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Jimena Hurtado
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Calle 19A No. 1 – 37 Este, Bloque W.
Bogotá, D. C., Colombia
Teléfonos: 3394949- 3394999, extensiones 2400, 2049, 3233
infocede@uniandes.edu.co
<http://economia.uniandes.edu.co>

Ediciones Uniandes
Carrera 1ª Este No. 19 – 27, edificio Aulas 6, A. A. 4976
Bogotá, D. C., Colombia
Teléfonos: 3394949- 3394999, extensión 2133, Fax: extensión 2158
infeduni@uniandes.edu.co

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**Utilitarianism and Economic Behavior.
Looking for Benthamite Traces**

Jimena Hurtado*
Johanna Mick †

Abstract:

In spite of the use of a utilitarian language in Rational Choice Theory, economists do not acknowledge any link to this current of moral philosophy, and have made great efforts to rid economics from its legacy. In this document we aim at assessing these efforts retracing their history from Pareto to Samuelson in order to determine how close they came to their ideal of formulating a positive science rid of what they called any metaphysical traces.

Keywords: Utilitarianism, Rational Choice Theory, Axiom of Revealed Preferences

JEL Codes: B12, B21, B31

* Associate Professor, Economics Department, Universidad de los Andes. jihurtad@uniandes.edu.co

† Academic Coordinator, Department of Philosophy, Universidad de los Andes. e-mick@uniandes.edu.co

Utilitarismo y comportamiento económico: Tras las huellas del benthamismo

**Jimena Hurtado[‡]
Johanna Mick[§]**

Resumen:

A pesar del uso del lenguaje utilitarista en la Teoría de la Elección Racional, los economistas no sólo no reconocen un legado de esta filosofía moral sino que han hecho múltiples esfuerzos para deshacerse de esta herencia. En este documento, en un recorrido desde Pareto hasta Samuelson, buscamos evaluar si han logrado su cometido, acercándose al ideal de una ciencia positiva, libre de lo que ellos mismos denominaban vestigios metafísicos.

Palabras clave: Utilitarismo, Teoría de la Elección Racional, Axioma de preferencias reveladas

Clasificación JEL: B13, B21, B31

[‡] Profesora Asociada, Facultad de Economía, Universidad de los Andes, jihurtad@uniandes.edu.co:

[§] Coordinadora Académica, Departamento de Filosofía, Facultad de Ciencias Sociales, Universidad de los Andes, e-mick@uniandes.edu.co.

Utilitarianism and Economic Behavior. Looking for Benthamite Traces

1. Introduction

The Utilitarian legacy in economic theory and in particular in Rational Choice Theory (RCT) is far from clear¹. Even if RCT continues using utilitarian expressions in its description of individual economic behavior, economists have tried very hard to overcome this philosophical legacy. The attacks coming from psychologists on the scientific status of Utilitarian Economics and the criticisms to Utilitarianism made economists search for alternative and empirical basis for their approach to individual behavior. Historians of economic thought reflect the unsettled state of this legacy not only in their direct analysis of the relationship but also in their assessments of the connection between economics² and psychology. In their assessment of the standard history, we can find two trends: those who find no link between Classic Utilitarianism and the early Marginalists (for example Roncaglia 1999, Warke 2000, Sigot 2001, Cohen 2010), and those who see a relationship between hedonism, in particular, or psychology, in general, and Marginalism (for example Sent 2004, Bruni & Sugden 2007, Heukelom 2008, 2010), some even after the Ordinalist Revolution (for example Bruni 2010, Hands 2010, 2011).

According to the standard history, early Marginalists drew inspiration from Utilitarianism and hedonism but in their search for empirical foundations, associated with the decline of introspection as a valid scientific method, economists increasingly distanced themselves from these sources (c.f. Bruni 2010). With the Ordinalist Revolution the link between economics and psychology was completely broken, and this move came to its end with Paul Samuelson's Weak Axiom of Revealed Preferences (WARP 1938). The axiom implies there is no need for a theory of human action, be it utilitarian or any other, because economics only deals with observed individual choices. This is the final step in a research program where economists aimed at leaving the discussion and exploration of the motives of action to other disciplines such as psychology (cf. Sent 2004, Bruni 2010). This way, economics would be free of all the criticism coming from psychology and others arguing Utilitarianism and hedonism were unscientific because they did not rely on empirical proof but on introspection³ (cf. Hands 2010).

¹ Even if we use the term *economic theory* with no further qualification we acknowledge the existence of multiple competing economic theories and the diversity within what could be called mainstream economic theory. This paper is concerned with the latter and more precisely with RCT. The reason why we do not qualify the term is we share a view that is becoming widespread stating that mainstream economics is characterized by a formal definition which presents economics as a method to study social phenomena. The starting point of this method is rational choice theory which links economic theory to a theory of action. Such a view can be found in economists as diverse as Mises, Robbins, Becker and Gintis, amongst others.

² Analyses center on economic theory, and more specifically on consumer choice theory. Here we make the direct association with RCT, understood as utility maximizing behavior.

³ Psychologists, such as William James and William McDougall, argued maximizing rational behavior had been largely disproved and could not sustain any scientific endeavor. The criticism was even more precise arguing utility was not an observable or measurable object making economics rely on a metaphysical entity to explain individual behavior. Echoes of this position can be found in the Institutional critique to neoclassical theory at the end of the XIXth and beginnings of the XXth century, and in Pareto and his followers. For a review of these criticisms see Lewin (1996).

Thus economics would be free of this unscientific basis and its scientific status could be preserved.

This text follows an increasing literature in the history of economic thought which aims at providing a reconstruction of the path that leads to this stage of the relationship between economic theory and Utilitarianism⁴. Starting with Jevons, as Bentham's self-avowed heir in economics, it covers the years up to Samuelson's theorem (1938). After Jevons's attempt to bring utilitarian calculus into economics, Pareto will begin the rupture with his ordinal reformulation of utility theory. He will be followed by Hicks and Allen and finally Samuelson and Houthakker in 1950 demonstrate the logical equivalence between ordinal utility theory and its reformulation in purely observable terms⁵ (Wong 2006). In the text we aim at taking the assessment a step further by focusing not on the general association between psychology and economics, but on the link between a moral theory such as Utilitarianism and economics. We believe that even if the relationship between hedonism and Utilitarianism is widely documented, as is the relationship between hedonism and Marginalism, it is possible to make a connection between ethics and economics. In other words, beyond the connection between psychology and economics, there is an underlying connection between economic theory and Benthamite utilitarianism, or even that the connection between economics and psychology is possible because of this underlying link with Bentham.

We advance that Jeremy Bentham's utilitarianism, understood as a theory of action based on rational choice, informs the development of economic theory, at least during the first half of the XXth century, and thus can be traced in RCT. We suggest that retracing the link between Utilitarianism, theory of action and rational choice, it is possible to find a consistent and crosswise ethical position in economic theory, as it was formulated by some of its major contributors. Following Hands (2010), we believe economists were committed to a view of human agency based on free will and individual choice, which was originally grounded on mental-state psychology, that at times conflicted with their effort of formulating a theory "consistent with dominant views of scientific knowledge" (Hands 2010: 642)⁶. Moreover, contrary to a reconstruction recently restated in Bruni (2010), we advance that the connection between economic theory and Utilitarianism is not broken when economists retain

⁴ It differs from Stigler's (1950a, 1950b) history of Utility theory because he presents a history from Adam Smith up to 1950 tracing the notion of marginal utility and the formalization of utility theory with no reference to the philosophical background or moral implications of the use of the concept and language of utility. It follows the recent reconstructions of the relation between economics and psychology more in the line of those who see a connection even after the Ordinalist Revolution (cf. Hands 2010, 2011) but connecting it directly with a Utilitarian legacy and not only with a strand of psychology.

⁵ In connecting Pareto with Hicks and Allen and Samuelson we differ from Bruni and Guala (2001) who differentiate both movements –ordinalism and operationalism- as two paths to accomplish the positivist project in economics (i.e. abandoning all metaphysical elements and founding economic theory only on observable and operational concepts). Here we are concerned with the final aim which is similar for both paths.

⁶ On similar lines, but emphasizing its epistemological consequences, Moscati (2007) reconstructs this period following a neo-Kantian epistemology, which allows him to identify a trade-off between realism and systematicity.

the theoretical structure derived from Utilitarian psychology even if they, allegedly, abandon Utilitarian assumptions. The Ordinalist Revolution does not culminate this rupture by defining utility as an index of preferences and focusing on choices (Bruni 2010: 93). Benthamite Utilitarianism is not restricted to cardinal utility, and, as a theory of human agency, it deals with individual choice.

Even if fragmentary, this history allows addressing several issues related to the language, object and scope of RCT. In the first place, economic theory still uses the language of Utilitarianism arguing it has no content or significance other than functional and mathematical. However, it could be asked if it is possible to keep a language without its meanings, in particular when there is an avowed failure in replacing the foundations of that language. Second, if economics in its rational choice version is based on individual choices it is, to some important extent, a theory of action (cf. Pareto 1971[1906], Mitchell 1910a, 1910b, Clark 1918, Allen 1932, Baccini 2007, Heukelom 2010). As such, the question is if this theory of action is related or not to Utilitarianism. Lastly, following this idea of economics as a theory of action, it is possible to ask about the limits of economics in regard, for example, to morals. Utilitarianism makes the distinction between economic calculus and ethical calculations disappear; if there is a relationship between economics and Utilitarianism then the former could pretend to the status of a social philosophy justifying, for example, economic imperialism. All these questions may be summed up in a single one: How can RCT do without a theory of human action as the one presented by Utilitarianism?

We believe this question underlies the history we are trying to retrace in this text; the development of the story we are telling suggests that the theory of action underlying rational choice theory is utilitarian. Even if economists such as William S. Jevons and Francis Y. Edgeworth felt at ease with the close link between Utilitarianism and economic theory, other great thinkers held this to be an undesirable relation. Two examples of this rejection of the utilitarian influence on economic theory are John M. Keynes and Joseph A. Schumpeter. For both a theory of individual action was fundamental in economics but neither considered utilitarianism a good alternative. Keynes in his *My Early Beliefs* (1949) clearly expresses his opposition to classical utilitarianism⁷. In *The End of Laissez Faire* (1932) Keynes also makes clear the problems he sees regarding the conception of human nature associated with utilitarianism which supports, especially, money making motives in human behavior presenting a maximizing individual⁸ (cf. Mini 1991). Schumpeter (1954: 409) contends that the utilitarian conception of human action is completely wrong unless dealing with rational behavior which cannot be taken to be the general behavior found in economic activity. According to Schumpeter, there might be an apparent coincidence between Utilitarianism and some policy recommendations derived from economic theory but it is only in some aspects, and Utilitarianism is, over all, an inappropriate foundation for economic analysis.

⁷ In this text Keynes also expresses his objections to ascribing rationality to human nature (Keynes 1949: 101).

⁸ An earlier version of this criticism can be found in some representatives of Old Institutionalism such as Mitchell (1910a, 1910b), Clark (1918) and Commons (1936).

The problematic relationship between Utilitarianism and the theory of action of RCT requires reviewing the link between pleasure, utility, preference and choice during the different stages of the relationship between economics and hedonism. The relation between these terms allows understanding different positions regarding the foundations of the conception of human behavior mobilized by economic theory during the first half of the XXth century. The quest for the scientific status of economic theory explains these different positions and the role given to Utilitarianism. Retracing this history is even more relevant nowadays with the increasing acceptance and growth of behavioral economics. Utilitarianism might be coming back and leaving the backstage of economic theory.

In order to retrace how a precise and fundamental piece of Utilitarianism, the enunciative sense of the utility principle, was incorporated and apparently relegated, the text is divided in six parts. In the first, we describe Bentham's characterization of human behavior, and his definition of utility in order to show how he considered his theory to be a positive one even if his ultimate intention was reform. Bentham's explicit intention was to make Utilitarianism not only a criterion of moral evaluation but also a description of human behavior in order to overcome the arbitrariness he saw in other moral systems through what he considered to be solid scientific foundations. In the second, we present how this characterization was introduced in economic theory especially through the works of John Stuart Mill, William S. Jevons and Francis Y. Edgeworth. We then proceed to show how the ordinal revision of utility theory begun by Vilfredo Pareto did not really do away with the Utilitarian theory of action. Paul Samuelson, as we discuss in section 4, unsuccessfully tried to eliminate this theory. In section 5 we hint at what is happening today and in section 6 we conclude.

2. Utilitarian Model of Behavior

Jeremy Bentham's view of individual action characterizes human behavior as a reaction to exterior stimuli producing sensations of pleasure and/or pain (Bentham 1968[1789]: 1). In this sense, Bentham is elaborating a theory of action. This characterization allows establishing regularities in behavior that can be readily admitted and axiomatized precisely because of its universal acceptance (Bentham 1968[1789]: 1). There is no need for introspection⁹ in establishing and accepting this characterization of human behavior because, according to Bentham, pleasures and pains are the only real entities in that their existence is the object of universal and constant experience and they can exist independently from any other entity (Bentham 1968 [1817]: 98). This is why, without further justification Bentham posits

⁹ Note that Bentham explicitly distances his theory from introspection. This is an important point because it has been argued that the growing rejection of introspection as a valid scientific method in psychology is one of the elements that led economists to mark their distance from Utilitarianism and hedonism (cf. Hands 2010). However, Bruni and Sugden (2007: 150-151) qualify this view showing that introspection was an accepted method up to the rise of Behavioralism in the second half of the XXth century, that is before Pareto's revision. Introspection then does not seem to be the problem in the assuring the scientific status of economic theory at least in the earlier stages of Marginalism (cf. Bruni 2010: 101; Hands 2010: 635). Hands (2010: 639-640) also shows that introspection kept playing an important role, as evidenced in Lionel Robbins famous 1932 article.

his behavioral model as a postulate. More precisely, he establishes – from what he claims to be a careful observation of human action- that the ultimate goal of any action is the achievement of individual well-being understood as enjoying pleasures and avoiding pains. Individuals act motivated by external stimuli which produces sensations of pleasure or pain in them. In Bentham’s words:

“Well-being, composed as hath been seen, of the maximum of pleasure minus the minimum of pain—the pleasure it will be seen is man’s own pleasure, the pain is man’s own pain—will upon a strict and close enquiry be seen to be actually the intrinsic and the ultimate object of pursuit to every man at all times.” (Bentham, 1983: 147-148)

The goal of individual action is well-being: such is the basis of Bentham’s utilitarianism, which allows interpreting it as a theory of action¹⁰. In their actions, individuals decide what course will lead them to their well-being. They choose what course of action will provide them most well-being. This definition of human behavior corresponds, according to Bentham, to the enunciative sense of the utility principle¹¹. It allows not only understanding the mechanism behind individual action but also evaluating such action (Bentham 1983 [1817]: 59-60). Through a consequentialist evaluation, it is possible to establish if an action is good (i.e. it served its purpose of advancing well-being) or bad (i.e. it did not contribute to the individuals’ well-being).

Bentham affirms that people react to the objects they encounter experiencing pleasure or pain (Bentham 1983 [1817]: 11). Well-being, as a result of the sensitive relation the individual has with her environment, is greater when the experience is pleasurable and smaller when it is painful. The individual’s sensibility influences this relation so the quantity of pleasure or pain she derives from her experiences with objects changes according to her own subjective conditions. So even if, as Cohen (2010) remarks, there are objective aspects in Bentham’s definition of utility (Bentham 1952: 101-102), they in no way lessen or change its subjective character. This explains why an object can be more valuable for one individual than for another, or even, why the object’s value might change for the same individual according to variations in her internal and external circumstances. This means that, contrary to Roncaglia’s (1999: 107) argument, there is an explicit and functional connection in Bentham between value in use and value in exchange. Bentham states that value of an object “in the way of exchange arises out of, and depends, altogether upon, and is proportioned to, its value in the way of use” (Bentham 1952: 108).

¹⁰ Marks (2004) argues there is a direct connection between Bentham’s notion of utility, and therefore between his theory of action, and psychophysics, a current in psychology that, as will be shown below, was quite influential on early marginalists. Marks (2004: 10-11) argues that as a psychological entity utility entails psychophysics because not only does it follow the rule of diminishing returns, it also indicates a relation between stimuli and mental states associated with pleasure and pain, which have psychological strength.

¹¹ Bentham states the utility principle has two senses: the enunciative sense (i.e. a description of human behavior as a result of the search of maximum well-being, however the individual might define it) and the censorial sense (i.e. a social choice criteria in terms of the greatest happiness) (Bentham 1968 [1817]: 60). Because this text intends to account for the motive of action in economic theory it will only deal with the enunciative sense. However, there is an unbreakable connection between the two. We will deal with this in what follows.

Moreover, due to this changing relation with their environment, every individual has interest in acting in order to obtain more pleasure than pain in each situation (Bentham 1968 [1789]: 192). Individual action, according to Bentham, implies an intertemporal calculation of pleasures and pains such that present decisions take into account the anticipation of future pleasures and pains. However, such calculation should not be necessarily assimilated to a conscious felicific calculus. Bentham states everyone, even a madman calculates (cf. see below), showing the enunciative sense to be a description of human behavior that stands as a generalization and rationalization of actual behavior.

Bentham uses the term *utility* to name well-being because he believes it is a more global word than pleasurable, and he uses *utilitarian* to name his approach because it describes the study of human behavior tending to increase pleasure and diminish pain. Utility then must not be confused with happiness because while the former refers to a mixture of pleasure and pain the latter refers exclusively to pure and intense pleasures without pain. Therefore, maximizing utility cannot be taken for maximizing happiness as the former can perfectly mean avoiding pain. Furthermore, Bentham did not define pleasure or good because “he did not believe it was possible to do so” (Goldworth 1972: 335). Pleasure is a real term, even if individually defined, and cannot be equalized to interest, desire or want which are fictitious terms. Pleasure is a sensation and is the result of a satisfied interest that can be assimilated with preferences. Choice, interest and preference then are supervenient on pleasure (Goldworth 1972: 342).

The capacity to calculate, expressed in the calculation of utility, not only makes optimization procedures possible, it also gives a norm for action: its adequacy to an end. If pleasure and avoidance of pain is a good, any action that aims at this purpose is good. Therefore, in Bentham the goodness or badness of an action is not to be judged based on its motive but on its adequacy, that is, according to its ability to achieve well-being. Because we are dealing with the determination of means regarding ends that are not in themselves good or bad, understanding the mechanism of individual action and evaluating such action is only a matter of calculation. Calculation, according to Bentham, is an undeniable capacity every human being possesses:

“When matters of such importance as pain and pleasure are at stake, and these in the highest degree (the only matters, in short, that can be of importance) who is there that does not calculate? Men calculate, some with less exactness, indeed, some with more: but all men calculate.” (Bentham 1968 [1789]: 173)

In brief, Bentham bases human action on a model of an individual striving at furthering her well-being through the maximization of utility. This model concludes that the goodness or badness of an action consists in its capacity to further individual well-being which is the same as saying it depends upon the success of the calculation behind the action, or the correct anticipation of the effects of choice on well-being.

This behavioral model constitutes for Bentham the starting point of science if it is accepted that “all knowledge is, in the last analysis, part and parcel of the pursuit of happiness” (Stark 1952: 19). This means that in order to assess Bentham’s Utilitarianism, one must go beyond the greatest happiness principle, and deal with its foundations: the utility principle. The principle contains a description of human action, which can also be read as a moral criterion for its evaluation (the enunciative sense), and a prescription for the design and implementation of public policy (the censorial sense). No doubt, as mentioned before, Bentham’s aim was social reform. However, he believed it could only be done on the basis of scientific knowledge. Thus, it can be contended that, the enunciative sense leads to the censorial sense, and that the latter has no grounds without the former¹². In this sense, Bentham believed that art and knowledge are inseparable (Bentham 1952: 81-82).

Therefore, “the starting point of any science will have to be the potential *utility* of the objects or actions which it sets to investigate” (Stark 1952: 19) because

“Directly or indirectly, well-being, in some shape or another, or in several shapes, or all shapes taken together, is the object of each thought, and object of each action, on the part of each known being, who is at the same time, a sensitive and thinking being.” (Bentham 1952: 82).

Political economy, dealing with the axioms and principles of subsistence and abundance (Bentham 1952: 93), aims at securing national wealth through other means than security and equality, and as such, is a branch of the science of the legislator. Science that has no other basis than eudemonics, or the art whose object is to contribute to the attainment of well-being and the science which explains how to act in order to exercise that art (Bentham 1952: 83). A science founded on the utility principle, and its associated theory of action.

Even if this definition of knowledge, in particular regarding economic knowledge, will be changed and challenged in economic theory, the changes can be seen as changes of degree and not of nature. Bentham defines utility as a relationship between the individual and an object, leading to a notion of subjective value, and as a motive of action, associated with the pursuit of well-being. This definition, contained in the utility principle, allows it to make a direct connection between art and science, for one, and between morals and science, for the other. If, following Bentham, utility is identified with well-being and well-being, as Bentham and most economists do, is defined as anything an agent prefers and as the ultimate aim of individual action, then Bentham’s argument –his behavioral model and its implications- still holds¹³.

¹² Scholars who doubt the continuity between Bentham’s utilitarianism and marginalism emphasize that even if some trace of the enunciative sense of the utility principle can be found in economic theory, there is no residue of its censorial sense (cf. Roncaglia 1999, Sigot 2001, Cohen 2010). But the point we advance here is that there is no possible separation between both senses, and that the legacy is not to be linked with the greatest utility principle but with its foundations: the utility principle.

¹³ This argument supposes a teleological definition of human action that might be questioned. Following Laval (2007: 24) it would be possible to argue that beyond this teleological definition there is a tautological explanation in presenting behavior as guided by interest understood as utility. This tautology, according to Laval, evidences a “normative ontology of the human being defined as an interested subject.” (Laval 2007: 24, our translation). However this questioning lies beyond the scope of this paper.

3. The Science of the Lower Passions

In as much as well-being can be associated with wealth, an important moment of the entry of the utilitarian behavioral model in economic theory can be found in John Stuart Mill's work. Stigler (1950a) contests such a statement because he believes Mill ignored utility. However, Sekerler (2007) gives grounds to this interpretation asserting that the utilitarian legacy is present in Mill's works even if under a somewhat revised version: Mill would go beyond a hedonic view sustaining a eudemonic perspective. Such a perspective implies, as we have seen in the previous section, a theory of action. Bentham considers eudemonics is "the central place of meeting of all arts and sciences" (Bentham 1952: 83), it is the "object of every branch of art, and the subject of every art or science" (Bentham 1952: 82-3). This definition allows advancing that his utilitarianism is inscribed within this approach linking virtue and utility, and thus establishing a direct relation between Bentham and Mill as regards their behavioral assumptions.

In his *System of Logic* Mill defines economics as the science that deals with human behavior as concerned with wealth:

"Political Economy considers mankind as occupied solely in acquiring and consuming wealth; and aims at showing what is the course of action into which mankind, living in a state of society, would be impelled, if that motive, (...) were absolute ruler of all their actions." (Mill, 2002 [1843]: 588)

This definition clearly means economics deals with individual action aimed at acquiring wealth. In this sense, it can be associated with a theory of action, which differs from Bentham's in that it does not pretend to explain every action but only those associated with "acquiring and consuming wealth". Mill considers wealth as a motivation for action is an observation susceptible of being generalized. This observation, even if subject to variations, may represent an abstraction that allows to order and simplify reality in order to establish hypothetical truths. Such truths help thinking and understanding the phenomenon at hand, in this case, the market (Mill 1991 [1863]) studying it separately from other social interrelated dynamics (Mill 2002 [1843]: 587). More precisely, economics deals with phenomena whose immediate cause is the desire for wealth under the psychological law stating "that a greater gain is preferred to a smaller" (Mill 2002 [1843]: 587). From this regularity in human behavior, economics aims at explaining the portion of society that corresponds to the market. Its conclusions are not applicable to those parts of society where wealth is not the main motive of human action (Mill 2002 [1843]: 589).

Because of this delimitation Morgan (2006) presents Mill as the creator of the *homo oeconomicus* who would be a being who desires wealth and can determine which the most effective way to acquire it is. As such, the economic agent chooses between of courses of action leading it to satisfy its desire for wealth. This being's motivations are the desire for wealth, the dislike of work and the love of luxuries. These motivations can be associated with a utility calculation as it implies a balancing between what can be considered pleasures (wealth and luxuries) and pain (work) in order to obtain

well-being. Thus, the enunciative sense of the utility principle can be found at work in Mill's definition of economics as a theory of action associated with the acquisition and consumption of wealth. More so, if we consider that Mill also said that economics studies such phenomena as the consequence of the laws of human nature (quoted in Morgan 2006: 5).

It has been argued that in abandoning sensualism, Mill "is led to separate much more clearly utilitarianism as a moral criterion from utilitarianism as an interpretation of human behavior" (Roncaglia 1999: 110). This can be seen not only in Mill's delimitation of the scope of economics but also in his distinction between higher and lower pleasures. This would mark a difference between Bentham and Mill but not necessarily between Bentham and RCT. As we will see, the Ordinalist Revolution and its heirs, acknowledge no such distinction. Just as Bentham, they will make no evaluation of choice based on its motivations, but only on its consequences, that is, on the adequacy between choice and its ends. Therefore, only instrumental rationality is required, meaning individuals are taken to choose what they prefer because it advances their well-being, as they understand it.

William Stanley Jevons in his *Theory of Political Economy* (1871) explicitly follows Mill's method of deriving explanations of social phenomena from behavioral principles that everyone considers to be general (Jevons 1970 [1871]: 87-8). He also shares with Mill the idea that the law behind market phenomena is the psychological law explaining the pursuit of wealth. And finally, he agrees in that the maximization of material well-being associated with the calculus of pleasures and pains is not the only motivation of human action, even if it is the only one economic theory considers (Jevons 1970 [1871]: 88-93). Jevons considers the economic man to be a calculating consumer, moving from the desire to acquire wealth to gaining utility from consumption, whose actions and motivations are defined in psychological unobservable terms (Morgan 2006: 11). His "portrait was inspired by the economic principle of utilitarianism and his belief that economic behavior should be characterized in the formal language of mathematics" (Morgan 2006: 11).

Jevons believes that economics "rests upon a few notions of an apparently simple character" (Jevons 1970 [1871]: 77), the first one of which is utility. Utility explains value, and "the natural laws of the variation of utility" allow formulating "a satisfactory theory of exchange" (Jevons 1970 [1871]: 77). Such a theory of exchange is based on his treatment of economics "as a calculus of pleasure and pain", which explains why his theory "may be described as *the mechanics of utility and self-interest*" (Jevons 1970 [1871]: 44, 90). This leads Jevons to define the object of economics as "to maximize happiness by purchasing pleasure, as it were, at the lowest cost of pain" (Jevons 1970 [1871]: 91). Even if economics, according to Jevons, only deals with "the lowest rank of feelings" (Jevons 1970 [1871]: 93), it still is based on a theory of human action that enables our understanding of market phenomena, such as exchange, that is individuals decisions to buy and sell commodities. Individuals choose one commodity over another because it maximizes their happiness, and they will purchase it until they "derive equal

pleasure from the possession of a small quantity more as [they] would from the money price of it” (Jevons 1970 [1871]: 85)¹⁴.

Even if the data necessary for economic analysis is unobservable because it is given introspectively it can be considered to be universally valid. Otherwise, there would be one economic science for every individual. The solution to this apparent paradox is the utility principle (Black 1972: 126) in its enunciative sense. Economics deals with quantities: quantities of pleasures and pains just as individuals calculate their well-being based on such quantities. But the fact that, for the time being, such quantities are not directly measurable, does not condemn economics to rely on unobservable or unverifiable data, disqualifying it as scientific knowledge. Even if utility is not directly observable, its effects are:

“Pleasures in short, are, for the time being, as the mind estimates them; so that we cannot make a choice, or manifest the will in any way, without indicating thereby an excess of pleasure in some direction” (Jevons 1970 [1871]: 84).

Therefore, following Bentham, a direct measure of utility is not really necessary. As long as it is unavailable, just as Marshall, Jevons followed Bentham’s suggestion of using the measuring rod of money¹⁵. This indicates it is possible to keep the theory of human agency associated with the enunciative sense of the utility principle without giving up the scientificity of economics. Moreover, it would be possible to overcome the subjective aspects of this inquiry using the developments of psychophysiology (c.f. Chaigneau 2002) where any mental state or psychological condition has a purely physical reaction making such states and conditions observable. Jevons asserts that motives in the mind give rise to phenomena (Jevons 1970 [1871]: 85) echoing the foundations of psychophysics.

Jevons presents a hierarchy of motives where pleasures and pains are classified in the lowest rank. He insists on saying that utility calculations only happen at this level and only at this level the motivation of human action is the satisfaction of ordinary desires with the least cost in labor (Jevons 1970 [1871]: 88-93). Within the higher ranks we find all those motives that guide action beyond the pursuit of pleasure and the avoidance of pain. However, if no superior motive intervenes, it is necessary and correct to use the calculus of the lower passions to obtain the greatest well-being in morally indifferent matters¹⁶. Therefore, the behavior observed on the market

14 Immediately after this sentence, Jevons extends the same theory to explain an individuals’ decision on how much hours to work.

15 In fact, Jevons does not see this lack of measuring units in Bentham as a real problem. For him, Bentham’s major drawback was that his theory did not take proper account of evolution and inheritance. Bentham’s system, according to Jevons, does not recognize our “deep springs of unconquerable character” ... “we start with inherent hereditary powers of growth” and Bentham ignored such innate feelings (Jevons 1879: 536-537).

16 Even if Jevons and other marginalists sustain that utilitarian behavior is relevant only in matters morally indifferent this should not be understood as a denial of the morality of such behavior. Such view, denies any moral determination of human action on the market. Thus, according to this view, because an individual is more than an economic agent there is no moral value in the latter. This differs from Bentham’s position because he believes any action, in or outside the market, is the response to searching pleasure or avoiding pain. For Bentham the morality of any action is directly related to its capacity to maximize utility.

corresponds to this calculation and, in consequence, is the one that must be used in order to understand it (Jevons 1970 [1871]: 94). More precisely, “[f]or Jevons, the laws of supply and demand were founded on the ‘laws of human enjoyment’... Jevons found these laws, ..., in Bentham’s springs of human action’ – our feelings of pleasure and pain” (Maas 2005: 271)¹⁷.

Posing utilitarian behavior as the model to be followed in matters of moral indifference, Jevons intends to distance economic theory from moral theory even if the former should have reasonable moral bases (Sigot 2002: 266) and even if they both are founded on Bentham’s felicific calculus (Sigot 2002: 275). However, this separation has further consequences regarding Bentham’s legacy in economic theory. Jevons intention is not only introducing the utilitarian model in economic theory but also making this theory a mathematical one. This latter goal introduces a simplification of Bentham’s theory as regards the dimensions of utility. Instead of the original seven Bentham proposes, Jevons only retains two. In chapter II of his *Theory of Political Economy*, dealing with the *Theory of Pleasure and Pain*, and in particular with *Pleasure and Pain as Quantities*, Jevons recalls Bentham’s multidimensional value of pleasure and pain (Jevons 1970 [1871]: 94). Bentham stated seven dimensions that or circumstances that determine the value of a pleasure or pain will have to a person: intensity, duration, certainty or uncertainty, propinquity and remoteness, fecundity, purity, and extent. Jevons affirms the last three circumstances “are of high importance as regards the theory of morals; but they will not enter into the more simple and restricted problem which we attempt to solve in economics” (Jevons 1970 [1871]: 94-95). This would mean that economics should deal with the other four dimensions. But this is not the case. Jevons retains only two: intensity and duration (Jevons 1970 [1871]: 94). He states that Bentham made a mistake in considering certainty and propinquity as dimensions of value (Jevons 1970 [1871]: 56). Intensity and duration are enough to assess the value of “a feeling, whether of pleasure or of pain” (Jevons 1970 [1871]: 95).

According to Sigot (2001: 149-153) such simplification entails the elimination of the censorial sense of the utility principle and therefore of the central role of the legislator and the detachment of economics from other fields of action for the legislator. This would indeed mean a severe restatement of Bentham’s utilitarianism, which he considers first and foremost as an instrument for social reform that could only have

¹⁷ Maas (2005: 173) asserts that Jevons “did not take recourse to Bentham’s hedonic calculus, but was motivated by the role notions of pleasure and pain played within the context of contemporary research in physiology.” Maas (2005) and Chaigneau (2002) underline Richard Jenning’s influence on Jevons’s economic theory. Through this author Jevons realized the importance of the developments in psychophysiology for economic theory. We believe both influences are compatible because, contrary to what Maas seems to suggest, Bentham’s calculus is not confined to a normative stand. He expressly avoided using the term hedonic and stated the double aspect of his utility principle: on its positive side, the enunciative sense, the utility principle is a description of human action; on its normative side, the censorial sense, the utility principle is a guide for human action. As has already been mentioned in this text we trace the Benthamite influence on economic theory through the enunciative sense of his principle.

an impact in the hands of a legislator¹⁸. However, the enunciative sense remains as the basis for the study of individual behavior on the market.

With Jevons begins the process that made the “utility concept evolve from its Benthamite to its modern form” (Warke 2000: 5), and which Warke (2000) has identified with mathematical fitness. Jevons would have completely transformed, and in a sense betrayed, Benthamite utilitarianism, for the sake of producing a mathematical science. In Jevons, as we have seen, the multidimensional character of the value of a feeling disappears. Warke (2000) explains this move as a way to avoid the index number problem which “tells us that no unique and continuous ordering exists for a multidimensional entity” (Warke 2000: 7). This would mean Jevons never gives up cardinal utility, which also leads him to inconsistencies, and a radical transformation that would distance him even more from Bentham. The transformation consists in moving from pleasure and pain to “physical objects or actions which are the source to us of pleasures and pains” (Warke 2000: 13). However, acknowledging the influence of psychophysics and its connection with Utilitarianism, this transformation does not respond to a technical concern but reflects a specific psychological theory.

Indeed, this simplification of Bentham’s theory is not only due to Jevons’s preference for a mathematical presentation. Jevons, as Bentham, believes human beings make such calculations and if economics is to describe human behavior it must account for this central aspect of such behavior (Morgan 2006: 11). Individuals establish relations between quantities in their calculations and so economics must do so to (Maas 2005: 172). Chaigneau (2002: 19) reminds us that Jevons always believed that economics should be based upon a deep understanding of human action and, in this sense, could be regarded as a branch of psychology. As such, it could explain the formation of prices as the expression of individual choices reflecting greater pleasure in one direction (Chaigneau 2002: 19-20).

Jevons then can be seen as reflecting a position according to which economics, as the study of individual actions guided by self-interest, should include theories of behavior to be deduced from psychological laws about human wants, which in turn were understood in terms of the pursuit of pleasure and the avoidance of pain. Pleasure and pain were treated as sensations, of which the person who experiences them has direct knowledge. By introspection, and by the study of other people’s reports of their introspections, an investigator could arrive at knowledge of the laws governing pleasure and pain (Bruni & Sugden 2007: 150).

4. The Unit of Meaning or the Law of Human Desires

Mill’s and Jevons’s economic theory use Bentham’s utilitarian model as the appropriate model of individual behavior. In the Preface to the first edition of his *Theory* Jevons

¹⁸ In order to evaluate these claims it would seem necessary to extend this study to welfare economics and to social choice theory. A working hypothesis, at least in welfare economics, could be that once interpersonal comparisons of utility are allowed and/or possible the censorial sense can be retrieved. Such study lies beyond the scope of this paper.

clearly states his work is an attempt to study economic behavior as a calculation of pleasures and pains, or better yet, as a maximization of well-being (Jevons 1970 [1871]: 44). Further on, at the beginning of the third chapter, he writes:

“Pleasure and pain are undoubtedly the ultimate objects of the calculus of economics. To satisfy our wants to the utmost with the least effort—to produce the greatest amount of what is desirable at the expense of the least that is undesirable—in other words, to *maximize pleasure*, is the problem of economics.” (Jevons 1970 [1871]: 101)

From this behavioral axiom, as we already mentioned, economic theory should deduce the laws that explain market phenomena, and, in particular, the law of supply and demand. One of the most important steps in this direction can be found in Herman Heinrich Gossen’s 1854 text. Amongst other things, in that text Gossen develops the law of satiable desires, the law of the equalization of desires and the law of scarcity (Jevons 1970 [1871]: 60-64). In the Preface to the Second edition of his *Theory*, Jevons recognizes Gossen’s authorship of these developments already present in the First edition, where Jevons does not mention Gossen because, he says, he had no knowledge of his work due to his complete ignorance of German (Jevons 1970 [1871]).

Economic theory during the XIXth century followed this path which had started with the utilitarian model of human behavior. Alfred Marshall in his *Principles of Economics* (1890) presents an organized and systematized synthesis of all these contributions giving an almost definitive form to consumer theory. According to Wong (2006 [1978]) the theory had the following features: consumers are motivated by the pursuit of utility which, at the level of the lower passions, can be obtained through the consumption of goods (Wong 2006 [1978]: 26). The amount of utility obtained from the consumption of any good is determined by the law of satiable desires, that is, decreasing marginal utility (Wong 2006 [1978]: 26-27). Given the prices and her income, the consumer chooses a particular combination of goods such that the marginal utility of each good divided by its price is equal over all goods (Wong 2006 [1978]: 27). This behavior is the basis of the law of demand because according to the law of decreasing marginal utility any increase in the price of one good is compensated adjusting the consumed quantity of the good (Wong 2006 [1978]: 27). The same reasoning applied to the theory of the producer explains the law of supply. Thus, utilitarian calculus appears as the unit of meaning of the construction of economic behavior as an expression of the laws of human desires.

This implies that Marshall’s theory continues in the line of Jevons, constructing a theory of action capable of accounting for choice on the basis of a mental-state psychology. Just as Jevons, Marshall makes no claim to measure any affection of the mind but believes it is possible to have an indirect one through its effects (Warke 2000: 22):

“But the economist studies mental states rather through their manifestations than in themselves; and, if he finds they afford evenly balanced incentives to action, he treats them *prima facie* as for his purpose equal” (Marshall 1920: 16, quoted in Warke 2000: 24).

This allows Marshall to maintain the theory of human action derived from the enunciative sense of the utility principle even if he never explicitly linked “economic studies with any ethical doctrine in particular” (Keynes 1925: 318). According to Keynes (1924: 318), “Marshall never departed explicitly from the utilitarian ideas which dominated the generations of economists who preceded him” but he seems to have had little interest in such ideas (Backhouse 2006: 31). “The solution of economic problems was for Marshall, not an application of the hedonistic calculus, but a prior condition of the exercise of man’s higher faculties, irrespective, almost, of what we mean by ‘higher’” (Keynes 1924: 319). Nevertheless, it is difficult to assert an important distance between Marshall and the theory of action entailed by the enunciative sense of the utility principle in sight of his study of the decisions individuals take in the ordinary business of everyday life.

Keynes (1924: 319) sustains that even if Marshall reached economics through ethics, due to his concern about the degradation poverty caused on humankind, he thought economics had no special means of information on the moral and political capabilities of human nature. Economics deals with “the modes and principles of the daily business of life, by which human happiness and opportunities for good life are, in great measure determined” (Keynes 1924: 321). This definition of economics echoes the enunciative sense, and eudemonics. It makes a direct connection between everyday actions, choices and decisions with happiness, which is even more than what Bentham does if we remember the latter spoke of well-being as a more general feeling than happiness. In any case, this definition implies everyday actions have a specific purpose, and economics studies how individuals act in view of this aim.

Moreover, in one of his early economic writings *On Utilitarianism: a Summum Bonnum* Marshall explores the formulation of a social utility function. This function would help to understand and develop “the highest ideal of humanity” (Marshall 1975: 317). And this highest ideal could “be taken to mean the highest capabilities of action ... and this may bring with it happiness so much more intense than can be gotten any other way” (Marshall 1975: 317). This goal clearly lies within what Bentham and Mill called eudemonics, the highest of all knowledge¹⁹.

Even if his strict separation between ethics and economics makes Marshall the “first great economist *pur sang*,” as Keynes called him (Keynes 1924: 364-365), the enunciative sense of the utility principle still seems to inform his presentation of supply and demand. As in Mill and Jevons, economic theory for Marshall deals with one part of human action that is not directly linked to morals. This part is portrayed by the descriptive sense of the utility principle and, in consequence, Bentham’s model of human behavior can still be considered as an adequate description of individual economic action. In this sense, the theory of action associated with economic inquiry keeps in line with a utilitarian legacy.

¹⁹ It can even be linked with the censorial sense of the utility principle.

4.1 Utility as Unit of Construction

All these theoretical constructions rely on the existence of a unit of pleasure, that is, of a quantity that adjusts when changes in prices take place. Considering this unit as the building block of economic behavior led many economists, including Jevons and Marshall as we have seen, to think about the need of measuring it, in spite of their explicit claims of an indirect measure as enough for the purposes of economics. Francis Ysidro Edgeworth was probably the author who most insisted on the need of this measure and, more specifically, of its direct measure. Edgeworth's work closely follows Bentham and Jevons. He recognizes Jevons' influence on his own starting point in the study of economics: the individual as a pleasure machine (Sekerler 2009: 8). Following in his steps, Edgeworth believes utility can be measured and he submits the existence of such measure in an axiomatic form in *Mathematical Psychics* (1881):

“Pleasure is measurable, and all pleasures are commensurable; so much of one sort of pleasure felt by one sentient being equateable to so much of other sorts of pleasure felt by other sentients.” (Edgeworth, 1881: 59-60)²⁰.

Edgeworth admits measuring pleasure has not achieved satisfactory results at the time he writes and he admits perspectives are rather dim (Edgeworth 1881: 98). However, he believes the study of feelings and sensations is at a state similar to the studies of heat and electricity before their existence as exact sciences (Edgeworth, 1881: 98). Thus, it can be expected that the calculus of pleasure will have some day an instrument as the thermometer or the voltmeter allowing increasing precision in estimations. In the meantime, Edgeworth states important developments can take place in theory because mathematical reasoning is possible even if there is no numerical data (Edgeworth, 1881: 2). Quantitative relations such as greater than or smaller than, more or less, increase or loss, are enough to derive conclusions with an enormous explicative value (Edgeworth, 1881). Mathematical reasoning seems to be the natural language for economics because it “investigates the arrangements between agents each tending to his own maximum utility” (Edgeworth, 1881: 6). Thus, these quantitative relations, instrumental in thinking maximums, can be used to examine the hedonic forces behind individual action (Edgeworth, 1881: 15).

At the time Edgeworth was writing, psychologists were conducting several studies to measure discriminative sensibility, that is, to determine how much one sensibility

differs from another²¹. Ernst Heinrich Weber, Gustav Theodor Fechner and Wilhelm Wundt led these studies (c.f. Chaigneau 2002, Sent 2004, Bruni 2010), which are considered as the origin of modern psychology (Bruni & Sugden 2007: 151). They tried

²⁰ This argument distances Edgeworth from Bentham and Jevons. For the latter, even if it is possible to have an approximate monetary measure of pleasures and pains, these entities are incommensurable between individuals and for the same individual. It has been argued in the literature this point in Bentham's theory brings him closer to an ordinal than to a cardinal theory of utility. It is not the same having an approximate or indirect measure and reducing such measure to a comparable unit.

²¹ In *Mathematical Psychics* Edgeworth refers to the debates between psychologists at the time. In particular, he discusses the theories of Fechner, Delbeuf and Wundt (Edgeworth 1881: 61-63).

to explain the psychophysical law they considered the most fundamental expression of the study of sensibility (James 1890: 534). In their study of the connections between sensation, stimuli and response, Fechner advanced the foundational idea of psychophysics stating that “mental phenomena could be measured by finding quantitative relationships between material stimuli and mental sensations” (Bruni & Sugden 2007: 151). Following in his steps Wundt implemented laboratory experiments that allowed him to classify “sensations in categories similar to those of Jevons, Edgeworth, Bentham and Beccaria” (Bruni 2010: 101).

One of the conclusions of this line of studies was that:

“How much stronger or weaker one sensation is than another, we are never able to say (...) The natural measure of sensation which we possess enables us to judge of the equality, of the ‘more’ and of the ‘less’, but not of ‘how many times more or less’. (...) In a word, we know by our natural sensibility nothing of the *law* that connects the sensation and its outward cause together. To find this we must find an exact measure for the sensation itself.” (Wundt 1863, quoted in James 1890: 348-349)

The measure of these magnitudes appears as the first step towards understanding individuals’ sensitive reactions to external objects, and also as the first step towards understanding their behavior (James 1890: 549-50). Such an explanation, based on quantities, would allow the use of mathematics in psychology. So, just as Jevons pursued a mathematized economics, psychophysics was the domain of mathematical psychologists (Heukelom 2010).

The most significant advance in this direction was achieved with the Weber-Fechner law (James 1890: 351). This law generalized the results of a long series of experiments showing that sensation varied in the same proportion as the logarithm of the change in the stimulus²² (James 1890). In other words, the law suggested that for the observed subject to report arithmetical increases in her sensation levels they had to increase geometrically.

This result was interpreted as the scientific proof of the law of satiety, that is, of decreasing marginal utility (Colander 2007: 219, Bruni & Sugden 2007: 151), and as closely related to Bernoulli’s solution of the St. Petersburg paradox, stating that utility derived from a given monetary gain decreases with increasing initial wealth, leading to the confirmation of the foundations of a RCT, which would ground the psychophysics of wealth and utility (Heukelom 2008: 6, Bruni 2010: 101-103). Edgeworth was particularly aware of these developments (Bruni 2010: 103):

²² “In mathematical form that law (Weber-Fechner) is: $p = k \ln (S/S_0)$ where p is the individual perception of change, S is the added stimulus, S_0 is the begging stimulus, and k is the relation parameter. (...) In psychology, the Weber-Fechner Law has been superseded by the Steven’s Power Law (1957), which specifies the relationship between sensation as $S = kI^a$ where S is the intensity of sensation, I is the magnitude of physical stimulus, and the exponent a is empirically estimated among senses.” (Colander 2007: 218).

“The function he [Edgeworth] proposed was ‘the quasi-Fechnerian law,’ according to which it is possible to cardinally measure pleasure (only in 1881 he introduced explicitly the ‘utility function’; in 1879 he addressed the problem of intersubjective comparability). [...], Edgeworth derived this result from the frontier of experimental psychology of his time, the psychophysical researches of Wundt and Fechner.” (Baccini 2007: 1991).

Baccini (2007: 93) asserts that Edgeworth’s use and analysis of pleasure and its measure allows him to envisage the construction of a theory of action, necessary to explain market exchange. This view confirms the incidence of the utilitarian legacy in the formulation of a theory of human agency leading to the explanation of decision and choice in the market as advancing self-interest, reflected in utility calculations.

However, psychologists rejected the law (Colander 2007: 218). William James, one of the most influential psychologists of the time, writes: “The whole notion of measuring sensations numerically, remains in short a mere mathematical speculation about possibilities, which have never been applied into practice” (James 1890: 539). Some marginalists shared James’s opinion on the direct measure of sensations. In his *Principles* Marshall asserts: “It is essential to note that the economist does not claim to measure any affection of the mind in itself, or directly; but only indirectly through its effect” (Marshall 1890: 15). In this same line, Jevons notes we cannot measure sensations themselves just as we cannot measure gravity itself. Nevertheless, “(...) just as we measure gravity by its effects in the motion of a pendulum, so we may estimate the equality or inequality of feelings by the decisions of the human mind” (Jevons 1970 [1871]: 83-84). Although Jevons was not very consistent with his claim, in several passages of his works he talks about “quantity of utility”; he sustains that decision is to feelings as the pendulum is to gravity, where their variations are registered in prices (Jevons 1970 [1871]: 84). So, even if there are no numerical units to express the quantities of pleasure, as noted above, they can be reconstructed from the observation of decisions in the market, stating a direct relationship between well-being and choice. This procedure allows identifying, at least partially, the direction of pleasure and its relationship with its preceding units (Jevons 1970 [1871]). Therefore, even if the Weber-Fechner law was perceived as an advance, the direct measurement and definition of units of utility was not a vital condition for the development and scientificity of the theory of human agency underlying economic theory or Benthamite Utilitarianism. In other word, utility kept being the unit of meaning and construction of economic theory even if it could not be directly measured²³.

Economists finally abandoned the Weber-Fechner law with three arguments (Stigler 1950b: 377): “the laws does not hold in all cases”; “the law refers to psychical reactions to external stimuli whereas economics deals with observable behavior in response to subjective needs”, confirming Bentham’s, Jevons’ and Marshall’s belief in the visible effects of utility maximizing behavior; and, finally, “economics can get along with

²³ It is important to remember here the double sense of utility: subjective value and characterization of action. Not being able to find a direct measure affect the first sense but not the second, the one informing the enunciative sense of the utility principle.

the empirical fact that man has limited means to satisfying competing ends and can allocate these means rationally to maximize the fulfillment of the ends”²⁴. Note that this last reason continues in the line of instrumental rationality advocated in the enunciative sense of the utility principle.

The disagreement over the measure of utility and its unit did not mean an overt rejection of the utilitarian behavior model. The theory of action, as Bentham had already stated, did not depend upon such matters. Pleasure could be associated with preferences, and preferences could be observed in choices. Utility kept describing human action tending to maximize well-being, an optimum combination of pleasures and pains. Even if it could not be measured it could be observed.

There was little agreement among the first marginalists regarding the commensurability of pleasure, satisfaction, or utility. Some, like Edgeworth, believed the explanatory unit of action was common to all, and could eventually be directly measured; others, like Marshall and Jevons, sustained this unit was common only for a single individual and could be measured indirectly through its effects on prices. These interpretations evidenced the disagreement about the method with which pleasure, satisfaction or utility should be tackled in order to guarantee a scientific basis to economic theory.

Vilfredo Pareto believed this disagreement was inevitable due to the way in which the theory of consumer choice had been defined:

“Choices have been explained as man’s aim to achieve maximum pleasure. Between two things, man chooses the one that provides more pleasure. The point of equilibrium is obtained by expressing the conditions mathematically that enable the individual to enjoy the maximum pleasure compatible with the obstacles he meets (...) The use of this point of view forces us to consider pleasure as a quantity.” (Pareto 1900, quoted in Marchionatti y Mornati 2007: xxiv)

The first formulations of consumer theory lead economists, as Pareto states, to define equilibrium using cardinal functions. More precisely, the theory needed a unit of pleasure to determine the satisfaction derived from consumption, which allowed building utility curves that reflected levels of satisfaction. However, the construction unit the theory required was not determined and it was not clear it could ever be. This situation was bound to produce not only disagreements among economists but also confusion within economic theory.

On the conceptual level another situation prevailed. Even if there were some divergences about the search of utility as the sole motive of human action, economists accepted that market behavior responded to such a motivation. Hence, the actions of economic agents were interpreted using the decision model inherited from the enunciative sense of Bentham’s utility principle. Postulating utility as motive

²⁴ Moreover, Stigler (1950b: 377) disqualifies the law not only for these three reasons but also because it does not “yield fruitful hypotheses concerning economic behavior.”

for action, it became the unit of meaning of economic behavior: the decision model economic theory uses can only reproduce actions responding to rationality defined in terms of utility. If utility is not the motivation of behavior, economic theory cannot give any account of it.

5. The Fundamental Principles of Pure Theory and its Limits

Between May 1892 and October 1893 Pareto published five articles in the *Giornali degli Economisti*. These articles are known as the *Considerazioni sui principio fondamentali dell'economia*. In these articles it is clear Pareto's conception of the behavioral model underlying economic theory is the same as the one we have been discussing²⁵: "Now, when dealing with economic phenomena, it seems to us that by considering men as perfect hedonist we do not stray too far at all from reality" (Pareto 2007 [1892-1893]: 20). As his predecessors²⁶, Pareto affirms it is correct for economic theory to suppose individuals act on the market motivated by the desire to obtain more satisfaction with the least possible effort. As Bentham, Pareto supports this conception on a careful observation of human action, being observation the only valid grounds for scientific efforts. Observational data would then lead economics in the path of science:

"All the natural sciences now have reached the point where *the facts are studied directly*. Political Economy also has reached it, in large part at least. It is only in the other social sciences that people still persist in reasoning about words; but we must get rid of that method if we want these sciences to progress." (Pareto 1971 [1906]: 10, our italics)

Even if, contrary to physics, chemistry and mechanics, economics cannot produce its knowledge through experimentation or, at least not always, its incapacity should not keep it from grounding its concepts empirically. Economics, as meteorology and astronomy, can offer scientific explanations about its object of study using observation (Pareto 1971 [1906]: 11). The success of such explanations depends on how well phenomena exhibiting some regularity can be identified and if a plausible explanation of their functioning can be provided (Pareto 1971 [1906]: 5-12). Nevertheless, warns Pareto, with or without experimentation, the theory's capacity to adapt to its object is limited. Therefore, a theory cannot be expected to be a copy of reality because it is not the whole of reality that theory is trying to grasp; neither can it be expected to be a mere reflection of the variables it uses because theory is not restricted to a description due to its interpretations and use of the variables – there always remain indeterminable residues when theorizing the phenomena studied (Pareto 1971 [1906]: 7). Hence, "(...) we should never judge the value of a theory by investigating

²⁵ This claim advances an interpretation that goes beyond the traditional view of Pareto as being centered on solving the integrability problem, pursuing ordinalism and looking for a new explanation of ophelimity. It could also account for Pareto's alleged ambiguity, having been depicted as not consistently ordinalist or behavioralist (Moscati 2007) even if one accepts that behavioralism could not have influenced his writing as it had not yet been developed (Bruni 2010: 104).

²⁶ With the notable exception of Walras, who is conspicuously absent from our story. This omission can be justified with the increasing literature on the dehomogenization of the Marginalist Revolution starting with Jaffé (1976) and in particular with work on the secondary role utility plays in his work (cf. Sekerler 2009).

whether it deviates in some way from reality because no theory withstands or will ever withstand a test.” (Pareto 1971 [1906]: 8).

The behavioral model economic theory uses reflects the regular behavior on the market, isolated from any other moment or behavior. According to Pareto, the same idea lies behind studying isolated or abstracted economic actions than behind the study of the *homo œconomicus* who only performs economic actions (Pareto 1971 [1906]: 12). The first marginalists –or, as Pareto calls them, the ‘new school’- built their theory on a model of human behavior that thinks of action as motivated only by the search of individual utility (Pareto 1971 [1906]: 29). Even if they believe this model of human action can only explain economic or market behavior, they observe that most people go to the market to pursue their self-interest, or their utility, and they use this regularity of human behavior as the explanatory unit of economic phenomena (Pareto 1971 [1906]). And, as shown above, Pareto does not believe they are wrong.

Thus Pareto defines economics as the science of logical action: action repeated many times “directed towards the satisfaction of tastes through acquisition of goods” (Bruni & Sugden 2007: 156). Economists can observe the results of such actions: choices on the market. Such choices, according to the definition of economics, are assumed to satisfy tastes or respond to the maximization of individual utility. For Pareto, as for Mill, Jevons, Marshall and Edgeworth, economics stands on a particular theory of human action explaining choice that can be directly traced to the enunciative sense of the utility principle.

According to Pareto, this method is amazing not only because it builds a whole science upon a unique postulate, but also because it is logically flawless (Pareto 2007 [1892-1893]: 5, 13). This latter characteristic only holds if we do not forget that the laws valid for abstractions may not hold in reality (Pareto 2007 [1892-1893]). This caution allows formulating explanations that help to understand different phenomena always having in mind that reality is not reduced with the conceptualizations we might make of it (Pareto 1971 [1906]: 13). Pretending to reduce the whole of human behavior to the utilitarian model and using it to explain human activities for which it was not thought “(...) end[s] up producing fairy tales that are less entertaining but not more real than Adolfo’s voyage to the moon.” (Pareto 2007 [1897]: 21).

This caution extends to the temptation of thinking that all economic behavior necessarily responds to the fundamental principle of hedonic calculus Edgeworth advanced. The principle “(...) that every man continues the transformation of the economic goods until by so operating he can procure a positive infinitesimal final degree of utility” ((Pareto 2007 [1897]: 17) only holds for some actions on the market. In fact, according to Pareto, there are other reasons that explain such actions (Pareto 2007 [1897]: 19). This is particularly true when considering the variation of prices. In many occasions people do not act following a utilitarian calculus but following market trends reflected in the changes in prices (Pareto 2007 [1897]: 19). This type of behavior is not exclusive to stock markets or commercial transactions, according to Pareto, it can also be found in retail trade. In the latter, people who have a good which

they wish to trade for money do not equate the gain from the income thus obtained with the benefit of having consumed the good they are trading. Their only goal is to get the highest possible price (Pareto 2007 [1897]: 19). Furthermore, the agents' cognitive capacities nuance the utility calculation (Pareto 2007 [1897]: 20). Even if large traders might be able to make complex intertemporal optimizations, Pareto believes most people are not entirely provident (Pareto 2007 [1897]: 20).

All this means that not only should economists be careful in not extending the model beyond economic phenomena, but also, that they should not expect too much from the agents in terms of rationality. It does not mean Pareto rejects the behavioral model inherited from Bentham. Pareto insists economics should not exceed its limits and it should only deal with actions on the market and with "(...) the many logical, repeated actions which men perform to procure the things which satisfy their tastes" (Pareto 1971 [1906]: 103, 190)²⁷. This behavior guarantees the correspondence between subjective and objective facts; and, this correspondence is what the utilitarian calculus is looking for²⁸. The calculus has to do with final degrees of utility and not with total degrees of utility:

"None of us has a clear idea of the utility of eating, drinking, dressing, having a house where one can shelter, but we only understand its advantages for small variations, positive or negative, in other words our mind only comprehends the concept of final degree of utility." (Pareto 2007 [1892]: 18)

Final degrees of utility are defined as the relation between the agent and the very small unit of a good added to the quantity the agent already has. Final degrees were then the same as the notions of marginal utility or scarcity. The linguistic innovation did not solve a problem Pareto –as well as Irving Fisher and Gustav Cassel²⁹- perceived in the theory: how is it possible to found a science on a unit that has not been determined? Rather, it clearly reflected a conception of human action in line with the one found in the enunciative sense of the utility principle, and hence with eudemonics.

Furthermore, because no empirical measure of utility is available, the correspondence between final degrees and marginal utility or scarcity was still perceived as problematic

²⁷ The latter kind of actions are important because it guarantees that subjective facts conform to objective facts, that is, that agents choose the combination of goods that maximizes their utility (Pareto 1971 [1906]: 103, 190). Note that this assertion relies on an explicit assumption Pareto makes: repetition is a good substitute for intelligence (Pareto 2007 [1892]: 21). In this sense, Pareto would assert that "economics is interested in repetitive patterns of behavior" (Stigler 1950b: 381). By the way, Stigler considered this view as a "minor aberration" (Stigler 1950b: 381).

²⁸ The correspondence is in any case between subject and object and never between subjects (Pareto 1971[1906]: 105). In other words, the task of economics is to study how people compare utilities and, using this comparison, choose a certain bundle of goods. Economics is not concerned with how agents stand in respect to each other according to an interpersonal comparison of utilities (ibid.). Even if in *Considerazioni* we can find the possibility of personal comparisons -"The day perhaps will come when we are able to have an idea of the form of that function [utility function] for our societies (...)"- (Pareto 2007 [1892-1893]: 23), in the *Manual* Pareto considered this field of research as the less developed of all (Pareto 1971 [1906]: 106).

²⁹

at the time precisely because it seems to rely on subjective facts, only known through introspection. Irving Fisher (1965 [1892]) tries to solve this problem disconnecting economics from hedonism. This disconnection would be achieved if it were possible to give an empirical basis to the economic behavioral model. In order to do this, Fisher advances a postulate stating that utility curves could be derived from the observation of real individual decisions on the market. But, we must not forget that this postulate is in line with what Bentham, Jevons, Marshall and Edgeworth had already said: there is no real need for introspection because the effects of subjective states of mind can be observed in choices on the market. As we shall see in what follows, Samuelson will follow Fisher's lead. Fisher believes that even though no one has denied that desire underlies economic activity, the motive of desire does not have to be part of the study in economics (Fisher 1965 [1892]: 11). Economics should only follow a simple psychoeconomical postulate stipulating each individual acts as she desires (*ibid.*). Nevertheless, as Sweezy (1934) remarks, this postulate does not offer real empirical foundations. Saying that people act as they wish is the same as saying people act as they do (Sweezy 1934: 178-9). This tautology underlying formal explanation only eliminates any possible empirical significance (Sweezy 1934: 178-9). Gustav Cassel (1918) also tried to solve the problem advancing that the explanation of prices only needs assumptions on demand and not on individual behavior because, in the end, even if economics deals with the satisfaction of human needs, the act of satisfaction itself, not being an economic activity, relies beyond its scope (Cassel 1954 [1918]: 3). Cassel's views did not receive great attention in part, as Stigler (1950b: 390-1) and Wong (2006: 6) note, due to Knut Wicksell's disqualifying criticisms of his theory of value. In any case, the connection between Utilitarianism, a theory of action, and rational choice remained.

5.1 The Theory of Ordinal Utility

Pareto considers that as long as the final degree of utility is the cornerstone of all economic reasoning it is necessary to acquire all the information possible about it because "this topic is of the utmost importance for the science and deserves to be studied with great care by economists" (Pareto 2007 [1892-1893]: 18). According to Pareto, Jevons and Edgeworth shared his opinion. The former believed it would not be possible to understand the dynamics of exchange "until we can numerically express with some degree of approximation the laws of the variation of utility" (Pareto 2007 [1892-1893]: 59). The latter argued that even if valuable ideas can be obtained through mathematical relations, there are many useful conclusions that could be derived if a measure could be attached to utility (Pareto 2007 [1892-1893]: 59). Thus, for these authors, the measure of the final degree of utility would bring new lights to theory even if the results were only approximate. Edgeworth, as noted above, envisaged the possibility of a direct measure of utility. Pareto, like Jevons, thought an indirect measure was the best response:

"The objection that pleasure, and therefore utility, cannot be directly measured does not hold. In the natural sciences we have many quantities that are impossible to measure directly and are indirectly measured." (Pareto, 2007 [1892-1893]: 58)

However, the real possibility of agents realizing the quantity of pleasure they obtain from switching to one good to another, clouds this hypothetical possibility of measuring utility (Pareto 2007 [1892-1893]: 19-20). An average agent can hardly meet the cognitive demands associated to such a calculation. Therefore, even if Pareto considers the adoption of utility as unit of meaning of market behavior poses no major problems, the necessary calculation capacities to equalize the magnitudes of final degrees of utility constitute a strong assumption given how most economic agents make their decisions.

Faced with the hypothetical possibility of measuring the final degrees of utility and with the strong suspicion about the agents' capacity to realize how much pleasure they could derive from one good or another, Pareto reformulates the theory so as to make the measure and the conscience about the final degrees of utility unnecessary:

“In order to examine general economic equilibrium, this measurement is not necessary. It is sufficient to ascertain if one pleasure is larger or smaller than another. This is the only fact we need to build a theory.” (Pareto 1898, quoted in Marchionatti and Gambino 1997: 1335)

This statement does away with the need for a unit of measure but not with the theory of action. Pareto still uses the term *pleasure* and the possibility of comparing feelings of pleasure. In another of his texts, Pareto develops this idea stating that equations in pure economic theory need not express anything more than preferences to account for market behavior (Marchionatti and Gambino 1997: 1335). With this view it would seem Pareto differentiates preferences from motivations of actions. According to this view, there is no need to investigate the pains and pleasures that led to a choice because there is no need to refer to psychological or metaphysical entities in order to model market behavior. This means Pareto aims at constructing a separate science of economics following his methodology of analysis and synthesis. Pure economics deals with the analysis of logical action, whereas applied economics, as practice, might need “to draw from the findings of sociology or psychology” (Bruni & Sugden 2007: 155). Indicating, each science analyses a component of human action, economics logical action and sociology non-logical action, and their combination or synthesis will inform practice dealing with complex social phenomena. Therefore, pure economics does not deal with the motivation of action but this does not imply it does not present a theory of action. As we have seen, logical action means there is a coincidence between objective and subjective facts, a definition that allows not investigating motivations, and understanding preferences and choices as the expression of this coincidence.

Hence, pure consumer theory can be thought exclusively in terms of preferences, where different indexes are associated to each indifference curve and a number is given to each where their relation is pictured through smaller or bigger numbers (Pareto 1971 [1906]: 118-24). Thus, whereas indifference curves denote the combinations that would produce the same satisfaction, pleasure or utility to the

consumer, the indexes indicate combinations that are superior – in terms of utility – to the first one considered. With the shift from utility to indifference curves Pareto reformulates consumer theory in terms of preference orderings and in so doing establishes the ordinal theory of utility. In line with his definition of logical action, and with the language he uses, this ordinal theory allows doing away with the problem of direct measurement of utility but not with the theory of human agency inherited from Utilitarianism.

With this reformulation Pareto believes he is reinforcing the scientific status of economics because it now requires “weaker theoretical assumptions” accounting for “stronger empirical foundations” (Bruno and Guala 2001: 26). This way, Pareto uses what he considers to be an empirical method to ground economic theory (Bruno and Guala 2001: 28). Pareto’s concern about the scientific status of economic theory also explains his use of the term *ophelimity* rather than utility. Its use would rid economics of any metaphysical discussions and would bring it closer to a natural science founded on facts (Bruno and Guala 2001: 29). However, having defined *ophelimity* as a kind of subjective utility or, more precisely, as “the relationship of convenience, which makes things satisfy a need or a desire, whether legitimate or not” (quoted in Bruno and Guala 2001: 28), and economics as the science of *ophelimity* keeps Pareto in the lines of Bentham’s Utilitarianism. As Bruno and Guala (2001: 29) remark “those who have seen *ophelimity* as a means to eliminate hedonism³⁰ from economic science -...- are therefore mistaken”

Consequently, the theory of ordinal utility does not mean that utility ceases to be the unit of meaning of the economic behavior model³¹, or that it is possible to do away with it as unit of construction (cf. Bruno and Guala 2001: 30). The pursuit of utility is still the motive of the action under investigation; maybe not for all actions but, at least, for the relevant behavior for economic theory. Pareto then continues on the utilitarian path warning that being “careful in attributing real existence to some entities does not mean that these entities must be banned from scientific discourse” (Bruno and Guala 2001: 43). Just as Jevons and Edgeworth before him, Pareto believes their real existence could be ascertained when a scientific psychology would be able to provide the necessary evidence (Bruno and Guala 2001: 40).

5.2 The Ordinalist Revision

J.R. Hicks considers Pareto’s ordinal theory as one of the most important contributions to economic theory. Not only does it require less information to model consumer behavior, it also allows the reconstruction of the objective functions using the observed behavior of agents on the market (Hicks 1945 [1939]: 11-2). As Pareto already noted, this could not be achieved with utility functions because the same preference ordering could result from multiple functions; that is, even if it is possible to derive a preference ordering from a utility function, the utility function could not

³⁰ We have already noted that Bentham inscribes his utilitarianism rather in the lines of eudemonics than in those of hedonism.

³¹ Besides, as noted above, an ordinal approximation to utility can also be found in Bentham.

be deduced from the preference ordering (Pareto 1971 [1906]: 110-4), leading to what is has been known as the integrability problem. As decisions on the market allow knowing which bundle is preferred but not how much it is preferred, modeling using preference orderings has technical advantages. Thus, founding the behavioral model on these orderings avoids the problem associated with the lack of a unit of construction – a measure – needed when using utility surfaces and, at the same time, it preserves its explanatory power. Eliminating this unit of construction guarantees parsimony in economic theory:

“The quantitative concept of utility is not necessary to explain market phenomena. Therefore, following the principle of Occam’s razor, it is better to do without it; because, in practice, it is not indifferent that a theory should have unnecessary fields” (Hicks 1945[1939]: 12, our translation).

However, Hicks does not discard the search for such a measure and even believes that if someone were to find any lead enabling him or her to establish a quantitative measure of utility and if such a measure were to provide better explanations than preference orderings, the path should certainly be followed (Hicks 1945[1939]: 11). He agrees with Pareto on this point because they both admit orderings have advantages because they preserve explanatory power with lesser costs but should not prevent other lines of research in utility theory.

Pareto’s simplification meant a methodological improvement in consumer theory. Hicks (2001[1956]: 8) identifies this improvement with the reduction of informational requirements: in Marshall’s theory in order to determine why a consumer chooses one bundle over another, the utility surface must be known; whereas in Pareto’s theory, only an indifference map is required. Anyway, with more or less information, the consumer model underlying the explanation of the law of demand is still the same: a consumer with certain needs buys goods because they give her utility and she spends her earnings in order to obtain the greatest possible satisfaction (Hicks 1945 [1939]: 4).

Hicks explicitly accepts this continuity of utility as unit of meaning: “We have come, in some ways, to talk a different language; but the substance of what we have to say, (...), is the same as what Marshall said” (Hicks 2001 [1956]: 2) and what Marshall had said was still in the lines of Utilitarianism. The different language Hicks refers to is ordinality which came to be the standard economic language when Pareto’s successors reformulated economic theory exclusively in terms of preference orderings. Thus, what has been called the “empiricist motive” does not entail abandoning the Utilitarian legacy; it does not mean that utility is discarded as unit of meaning, or that economics breaks all its ties with eudemonics. It is rather the confirmation of Bentham’s axiom as seen in the enunciative sense of the utility principle, and the possibility of grounding it on its manifestations on the market rather than on the measurement of mental states.

In particular, Hicks and R.G.D. Allen (1934a and 1934b) continued this line of research. They introduced important changes so as to reformulate all consumer theory in

ordinal terms. They presented their work as the extension of Pareto's in transforming "the subjective theory of value into a general logic of choice" (Hicks and Allen 1934a: 54). Others, as Johnson and Slutsky, also contributed to this reformulation. Most scholars recognize the central role of Hicks and Allen's work, but Stigler (1950b) considers Slutsky's work as a firm step towards giving economics a solid scientific basis. According to Stigler (1950b: 382), Slutsky explicitly intended to make economics "completely independent of psychological assumptions and philosophical hypotheses." Thus, even if Slutsky "did not deny the interrelations of 'economic' utility and 'psychological' utility" (Stigler 1950b: 382), he tried to give empirical foundations to utility theory through an "objective scale of preferences" (Stigler 1950b: 382.). This allows Slutsky to eliminate introspection as an element in the theory, avoiding any metaphysical implications it could have (Stigler 1950b: 383). However, this does not mean that there is no trace of a theory of action in Slutsky, or, in Hands (2009: 638) terms of some version of psychology.

Hands (2010: 638-639) follows others in stating Slutsky's relation with psychology was not as clear as he or, for example, Stigler would affirm. Slutsky does not sever all connection with psychic phenomena because he believes a complete notion of utility cannot do without its psychological aspect (as quoted in Hands 2010: 638). Even his technical analysis of the problem, and new information about what he considered to be the philosophical foundations of his theory seems to carry over this influence, leading Hands (2010: 639) to conclude: "Slutsky's views of the foundations of consumer choice theory seem to be much more indebted to mental state psychology than suggested by the standard ordinalist-empiricist caricature."

In spite of some differences among these economists they all strived at explaining the law of demand without utility, understood as a result of introspection, as unit of construction. They all believed this was the way to free economics from less than scientific psychological or metaphysical reasoning. However, the basic description remained: agents try to maximize their utility on the market. Even if utility is an ordinal concept, the consumer's action is still thought of as the result of the pursuit of desires, satisfaction, pleasure or utility which can be observed in the agent's choices. The ordinalist revision might have removed utility as unit of construction, making any direct or indirect measure unnecessary, but it kept utility as its unit of meaning. According to Stigler (1950b: 393-396), economists preserved utility theory, even if they tried to reform it, because of its generality and manageability. Even if its congruence with reality was more troublesome, they still sustained that anecdotic evidence and even introspection (!) would do the trick³².

6. Revealed preferences

Pareto and his successors seemed to have solved the problem of the incommensurability of utility and with it one of the most controversial topics in economic theory. However, according to Paul Samuelson, the ordinalist revision did not solve the whole problem

³² In the last section we will see how this anecdotic information is being tested and proved, reinstating utility as unit of construction.

because it did not eliminate all metaphysical and psychological residues inherited from utilitarianism:

“Hence, despite the fact that the notion of utility has been repudiated or ignored by modern theory, it is clear that much of even the most modern analysis shows vestigial traces of the utility concept.” (Samuelson 1938a: 61-62)

Samuelson's dissatisfaction with economic theory has nothing to do with its explanatory capacity; he regrets its lack of empirical foundations. He undertakes the re-elaboration of the principles of economic theory in order to give them clear empirical support (Samuelson 1938a: 62). Samuelson believes economic science, if it is to be truly a science, cannot explain behavior in terms of the pursuit of utility because this explanation relies on introspection and not on empirical evidence (Samuelson 1938a: 62). Therefore, the behavioral model must abandon all psychological and metaphysical conjectures and proceed from the observation of uncontrolled actions on the market (Samuelson 1938a: 71). For Samuelson any approach that does not correspond to such factual evidence must be rejected because it preserves the interpretative bias that should be banished from economic theory.

As we have seen this goal was not particular to Samuelson. Most of the discussion among economists, at least since Jevons, had turned around the scientific status of economics and its need to rely on purely empirical and observable data. Jevons, Edgeworth and Pareto had already stated that in order to eliminate introspection, attention should be turned to choice. Therefore, instead of assuming that pleasure leads to preferences and preferences to choice, the relation between these terms could be inversed establishing that choices reflected preferences associated with greater pleasure and less pain. Thus, choice was the result of a utility calculation tending to achieve maximum well-being. Even if the motivation of economic action was not part of the study of economics, calculating individuals striving at maximizing well-being, remained the cornerstone of economic theory. This interpretation questions the originality of Samuelson's contribution, and rather presents it as a technical solution, or mathematical sophistication if you will, of possibilities present since Bentham.

Samuelson's first step in his attempt to give empirical grounds to economic theory is his WARP. According to this theorem, if an individual chooses bundle A over bundle B, she cannot choose at the same time bundle B over bundle A (Samuelson 1938a: 65). Using this weak theorem, Samuelson is able to reproduce the principal results of ordinalist utility theory and the consumer's reaction to a set of prices and earnings. The theorem also allows determining demand functions only in terms of observed variables (i.e. prices, quantities and income). Houthakker (1950) extended the results of the WARP to situations with n goods, establishing the strong theorem of revealed preferences. The theorems of revealed preferences were presented as the final liberating device of economic theory from the psychological and metaphysical residues of utilitarianism.

However, Sen (1973) showed that the consistency of the WARP cannot be empirically corroborated. It is true that the theorem postulates a single criterion for consistency in consumer decisions³³ but its strength does not come from its empirical verification. Actually, it comes from its intuitive plausibility: knowing my own structure of behavior I assume others proceed in the same manner (Sen 1973: 243). Sen points to the impossible task of verifying the theorem because it would have to be proved for every decision taken in the market in any scenario of price and incomes (Sen 1973: 243). Thus the theorem stands as a hypothetical truth whose validity is really given by introspection and generalized because of its common acceptance. Just as the utility principle.

Samuelson's attempt fails: when an individual decides not to choose one bundle over another the criterion used might not be Samuelson's but that of asymmetrical preferences (Wong 2006 [1978]: 58), that is, a bundle cannot be at the same time in a higher and in a lower indifference curve than the bundle it is being compared to (Wong 2006 [1978]: 58). The theorem of revealed preferences still relies on indifference curves, inserting it in the theory it was supposed to overcome. Samuelson does not replace the ordinalist theory of utility³⁴, rather he contributes to "bolstering [its] scientific credentials" (Hands 2010: 643).

The history of microeconomic theory, based on a theory of action explaining rational choice, from Jevons to Samuelson and Houthakker shows that the utilitarian model of human behavior has played a major role in building this theory. This is more than saying there has been a permanent link between economics and mental state psychology because Bentham formulates his theory of action as the foundation of eudemonics, an all-encompassing knowledge with positive and normative implications. In spite of the explicit rejection of some of the actors of this history we can still trace the rational choice description of human behavior back to Bentham's enunciative sense of his utility principle. The theory of action on which rational choice theory relies seems to be utilitarian, at least until the first half of the XXth century.

7. Where are we now?

The *utility* language is still widely used in most of economic theory, in particular in the theory of rational choice, and its users consider it has no association with Utilitarianism. "[E]conomists have tended to withdraw to an alternative position, in which the assumption of the maximizing consumer is largely deprived of empirical content, though the old terminology, ..., is frequently retained" (Knox 2005: 384). One example may illustrate this situation. In the chapter *Rationality* of their book, Hausman and McPherson (2006) state a position they had already sustained elsewhere

³³ "If this [the second batch] cost less than or equal to the actual expenditure in the first period when the first batch of goods was actually bought, then it means that the individual could have purchased the second batch of goods with the price and income of the first situation, but did not choose to do so." (Samuelson, 1938a: 61-62).

³⁴ The theorem of revealed preferences seems then theoretically unsatisfactory. Furthermore, the increasing acceptance of bounded rationality, as a general situation in economic decision making, has undermined economists' reliance on revealed preferences because in such situations "choices do not necessarily reflect true preferences" (Kahneman and Krueger 2006: 4).

depicting the current belief in most of economic theory. According to these authors the RCT is based on what they call *folk psychology* (Hausman and McPherson 2006: 45). According to this folk psychology RCT explains individual actions as the result of the agent's beliefs and motivational factors which are not reduced to seeking pleasure and avoiding pain. This "wide array of motivational factors" should then differentiate between this folk psychology and Utilitarianism. However, individuals are still believed to act motivated primarily by their wants, represented by their preferences alleged to be different from their desires (Hausman and McPherson 2006: 45)³⁵. Besides, according to the authors, rational choice theory does not need to inquire into the reasons why agents prefer something (Hausman and McPherson 2006: 46).

All these elements sum up to the following description of rational behavior:

"Maximizing utility is just doing what one most prefers to do. Although the utility language was inherited from the utilitarians –some of whom thought of utility as a sensation with a certain intensity, duration, purity, or 'propinquity' (Bentham 1789, ch.4) – there is no such implication in contemporary theory. To speak of individuals as 'aiming to maximize' utility or as 'seeking more' utility may misleadingly suggest that utility is an object of choice, some good thing that people want in addition to healthy children, lower taxes, or kiwi fruit. But the theory of rational choice says nothing about what people want" (Hausman and McPherson 2006: 49, italics in the original).

This long quote reminds us that in RCT utility is to be understood only as a mathematical function. Just as Hicks and Allen (1934b: 196) had already stated, the utility function can only serve as an index. Be it ordinal or cardinal, utility has no meaning in itself. This absence of meaning marks the difference between what has come to be known as experienced utility and decision utility (Kahneman et.al. 1997, Kahneman and Thaler 2006). Utilitarianism would be associated with the former and RCT with the latter. According to Kahneman and Thaler (2006: 221-2), experience utility has to do with a "hedonic experience associated with an outcome" and answers the question "do people choose the options they enjoy most?" whereas the question behind decision utility is "are preferences consistent with each other and with the axioms of rational choice" (Kahneman and Thaler 2006: 221-2.). Bentham and most of XIXth century economists used experienced utility and it was gradually abandoned and substituted with decision utility (Kahneman et.al. 1997: 372).

The passage from one concept to the other is due to the two features of experienced utility (Kahneman et.al. 1997: 372) outlined along this paper: The first one is that "subjective hedonic experience cannot be observed or measured", and the second that "choices provide all necessary information about the utility of outcomes because

³⁵ As Sekerler (2007: 6-7) remarks this difference between preferences and desires switched attention from utility maximizing behavior to an analysis in terms of preference relations. Thus, utility as a "psychophysical entity" was replaced with a "more abstract mathematical 'index of preferences'" (Bruni and Guala 2001: 22). The change, as Sekerler documents, introduced with Arrow's (1951) work and developed by Debreu (1954) has a technical character that leaves the question about the meaning of utility unsolved. The redefinition of utility makes no reference to motivations as if this sole move could break completely from utilitarianism (c.f. Riley 2008).

rational agents who wish to do so will optimize their hedonic experience.” We have followed the different answers economists have tried to give to these problems at least up to the revealed preferences theorem. In all cases, the solutions have kept traces of Utilitarianism or, using its modern name, experienced utility, showing the separation between Utilitarianism and RCT is less evident than Kahneman and his co-authors suggest.

In the last decade there has been a revival of experienced utility (Kahneman et.al. 1997: 372) in the line of Bentham, Edgeworth or Marshall who understood it as a “continuous hedonic flow of pleasures and pain” (Kahneman and Krueger 2006: 4)³⁶. This revival also follows Mill and Jevons because it limits the applicability of the theory to certain domains (Kahneman et. al. 1997: 377). However, it does not necessarily provide empirical evidence for the enunciative sense of the utility principle because it has been reported that experienced utility as a motive for action does not lead to maximization of utility or hedonic experience (Kahneman et. al. 1997: 381)³⁷.

These relatively new explorations are also a return to cardinal utility, where the close interaction with psychology, as is the case in some studies in experimental economics³⁸, provides objective measures of hedonic experience³⁹. This could eventually lead to interpersonal comparisons of utility (Kahneman et. al. 1997: 380, 383) and, maybe, even to giving an answer to Arrow’s Impossibility Theorem or, in more Benthamite terms, to introducing the censorial sense of the utility principle into RCT.

In this light the developments in New Behavioral Economics seem less new. The relationship between economics and psychology was never truly dissolved (Bruni & Sugden 2007, Hands 2010, 2011; Heukelom 2008, 2010), and it reveals the strong Utilitarian legacy of RCT.

³⁶ Kahneman and Krueger (2006) argue this revival dates from the second half of the 1990’s with the explosion of subjective data information and subjective well-being measures, partly, as a response to dissatisfaction with revealed preferences and the rise of bounded rationality. Note that Kahneman and his co-authors explicitly identify a tradition of thought going back to Bentham. Stigler (1950a: 317) also asserts this tradition was dominant in the early developments of utility theory: “Without exception, the founders accepted the existence of utility as a fact of common experience, congruent with the most casual introspection”

³⁷ In fact, reported experiences seem to show that individuals maximize their remembered utility rather than their instant or present utility (Kahneman et al. 1997: 385-6). The authors consider this a positive result because it shows that “the statement that decisions maximize utility is not a tautology; it can be proved false” (Kahneman et al. 1997: 388), which, following Popperian epistemology, would reinstate the scientific character of the statement. Also, as regards Bentham’s utility dimensions, duration seems to play no role on individuals’ report of experienced utility (Kahneman et al.: p.381).

³⁸ The influence of this line of investigation goes beyond experimental economics and has made its way into mainstream economics as illustrated, for example, in the paper by L. Rayo and G. Becker (2007) “Evolutionary Efficiency and Happiness” where the authors present “happiness as a biological measurement instrument that guides the agent’s decisions” (Rayo and Becker 2007: 327) that can be assimilated or compared to an incentive scheme.

³⁹ A direct consequence is that hedonic experiences no longer rely exclusively on introspection which gave them the metaphysical character economists rejected as unscientific (Kahneman et. al. 1997: 395).

8. Concluding Remarks

Bentham's Utilitarianism should be understood, as he intended, as eudemonics: the art and science of well-being, and the meeting point of all knowledge. Such view highlights its building block, the utility principle, instead of its normative conclusion, the greatest happiness principle. The utility principle, in its enunciative sense, contains a theory of action implying an explanation of choice as intended to achieve maximum well-being. This theory of action relies in the double sense of utility as a relation between the individual and an object, leading to subjective value, and as a description and guide of human action, defining its purpose. This theory does not rely on introspection, and as psychophysics advances, establishes a link between mental states and physical phenomena.

This presentation of Bentham's Utilitarianism allows assessing under a new light its legacy in marginalism, ordinalism and RCT. In particular, it shows that the changes introduced by the Ordinalist Revolution and the WARP are methodological changes rather than conceptual ones. Even if Johnson, Slutsky, Hicks and Allen always recognized this was precisely their goal, Samuelson aimed at transforming the postulates of economic theory. His project failed on two accounts: on the one hand, he could not provide an observable criterion of rationality; and, on the other, his rationality criterion ended up within the same maximizing utility structure he intended to abandon. The simplicity and economy with which he obtained his results have been highly valued but he did not offer new empirical grounds for economic theory.

Thus, in spite of economists' systematic attempts at disconnecting economic theory from Utilitarianism, at least in the enunciative sense of the utility principle, utilitarian rationality remains as the unit of meaning of economic action. And nowadays, not only does it remain, it is being vindicated. In order to account for agents' market decisions, as Marshall insisted, their choices, that is, their preferences, must be explained. The explanations the first marginalists offered were given in terms of utility: agents choose as they do because their choice gives them more utility or well-being. Even if cardinality was replaced with preference orderings, which made measure unnecessary, the meaning of the action is still the pursuit of well-being. In this sense, utility, ophelimity, desirability or wantability all convey the same basic idea and the same technical consequence for economic theory: the value of an object is given by its potential capacity to satisfy an individual's needs, desires or wants independently of their practical use or ethical connotations (cf. Fisher 1918).

It is of the philosophical connotations that economists seem unaware: such unit of meaning of human action reduces problems and rationality criteria to calculations. Even if most economists have been very careful and have stressed the need of limiting the use of such unit of meaning only to human action, its founder and others have seen its explanatory potential in other social realms (cf. Hurtado (2008)).

In conclusion, the explanation that still underlies the behavioral model of economic theory and particularly of RCT draws its meaning from the pursuit of utility. Any action

that cannot be described as responding to such a motivation is still an action that economic theory cannot think. If economics is to be a theory of action it needs a psychological theory, an anthropological philosophy, a conception of human behavior. This brings Utilitarianism back to the fore and asks for a renewed appraisal of its implications in positive as well as in normative economics.

9. References

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