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Notes on Cost and Price: Malthus and the Marginal Theory

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I. COST AND PRICE: MALTHUS AND THE "UNSUCCESSFUL DISCOVERERS"

1. Considering the contrasting approaches to the theory of value and distribution between Malthus and Ricardo, Schumpeter commented: "[Malthus] recoined the theory of the *Wealth of Nations* in a manner that was the alternative to Ricardo's recoinage".[1]. These "alternative lines" which Schumpeter refers to were described by Malthus in the following terms: "the two systems, one of which accounts for the prices of the *great mass* of commodities by the cost of their production, and the other accounts for the prices of *all* commodities, under all circumstances, permanent as well as temporary, by the relation of the demand to the supply ... have an essentially different origin, and require, therefore, to be very carefully distinguished".[2] The first approach, according to which the natural price – "only another name for cost of production" – "would remain the same whether commodities were much or little demanded, whether they sold at high or low market price"[3] was Ricardo's as much as Smith's. The second approach, according to which "the great principle of demand and supply is called into action to determine what Adam Smith calls natural prices as well as market prices"[4] was Malthus's.

2. Malthus's positions on value and distribution were further specified by Ricardo who pointed out that Malthus had arrived at them by way of

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[1] J. A. SCHUMPETER, *History of Economic Analysis*, New York, OUP, 1954, p. 482.
[2] T. R. MALTHUS, *Principles of Political Economy*, [1820], in P. SRAFFA (ed.), *The Works and Correspondence of David Ricardo*, vol. II, Cambridge, CUP, 1951, pp. 43-4; emphasis added.
[3] D. RICARDO, *Notes on Malthus's Principles of Political Economy*, in P. SRAFFA (ed.), *Works*, *op. cit.*, vol. II, p. 46.
[4] T. R. MALTHUS, *op. cit.*, p. 45-6.

two different and successive statements; firstly, by maintaining that the natural price of a commodity is determined by the demand for and supply of that commodity; then, by maintaining that the natural price of a commodity is determined by the demand for and supply of labour, land and means of production necessary to produce the commodity itself. In Malthus's own words: "it is obvious that we cannot get rid of the principle of demand and supply by referring to the cost of production" in so far as the value of "the component parts of this cost are themselves determined by the same causes which determine the [value of the] whole".[5] Having clarified the meaning of his statement according to which *the single principle* of supply and demand determines the natural prices as well as the market prices, Malthus states that "the only difference is, that the former [prices] are regulated by the ordinary and average relations of the demand to the supply, and the latter, when they differ from the former, depend upon the extraordinary and accidental relations of demand and supply".[6] Leaving aside these "extraordinary and accidental relations of demand and supply" which, according to Malthus, should determine the market price and its fluctuations around the natural price, what it is important to stress here is the fact that Malthus did not offer any explanation whatsoever as to these "ordinary and average relations of the demand to the supply" which, by determining the natural price, should determine the value of the component parts of the cost of production and thus, together with distribution, the equilibrium between cost and price.

3. Malthus expressed this principle of demand and supply also in the following terms: the exchange value of commodities "depends upon the relative estimation in which each [commodity] is held, founded upon the desire to possess, and the difficulty or facility of procuring possession".[7] This connection between price and "the estimation founded upon the desire", i.e. utility, if it clearly recalls Say's positions on exchange value – no less than other positions peculiar to pre-scientific economics – it is clearly in contrast with Smith and Ricardo's positions as to the relation between use-value and exchange-value. The other element that, according to Malthus, should determine exchange value, namely "the difficulty or facility of procuring possession", i.e. scarsity,[8] was, according to Smith and Ricardo, the main determinant of exchange-value only in the case of *non-*

[5] T. R. MALTHUS, *ibid.*, p. 54.
[6] T. R. MALTHUS, *ibid.*, p. 54.
[7] T. R. MALTHUS, *ibid.*, pp. 24-5.
[8] The context, together with the successive development of the argument, makes it clear that the meaning of Malthus's expression, i.e. "difficulty or facility of procuring possession", is different from the meaning of Ricardo's expression, i.e. "difficulty or facility of production". Ricardo's expression is interchangeable with "technical conditions of production"; Malthus's expression is interchangeable with "scarcity or abundance of supply". Se also fn. 11.

reproducible goods, i.e. of those goods whose production cannot be increased (or could be increased only to a limited extent); in this case, as the competition between producers is hindered, or, as Ricardo says, is "wholly on one side – amongst the buyers",[9] the cost of production cannot impose its laws on the price.

Basically, what Malthus was attempting to do was to assemble all commodities, whether reproducible or not, into a unifying law of value. And the difficulties implied in this unifying law brought him to waver between two unconnected principles: the principle of demand and supply of commodities, and that of demand and supply of "factors", as determinants of the natural price of commodities.[10]

With a view to understanding the successive developments of Malthus's ideas on value, it is important to recall here some specifications given by Malthus as to the meaning of his notion of demand. Malthus's notion of demand is not, in fact, Smith's effective demand – i.e. the quantity of a commodity actually demanded at the natural price. Malthus distinguishes, rather, between two notions: "the extent of demand", which he defines as "the extent of consumption", and "the intensity of demand" which he defines as "the will and power to make a greater sacrifice in order to obtain the object wanted". This last notion would seem to be a sort of demand with price elasticity and therefore unconnected with the natural price. Malthus states that it is this second notion of demand to which he always refers in his discussion on value and distribution.[11]

4. As Schumpeter observes: "Say and Malthus were, so far as value is concerned, as much on one side as they were on opposite sides on the question of ... general gluts".[12] Malthus's ideas on the determinants of value

[9] D. RICARDO, *On the Principles of Political Economy and Taxation*, in P. SRAFFA (ed.), *Works*, *op. cit.*, Vol. I, p. 249.

[10] The connection between these two principles has proved rather difficult to understand even when "the great principle of demand and supply" was fully developed into an alternative theory. In 1894, Wicksteed in his *Coordination* was mainly attempting to clarify the problem of the connection between these two principles (P. H. WICKSTEED, *Essay on the Coordination of the Laws of Distribution*, London, Macmillan 1894, reprinted as n. 12 of the London School Reprints of Scarce Tracts, London, 1932). On the discussion on this problem prompted by Wicksteed's *Coordination*, see G. J. STIGLER, *Production and Distribution Theories*, New York, Macmillan, 1941, Ch. XII.

[11] T. R. MALTHUS, *op. cit.*, p. 43. This notion of "intensity of demand" backed by "intensity of desire" may also be found in Malthus' letter to Ricardo of 11 September 1814 where Malthus states: "Effectual demand consists of two elements the *power* and the *will* to purchase. The power to purchase may perhaps be represented correctly by the produce of the country whether small or great; but the will to purchase will always be the greatest, the smaller is the produce compared with the population, and the more scantily the wants of the society are supplied ... It is not merely the proportion of commodities to each other but their proportion to the wants and tastes of mankind that determines prices" (P. SRAFFA (ed.), *Works, op. cit.*, Vol. VI, pp. 131-2.

[12] J. A. SCHUMPETER, *op. cit.*, p. 599, fn. 23.

– whose origin may be traced to heterogeneous but intersecting currents of thought – expressed in the fragmentary form, whether of "intensity of demand" together with "supply", or of "relative estimation ... founded upon ... desire" together with "the difficulty or facility of procuring possession", were far from forming an alternative "system" such as to meet the challenge of the compactness of Ricardo's "system".

But, from the beginning of the 1830s, practically the whole of the newly forming British and Irish academic establishment of the time was involved in the task of organizing and developing these ideas into an alternative system: Oxford, with the professors of the Drummond Chair—Senior, Whately and Lloyd; Dublin, with those of the Whately Chair, held first by Longfield in 1832, and counting, among others, pupils like Hearn; Cambridge with Whewell and Banfield; and Section F of the British Association, which had as its founders, in 1833, Malthus, Richard Jones and Babage, was dominated by the anti-Ricardians with "Whately and Senior both prominent in the early years of Section F" and, later, "Jevons, a great BA man, who delivered several of his most important papers to Section F".[13]

The task of propagating similar ideas in France – and, mainly through French influences, in Germany – was certainly easier for Say, than for Malthus in England, as there were no French equivalents of Ricardo.

5. But, what is of interest to us here is the fact that these followers of the Malthus-Say line, in the attempt to frame a theory of value in terms of demand and supply, placed emphasis either on the aspect of "intensity of demand" or on the aspect of "estimation founded upon ... desire". The authors, like Longfield and Cournot, who mainly concentrated their attention on the first aspect, arrived at the formulation of the so-called "empirical demand functions"; the authors, like Senior, Lloyd and Gossen, who concentrated their attention mainly on the second aspect, arrived – though with different degrees of clarity – at the principle of decreasing marginal utility.[14] But these two unconnected elements – "marginal uti-

[13] T. Hutchison, "From 'Dismal Science' to 'Positive Economics' – a Century –and – a – Half of Progress" in J. Wiseman (ed.), *Beyond Positive Economics* – Proceedings of Section F for the British Association for the Advancement of Science, York, 1981, London, Macmillan, 1981, pp. 199-200; see also R. L. Smith, "The History of Section F of the British Association 1835-1970" in N. Kaldor (ed.), *Conflicts in Policy Objectives*, Blackwell, Oxford, 1971. Not least for the history of the Whately Chair, see, J. G. Smith, "Some Nineteenth-Century Irish Economists", *Economica*, February 1935 and R. D. Collison Black, "Trinity College, Dublin, and the Theory of Value, 1832-1863", *Economica*, August, 1945; for the colour given to the teaching by Whewell in Cambridge, see, N. B. De Marchi and R. P. Sturges, "Malthus and Ricardo's Inductivist Critics: Four Letters to William Whewell", *Economica*, Nov. 1973.

[14] See, in particular, E.R.A. Seligman, "On Some Neglected British Economists", *Economic Journal*, Sept. and Dec. 1903; J. G. Smith, *op. cit.*; R. D. Collison Black, *op. cit.* and by the same author "W. S. Jevons and the Economists of his time", *The Manchester School*, Sept. 1962; Ross M. Robertson, "Jevons and his Precursors" *Econometrica*, July 1951; M. Bow-

lity" and "empirical demand functions" – could not substantiate a determination of price that had some logical plausibility. Thus, commenting these early contributions to marginal theory, Schumpeter observes: "the sponsors of supply and demand even experienced difficulty in setting on its feet the very supply and demand apparatus... They talked of desires, or desires backed by purchasing power, of 'extent' of demand and 'intensity' of demand, of quantities and prices and did not quite know how to relate these things to one another".[15]

6. It would seem fruitless to consider the relationship between cost and price in these tentative developments of "the great principle of demand and supply". It is, rather, of some interest to consider briefly Senior's well-known definition of cost of production as "the sum of the labour and abstinence"[16] – later to become Marshall's "real cost".

The idea of conferring on profits the character of a remuneration for the sacrifice called "abstinence" – as this definition of cost implied – might have had its attractions. But the apparent fact of the wage differentials stood in the way of the idea of conferring on wages the character of a remuneration for the "sacrifices" of labour, and thus, of the idea of a cost of production as the "sum of sacrifices". Senior, in fact, attempted to remove these preliminary difficulties by expanding the notion of "natural agents" so as to include, besides land, "peculiar advantages of soil, or situation", "extraordinary talent of body or mind", "processes generally unknown, or protected by law from imitation".[17] In this way he was able not only to maintain – as Marshall did later – that "Rent of *land*... is only a *species* of an extensive genus",[18] but also that the earnings of skilled labour may contain – besides wages as remuneration for the "sacrifices" of ordinary labour – rent as a surplus due to "extraordinary talent of body or mind" which nature may confer on some and not on others.

In addition, as particular talents may be acquired through education and training which require some sort of "abstinence", the earnings of skilled labour, besides wages and rents may also contain profits as remuneration for the "abstinence" which education and training might involve.[19]

LEY, "The Predecessors of Jevons – the Revolution that Wasn't", *The Manchester School*, March, 1972; LAURENCE S. MOSS, "Mountifort Longfield's Supply and Demand Theory of Price and its Place in the Development of British Economic Theory, *History of Political Economy*, N. 4, 1974.

[15] J. A. SCHUMPETER, *op. cit.*, p. 602.

[16] N. W. SENIOR, *An Outline of the Science of Political Economy* (1836), New York, Kelley, p. 101.

[17] N. W. SENIOR, *ibid.*, p. 103; see also, pp. 89-92 and "On certain terms which are peculiarly liable to be used ambiguously in Political Economy" [1826], now published as *Appendix* to *An Outline* etc., *op. cit.* p. 236.

[18] N. W. SENIOR, "On certain terms" etc. *op. cit.*, *ibid.*, p. 236; see also *An Outline* etc., p. 59.

[19] N. W. SENIOR, *An Outline*, etc., *op. cit.*, pp. 128-134.

The occurrence of rents and/or profits, in addition to wages in the earnings of skilled labour, would explain, according to Senior, why – once rents and/or profits are properly isolated – wages are always in proportion to "equal exertions and hardships endured by an ordinary labourer",[20] in spite of the fact of wage differentials.

The same arguments made it easy for Senior to show that the three types of income could also be contained in the earnings of the capitalist no less than in the earnings of the "proprietor of a natural agent".

As wages, profits and rents no longer each typify the peculiar income of one of the social classes, the traditional thriplepartion of social classes itself becomes blurred in the fragmentation od individuals whose earnings may contain the three types of income.

These results of Senior's analysis are an obvious consequence of his definitions of "natural agents" and capital – Senior reckons as capital also what he defines as "immaterial capital" which would consist of "appropriate knowledge, and the moral and intellectual habits and reputation",[21] i.e. the superior skills due to education and training. As these definitions imply the generalization to labour and capital of peculiarities proper to land and to labour of peculiarities proper to capital, this amounts to depriving, right from the outset, each one of its proper pecularities: hence the result of three distinct types of income which may be found in the earnings of each one.

All these constructions are clearly aimed at puting on a par wages and profits by conferring on them the nature of remunerations for "sacrifices". As to the determination of the rates of wages and profit and, with them, of a cost of production which have a subjective nature, Senior's constructions were nothing more than a prelude. However, it was perhaps the nature of this prelude which lead Böhm-Bawerk to state that, although Senior was not the originator of the theory of profits as remuneration for "abstinence", he was nevertheless the first to make abstinence "the central thought of a well developped interest theory".[22] This statement, in fact, did not prevent Böhm-Bawer himself from reaching the conclusion that: "Senior's abstinence theory achieved great popularity ... not so much because its merits as a theory surpassed those of other theories, but rather because it came along at time when interest was being subjected to vigorous attack, and this opportune support was welcome indeed".[23]

7. If these were the theoretical advancements made by Malthus and Say's followers, it is easy to understand why, in the chaos between the

[20] N. W. SENIOR, *ibid.*, 130.

[21] N. W. SENIOR, *ibid.*, 130.

[22] E. VON BÖHM-BAWERK, *Capital and Interest*, vol. I (1884) 4th ed., 1921, South Holland, Ill., Libertarian Press, 1959, p. 180.

[23] E. VON BÖHM-BAWERK, *ibid.*, p. 190.

"anti-Ricardian" and the "non-Ricardian" lines which characterized the 1830s and the 1840s in England, finally, from 1848, rose to dominance if not Ricardo's theory, certainly the Ricardianism of J. S. Mills' *Principles*: there was simply no alternative. Marshall wrote that "the most important benefits he [J. S. Mill] has conferred on the science are due rather to his character than to his intellect".[24] If this is true, undoubtedly it is to J. S. Mill's character rather than to his intellect that his total neglect of the "unquestionably original" contributions of the Ricardian socialists[25] is due, as well as his consideration of Senior's undoubtedly reassuring contributions. The outcome of this prejudiced eclecticism of J. S. Mills' *Principles* was to blur the contrast between Ricardo's and Malthus's approach to value and distribution. Thus, when years later Marshall referred to Ricardo as one of his "heroes" and wrote of his "youthful loyalty" to him that "boiled over" when he read Jevons' *Theory*,[26] perhaps we can infer that he was referring to Malthus and Senior and not to Ricardo.

II. COST AND PRICE: THE MARGINAL THEORY

1. The unsystematic ideas about use-value and demand and supply as determinants of the exchange-value of commodities which were developed parallel with and in opposition to the classical theory of distribution and value, at last found a systematic treatment at the beginning of the 1870s in W. S. Jevons, *The Theory of Political Economy* and C. Menger, *Grundsätze der Volkwirtschaftslehre* (both published in 1871), and L. Walras, *Eléments d'économie politique pure* (published in two parts in 1874 and 1877). It is usual to mark the beginning of marginalist economics with the appearance of these works, in which the long-sought relationship between use-value and exchange-value was established for the first time, once earlier works on use-value i.e. utility – reinterpreted in subjective terms – after various elaborations had led to the principle of decreasing marginal utility.[27]

What we find new and of fundamental importance in these works – such as to be considered what "constitutes the very foundation of the whole edifice of economics"[28] – is the condition of proportionality between

[24] Marshall to Jevons, 4th February, 1875 in R. D. COLLISON BLACK (ed.), *Papers and Correspondence of William Stanley Jevons*, vol. VI, London, Macmillan, 1977, p. 100.

[25] See H. S. FOXWELL, *Introduction* [1899] to the English translation of A. MENGER, *The Right to the Whole Produce of Labour*, New York, Kelley, 1970, p. VI and pp. XXVII-XXVIII.

[26] A. G. PIGOU (ed.), *Memorials of Alfred Marshall*, [1925], New York, Kelley, 1966, p. 100.

[27] See V. K. DMITRIEV, "The Theory of Marginal Utility" [1902] in *Economic Essays on Value Competition and Utility* (M. Nuti ed.), Cambridge, CUP, 1974 and G. J. STIGLER, "The Development of Utility Theory", *Journal of Political Economy*, vol. LVIII, pp. 307-327, 373-396.

[28] L. WALRAS, *Preface* to the 4th ed. [1900] of his *Elements of Pure Economics*, [1874-77], London, Allen & Unwin, 1954 [W. Jaffé ed.], p. 44.

prices and marginal utilities for each consumer after the exchange, i.e. the condition of maximum utility.

This condition, which implies the hypothesis of substitution between goods for each consumer when prices vary, gave an analytical basis to downward sloping demand curves for goods, and, with them, to the idea that, given the quantities produced, relative prices are *exclusively* determined by marginal utilities, independently of the costs of production of commodities.

2. The reactions to these first developments of marginalist economics were in fact negative in Britain as well as in France and Germany. The obvious reason for these first unfavourable reactions lies in the fact that Jevons's *Theory* and Menger's *Grundsätze*, just as the first part of Walras's *Eléments*, contained nothing systematic as an alternative to the undoubtedly confused (and, at the time, often attacked) classical theory of distribution, in the then dominant form found in J. S. Mill's *Principles*.

The lack of a distribution theory sufficiently worked out and such as to be coordinated with the new theory of value, obviously was reflected in the lack of coordination between costs and prices. Nevertheless there remained the apparent fact that in a competitive economy, in the long run, prices tend to be equal to costs. It is of some interest to note that when Marshall reviewed Jevons's *Theory* in 1872, he pointed out these deficiencies.[29] However, he did not apparently have a solution in view at the time, considering that, in 1909, he wote to Cannan: "There remained great lacunae in my theory till about '85; when, on my return to Cambridge, I resolved to try to find out what I really did think about Distribution: and I gradually developed ... the doctrines of substitution between prima facie non-competitive industrial groups, of quasi-rents, etc..".[30]

If this was the state of marginalist economics at its beginnings, it is easy to realise why these first developments led, together with the total disintegration of the last remnants of classical theory after J. S. Mill's death, to a complete chaos in economic theory in Britain.[31] A remarkable expres-

[29] A. Marshall, "Mr. Jevons' *Theory of Political Economy*", *The Academy*, April 1, 1872, reprinted in A. P. Pigou (ed.), *Memorials* etc., *op. cit.*, pp. 93-100. As regards Menger's *Grundsätze*, Hayek observes: "there is really only one major point on which Menger's exposition leaves a serious gap. A theory of value can hardly be called complete and will certainly never be quite convincing if the rôle that cost of production plays in determining the relative value of different commodities is not explicitly explained. At an early point of his exposition Menger indicates that he sees the problem and promises a later answer. But this promise is never fulfilled." (F. A. von Hayek, "Carl Menger", *Economica*, Nov. 1934, written by Hayek as an *Introduction* to the Reprint of Menger's *Grundsätze*).

[30] A. P. Pigou (ed.), *Memorials* etc., *op. cit.*, p. 405.

[31] W. S. Jevons, "The Future of Political Economy" (Introductory Lecture at the opening of the session 1876-77, at University College, London) reprinted in Jevons' *Principles of Economics* [1905], New York, Kelley, 1965, p. 191.

sion of this chaos is the attempt – led by Sir Francis Galton in 1877 – to exclude political economy from the British Association for the Advancement of Science.[32]

Nor did the situation appear less chaotic in Germany, where the representatives of the Historical School, dominant at the time, rejected whatever theory, rather than the new theory of value. It was in this context, ultimately characterized by the absence of a theory of distribution and value of any completeness, that it was possible for the *Methodenstreit* to be developed, and for Menger himself – certainly not by accident – to be directly involved in it during the years 1883 and 1884.[33]

3. But if, as we are often told, "Nature abhors a vacuum", the eagerness to fill this void must have been considerable. With the publication in 1867 of Volume 1 of Marx's *Capital*, Ricardo's theory of distribution and value had in fact reappeared, not in the conciliatory form of J. S. Mill's *Principles*, but in the dangerous one which had been typical of this theory in the decade following Ricardo's death. According to Böhm-Bawerk, this theory constituted for the Germany of 1884 "the focal point about which attack and defence rally in the war in which the issue is the system under which human society shall be organized".[34]

On account of the impasse in which the theory of distribution was, and the ensuing chaos in economic theory, there was the danger that Ricardo's theory of distribution – in the most advanced elaboration it had found in Volume I of Marx's *Capital* – might fill the gap, and become even in Britain the "focal point" in the struggle for and against the established social order. This danger must have seemed not too abstract, in the climate of Socialist revival of the 1880s, and especially after the foundation of the Social Democratic Federation in 1881, and the Fabian Society in 1883.

Certainly it was in this context that, in 1884, simultaneous attacks were launched on Marx's theory of value by Wicksteed in Britain, and Böhm-Bawerk in Austria.[35] Both beginners as economists at this time, Böhm-Bawerk and Wiksteed became – between the end of the 1880s and the beginning of the 1890s – two of the great makers of the marginalist theory of distribution, following the line laid down in the works of Jevons and Menger. Criticism of Marx's theory of value was conducted by the two authors along essentially similar lines, which clearly reflect the impasse in which mar-

[32] I. K. INGRAM, "The Present Position and Prospects of Political Economy" (paper read to Section F of the British Association) as reprinted in R. L. SMITH (ed.), *Essays in Economic Method*, London, Duckworth, 1962, p. 41.

[33] C. MENGER, *Problems of Economics and Sociology* [1883], Urbana, Ill., 1963, and *Irrthümer des Historismus in der deutschen Nationalökonomie*, Vienna, 1884.

[34] E. VON BÖHM-BAWERK, *Capital and Interest*, vol. I, *op. cit.*, p. 241.

[35] E. VON BÖHM-BAWERK, *ibid.*, pp. 281-302; P. H. WICKSTEED, "Das Kapital: A Criticism", *To-Day*, vol. II (new series), October, 1884, reprinted in P. H. WICKSTEED, *The Common Sense of Political Economy* [1910], vol. II, Routledge & Sons, London, 1946.

ginalist economics was at the time: the chosen line of criticism, which perhaps they were obliged to follow, was of an "esoteric" nature, i.e., that of simply contrasting the utility theory with the labour theory of value. Exemplifying through Böhm-Bawerk's criticism, their basic position was that in Marx's theory, no less than in Ricardo's, labour rather than utility, could be singled out as the source of value because the analysis was artificially restricted to reproducible goods alone. When this restriction was removed, and the vaster category of "economic goods" – whether reproducible or not[36] – was considered, it would be apparent that utility, not labour, is the common source, and determining element, of exchange value.

The most obvious objection to this line of argument is that, even allowing that marginal utility theory could explain the price of *non-reproducible* goods, certainly it was quite unable, at this stage of development, to explain the prices of *reproducible* goods – that is, of those goods the price of which is subject to the constraint of cost. After all, it was Böhm-Bawerk's opinion that, to understand the connection between price and cost "is to understand a good half of economics".[37] If we leave aside the publication in 1877 of the second part of Walras's *Eléments* (on account of its total lack of impact at the time), the "good half of economics" (on which the other half ultimately depended) in 1884 had not been developed yet along the lines suggested by marginal utility theory: hence the "esoteric" nature of Böhm-Bawerk's and Wicksteed's criticism of Marx's theory of value.

4. On the other hand, the economists who opposed utility theory, on account of the crucial role played by the cost of production in the determination of normal prices, inadequately upheld their positions. This was because the notion of cost itself, which was vague enough in J. S. Mill's *Principles* (not least because of the conciliatory and eclectic nature of that work), had certainly become, in Cairnes's *Some Leading Principles* (1874), what Whitaker defined "an appalling jumble of ideas".[38] And it was to become even worse in the 1880s, following the abandonment – after Walker's attack in 1875 and 1876[39] – of the Wages Fund theory and the spread, during the 1880s, of what Cannan defines as "the produce-less-deduction"

[36] In the attempt to frame a theory of value and distribution based on the principle of demand and supply, the usual distinction between *reproducible* and *non-reproducible* goods has needed to be substituted by the new one between *free* and *economic goods*, these last ones including reproducible and non-reproducible goods. This re-classification traces his origins back to Malthus: in fact, Malthus attempt to generalize to reproducible goods, a principle which was supposed to operate in the determination of value only in the case of non-reproducible goods, implyed the re-classification in question. On this point, see Sec. 1, par. 3.

[37] E. von Böhm-Bawerk, *Capital and Interest*, vol. II, [1889], 4th ed. 1921, South Holland, Ill., Libertarian Press, 1959, p. 249.

[38] A. C. Whitaker, *History and Criticism of the Labor Theory of Value*, [1904], New York, Kelley, 1968, p. 10.

[39] F. A. Walker, Article in *North American Review*, January, 1875 and *The Wages Question*, New York, 1876.

theories of distribution.[40] This explains why the discussion of economic theory took on a form peculiar to this period of interregnum: that of a frontal opposition between cost theory and utility theory.

Obscured "by a listing of exceptions and the addition of all sorts of modifying and limiting clauses", the traditional cost theory continued however to remain "almost unquestioned", according to Böhm-Bawerk, as late as 1888.[41] Finally, it was Marx who cleared up the ground pointing out the reasons for the systematic connection between distribution and prices, and developing these results in his prices of production theory. But these results of Marx's work appeared too late in 1894 in the posthumous Volume III of Capital.

5. Meanwile in 1890, Marshall published his *Principles of Economics* and there he put forward the solution to the problem of the cost-price relationship that the marginalists had been seeking for twenty years: i.e. the relationship between prices as determined by the principle of decreasing marginal utility, and the value of the component parts of the cost of production, simultaneously determined by the same principle, in conjunction with the analogous one of decreasing marginal productivity (which had been discovered later than marginal utility, and had certainly been prompted by it, as Wicksteed clearly indicated[42]).

The solution to the problem of the cost-price relationship within marginalist theory is obviously not a "conciliation" between classical and marginal theory within a more complete theoretical paradigm; this rather is the version of the facts that Marshall ably put forward and soon caused to prevail, favoured in this by the state of confusion in which traditional cost theory was, and by the peculiar context in which discussions were necessarily conducted and that time (that, already mentioned, of frontal opposition between cost theory and utility theory).

In fact, what Marshall pointed out in his *Principles* through his "doctrines of substitution" between goods and methods, was a new unifying principle of simultaneous determination of the prices and the value of the component parts of the costs of production: the principle of supply and demand. In Marshall's own words: "The cost of production principle and the final utility principle ... are component parts of the one all-ruling law of supply and demand" insofar as "marginal uses and costs do not govern value but are governed together with value by the general relations of demand and supply".[43]

[40] E. Cannan, *A Review of Economic Theory*, [1929], London, Cass, 1964, pp. 356-58.
[41] E. von Böhm-Bawerk, *Capital and Interest*, vol. II, *op. cit.*, p. 168.
[42] P. H. Wicksteed, *Essay on the Coordination* etc., *op. cit.*, pp. 7-10.
[43] A. Marshall, *Principles of Economics* [1890], 9th (variorum) ed., vol. I, London, Macmillan, 1961, p. 820; p. 410.

6. The "general relations of demand and supply" as determinants of the normal prices and the value of the component parts of the cost of production, i.e. distribution, had in fact been advanced by Walras in 1877 with the publication of the second part of his *Eléments*. The solution there presented by Walras must have been particularly congenial to Marshall, considering that, already in his review of Jevons' *Theory* in 1872, he had pointed out as a basic limit of Jevons's work a, so to speak, "successivistic" approach to value and distribution, rather than one of simultaneous determination of prices, distribution and quantities produced.

On account of this it seems to be of particular importance what Marshall states in a letter to J. B. Clark of 1908: "My whole life has been and will be given to presenting in realistic form as much as I can of my Note XXI".[44] Note XXI of his *Principles* is – except for the treatment of capital – substantially Walras' general equilibrium system, generalized for variable coefficients. The *Principles* – the work of Marshall's entire life – is thus essentially a presentation "in realistic form" of the general equilibrium system which we find in Note XXI. An essential premise, in this "realistic form" of presentation, is the pointing out of the analytical bases of the "general conditions of demand and supply", that is, the "doctrines of substitution" (following on from the principles of decreasing marginal utility and productivity on which the general equilibrium system in Note XXI rests).

The illustration of the analytical bases of demand and supply was perhaps the most important element which, by making it comprehensible, quickly brought acceptance to a theory which, as presented in Walras' *Eléments* was far from comprehensible at the time, and therefore not amenable to practical application. An equally important aspect in this "realistic form" of presentation must be considered Marshall's peculiar method of "partial equilibrium"[45] later to become one of the most debated aspects of Marshall's *Principles*.[46]

Whatever the deficiencies of the "partial equilibrium" method, it was thanks to this "realistic form" of presentation that marginalist economics gained its first general acceptance through the pervasive ascendancy of Marshall's *Principles* in Britain and, directly or indirectly, the United States, Sweden and a large part of the old Continent.[47]

[44] A. C. PIGOU (ed.), *Memorials* etc., *op. cit.*, p. 417.

[45] L. ROBBINS, *Introduction* [1932] to vol. I of P. H. WICKSTEED, *The Common Sense* etc., *op. cit.*, p. XV and fn. 3.

[46] See in particular, P. SRAFFA, "Sulle relazioni tra costo e quantità prodotta", *Annali di Economia*, vol. II, n. 1, 1926, and "The Laws of Returns under Competitive Conditions", *The Economic Journal*, December, 1926; D. H. ROBERTSON, G. F. SHOVE and P. SRAFFA, in the Symposium on "Increasing Returns and the Representative Firm, *Economic Journal*, Dec. 1930; P. NEWMAN, "The Erosion of Marshall's Theory of Value, *Quaterly Journal of Economics*, Nov. 1960.

[47] G. F. SHOVE, "The Place of Marshall's *Principles* in the Development of Economic Theory" *The Economic Journal*, December 1942, pp. 313-316.

7. But, as Robbins puts it, Marshall's "peculiar blend of realistic knowledge and theoretical insight ... was not necessarily conducive to clear presentation of abstract theoretical issues".[48] In fact, Marshall's often explicit propensity to evade precisely defined economic notions, with the giustification that, in concrete realities, everything "shades into the other by imperceptible gradations", facilitated, together with the domination of Marshall's version of marginalist economics, that blurring of difficulties which beset the theory from its beginnings and which were amply debated in the period in which the first six editions of the *Principles* were published (1890-1910).

These difficulties can be illustrated in the simple terms in which they first appeared: the discovery of the principle of decreasing marginal productivity (at which, on the analogy of the earlier principle of decreasing marginal utility, Edgeworth, Marshall, J. B. Clark, Wicksteed, Wicksell and Walras himself arrived simultaneously, between the end of the 1880s and the beginning of the 1890s) suggested a method, long-sought by the opponents of classical economics, through which the product of each agent of production "may be disentangled from the product of cooperating agents and separately identified".[49] However, this possibility of "disentanglement" proved problematical when the attempt was made to "identify" the product of that peculiar agent of production which is capital. And on the notion of capital to which one must have recourse to determine distribution, on the basis of the marginalist principles of supply and demand, the greatest exponents of the marginalist theory of distribution, from Böhm-Bawerk and J. B. Clark to Walras and Marshall, openly declared themselves to be at variance with each other. In Böhm-Bawerk's words: "It is an almost tragi-comic circumstance that the champions of the different definitions of capital charge each other with the same error, the irrelevance of the recommended concept".[50]

8. While the divergences as to the way of dealing with capital obviously involved differences in the determination of the rate of profit, in fact they implied more pervasive difficulties. Böhm-Bawerk himself rightly observed that: "when divergence is as wide as it is on this point of capital, we are forced to the conclusion that there must be something quite unusual about this specific apple of discord". And he added, that Knies appraised the implications of the controversy over capital "quite accurate-

[48] L. Robbins, *Introduction* [1934] to vol. I of K. Wicksell, *Lectures on Political Economy* [1901], Routledge & Kegan Paul, London, 1961, p. X.

[49] J. B. Clark, *The Distribution of Wealth*, [1899], New York, Kelley, 1965, p. VIII.

[50] E. von Böhm-Bawerk, *Capital and Interest*, vol. II, *op. cit.*, 3rd ed., 1909, Bk. I, Ch. III, fn. 96, p. 409 (Libertarian Press edition).

ly", when he said that "there is more involved here than in the ordinary case of a conflict over a felicitous versus an awkward definition, or even a right versus a wrong definition".[51] In fact, on account of the necessary relationship between the rates of profit, wages, and rent,[52] the disagreement over the treatment of capital and therefore over the determination of the rate of profit implied difficulties for the whole theory of distribution and thus for the determination of costs, and normal prices. It was this state of things that Ashley must have been referring to in his 1907 Presidential address to Section F of the British Association, when he said: "There is hardly a single point in the whole theory of distribution on which there is as yet any approach to unanimity". And – assuredly having Marshall's attitude to controversy in mind – he remarked: "Doubtless all the differences could be construed as differences of emphasis; but this is hardly reassuring, for the emphasis may differ so much as to give totally opposite impressions. A man may be "coloured" with so little emphasis as to be practically white or with so much emphasis as to be practically black".[53]

9. On account of the almost total domination that marginalist economics has enjoyed for about a century, it would seem natural to think that "from these clashes of thought" between marginalist theoreticians "the spark of an ultimate truth had at length been struck".[54] However, things did not really go this way. What happened was rather that, already at the end of the first decade of this century, "Clark's value concept of capital ... gained a considerable and constantly increasing number of adherents".[55] Alfred Marshall was perhaps the most important of its "adherents". With this adhesion, "considerations of capital theory proper ... simply disappeared from the picture in the English speaking world"[56] at least until the 1930s.

10. The unresolved question – as to that "something quite unusual" which "there must be" about capital – lying at the very foundation of marginalist theory, has however been brought to full light in 1960, with the publication of P. Sraffa's *Production of Commodities by Means of Commodities*. One of the important things proved in this work is that, when commodities are produced by means of "capital" besides labour and land, there will in general be "reversals in the direction of the movement of relative prices" when distribution varies.[57] This implies that there is no rea-

[51] E. von Böhm-Bawerk, *ibid.*, p. 31.

[52] P. H. Wicksteed, *Essay on the Coordination* etc., *op. cit.*

[53] W. J. Ashley, "The Present Position of Political Economy", *The Economic Journal*, Dec. 1907, p. 479; pp. 477-8.

[54] P. Sraffa, "The Laws of Returns etc.", *op. cit.*, p. 535.

[55] E. von Böhm-Bawerk, *Capital and Interest*, vol. II, *op. cit.*, (3rd ed.) p. 57.

[56] L. Robbins, *Introduction* to vol. I of K. Wicksell, *Lectures* etc., *op. cit.*, p. XIV.

[57] P. Sraffa, *Production of Commodities by Means of Commodities*. Prelude to a Critique of Economic Theory, Cambridge, CUP. 1960, p. 38.

son why the "laws of substitution" between goods and methods, which lie at the basis of the demand curves for goods and factors, should go in the direction required to define downward sloping demand curves for factors. With this, the marginalist theory of distribution and, with it, the connected theory of the cost of production and normal prices, seems to land in an untenable position – unless we disregard production and consider some "model of pure exchange" as acceptable for the explanation of value. This would be tantamount to accepting, after a century of theoretical "refinements", what was patently unacceptable in marginalist economics between 1870 and 1890: the lack of coordination between price and cost.

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