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# Mainstream Consumer Theory

## Delay, Acceptance and History of Economic Thought Texts

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### I. Introduction

One of the basic tenets of neoclassical economics is the theory of choice and in particular the theory of the consumer. Consumer theory is considered to be the hard core of the neoclassical canon. One can find the first concrete elements of a theory of the consumer in the writings of the first Marginalists and especially in Jevons, Menger and Walras. The formation of consumer theory continued with Edgeworth, Marshall, Pareto and Fisher. Subsequently it was extended to a general theory of choice mainly with the works of Hicks and Samuelson with which the marginalist based consumer theory eventually became established. However, this development was not without opposition mainly by non-orthodox economists. For instance, the institutionalists (especially Veblen) criticized the mainstream and set the basis for alternative approaches. J.M. Keynes also did not seem to be content with the established theory.<sup>1</sup>

The present article traces the various historical stages which led to the acceptance of the theory, and attempts to offer some possible explanations for its eventual establishment. The article starts with a brief historical discussion of the establishment of the canon of the marginalist consumer theory. Subsequently, it discusses the main reasons for the delay in accepting the new theory. Furthermore the paper critically assesses the basic points of change which contributed in the gradual acceptance of the theory from its initial appearance up to the recent developments. Finally, as part of the assessment, the paper will utilize histories of thought and general economics texts in appraising the way that this theory found a permanent place in the discipline. It is hoped that the discussion will contribute to the understanding of the dominance of mainstream consumer theory and the way that it took this paramount place in modern economics.

### II. Delay and acceptance of consumer theory

During the period in which utility analysis first appeared in the works of Jevons, Menger and Walras, the methodological environment in the AngloSaxon countries and in continental Europe was not particularly friendly to the marginalist methodology. For instance, W. Bagehot, referring to the abstract analysis of Jevons and Walras, states:

"At the very moment that our Political Economy is objected to in some quarters as too abstract, in others an attempt is made to substitute for it one which is more abstract still.... and any one who thinks what is ordinarily taught in England objectionable, because it is too little concrete in its method, and looks too unlike life and business, had better try the new doctrine, which he will find to be much worse on these points than the old" (1879, p. 21).

Furthermore, J.E. Cairnes (1875, pp.34-5, 84-5, 90,93,968, 101-3, 108-9) one of the first authors to write extensively about economic methodology, propagated the mixture of

induction and deduction in economic analysis and the empirical verification of its results. Also, at the same period (1870-1880) in England, one can observe the attempts of T.E. Cliffe Leslie, J. Ingram, H. Sidwick and others (see Karayiannis, 1995, pp.121-5) to incorporate more sociological aspects in economics. In the same spirit, L. Price in his methodological work asked for more empirical content in economic analysis in order for it to be used as a policy instrument (Karayiannis, 1995, pp.129-30). These methodological approaches did not facilitate the establishment of the new theory which was considered to be too abstract and had to prove its fruitfulness in solving the various practical problems and/or explaining concrete economic phenomena.

Apart from the above general methodological hostility toward the new abstract theorizing in economics, another obstacle for its wide acceptance was the considerable degree of mathematical presentation by Jevons and Walras. Given that during that period most economists were not mathematically trained or were suspicious towards mathematics, formal arguments were not easily accepted (Blaug, 1973, pp. 12-3). In this respect one can also note the influence of J.N. Keynes. Although, Keynes analysed the hypothetical character of economic method, he did not devote much space in presenting Jevons' consumer theory. He stated that this theory "has been independently worked out by Menger and the Austrian school" and that "mathematics may not up to the present time have proved an absolutely indispensable instrument of economic investigation and exposition" (1890, pp.267). In other words, J.N. Keynes did not applaud the mathematization of economics.

After the emergence of the new marginal theory of value and choice, Veblen's institutionalist attack cast doubts in US academic circles. Veblen strongly criticized the limitations of new theory.<sup>2</sup> His main objections were concentrated on the following subjects:

- (1) The new theory was static in character: "Like other taxonomic sciences, hedonistic economics does not, and cannot, deal with phenomena of growth except so far as growth is taken in the quantitative sense of a variation in magnitude, bulk, mass, number, frequency" (1908, p. 178); and "have not yet contributed anything at all appreciable to a theory of genesis, growth, sequence, change, process, or the like, in economic life" (1909, p. 152).
- (2) It did not relate to technological progress and particularly, "the growth of the industrial arts is of the first importance; but the marginal-utility theory does not bear on this matter, nor does this matter bear on marginal utility theory" (1909, p.153).
- (3) This theory did not explain "institutional facts", but instead it took them "for granted, denied, or explained away" (1909, p. 154), or did not explain institutions (1909, p. 1645).
- (4) This theory has a "teleological character" being deductive or *a priori* "instead of being drawn in terms of cause and effect" (1909, p. 158).

However it was not only Veblen's critique which retarded the wide acceptance of the new consumer analysis in the circles of United States economists. Although some of them such as J.B. Clark, I. Fisher, S. Patten emphasized the utility approach to the issue of value, some others such as R. Ely, J. Hollander, J. Laughlin, F. Taussing, T. Carver, laid more emphasis to the cost of production determinant of value (see Haney, 1911, p. 724). Furthermore, Ely's book (1889) which was widely used as a text in colleges and universities shows a critical account of the utility approach (1889, pp.166-171) and shaped the course of thought in the early two decades of the present century. Therefore, in America as in England, the intellectual climate was not favourable for the general acceptance of the new consumer theory.

The same cautious atmosphere prevailed in the various countries of the

Continental Europe toward the new approach of value. For example, in Germany the works of Marx and Rodbertus kept the Ricardian thought alive and the influential economists in the Universities such as A. Wagner and K. Diehl held that the marginal utility explanation of value may be included in the demand analysis of the Classics, while others such as G. Schmoller did not accept marginal utility as the determinant of market value (Haney, 1911, pp.666; Schumpeter, 1954, p. 478). In Italy the leading figures of F. Ferrara and L. Cossa were propagating the classical ideas (Haney, 1911, pp.678-9), while in the first decade of the present century there were some economists such as Graziani, Loria and Pantaleoni who accepted the new marginal theory. Similarly, in France, during the period in question the work of Cournot and Walras had been rejected by the dominant school. Although there were many liberal and anti-socialists economists (e.g. Leroy-Beaulieu, Y. Guyot) there were very few who advocated the mathematical method (e.g. M. Colson). Thus the new utility analysis failed to be accepted by the "Academie" (Haney, 1911, pp.680-1, 704, 705-6, 710-1). Furthermore, Gide's widely circulated college textbook *Principes d'economie politique* (1883) (translated from French to English) did show a favourable attitude toward the acceptance of the new consumer theory. However, he spent only a few pages (1883, pp.66-74) to explain the notions of marginal and total utility, while he attributed its origins to the Classical thought and particularly to Say and Senior. Moreover he criticized its validity which might be applicable only in a Crusonean economy.

From the previous discussion one can argue that in the majority of the academic world, the methodological and analytic environment in the last decades of the previous century and on the first decades of the present, did not facilitate the advancement and acceptance of the new utility theory.

Another reason for the delay of marginal utility analysis to be accepted in the main corpus of economics, was that its early exponents were without "strong academic power" at the time that they developed the new theory. As Howey (1973, pp.24-5) comments: "the fact that they were newcomers deprived them for a long time of allies". Although, Jevons and Menger had a high reputation in economic circles, they had to confront the methodological opposition of the English and German historical Schools of the time and therefore their academic influence was constrained. Stigler's argument (1973, pp.311, 314; see also Blaug, 1973, p. 14) that the professionalization of economics made possible the acceptance of new theory and also explains its delay, must be connected to the dominant methodological framework.<sup>3</sup>

However, in the beginning of 20th century the climate seemed to be changing at least in the English speaking countries. W. Asley (1907, p.232) surveying the development of economic theory wrote that "the centre of interest among academic economists (and with them must be reckoned for this purpose some influential writers outside the Universities) is still to be found, both in this country and in America, in abstract argument. Among the diverse lines of thought which converged upon the old orthodoxy for its destruction in 1870-80, that represented by Jevons has for the time had the widest influence. It has been supplemented by the similar influences of Austrian economists.... There has appeared in America an independent theoretician of the first rank, Professor Clark, who has already carried most of the younger economists of the United States with him". Here, Asley offers an explanation for the establishment of the new theory similar to that advanced by Stigler more than 60 years later.

The advancement and establishment of the utility theory is parallel with the methodological adoption of mathematics as a basic instrument of analysis. If we look for the methodological propositions of the majority of economists at the end of the 19th and the beginning of 20th century, we will see that more and more became aware of the scientific character that economics could accomplish through the mathematical approach

(see also Drakopoulos, 1994; Zoumboulakis, 1997). For example, Jevons, Edgeworth, Walras, Pareto, Marshall (mainly in regard to the use of geometry), Wicksell, Cassel and Fisher recognized and emphasized the advantages of the mathematization of economics.<sup>4</sup> Furthermore, Marshall's utility analysis (1890, pp.78, 885) and his influence on the professionalization of economics encouraged the acceptance of the new consumer theory in England. However, it has to be stated that Marshall had some reservations concerning the extensive use of mathematics in economics. This attitude should be combined with his rejection of mechanism as the scientific ideal for the field of economics. Contrary to the vast majority of the marginalists, Marshall (1980, p. xiii; see also Dow, 1985, p. 53) saw analogies with biology rather with mechanics. His belief in the dynamical or evolutionary nature of economic phenomena is the main reason for rejecting the static, mechanical conception which characterized economic analysis.

At this point has to be mentioned that classical physics has had a major influence in the formation of the scientific philosophy of the 19th century (see Mirowski, 1989). The great success of classical physics in explaining and predicting physical phenomena had placed the discipline in the position of the ideal model of science. The majority of the marginalists in their attempt to increase the scientific status of economics adopted the scientific ideal of classical physics. Inspired by this ideal, they followed a more mathematical and abstract methodology. Furthermore, the increasing influence of positivism forced this shift towards a more formalist methodological approach (see Bronfenbrenner, 1966, p. 538; Mirowski, 1984; Drakopoulos, 1994). Thus the methodological current was changing in favour of abstract theorizing and the incorporation of the mathematical analysis in economics.

### in. The introduction of the new theory in history of economic thought textbooks: from the end of 19th century to 1950

It may be argued that a theory becomes a part of the mainstream corpus of a discipline when it receives a relative place in the history textbooks of that discipline. Searching in the history of economic thought (HET) texts from the end of 19th century to the first decades of the present century, we might be able to make a number of interesting observations concerning the dominance of the new consumer theory.

In Price's history, Jevons was included as a leading British economist (1891, pp.158-176) but his theory of utility received only a short note (Ibid., pp.107-8, 159). In the same year, however, in a book which was published by the Professor of Glasgow University William Smart, one can read in the preface "(this book) claims to be no more than an introduction. I do not consider that the last word on Value has been said by the Austrian school, but that seems to me no reason why the principles of the new theory should remain any longer beyond the reach of the ordinary English student" (1891, p. ix). In the 2nd edition (1910), he writes "my English-speaking colleagues have never given sufficient attention to that side of the one theory of Value ... which Jevons first laid stress on" (Ibid., p.vii). Thus, he added an appendix entitled "Theory of Value: the Demand Side" to be studied by his students along with Book in of Marshall's *Principles of Economics*. However, he did not use mathematical presentation and diagrams nor analysed the work of Walras and the other exponents of the new theory. He mainly concentrated on the Austrian explanation and presented Jevons' theory.

In 1893, James Bonar published his historical analysis which concentrated on explaining the philosophical roots of the various economic theories. Bonar used very few references on the new theory sporadically mentioning Jevons and Menger in his discussion of the development of utilitarianism (see e.g. 1893, pp.236, 247, 299).<sup>5</sup>

Thus it seems that the historians of economics in the previous century with one

exception were not prepared to accept the new consumer theory as having an important place on economics. Let us turn now to the HET books written on the first quarter of our century.

One of the first books was that of Albert Whitaker (1904).<sup>6</sup> Whitaker devotes the last chapter XI "The Ultimate Relation of Cost to Value" to analyzing the theory of utility (1904, pp.134-194). In particular, he presents the views of Jevons, Menger, Bohm-Bawerk, Marshall and Clark with regard to utility theory of exchange and price and its relation to distribution and determination of product.

Apart from academic economists, the new theory is also present in the work of the historian John Bearrie Crozier. In his book (1906) and in Part III one can find a chapter entitled "The Academical Economists - Jevons, Bohm-Bawerk, Marshall - on Value" (1906, pp.385-415) where he analyses the utility based theory of value. However the first (Howey, 1982, p. 66) general HET book devoting a fair amount of space to the new theory was that of Charles Gide and Charles Rist (1909). In their Book V "Recent Doctrines" (1909, pp.515-544) they concentrated mainly on the new consumer theory. More specifically, in chapter I "The Hedonists" and on section I "The Pseudo-Renaissance of the Classical School", they discussed Jevons' and Menger's consumer theories (Ibid., pp.517-521). Then they distinguished the Hedonists in two branches: in section II "The Psychological School" (Ibid., pp.521-8) - where they included Jevons, Menger, Bohm-Bawerk, and section III "The Mathematical School" (Ibid., pp.528-537) which contained the works of Jevons, Dupuit, Walras and Pareto. They also included a section on the "Criticism of the Hedonistic Doctrines" (Ibid., pp.537-544). In other words, they devote about 30 pages in presenting the utility theory.

The second general HET work in our century which discusses the utility school was Haney's (1911).<sup>7</sup> In his chapter "VI. Attempts at Reconstruction" he included two chapters, the first entitled "1. Subjectivism and Marginalism" where he presents in one section the works of Gossen, Jevons, Walras, and the Mathematical School and in a second section the "Fully Developed Subjectivism: the Austrian School". In chapter 2 on "Neo-Classicism" he presents "Marshall and his System of Equilibrium". He used about 73 pages (1911, pp.587-660) in discussing the protagonists of the new consumer theory and its critics. Haney, also in his part D "General Account of Recent Leading Schools" and in three chapters (XXXIII, XXXIV, XXXV), examines the works of economists in Germany, Italy, England, France and in the United States, respectively. In the first chapter he develops a brief account of the value theory of Austrians and of the "Subjective School" (Ibid., pp.665-7) where he has a short note on Bohm-Bawerk, and on Wieser. In the chapter dealing with Italy (Ibid., pp.676- 683) he mentions Pareto's and Pantaleoni's works on utility theory. In chapter XXXIV "England" he discusses the "Neo-Classicism of the Cambridge School" (Ibid., pp.693-698) and presents Marshall's contributions. In a chapter on U.S.A. he mentions J.B. Clark (Ibid., pp.724-7), Patten (Ibid., p. 727) and Fisher (Ibid., pp.728-9). Haney's inclusion of the marginalists was not only important because of the influence on students of economics, but also because it had a "canonical impact" in selecting the living practitioners in the history of a discipline. Haney stresses that the relative space he devoted to each economists is determined by two criteria: "first, what has been the writer's effect upon the stream of economic thought? Next, what important point in theory has he originated or developed? if his contribution has been both discovery in theory and a profound effect on his contemporaries, then he deserves considerable discussion" (Ibid., pp.vi-vii).<sup>8</sup> This is the main reason why he used in his book the subtitle "A critical account of the origin and development of the economic theories of the leading thinkers in the leading nations".

Ingram's first edition (1888) of his HET work occupied an important place in academic and students libraries. He briefly mentions the attempts of Gossen, Jevons (e.g.

1888, p. 176) on the new utility theory and he has an extra two pages (Ibid., pp.227-8) on Jevons' theory of value. In the 1915 edition of this book, W. Scott incorporated a new chapter on "The Austrian School and Recent Developments" (ed. 1915, pp.233-93) analysing Austrian ideas and also similar developments in other countries such as England, U.S.A., France and Italy.

Let us see now the extent to which the new theory of the consumer was included in some important HET works during the second quarter of the 20th century. G. Myrdal in his lectures at the University of Stockholm in 1928 (edited in 1930 as a book) devoted many pages in presenting the methodological characteristics of the early marginalists Jevons, Menger, Walras (i.e. chapter 1, mainly pp.19-26, chapter II, pp.39-41, 43-50, ), and in discussing the neoclassical theory of value in chapter 4 (Ibid., pp.93121) without however using mathematical and diagrammatic presentation.

Cannan's textbook (1929) was based on his lectures from 1895 until 1926 (Corry, 1964, p. xvi) at the London School of Economics and Political Science. Caiman referred to the theory developed by Jevons, Marshall and Wicksteed (without however mentioning Walras, Wicksell and Clark) as the critics of the Classical School. Cannan in his chapter VII "The Theory of Value in General" and section 8 "Utility" devoted some pages in presenting the theories of Jevons (1929, pp.200-3), Menger (Ibid., pp.203-4), and Marshall (Ibid., pp.204-6) in a non-mathematical way.

In the same year, Laird published an historical analysis from the philosophical point of view of the notion of value. He spent his section I of chapter I entitled "The Conception of Value in Economics" (1929, pp. 1-32) in order to present the Austrian and marginal views on utility as a determinant of value. Furthermore, his chapter X section I "The Idea of Moral Arithmetic" (Ibid., pp.325-349) discussed the views of Bernoulli, Bentham, Gossen, Jevons, the Austrians (quoted from Smart) and Edgeworth but without using mathematics and diagrams.

In *The Encyclopedia of the Social Sciences*, Knight's article (1935) on "Marginal Utility Economics" can be found. In this work, Knight analysed without the use of mathematics and diagrams, the utility theory advanced by Jevons, Menger and Walras. He also noted (1935, p. 149) that Smart popularized this theory in England, while this was done in America by J.B. Clark, Patten, Fetter and Fisher.

Thus, it seems that until the end of 1940's the time was not ripe to incorporate mathematical analysis in economic and mainly HET textbooks. However, in the period from 1940 until 1950, it is clear that utility theory analysis was already a part of mainstream economics.<sup>9</sup>

#### IV. The introduction of the new theory in history of economic thought textbooks: from 1950 to present

In the HET textbooks of the post World War II period, the space devoted to the early and to the later generation marginalists, and consumer theory (mainly along cardinal utility lines), was increased. For example, Hutchison's main treatise (1953) concerning the period from 1870 to 1929 discussed in full length the "leading economists" of the period, the majority of which are marginalists. In particular, in part I (except a section on the methodology of the classical school - J.S. Mill, Cairnes - and on some economic policy problems in England in the close of 1860's) from about 25 leading figures of the period, 17 were protagonists of the marginalist approach. Moreover, he spend about 220 pages in analysing the "leading economists ideas" out of which 170 covered marginalism.

Performing some simple calculations<sup>10</sup> regarding the percentage of the space devoted to the marginal utility theory, we can make observations which might indicate the way that this theory became established.

*First*, in the period 1950-1970 about 5% (mean estimate of number of pages) is devoted by each HET textbook on the achievements of the old generation marginalists on consumer theory, while only around 1% is devoted to the new generation (Hicks, Samuelson). At the same time, about 4.5% is devoted to J.M. Keynes. Thus the space devoted to consumer utility theory seems to outnumber slightly the space devoted to J.M. Keynes. Furthermore, in the same period only the basic marginalist diagrams were reproduced (with the exception of Blaug).

*Second*, during the period 1970-1980, the presence of Keynes was reduced to 3.5% in the histories of economic thought, whereas the mean measure of both old and new generation utility school was about 6%. In addition, the presence of the new consumer analysis (Hicks, Samuelson) was increased, matching the increment of the mathematical presentation.

The acceptance of a theory or of its parts, may also be assessed on the basis of its presence in modern textbooks. Taking a random sample of 15 microeconomic textbooks and general economics textbooks for the period of 1960 to 1990, we found topics related to consumer theory had the following characteristics:<sup>11</sup>

- (1) The analysis of indifference curves and consumer's equilibrium developed by Pareto and Fisher is included in 85% of the searched books.
- (2) In the same percentage was included the income - price effect through substitutability advanced by Johnson and Slutsky.
- (3) The derivation of demand curve through substitutability advanced by Hicks was presented in 65% of the book.
- (4) The concept of demand elasticity developed by Marshall = 45%.
- (5) The declining demand curve deduced from declining utility curve = 40%.
- (6) The Marshallian consumer surplus = 40%.
- (7) The revealed preference analysis developed by Samuelson = 40%.
- (8) The decreasing utility curve based on cardinal utility developed by Jevons, Walras, Wicksteed, Wicksell = 30%.
- (9) The new approach of preference ordering conducted with set theory is presented in 13%, which indicates that this approach has not yet been incorporated in general economics textbooks but only in advanced microeconomics texts.

A number of economists have suggested possible frameworks which can be used in order to explain the establishment of a theory. One of these frameworks is Viner's (1957, p. 189) "fashion thesis" which argues that the content of the history of economic thought has a trend that resembles fashion. This "may be with respect either to the objectives or the methods of their analysis" (Viner, 1957, p. 191)." Concerning mainstream consumer theory, our discussion does not seem to fit very well in Viner's suggested framework. Given that the theoretical and methodological basis has essentially remained the same since its first formulation (i.e. decisions at the margin and mathematical formalism; see Drakopoulos, 1991) Viner's thesis might be much more appropriate in relation to fashionable and unfashionable subfields of economics (the case of the recent renewed interest in growth theory might be seen as an example).

Another line of explanation is that the new theory became popular because it was incorporated in the pages of some "leading economists" (e.g. Samuelson's *Economics*). For instance, Howey (1973, pp.34-5), observed that in America the new theory received recognition from the wide circle of economists when R. Ely's popular textbook *Outlines of Economics* (1908) incorporated marginalism in its pages. This framework might partially account for the acceptance of consumer theory. However, as was shown in the discussion, there were other important factors and the incorporation of the theory in important texts was rather a consequence of its gradual dominance.

One can also think in terms of criteria which if met, might also explain the

dominance of a particular theoretical schema. For instance, Stigler (1950, pp.154-5) accounts for three criteria: (1) generality, (2) manageability, and (3) congruence with reality.<sup>13</sup> The utility approach in its early development passed very well the first but had some problems (additive, interpersonal comparisons) with the second and little success with the third. The development of the theory by Hicks and others in covering the disadvantages with the second criteria made possible its further acceptance in the circle of economists.<sup>14</sup>

## V. Conclusions

In summary, one can distinguish four main reasons for the delay of the establishment of marginalist consumer theory: (a) the adverse methodological environment; (b) the mathematical presentation of the new theory combined with the lack of mathematical training of the majority of established academic economics; (c) the attack by the institutionalists especially in the U.S.A.; and (d) the non-professionalisation of economics at that time and the limited academic power of the early exponents of utility theory. The first three reasons can be seen as internal and the last one as external in the sense of sociology of knowledge.

Consequently, the following main reasons (the first two can be seen as internal and the rest as external) contributed to the gradual establishment of the new theory: (1) a favourable shift in economic methodology combined with the change in emphasis to questions of allocation; (2) the gradual acceptance of the formal presentation as a legitimate way of analysing economic phenomena; (3) the increased influence of mathematical economists such as the influence of J.B. Clark in the U.S.A.; and (4) the general professionalization of academic economics. Thus, the delay and acceptance of the new consumer theory may be attributed to both internal and external reasons.

An examination of the presence of the new theory of value and consumer behavior in the HET texts, enabled us to make some observations concerning its establishment. It was seen that the historians of economics in the previous century were not prepared to accept the new theory as having an important place in economics. However, there was a rapid change in the first decades of this century. History of economic thought textbooks started to devote increasing space to the new theory but still the description of the concepts was done mainly in a non-formal way. The full discussion of the consumer theory started to take place in the post-war period. A detailed examination of post-war texts confirmed the establishment and the prominent place of the theory in the main body of economics. For instance, it was seen that even at the height of the influence of Keynes's views, it occupied more space in HET textbooks. Finally, the study, by examining general economic texts, drew a connection with frameworks which attempt to explain the process of the acceptance and establishment of a particular theory.

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Notes

1. There are many passages where Keynes expressed his uneasiness with the established theory. For instance he writes: "How disappointing are the fruits, now that we have them, of the bright idea of reducing Economics to a mathematical application of the hedonistic calculus of Bentham" (1973, vol. X, p. 184). For a review of Keynes' hostile attitude see also Drakopoulos (1992).
2. As Veblen wrote: "Since hedonism came to rule economic science, the science has been in the main a theory of distribution.... The exceptions of the rule are late and comparatively few, and they are not found among the economists who accept the hedonistic postulate as their point of departure" (1908, p. 172).
3. Stigler researching on the adoption of utility theory by the American economists comments that: "Utility theory was not even a fashionable topic among economic theorists in the first two generations after it was introduced into economics" (1973, p. 317). Inspecting the American economic journals he found that "the interest in utility did not reach a high level, and there is no apparent tendency for it to increase over the thirty years" (i.e. 1893-1923) (Ibid., p. 317). Thus, Stigler concludes that "the effective acceptance of utility theory by economic theorists came almost a century after the marginal revolution" (Ibid., p. 318).
4. Marshall although a mathematical trained economist who recognized explicitly some beneficial effects of the mathematization of economics for the progress of this science (Vazquez, 1995, 248-252) used and propagated in his *Principles of Economics* (1890) the superiority of geometrical devices in presenting some leading theorems (this was mainly done in the footnotes) (Robertson, 1970, pp.101). Moreover, he warned against the use of "economic hypotheses for the purpose of mathematical diversions" (1890, p. 644).
5. In the same year, Wicksell's book (1893) though not a historical text, included a whole chapter "The New Theory of Value" and its section 1 "The Concept of value according to Jevons, Walras and the Austrian school" (1893, pp.47-59). Also he used the diagram of Jevons for the equilibrium between two goods through marginal utility curves (Ibid., pp.58-9).
6. This book was Whitaker's Ph.D. dissertation submitted to Columbia University in 1904.
7. Howey wrote (1982, p. 68) that Haney's book was the second HET work after Gide and Rist "to include the development after 1870 and thus to mark the change from political economy to economics".
8. For an analysis of the various criteria for the inclusion of the various theories and/or ideas in the HET textbooks, see Karayiannis (1998).
9. In Schumpeter's ten great economists book (1952) six of them were connected with utility theory (i.e. Walras, Menger, Marshall, Pareto, Bohm-Bawerk, Fisher). This reinforced the general acceptance of the new consumer theory.
10. Choosing randomly from the general HET textbooks we have the following simple estimations on the number of relevant pages containing the analysis of utility theory:

**General HET textbooks**

Author	ed. time	old utility%	modern utility%	Keynes%	maths
Roll	1938/1973	5%	—	3%	No diagrams
Lekachman	1959	5%	1%	5%	Few diagrams
Whittaker	1960	4%	-	2%	Few diagrams
Blaug	1962/1968	5%	1%	4%	Many diagrams
Rima	1967/1972	5.5%	1.5%	6%	Basic diagrams
Ekelund and Hebert	1975	8%	-	4%	Basic diagrams
Landreth	1976	5%	1%	4%	Basic diagrams
Backhouse	1985	3.5%	1%	3%	No diagrams
Brems	1986	3.5%	1.5%	3%	Many diagrams

The term "old utility" signifies the theory developed by the first and second marginalist generation. The term "modern utility" refers to the developments of Hicks and Samuelson. We do not count the analysis of welfare economics based on consumer utility and neither the general competitive equilibrium where such a subject is a major part. Schumpeter's magnum opus *History of Economic Analysis* (1954) is not included in our list as we consider it more as a highly scientific and encyclopedic work and less as a simple textbook for University students.

11. From a random sample of 15 textbooks on microeconomics and on introduction to economics we have the following table regarding the inclusion of the diagrammatic analysis of main topics of utility consumer theory.

Topics/ diagrammatic analysis developed by	Textbooks presented	
	No	Total (%)
1. decreasing utility curve Jevons(1871,p. 31) Walras (1874, pp. 118-9) Wicksteed(1888,p.47) Wicksell(1911,p. 39)	4	30%
2. declining demand curve Walras (1874, pp.94-5) Marshall (1890, ft.2)	6	40%
3. demand elasticity Marshall (1890, p. 86, ft.1)	7	45%
4. consumer surplus Marshall (1890, pp.388, ft.2, 668, ft.1)	6	40%
5. indifference curve Edgeworth(1881,p. 114) Wicksteed(1888,p.57) Pareto (1927, p. 119)	13	85%
6. consumer's equilibrium Fisher (1892, p. 68) Pareto (1927, pp.122, 132)	13	85%
7. income- price line Johnson (1913, pp.102, 104) Hicks and Allen (1934, p. 14) Hicks, (1939, pp.28-9)	13	85%
8. demand curve through substitution rate Hicks and Allen (1934, p. 19) Hicks, (1939, pp.30-1)	10	65%
9. revealed preference Samuelson (1948, pp. 107-8)	6	40%
10. preference ordering Arrow-Debreu-McKenzie	2	13%

The books randomly chosen and searched in alphabetical order are: Allen, C.L. (1968), Apgar, W. and Brown, H.J. (1987), Baumol, W. (1961), Bradley, M. (1980), Browning, E. and Browning, J. (1986), Deaton, A. and Muellbauer, J. (1980), Kogiku, K. (1971), Kohler, H. (1982), Koutsoyiannis, A. (1975), Malinvaud, E. (1972), Newman, P (1965), Ryan, W. (1967), Ruffin, R. and Gregory, P. (1983), Sloman, J. (1991), Walsh, V.C. (1970).

12. Viner defined fashion in broad terms as "meaning: first, a widely prevalent procedure which endures, however, for only a limited period of time; second.... as a procedure which is questionable, even on the basis of what was known or could easily have been discovered in its own period of prevalences; and third, a procedure that is followed voluntarily, and often unconsciously, by its practitioners, rather than followed in submission to authority" (1957, p. 189).

13. Shackle (1972, p. 103), on the other hand, stressed that the utility approach passed two criteria with success: determinacy with the general equilibrium and the conceptual beauty. He also comments that subjective marginalism "answered a list of questions which seem to form a closed circle and to achieve a selfsubsistent completeness. It invoked very few ultimate principles. It achieved a unified simplicity which powerfully commands assent. On its own terms it explained everything. All this had its price. Value theory cannot accommodate time. But time is in any case alien to reason. Value theory was the construct of reason, with only a minimal appeal to experience" (1972, p. 105).

14. Robbins regarded the Hicks-Allen analysis as superior to that of the previous theorists in two aspects: "In the first place it rests its constructions solely upon the assumption of direct comparison of the valuation or substitutability of one commodity in terms of another and the possibility of arranging such combinations in terms of equivalence or higher or lower positions on a scale of order. It thus dispenses with all appeal to comparison of utilities, however conceived, and eliminates all necessity for the introduction of cardinal

measurements"... Its second aspect is that "by means of their distinction between the income and substitution effects of price changes, the authors were enabled to formulate with precision the conditions necessary for the assumption of demand as a diminishing function of price" (1970, p. 28).

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