Situation around 1900 and constitutes the third great event of the period. According to a familiar tradition from which it is convenient to start, this revolution centered in the rise of the marginal utility theory of value that is associated with the names of three leaders: Jevons, Menger, and Walras. (Schumpeter1954.) The marginal revolution had significant implications for both the scope and methodology of orthodox economic theory. For a providing the theorists with a convenient set of analytical tools that were easily and effectively applied over a wide range of uses it changed the probable orientation of economic orthodoxy and associated with that orthodoxy significant philosophical and ideological tendencies.

3. Marginalism and Economics

Marginalism apparently linked to markets in general-not merely to consumer behavior as such but it linked with markets in commodities with the factors of production. Menger too concerned primarily with consumer goods markets, which was trying to evolve a general economic theory based on marginal analysis and focused on the problems of price determination in competitive markets. The characteristic techniques of marginal analysis

were applied first to value theory in terms of the concept, of utility, a concept with which the classical economists were thoroughly familiar, but which, because they had not yet devised a way of quantifying it, they had tended to leave out of their theories of value and exchange. It was the applicable to theories of production and distribution as well as to theories of value and exchange and a wide area of theoretical economics was thus brought within its range. In essence, as Boulding has pointed out, “the marginal analysis was no more than a detailed spelling out of the theory of maximization” – (Quoted in Deane Phyllis 1984).

Marginal analysis can be applied right across the board-to the allocation of a fixed income among a range of consumer goods, or of a fixed outlay among a set of factors of production or of time between work and leisure. It has been observed that wherever diminishing returns are obtainable from putting a given unit of income or time or productive resources to a particular use of the optimum result is obtained when values are equalized at the margin. Within the conventional assumptions of the marginal analysis it can be logically shown that the perfect completion leads to equal marginal allocation of expenditures and resources. Armed with this technique the neo-classical economists were able to produce a logically consistent explanation of the determination of the commodity and factor prices in market system and to define the conditions for maximizing consumer satisfaction. (ibid). They were even capable in principle of quantifying inputs and outputs into the economy at micro and macro levels, for by defining values as equivalent to price in a perfectly competitive marketing they could measure the value of consumer’s satisfaction and the marginal product of labour or capital in objective additive terms (Ibid). The focus of marginal analysis was then the market and the neo-classical theorists accordingly narrowed the scope of their subject matter so as to be almost exclusively confined to a study of market processes.

The problem of value and distribution which had been preoccupied in the Ricardian principle who was solved the problem with more accurately, by simple process of definition. The problem of growth was outside the effective range of marginal analysis and further consideration of them was consciously postponed. The marginal revolution drew its inspiration from mathematical rather than philosophical techniques of analysis and it had the effect of delivering the attention of economists from their search for the meaning of value - a search which had deep philosophical implications- and to focus instead on the determinants of market price. Jevons, for example, set intrinsic value aside as a nonentity: the word value, so far as it can be correctly used merely expressed the circumstances of its exchanging in a certain ratio for some other substance' and focused instead on the concept of utility 'as the subject matter of economics.(Deane Phyllis 1984) Jevons had hit on the crucial innovation contained in the 'marginal revolution' by demonstrating that it was the marginal increment of utility on which exchange -value or price depended but it was Alfred Marshall who, by jettisoning Jevons' philosophical hedonism and by bringing supply as well as demand into the equation of price , fathered the neoclassical paradigm.(ibid) In the event, the neo classical theory of value (really theory of market prices more than anything that the classical economists would have defined as value) became more than a theory of price, it became a theory of the allocation of scarce resources to specific uses under the dual incentives of utility maximization for the consumer and profit maximization for the producer, using concepts, criteria and techniques of analysis that could be applied analogously through the economic system. The explicitly mathematical orientation of the new school and its claims to quantitative precision may indeed have contributed to its success not only directly but by adding to its aesthetic qualities -its greater generality, for example, and the fact that the same tools and concepts could be applied over virtually the whole range of the problems on which the neo-classical economists elected to concentrate viz, the problem associated with the allocation of scarce resources to given ends. Finally it can be said that the neo-classical approach illuminated an important aspect of the economic process which had only dimly been perceived before.

3.1. The maximization Principle:

Marginal analysis proper applies only when the maximand function is continuous at the maximand. It means that the principle at issue is that of equalizing marginal values: in dividing a fixed quantity of anything among a number of competing uses, "efficient" allocation implies that each unit of this dividend is apportioned in such a way that the gain of transferring it to one use will just equal the loss involved in withdrawing it from another. Whether we refer to allocating a fixed income among a number of consumer goods, or a fixed outlay among a number of productive factors, or a given amount of time between work and leisure, the principle always remain same. Moreover, in each case the allocation problem has a maximum solution if and only if the process of transferring a unit of the dividend to a single use among all the possible uses is subject to diminishing results. The whole of neo classical economics is nothing more than the spelling out of this principle in ever wider context joined with the demonstration that under definite conditions, perfect competition does in fact produce equimarginal allocation of expenditures and resources. It is easy to see that the equimarginal principle refers only to definite quantities of money, resources, or time to be distributed, and has only as much significance as the initial assumption of a fixed dividend. Economic theory in the period 1870-1914 consisted almost wholly of static microeconomics based squarely on the equimarginal rule.

Classical economics derived the prices of products from the so called natural rates of reward of the three factors of production. These were in turn explained by special theories. Only in the case of labor was the problem of distribution solved by straightforward application of value theory. In the new economics distribution theory was treated as nothing more than an aspect of general value theory. Factors were rewarded because they were scarce relative to consumers' wants for the products that they could produce. The real claim of the new economics was that it broke down the departmentalized approach of Ricardian economics. Ricardo, Mill and Marx treated all commodities as if they were produced under conditions of constant costs and fixed technical coefficients. Thus, long-run wages in the classical system depend on the rate at which capital accumulation proceeds, which in turn depends on the state of demand. But at this point that classical theory breaks down. Ricardo

and Marx were inclined to treat the supply of capital as being governed by minimum of existence rate of profit on lines analogous to the wages population mechanism. Mills suggested instead that the supply of capital was a function of the rate of profit through the incentive effect, but this left the notion of a long run supply price of capital hanging in the air. Ultimately, classical economics provided no determinate analysis of the conditions governing the supply of capital and never gave the state of demand a position coordinate with the conditions of supply. In this sense, that the Ricardian theory of distribution not only lacked generality but stopped short of fulfilling its own promise. Neoclassical theory achieved greater generality and economy of argument by explaining both factor and product prices on the basis of a single principle. The new theory encompassed both reproducible and non reproducible good, both constant and varying costs. (Caldwell Bruce 2013).

3.2. Marginal Utility Theory

Marginal utility doctrine made its way slowly against persistent opposition; the new and old continued to exist side by side. Marshall's Economics of Industry (1879) shows the influence of the "revolution" and Edgeworth's Mathematical Psychics (1881) is a speculative excursion into the higher realms of the new theory. Gossen's remarkable book, published in 1854, which clearly formulated the law of diminishing marginal utility and applied it to individual acts of consumption, escaped his attention. Nevertheless, despite the diversity of background and tradition, Menger and Walras hit upon the idea of marginal utility almost at the same time. It is difficult to believe that this was entirely due to adventitious intellectual forces. This leads one to look for some general movement in philosophy or in social sciences that might have promoted an emphasis on introspection as an instrument for forming hypotheses about economic behavior. Some authors have been stuck by the renaissance of Kantian philosophy somewhere around the middle of the century, beginning in Germany and spreading out over the continent, (ibid)

There is a delayed account of acceptance of utility theory in England on the ground that the restriction of religious Philosophical domination. This leaves the possibility of accounting for the rise of marginal utility theory by changes in the economic environment. There is an argument that marginal -utility theory was nothing but the bourgeois answer to

Marxism, (ibid) Marginal utility theory was ideologically neutral in that it emerged with out any direct reference to practical questions and was compatible with almost any position on social and political issues.

3.3. The Law of Diminishing Marginal Utility

The Law of Diminishing Marginal Utility is held to provide a criterion of all forms of political and social activity affecting distribution. Any thing conducive to greater equality, which does not adversely affect production, is said to be justified by this law. Anything conducive inequality, condemned. (LionelRobinson 1932.) No less an authority than professor Cannan has invoked them, to justify the ways of economists to Fabian Socialists. They have received the widest countenance in numberless works on Applied Economics is safe to say that the great majority of English economists accept them as axiomatic. . (ibid) The law of Diminishing Marginal utility implies that the more one has of any thing the less one value additional units' thereof. Therefore the marginal utility of rich man's income is less than the marginal utility of a poor man's income. Therefore, if transfers are made, and these transfers do not appreciably affect production, total utility will be increased. Therefore, such transfers are economically justified, (ibid) it is become work out to build up a complete theory of exchange.

3.4. Marginal Productivity Theory

Most of the great neo classical economists of the nineteenth century refused to aggregate the micro production functions of firms into an aggregate production function for the economy as whole and instead used marginal productivity theory to tackle special problems in the sprit of partial equilibrium economics, or else . Like Walras, they operated with the notion of the entire disaggregated array of n production functions. What emerged in the process was the simplistic marginal productivity theory that characterized a large number of journal articles in the 1960.(Mark Blauk 1992) According to Hicks "neutral" technical change leads to an unchanged capital -labor ratio at constant relative factor prices ;but according to Harrod, it leads instead to a constant capital -output ratio at given rate of interest; both agree that it would leave the relative shares of wages and profits unaffected.(ibid) The average products of labor and capital are not behavioral variables in slandered theory; economic agents do not maximize or minimize them; no producers or

consumers , no workers or capitalists, respond to them; they are just ex post magnitudes that can be and have been measured, but which nevertheless lack a definite theoretical status. It is perfectly possible, therefore, to have a theory of wages or a theory of the rate of profit, without having a theory of the share of wages and profits, and vice versa. The fact of the matter is that the distributive shares are the outcome of wide variety of forces and any theory that attempts to tackle them directly finds itself making so many heroic, simplifying assumptions that the results are simply analytical curiosities, (ibid)

4. Mathematics and Marginalist Revolution:

Before 1838 the use of mathematics in economics was a rarity. Cournot is usually considered the founder of the Math school. The mathematical method was really begun with Jevons in 1871. Mark Blauk (1962) suggests that "the dominant role of the concept of substitution at the margin in the new economics accounts for the sudden appearance of explicitly mathematical reasoning".(Quoted in Zablotsky Edgardo 1995) John Neville Keynes 1904 asserts that Jevons's theory of utility and its applications are in many respects the most striking the outcome of mathematical economics. Irving Fisher 1892 also asserted that "it is perhaps fair to credit the idea of marginal utility to the mathematical method".(Quoted in ibid) William Jevons, 1866 explains that the following paper briefly describes the nature of a theory of economy which will reduce the main problem of the science to a mathematical form, (ibid) Economy, indeed being concerned with quantities has of necessity been mathematical in its subject, but the strict and general statement and the easy comprehension of its quantitative laws has been prevented by a neglect of those powerful methods of expression which has been applied to most other sciences with so much success .(ibid) Therefore, it is also possible to affirm that the marginalist revolution and the approval of the use of mathematics in economics are two facts that can be considered highly correlated; it is very difficult to figure the marginalist revolution without the use of the new tool; the mathematics.

5. Conclusion

The marginal techniques of analysis which distinguished the neo-classical school that emerged from the marginal revolution and began to dominate mainstream economic thought in the later decades of the nineteenth century. It effectively bypassed the problem of value which had most persistently bogged down its predecessors ; it offered superior quantitative precision to either the classical or the historicist system of thought; it revealed more effectively than either alternative the phenomenon of economic interdependence ; it had special qualities of generality and simplicity which were peculiarly satisfying to more mathematically minded economists ;and it opened up new analytical horizons for even the mathematically untrained economist with an interest in the public policy problems of resource allocation.

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