

## PARETO'S CONTRIBUTION TO UTILITY THEORY

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VILFREDO Pareto's contribution to modern economic theory is today universally recognized, but to my mind his particular contribution to utility theory is not sufficiently understood. In the following paragraphs I intend to give an assessment and evaluation of Paretian thought on this important topic.

It seems that Pareto's contribution to utility theory originated as a reaction to the attitude of Walras and the Austrian School of Economists to this same theory. The latter thought that utility theory, as they understood it, was a sort of ultimate truth, a key to all the secrets of pure economics. Consequently they placed such an emphasis on it that they induced Pareto and the Paretians to do their best to demolish it.<sup>1</sup> Such was their eagerness that some even held that this departure constituted Pareto's main contribution to economic theory.

That Pareto was not satisfied with the Walrasian theory of value is evident from some passages we come across in the *Cours*. He introduced the term *ophélimité* in place of 'utility', and *ophélimité élémentaire* for 'marginal utility'. An admirer of Edgeworth, Pareto considered *ophélimité* as a function of *all* the commodities which the consuming unit possesses or consumes in an appropriately chosen period of time, instead of the Walrasian conception of marginal or total utility of every commodity as function of that commodity alone.

Various indications show that before 1900 Pareto was conscious that for his purpose the concept of measurable utility in the cardinalist sense might be safely discarded. In his now famous work *Manuale* he made his position clearer.

It is true that he referred to the indifference curves first introduced by Edgeworth, but his departure from the latter's analysis is considerable.

One can only quote here the more relevant passages. In Chapter III in which his theory of general equilibrium is evolved, we find this important note to paragraph 54:

'This expression (indifference curve) is due to Professor F.Y. Edgeworth. He supposed the existence of utility (*ophélimité*) and deduced from it the indifference curves. On the contrary I consider as factual

<sup>1</sup> See article by Joseph A. Shumpeter on *Vilfredo Pareto (1848-1923)* in the *Quarterly Journal of Economics*, May, 1949.

data the indifference curves and deduce from them all that is necessary for me for an equilibrium theory, without the need of having recourse of ophelimity'.

One might also quote Pareto's idea summarized in a note to the appendix of the same work – a note which has since become famous:

'The notions of indifference lines and preference lines have been introduced in the science by Professor F.Y. Edgeworth. He started from the notion of utility (ophélimité) which he supposed to be a known quantity, and from it he deduced one definition of these lines. We have inverted the problem. So I have shown that starting from our notion of indifference lines, a notion given directly by experience, one may arrive at determination of economic equilibrium and proceed to certain functions, of which ophelimity might be part, if it exists. In any case one can obtain the indices of ophelimity.'<sup>2</sup>

Pareto is not interested in the subjective tastes of the consumer as long as they are not evidently manifested. For him 'the individual may even disappear, provided he leaves us this photo of his tastes'.

This new idea, quite different from Edgeworth's as expressed in 'Mathematical Psychics', was meant to replace subjective utility postulates by postulates about *observable* behaviour and pave the way to the ordinalist approach to the measurability of utility. This achievement, as Pareto himself admitted, was foreshadowed in the second part of Irving Fisher's *Mathematical Investigation into the Theory of Value and Price* published in 1892.

This was also the interpretation given by admirers of Pareto. Thus Professor L. Amoroso who was also a personal friend of Pareto, insisted that the latter proved beyond doubt that ophelimity as an idea did not contain anything essentially valuable. What is needed is a function which could serve to indicate the direction in which the movement is foreseen to happen. Furthermore, Amoroso is of the opinion that we are here confronted with something analogous to the evolution of the concepts of *Rational Mechanics*. In statics one began by considering a system of points together with a system of forces applied to them. But suppose, for simplicity's sake, the system free of constraints; the conditions of equilibrium would be expressed by saying that the resultant of the forces applied should be zero. But it was at once recognized that these same forces could be expressed more simply by saying that the position of equilibrium corresponds to the maxima and minima of the potential function. A last stage was reached when it was seen that the concept of forces

<sup>2</sup> *Manuel*, Paris, 1927, p. 540.

could be disposed with entirely. The position of equilibrium was thus determined just as a function (index) was known, which with the sign of its derivatives, could indicate the direction of the movement. As for the analogy mentioned above: the concept of applied forces corresponds in economics to the concept of final degree of utility. The potential function corresponds to ophelimity.

It is evident from other writings that all the Paretians understood their master's theory in this way. Pierre Boven in *Les applications mathématiques de l'économie politique* voiced the opinion of the rest when he stated that in the *Cours*, Pareto built on the notion of ophelimity; he still needed a theory of value. In the *Manuale di Economia Politica* ophelimity gave way to indices of ophelimity. In the *Manuel* the theory of choice eliminated these functions and allowed us to consider only quantities of consumption goods. It is of no interest to investigate whether ophelimity is a quantity or not. 'All theory of value is an offspring of pure economics, and it is now no more than a thing of historical or didactical interest.'

Of course this last conclusion goes even beyond what Pareto had in Mind when he wrote his *Manuale*. So much so that both Schumpeter and Hicks<sup>3</sup> observed very pertinently that Pareto did not disentangle himself completely from the old utility theory. As a matter of fact there are various instances which prove that he kept an eye on cases in which it might be possible to speak not only of utility but of *cardinal* utility as well. He even made use of concepts, such as the Edgeworthian definition of rivalry and complementarity, that do not go well with his fundamental idea.

These remarks are also valid when one considers certain criticisms levelled at Pareto by non-Paretians. Surprisingly enough his successor to the Chair of Economics at Lausanne, Professor Firmin Oulés,<sup>4</sup> commenting on the passages from the *Manuale* quoted above, wrote that Pareto might have succeeded in eliminating subjective considerations and thus making a decisive contribution to economic science if he had not built on false premisses. Indifference curves or indices of indifference are not and can never be objective.

Since Pareto's publication of the *Manuale*, many contributions have been added which have given utility theory its present form. Most of these contributions came from the works of Slutsky, Bowley, Allen, Hicks, Samuelson and Wold. But with the exception of Bowley and Hicks, hardly enough justice has been done to Pareto's pioneering contribution to modern behaviouristic theory.

In the foregoing paragraphs I have tried to be as objective as possible in interpreting Pareto's mind. I only wanted to show that his contribution,

<sup>3</sup> *Value and Capital*, 2nd ed., p. 19.

<sup>4</sup> *L'Ecole de Lausanne*, Paris, 1950.

to modern utility theory is considerable. Again to be fair to Pareto, I mentioned that he did not exclude subjective elements altogether. But now in order that I may also be fair to the readers of this essay, I would like to point out that, to my mind, Pareto did not exclude these elements completely because of reasons not mentioned by either Schumpeter or Hicks. His analysis is confusing at times, and though his foremost idea is clear enough, he makes use of terms and phrases which are apt to express just the opposite. Besides, his lack of consistency is often due to the tremendous difficulties he encounters in advancing his ideas.

We have already seen how his approach was the result of his reaction to the Austrian School. Briefly, the latter derived choice from utility, while Pareto derived utility from choice. For Pareto the consumer considers useful what he has already chosen, while for the Austrian School the consumer chooses what he considers useful.<sup>5</sup> In this way he intended to reduce economics to something purely quantitative; in other words, to a science which ignores completely all ethical principles.

Unfortunately modern economic theory has been the result of these and similar efforts and in this respect one can always hail Pareto's contribution as outstanding. But because I have qualified it as such it does not follow that I approve of its *raison d'être* or of all its implications. I sincerely feel that Pareto and all those who followed in his footsteps did a disservice to economic theory.

It is outside the scope of this essay to discuss the importance of value judgements and ethical principles to economic theory. But I can hardly omit mentioning that more and more economists particularly since the end of the last World War, are realising the weakness of modern theory divorced of ethical principles and are helping economics to rise out of the stagnation of the last decades.

An increasing number of economists are asking, for example, how and for what reason the consumer does make one choice instead of another quite different. Naturally enough such a question is linked with a multitude of other questions concerning various aspects of economics which up to recent times it was considered best to ignore. The importance which the economics of welfare has acquired, has stimulated economists and encouraged them to help make economics less arid. These questions cannot remain unanswered particularly if we agree that economics should be at the service of humanity.

So if it is true that Pareto helped modern utility theory to be what it is, he has also been responsible for reducing economics to a purely quantitative science.

<sup>5</sup> F. Vito: *Introduzione alla Economia Politica*, Milano, 1956, p. 237.