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# LÉON WALRAS AND ALFRED MARSHALL: MICROECONOMIC RATIONAL CHOICE OR HUMAN AND SOCIAL NATURE?

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# **LÉON WALRAS AND ALFRED MARSHALL: MICROECONOMIC RATIONAL CHOICE OR HUMAN AND SOCIAL NATURE?**

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This paper is dedicated to the economic contributions of Léon Walras and Alfred Marshall. It will consider an old issue in a new way: the methodological and analytical nature and degree of relationship between the works of both these major authors of the end of the 19<sup>th</sup> century.

Two interpretations concerning this relationship are usually provided.

The first is predominant and stresses the strength of this relationship and tries to show that differences between Marshall and Walras can be neglected when compared with the analogies of their constructions rooted in the foundations of the so-called “neo-classical” tradition and based on concepts as individual agents and fundamentals, rational choice, marginal utility, supply and demand functions and market equilibrium:

“Alfred Marshall (1842-1924) and Léon Walras (1834-1910) are the two towering historical figures of neoclassical theory. Although aware that these authors differed in purpose and methodology, most present-day economists think that these differences are small beer compared to their common endorsement of the neoclassical approach”

(de Vroey, 2009:1)

The second interpretation is more recent and less widespread:

“In contrast, [its] aim is to show that these differences are sufficiently important to warrant the conclusion that the Marshallian and the Walrasian approaches are alternative, not complementary, research programs within the broader neoclassical family.”

(ibid)

In spite of their differences both interpretations however accept the idea that Marshall’s and Walras’s contributions belong to a common “neo-classical” tradition.

Now the claim of our own interpretation is to argue that the existence of such a tradition can be seriously challenged in line with William Jaffé’s concept of ‘deshomogenization’. We will try to show that analogies are more numerous than differences when we compare Walras’s and Marshall economic approaches but that these analogies are not related to a supposed affiliation to a common

“neo-classical” tradition but to *another conception* of the economic system and of economic agents.

This contribution however does not pretend to be a *systematic* and *comprehensive* investigation of this third interpretation. We will only consider here how and why Walras and Marshall did not base this interpretation on individual agents and rational choices but on the *contents of the human and social nature of men*. Our paper will include two parts.

First we will try to show that far from what is often argued in the literature dedicated to history of economic thought, Walras’s and Marshall’s economic conceptions do not start from and are not based on the notion of individual rational choice and do not limit their field of investigation to price theory in a pure and competitive market economy (part I). These conceptions are in fact built on an analogous conception of human and social nature. We will show what this conception means and why it requires an alternative view of the contents of the relation between individuals and society in both authors’ contributions (part II).

We will then conclude noticing that this new interpretation of Walras’s and Marshall’s economic constructions is only a part of and a first step towards *a more complete and inclusive construction* still to be built.

## **Part 1: Is the theory of individual rational choice the starting-point of our authors?**

During a very long period, historians of economic thought presented Walras and Marshall as members of the community of the founders of the *marginal utility theory*. Thus, in 1938, far before the publication of William Jaffé’s works, referring to the “English” the “Austrian” and the “Lausanne” Schools, Erich Roll wrote:

“They represent three versions of a common doctrine rather than three separate schools of thought. From a technical point of view the differences between them are not negligible. But seen in a wider historical perspective their agreements are their more obvious features.”

(Roll, 1938: 397).

In order to understand this strong tendency which supports what we called the first interpretation in our introduction and the idea of an homogeneous “neo-classical” tradition , we might refer to and use a very clear and rigorous contribution written by Donzelli some years ago, even if our quotation of this paper is a bit long:

“Let us consider Walras's and Marshall's main theoretical works, namely, Walras's *Eléments d'Economie politique pure* and Marshall's *Principles of Economics*. While most chapters of the *Elements* are explicitly devoted to competitive price theory (no less than thirty one Lessons out of the forty two composing the fourth and fifth editions of the *Eléments* deal with that topic), the same is not true of the *Principles*: since its second edition, in fact, Marshall's treatise consists of six Books, of which only one (Book V, on “*The General Relations of Demand, Supply, and Value*”) is entirely devoted to price theory. But, apart from the different quantitative emphasis the two books place on price theory, they so widely differ in their qualitative treatment of that subject that a quick reader might easily be led to despair of the reasonableness or fruitfulness of any formal comparison between the two approaches. Yet, at a closer inspection, a well-defined set of theoretical issues can be identified that represent the common starting point for both Walras's and Marshall's inquiries into the field of price theory. Such common starting point consists in the problem of the determination of equilibrium prices and quantities in a pure exchange, two-commodity economy: Walras deals with that problem in Part II, Lessons 5 to 10, of the fourth and fifth editions of the *Eléments* ([1954], p. 83-152); Marshall deals with it in Chapter II of Book V and in Appendix F of the *Principles* ([1961a], p. 331-336 and 791-793).

Even if, from a quantitative point of view, the theory of the determination of equilibrium prices and quantities in a pure-exchange, two-commodity economy represents only a small part of Walras's overall competitive equilibrium theory, as put forward in the *Eléments*, and an even smaller part of Marshall's overall theory of market equilibrium, as developed in Book V of the last three editions of the *Principles*, yet such theory plays a fundamental role in either author's theoretical construction, for in either case it is the cornerstone on which the whole building is erected. Anyhow, since the problem of equilibrium price determination in a pure-exchange, two-commodity economy is the only problem which is formally discussed by both authors in their respective treatises with the help of similar analytical tools, any comparison between the two authors, as far as price

theory is concerned, cannot but start from the analysis of their respective models of the simplified economy under discussion.”

(Donzelli, 2006, pp. 219-220)

Now, Donzelli's paper provides a presentation of the foundations of our first interpretation of Walras and Marshall. In order to defend this interpretation presented in a perfectly logical way Donzelli starts from a model of exchange in a pure exchange, two-commodity economy and shows the analogies but also the differences between the price theories of both authors.

This interpretation is founded on three main assumptions.

First, only two books are considered: Walras's *Eléments d'Economie Politique Pure* and Book V of Marshall's *Principles of Economics*. This assumption will not be adopted here since we will consider *all* the works of both authors or at least we will not *a priori* exclude *any of them*.

Secondly, this first interpretation only concerns the realm of *price theory*. We will neither accept this connected assumption which implies the use of rational choice theory and we will not reject the possibility of investigating the *contents of the human and social nature of man* in general.

Finally, mathematical modeling is *a priori* considered as a central issue according to the first interpretation while this assumption might be questioned.

If therefore we do not necessarily accept these three assumptions here introduced by Donzelli, things have to be considered differently. Why? As we can easily imagine, the reasons which imply the substitution of our third interpretation to the first one are not at all related to a supposed common background based on marginal utility theory.

The first of these reasons is the fact that neither Walras nor Marshall considered that the main foundation of economic theory and of the understanding of markets interaction was the existence of single individuals able to carry out a process of economic rational choice. Now Marshall's *Principles* never referred to the existence of this process. For instance, Individuals do not act as “*homo oeconomicus*” but according to several different conditions: physical, mental, and moral (Marshall, 1920: 134) and their choices may be driven by different aims rather than the maximum of utility. At the same time and contrary to what

is often assumed, Walras always denied the idea that exchange and society were the results of the interaction of individual behavior. For him, exchange and society were 'natural facts' and could not be interpreted as the consequences of social contracts between *isolated* individuals.

The second reason is that in Marshall as well as in Walras the working of the markets cannot be understood if it is not embedded in a social and moral framework.

Marshall for instance does not refer to perfect competition or to agents' rational behavior; he indeed does not want to refer to "an edifice of pure crystal" but to understand the real world. Accordingly when he is developing his abstract analysis, he is all the time underlining the limited significance of his analytical box of tools and the need to take into account the real ever-changing complex world. There is indeed a deep gap between what can be represented in abstract and the real world. This implies that abstract analysis cannot be a proper guide for practical matters and even less it can suggest how real economic world operates or should operate. In the Preface to the first edition of *Principles* (1890) he stresses: "the only resource we have for dealing with *social problems as a whole lie in the judgement of common sense*" (Marshall, 1890: VI).

If we now consider Walras's economic analysis, we might see that it deserves the same type of investigation as the one we did considering Marshall's contribution. Walras's work *cannot* be associated with the methodological individualism as modern General Economic Equilibrium theorists did. Why? The answer is to be found in Walras's specific *conception of the society*. According to this conception, individual members of a given society are not mainly rational agents, namely agents behaving according to the sole rules or rational choice theory. Let us remind Walras's *Cours d'Economie Sociale*. In these lectures Walras defended the idea that social states are also and before all *natural states*. Why? Because, for Léon Walras, «man is characterized by his ability for the division of labor and by his moral personality » (Walras, 1879-1880/1996: 94). Now both these human features allow human beings to be different from and superior to animals. Thus, the *division of labour* is not the result of a learning process. It does not therefore result from individual rational choices or from agent optimizing processes; it is a characteristic and 'natural' feature of human beings. The concept of 'moral personality' ('personnalité morale') also

contributes to distinguish human beings from animals. Far from being defined as the bearers of some form of free will, individual agents or rather “moral persons” are the result of *psychology* and *sociology*.

Our last reason is related to the conception of human social nature according to both authors. Economic rationality cannot be indeed understood through a purely formal and self-contained approach. It is a limited part of the complex of cognitive, psychological and moral features of any person and cannot be understood without their help and an approach to the social context it belongs to (for Marshall see Raffaelli, 1994; 2003 and 2006; see also Martinoia, 2014 and Caldari, 2004 and 2015; for Walras see Arena, 2014 and Arena and Ragni, 2019). Therefore, it is necessary to enter into the details of this complex of features which is not still perfectly understood in the usual literature. For instance, the developments provided by Marshall concerning psychology, character, mental states, ethics and social influence have to be stressed as well as developments in psychology, law and morals included in Walras’s *Cours d’Economie Sociale*. It is only through the preliminary and systematic investigation of these developments that market behavior might be finally explained.

### *1.1. The limited room afforded to rational choice by Léon Walras*

Our aim is not to deny that Walras and Marsall afforded some space to what is called to-day economic rational choice but to argue that this space is strictly limited and – if considered as essential or central – does not allow a real understanding of their respective contributions and of the affinity they reveal.

Let us begin with Walras.

According to his conception, individual members of a given society are not only rational agents, namely agents behaving according to the sole rules or rational choice theory. Let us start from the *Cours d’Economie Sociale*. In these lectures Walras defended the idea that social states are also *natural states*. Why? Because, for Léon Walras, «man is characterized by his ability for the division of labor and by his moral personality » (Walras, 1886/1996: 94). Now both these

human features are essential for Walras; they allow human beings to be different from and superior to animals.

Thus, *division of labor* is not the result of a learning process as it is for instance in Alfred Marshall's *Principles* (see Arena, 2002). It is a basic *human feature*. Referring to it, Walras wrote:

« It is certainly a *natural fact* insofar as it does not depend on us to divide or not to divide labor, as it does not depend on us to be bipedal or four-legged, two-handed or four-handed”

(Walras, 1886/1996:119)

Division of labor is not therefore the result of individual rational choices or of agent optimizing processes; it is a characteristic and ‘natural’ feature of human beings:

« Division of labor is a natural and not a free fact »

(Walras , 1886/1996: 120)

Why is division of labor a ‘natural fact’ too? Walras’s answer is straightforward:

« The specialization of employments is not for man a conventional process and an optional resource but it is also for him the first and unavoidable condition of his existence and subsistence »

(Walras, 1886/1996: 120)

The concept of « moral personality» also contributes to distinguish human beings from animals. Far from being defined as the bearers of some form of free will, individual agents or rather “moral persons” are the result of *psychology* and *sociology*:

“Moral personality is therefore a plant the development of which requires two necessary elements: a germ which is the psychological man, namely the human soul including all his faculties and a ground that is society including its institutions and traditions »

(Walras, 1886/1996: 143)

Now, one of the reasons which explains why moral personality as well as the division of labor provide the foundations of the distinction between animals and men derives from the fact that men's will is «conscious and free», while animals' one is «instinctive and fatal » (Walras, 1896/1990: 101). The division of labor therefore expresses the real physiological superiority of man on animals. Thanks to this division man can control or at least try to control his destiny; without it he would be submitted to it. This is why the division of labor is the cause of economic society and progress. Division of labor implies therefore for human beings to be able to invent permanently new purposes, new rules and new techniques and therefore to change the world, while animals are unable to do it.

In other words, *nature* and *not free will* or free choices explain division of labor and moral personalities. Only a second stage can allow to set apart “humanitarian” from natural facts: division of labor is independent from human will but the existence of their moral personality paves the way to free and reasonable will, even if it is not sufficient to explain it fully:

“It is often said that man is a reasonable and a free being, namely a moral person distinct from all the other beings who not being either reasonable or free are only *things*”

(Walras, *ibid*: 34)

Thus, division of labor and ‘moral personality’

“are also two natural facts but simultaneously they also provide the double foundation of all the humanitarian facts”

(Walras, *ibid*: 91)

At this stage of our contribution, it is time to investigate more thoroughly the *determinants of individual behavior* in Walras's economics. We noted that in relation with their moral personalities, Walrasian agents were “reasonable and free”. This does not mean however that Walras accepted what he called the approach of “*spiritualism*” and the *type of psychology* it supports

« According to spiritualism, man deliberates, decides and only acts according to his free will, his acts can only be imputed to him and he is personally liable for them. From this standpoint, the moral destiny of man is entirely individual and each human destiny is entirely independent from

any other one; the individual is the only theater of moral facts which are all individual facts and he also is the only social type »)

(Walras, 1896/1990: 82)

To this « spiritualist » approach, Walras opposed his own conception he called “rationalist” and that he partially found in Kant, Cousin and Vacherot:

“ For rationalism, in contrast, man deliberates, decides and only acts partly according to his own will and in a complete freedom ; but he also decides in relation with the *social conditions* which influence his own will and in relation with an unavoidable necessity ; his acts are partially imputable to him personally but they are also *imputable to the community or the social collectivity which he is a member of* ; therefore, he is personally responsible for his acts but he is also *collectively and commonly responsible* [stressed by us – RA]»

(Walras, 1896/1990: 82)

Within this approach therefore individuals provide the foundation of society but society also influences individuals (Walras, *ibid*: 82).

It is however necessary to go further if we wish to understand how agent individual will and social conditions of life are combined by Walras to generate economic behavior. Walras first clearly rejects what he calls “absolute individualism, either materialist or spiritualist” (Walras, 1896/1990: 82). His “rationalism” implies a conception of the society and the economy where it is impossible to consider the “ocean” as the mere “sum of the life of the water drops which it includes” (Walras, 1896/1990:83):

« We must call an *individual* a man considered independently from the society which he belongs to or each moral person living out a destiny which is independent from all other ones.

And we must call *general social conditions* the society considered independently from the men who constitute it or in other words the social environment of individual activity. But it is easy to argue that these two first terms imply the introduction of two other ones.

The first is the *state* which is the natural and necessary agent representing the institution of social general conditions. This definition of the state implies that it is supposed to represent the set of all moral persons who live out connected and interdependent destinies.

Finally we must call *specific personal positions* the natural and necessary result of individual activity when it takes place in the environment of social general conditions. »

(Walras, 1896/1990: 134)

This quotation from Walras's *Etudes d'Economie Sociale* needs to be clarified. We first find here and again the notion of "moral personality". It confirms Walras's statement according to which the division of labor and the existence of a "moral personality" are the "natural facts" "which provide simultaneously the dual foundation of all the humanitarian facts." (Walras, 1870/1996: 118).

Division of labor defines what Walras called 'physiological man' (ibid. 121) and is 'the first and unavoidable condition of his existence and subsistence' (ibid: 120).

Division of labor is thus a natural necessity and not the result of some form of rational choice. How can we then characterize the notion of "moral personality"? Moral personality implies three human *psychological faculties*: sensibility, intelligence and will. These faculties generate *enjoyable* and *esthetic love* for sensibility; *understanding and reason* for intelligence; *freedom* for will (ibid. 123). This new distinction is fundamental since it is also present in the works of two philosophers who influenced Walras: Emmanuel Kant and Emile Vacherot.

Let us now only focus on *reason* and *freedom*. For our author, freedom is not a philosophical but a scientific concept:

"We shall mention *freedom* as the chemist mentions *atoms* and *molecules* without assuming for it the metaphysical value of mind as well as the metaphysical value of matter »

(Walras, ibid: 142)

Now, observation and experience show that two elements explain the contents of human freedom. The first was already stressed: in relation with their moral personalities, Walras's agents were "reasonable and free"; and

this reasonable and free will is related to what Walras called “specific personal positions”. The second is related to social education and learning and to the influence of the social context, namely to what is called by Walras “general social conditions”.

This characterization of human behavior is somewhat surprising since it explicitly refers to two entirely distinct causes and not to one which could be identified as individual and rational choice theory. Again this clearly confirms that Walras rejected pure methodological individualism. To better understand the reasons of this rejection, let us consider successively both these causes.

The existence and influence of these social general conditions allows Walras to show that society and/or the economic system cannot be described as a simple set or even a simple aggregation of individual agents. Society as such does exist and influence individual agent behavior. Why? Because the existence of moral persons and of the division of labor implies the necessity of coordinating them. Animals behave according to “instinctive, blind and fatal” factors and their respective “destinies” are independent (Walras, *ibid*: 190). Quite the contrary, when human beings act in order to consume, produce and survive, they cannot ignore the existence of the division of labour and therefore the *interdependence* and the *solidarity* among all human destinies. (Walras, *ibid*: 190).

Thus, the so-called *general social conditions* provide a *purely social* factor which influences any individual behaviour and implies for agents the necessity of social or inter-individual behavior coordination. This view totally differs from the one defended by modern GEE theorists and based on pure methodological individualism. Walras located the degree of freedom which remains to individual agents within ‘*personal specific positions*’. Therefore, there exists a space for the free will of agents but this space is strictly limited by human *physiology* and *psychology* and constrained by the *social context*. We have however still to explain if this limited and constrained free will yet generates rational choice in Walras’s *economic theory*.

To cope with this issue we have to come back to Walras’s well-known interpretation of exchange as a “natural fact” (Walras, 1900/1976: 26-27). We

know that, using their free wills, agents can influence it but only *to some extent*. Fundamentally and to repeat what Walras wrote concerning this “fact” in his *Eléments*, in any case, “we cannot change its contents and its laws” (ibid.). The analysis of the fact of exchange implies the necessity to cope with two main problems.

The first is not surprising; it is the problem of market general economic equilibrium:

« It is first necessary within as well as without the division of labor, for the industrial production of social wealth to be *well proportioned* and not only *abundant*. Some scarce goods have not to be multiplied excessively while some others would be insufficiently produced »

(Walras, 1900/1976: 34)

The second problem is more original since it is related to *social justice*:

« Within as without the division of labor the distribution of social wealth among men within the society has also to be *fair*”

(ibid.)

In other terms, the natural fact of exchange has to be compatible with both the requirements of *market clearing* and *social equity*. Now, how is this compatibility achieved? Walras noted that market clearing or equity *could not be obtained with the mere help of a simple aggregation of individual free wills*, as for instance it was the case in modern GEE theory. Something more was needed: a mechanism of coordination of these partially free wills. Now, within this context, Walras only mentioned the conditions of both these analytical requirements but did not try to build *a priori* micro-foundations of general economic equilibrium and welfare. In other words, Walras tried to show how the mathematical solutions provided by general equilibrium prices were compatible with the respect of *both individual interests and social justice*, but not directly how individual rational choices could help to reach these prices. Thus, in the conclusion of the first section of the *Eléments d’Economie Pure*, Walras wrote:

« The theory of property sets and determines the relations between men considered as moral persons concerning the appropriation of social wealth, or the conditions of a fair distribution of social wealth between men in the society.

The theory of industry sets and determines the relations between men considered as workers devoted to specific activities dedicated to the multiplication and the transformation of social wealth ; or the conditions of an abundant production of social wealth among men in the society.

The first conditions are moral conditions which will be set from the standpoint of justice. Others are economic conditions which will be generated from the standpoint of interest. But both are also social conditions indications to organize society

(Walras, 1900/1976: 39-40)

This quotation shows that for Walras the respect of interest and justice is equivalent to the respect of *social norms* which are part of the very foundations of the organization of society. The necessary respect of individual self-interests is not interpreted as the result a contractual compromise between rational agents but as the realization of these organizational foundations.

Moreover these norms are not constant. According to Walras and by contrast with modern GEE theory, the preferences or the methods of production of agents vary with time. As Marshall, Walras does not think that the characteristics of human nature are permanent, innate and independent from his personal history, from his society and culture. The nature of man is malleable, can change from a given society or to another according to the personality and the environment of man.

Within this context, which however are the mechanisms of coordination which allow individual agents to finally agree on unique equilibrium prices?

According to Walras the concept of generalized division of labor provided the adequate answer:

“entre mille occupations différentes plus ou moins difficiles, chaque homme en choisit une spéciale, s’y forme, s’y adonne, y persévère, y

excelle. Ainsi tous les hommes se trouvent en contact les uns avec les autres comme travailleurs livrés à la spécialité des occupations. (...) *Ce ne sont point des faits naturels mais des faits humanitaires* (RA). Ils n'ont point pour théâtre la nature, mais l'homme proprement dit. Ils n'obéissent point à la fatalité des faits naturels mais à l'impulsion de la volonté de l'homme. Sur ce terrain, les hommes font ou ne font pas, ils font comme ceci ou comme cela. Assurément, ce n'est pas un pur caprice qui les décide à faire ou ne pas faire, à faire d'une manière ou d'une autre mais un principe supérieur et déterminant. Leur liberté consiste uniquement à conformer leur conduite aux exigences de ce principe telles que les leur fait voir la réflexion. Et ce principe, quel est-il ? C'est celui de l'utilité ou de l'intérêt, autrement dit, *le mieux de la division du travail*. »

(Walras, 1900/1952: p.17)

In other words, in the real world, individual agents coordinate each other as well as possible through exchange and production, trying to maximize their self-interest but also to realize social justice and to contribute to the emergence of proportional relative prices but in any case, at the end of the process, equilibrium prices will prevail because exchange in equilibrium associated to market clearing is a natural fact which cannot be avoided and not a humanitarian one determined by contractual arrangements.

## *1.2. The limited room afforded to rational choice by Alfred Marshall*

Let us now move from Walras's works to Marshall's *Principles* and try to challenge the usual assumption according to which Marshall "is generally accorded the title of founder of the neo-classical school of economics" (Collini, Winch and Burrow, 1983: 312 and Black, 1970: 35 quoted by Staveley and Alvey, 1996, volume VIII: 372). To do it we will start from a well-known part of the *Principles* dedicated to some fundamental remarks on human – and especially on economic – behavior:

"The economist studies mental states rather through practice of 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. He follows indeed in a more patient and thoughtful way, and with greater precautions, what everybody is always doing every day

in ordinary life. He does not attempt to weigh the real value of the higher affections of our nature against those of our lower: he does not balance the love for virtue against the desire for agreeable food. He estimates the incentives to action by their effects just in the same way as people do in common life. He follows the course of ordinary conversation, differing from it only in taking more precautions to make clear the limits of his knowledge as he goes. He reaches his provisional conclusions by observations of men in general under given conditions without attempting to fathom the mental and spiritual characteristics of individuals. But he does not ignore the mental and spiritual side of life. On the contrary, even for the narrower uses of economic studies, it is important to know whether the desires which prevail are such as will help to build up a strong and righteous character. And in the broader uses of those studies, when they are being applied to practical problems, the economist, like everyone else, must concern himself with the ultimate aims of man, and take account of differences in real value between gratifications that are equally powerful incentives to action and have therefore equal economic measures. A study of these measures is only the starting-point of economics: but it is the starting-point”

(Marshall, 1920: 16-17)

This clearly means that – as in Walras – psychology plays here a fundamental role when choices are analyzed. Secondly Marshall’s preoccupation is related to ‘ordinary life’ and ‘practical problems’ and not to pure theory. This quotation is also significant concerning the room afforded by Marshall to the concept of economic rational choice. First, Marshall is before all interested by the role of ‘mental states’ to understand individual decisions of every action, whether the impulses to it come from their higher nature or their lower” (Marshall, 1917: 20). Moreover pure theory might be used but it is only a useful tool among other ones:

“Economy is a study of humanity in the ordinary business of life; examines that part of individual and social action that is most closely related to achievement and to the use of material welfare requirements. Therefore, it is on the one hand a study of wealth; and on the other hand, and more importantly, a part of the study of man. Because the character of man has been shaped by his daily work and the material resources that he therefore seeks, rather than by any other influence, unless it is that of his religious ideals”

(Marshall, 1920: 30) (see also Marshall, 1917: XIII)

This is why it is rather difficult to understand why sometimes Marshall has been considered as the founder or one of the founders of the so-called “neo-classical” tradition. Actually he never accepted the concept of ‘homo economicus’:

“Attempts have indeed been made to construct an abstract science with regard to the actions of an “economic man”, who is under no ethical influences and who pursues pecuniary gain warily and energetically, but mechanically and selfishly. But they have not been successful, not even thoroughly carried out; for they have never really treated the economic man as perfectly selfish.”

(Marshall, 1920: vi)

Some important consequences might be drawn from the distance Marshall set between what was then called ‘fundamentals’ in modern times and his own view of the motivations and the human nature of men.

First which is the role attributed to book V of the *Principles* where he investigates the relation between supply and demand and its effects on value? Why in this book concepts as utility, marginal costs, resources and partial equilibrium appear?

We have here to realize that the construction of partial equilibrium analysis in Book V hardly goes very far. Focusing on a very small part of the real world has the specific aim of analyzing how the system reacts to exogenous change, by readjusting the segment that is more directly exposed to the shocks. From the wider perspective of social and economic evolution we will consider later, this piece of knowledge, when taken in isolation, is not very relevant:

“Nothing [of the single doctrine of value] is true in the world in which we live. Here every economic force is constantly changing its action under the influence of other forces which are acting around it. (...) In this world (...) every plain and simple doctrine as to the relations between cost of production, demand and value is necessarily false: and the greater the appearance of lucidity which is given to it by skillful exposition, the more mischievous it is. A man is likely to be a better economist if he trusts to his

common sense, and practical instincts, than if he professes to study the theory of value and is resolved to find it easy”

(Marshall, 1917: 368)

It is interesting to notice that both Walras and Marshall did not accept to attribute to individual rational choice a crucial or a basic role in their respective constructions. Obviously, their motives were different. However they both excluded to adopt a kind of “neo-classical” approach which was emergent in their period and which gave to this theory of choice a central importance. Probably this exclusion might be related to the common rejection of utilitarianism by both authors.

Secondly, to come back to Marshall, in any case therefore, we cannot consider utilities, costs and resources as ‘fundamentals’ since for him fundamentals are not constant and therefore cannot be used as parameters to solve a static equilibrium problem. As we know, according to Marshall, human nature is ‘malleable’. Man’s character has been formed by the activity he performs every day. Therefore human character is changing in relation with the evolution of the working conditions. The most important change of man attributed by observation and history is for Marshall “the emancipation from custom and the growth of free activity, of constant forethought and restless enterprise” (Marshall, 1920: 440). Thus, the movement to modernity is marked by a fundamental change in man, compared with those who lived a long time ago. It resulted from the acquisition of “a habit of forecasting the future and of shaping one’s course with reference to distant aims” (Marshall, 1920: 4). We might here bring nearer this acquisition to Walras’s concept of division of labor since both of them contribute to explain the flexibility and the adaptive nature of human minds which is under-estimated in modern GEE theory.

Finally Marshall’s approach also attributes a central role to *organization* and this role is present in Marshall’s analysis of human brain, in his theory of productive activity and markets (see Arena, 2002) but also in the exclusion of fundamentals.

Since human action is directed by the human brain, the successful organization of human activity must respect the particular powers and limitations of the brain; and Marshall’s treatment of organization matches his early model of mental activity (Raffaelli 2001). Thus knowledge that is already organized into

routines facilitates the creation of new knowledge – especially the one which builds on the old; and new knowledge which is corroborated by apparently successful application is consolidated into new routines.

Now, let us take some examples in which it is possible to see why fundamentals are *permanently* affected by *changes* and by *organization*.

The first example is consumer preferences. According to Marshall, these preferences cannot be analyzed independently of their social and institutional environment; to tell it in modern terms, they cannot be considered as *given* and *exogenous*. It is for instance the case if we consider the example of a national organization. As Walras, Marshall referred to collective goods, consisting of the benefits which derives from living in a certain place, at a certain time, and being members of some state or district, or some community. In other words, these collective goods are usually associated to what we could consider as a *national structure of preferences*. Therefore, according to the country or in some cases the state or local system in which they live, consumers follow some *specific habits or customs* that led them to some specific types of consumption. The organization of the state or of the society or the national system of scientific knowledge, culture or arts can therefore explain the permanent changes and the geographical specificities of individual preferences. Marshall also noticed that these influences could be perceived within the structure of family (Marshall, 1917: 6).

These influences can also be traced considering the second type of fundamentals, namely the state of productive techniques and costs. From this standpoint, industrial organization can be considered as a real organization of the national systems of production and innovation, as those of the U.S. and Germany, in the case of *Industry and Trade*. In this context Marshall played an important role. According to him, the national systems of technical education and of business management are strongly influenced by technical progress, by the diffusion process of innovation, and by the systems of education. They generate what is to-day called ‘national systems of innovation’ and it is impossible to consider them as a sort of ‘fundamentals’.

The same kind of remarks can be made also considering the third element, namely national endowment and human resources. On this standpoint, if

Marshall is sometimes influenced by the constructions of his time, especially by Social Darwinism, he at least recognized the fundamental role of national education systems and institutions, and the fact that our main factor and also the different types of teaching problems. We could go off and give a lot of examples as for instance the influence of monetary and financial institutions, which are also pointed out by Marshall.

We think these examples are sufficient to show how history influences economic change through its impact on institutional change and therefore excludes the possibility of coping with usual fundamentals.

## **Part 2: Is human and social nature the foundation of the approach of our authors?**

If we agree on the idea that Walras and Marshall did not converge on a common micro-foundation related to rational economic choice, it is necessary to think about a possible substitute. This substitute is what we called earlier the analysis of human and social nature of man.

### *2.1. Human and social nature in Walras's contribution*

We already noted that moral personality includes sensitivity and within sensitivity *sympathetic* and *aesthetic love* (related to sensitivity); *understanding* and *reason* (related to intelligence); and *freedom* (related to will). These distinctions are analyzed by Walras in the third chapter of his *Cours d'Economie Sociale* with the help of psychology. Walras is convinced that this help is unavoidable for economists of his time even if they are not really accustomed to use it:

« Ce qui précède étant dit sur l'homme physiologique, et sur son aptitude à la division du travail, je passe maintenant à l'homme psychologique et à sa personnalité morale. Il pourra paraître, à quelques personnes, fort

singulier de rencontrer plusieurs chapitres de psychologie dans un traité d'économie politique et sociale. Ce n'est pas l'habitude d'aborder ces sujets ; mais je vous ai prévenus que, pour nous, nous ne nous en dispenserions pas.

(Walras, [1871] 1996, 121)

As we noticed a good example of the interest Walras brought to psychology and to its use by economists concerns the room he afforded to the concepts of “sensitiveness” and “emotion”. This sensitivity includes all the forms of emotions, pleasures and pains. It can be *physical* and expressed through *sensations*. It can also be *moral* and is then expressed through feelings (cf Walras, *ibid*: 122-123). These two forms of sensitiveness generate *selfish* as well as *unselfish* emotions.

This statement is especially important since it reveals that a very long time ago economists – as Walras – thought that emotions played a role within human or economic actions or decisions. This view was entirely eliminated in the GEE theory and in the decision theory and it was necessary to wait the emergence of modern behavioral and experimental economics to attend to a revival of emotions.

It also reveals that unselfish emotions may be taken into account by economists:

« Le double développement de la sensibilité, au point de vue animal et instinctif, a pour principe l'amour de soi. C'est par suite de cette disposition fondamentale, origine commune de toutes les affections de la brute, que la sensibilité se porte vers le plaisir comme vers son bien et s'éloigne de la peine comme de son mal. Il n'y a à cet égard aucune différence entre nous et les animaux. Il est bien entendu, d'ailleurs, que je prends ici l'amour de soi dans le sens large et étendu déterminé par les limites du plus nécessaire et du plus légitime intérêt de conservation, et que je ne le confonds point avec l'égoïsme qui n'en est qu'une forme dégénérée, excessive et criminelle ». (*Ibid*: 125)

This quotation is really significant. It shows that 'self-centered self-interest' (to use Amartya Sen's concept) has not to be given a central place in the understanding of economic behavior. For Walras indeed self-centered selfishness presents a pathological aspect which in all cases excludes any normative use as, for instance in the 'neo-classical' tradition. This view is certainly related to Walras's distrust for utilitarianism or utilitarianist forms of

rationality. Again we are very far from a representation of man supported by the theory of individual rational choice as it is the case in the so-called “neo-classical” tradition. What about non-selfish emotions? Walrasian unselfish emotions are very close to what Sen (2005) called ‘commitments’. Commitments concern aspects of human behavior which lead human beings to follow external or social norms, to cooperate or to bear voluntarily the others’ shoes since they decided to do it *a priori* even if it generates a decrease of his own welfare. Now as Sen noticed, commitment is incompatible with self-centered self-interest. The examples given by Walras confirm this incompatibility. Walras indeed makes two forms of unselfish sensitivity distinction. The first concerns moral commitments to specific persons. It includes “familial feelings, patriotism, friendship and love” (ibid: 126). It corresponds to “sympathy” (ibid 128) after Smith, before Sen and *at the same time as Marshall*. The second form of unselfish sensitivity concerns nature (ibid) since it expresses what we could call to-day ecological feelings; but also all the forms of art since it corresponds to what Walras calls “aesthetic sensations” (ibid, 128). Again these statements remind to-day developments. For instance a sociologist as Raymond Boudon (1998) showed in his own words why unselfish feelings cannot be assimilated to a form of expected utility. Therefore in his *Cours d’Economie Sociale*, Walras develops a conception of rationality which is more based on unselfish than on selfish interest.

Moreover Walras pays attention to research themes which strongly interest contemporary economists as emotions, altruism or social norms when they analyze decision processes. Now these themes are at least partially questioning the contents of the theory of rational choice and therefore contradict the idea that Walras would have been one of the founding fathers of this theory. Actually Walras foresaw that human behavior could not only be explained by mathematics but that social sciences – as psychology or sociology - only emerging in his period had to be utilized. This assertion clearly contradicts Schumpeter’s view which considered that Walras’s contribution was based on a ‘self-contained’ conception closed to other social sciences.

Quite the contrary, Walras’s references to psychology are frequent in his writings. Thus in 1909, in *Economie et Mécanique* he noticed that economics was both a « physical-mathematical » and a “psychical mathematical” science. We can find again this argument in the *Public Lectures* he delivered in Paris as soon as 1867-1868; he also incorporated it in the *Théorie générale de la société* and in

the fourth lecture of the *Etudes d'Economies Sociale*. The title of this lecture is « *De l'homme et de la destinée humaine du double point de vue physiologico-économique et psychologico-moral* ». The first point of view stresses the measurement of social magnitudes which appear to be identical, objective and collective (Walras, [1908] 1987: 330). The second concerns subjective perceptions and needs the help of psychology.

In spite of his use of psychology Walras never really worked in this field. He read however the contributions of the French psychologists and was strongly influenced by Vacherot (Vacherot, 1869); see also Nicolas, Marchal and Isel, 2000.

Beyond the use of psychology in economics we may also refer to another instance of a significant reflection on human and social nature in Walras's contribution: the nature of the relation between *individuals* and *the state*.

We already showed that individual behavior is not sufficient to understand the working of the economic system and the society. The reason of this statement is obviously related to the influence played by the existence of *general social conditions* common to various agents. According to Walras, it is therefore impossible to understand individual behavior without taking into account the effects social conditions exert on him (Walras, 1896/1990: 83).

Now for Walras these conditions do not depend on contracts or social interactions but on social rules or institutions which are independent from and pre-exist to agents and must be respected by them. A large part of them are protected by the Law and therefore by the state. According to Walras, the state is not indeed "the pure and simple set of individuals" (ibid: 136) but much more than this set:

« The state has its own existence which exceeds the sum of the existences of all individuals who are a part of it (...). As far as I am concerned I argue that when the state is creating and applying laws, when it is building a road or digging a canal, when it is opening libraries and museums, *it is acting for the interest of all the members of a society, some being alive and others, more numerous, being still out of this world; this interest has to be connected to its own nature and not to the individuals which it includes.* [stressed by me – RA]. Society being a natural and necessary fact (and not a

conventional and free one), the individual and the state are two equivalent social types and for all the social categories, the state natural law is as important as the individual natural state”

(ibid: 137)

This conception of the relation between individuals and the state has important economic consequences.

First, state rationality is not based at all on standard individual rationality but on *public interest*. The state is therefore considered as an organization guided by a collective or public form of rationality and by the preoccupation of social justice.

Secondly, public interest is defined by the *state* and not as some form of social welfare based on some type of agent preferences aggregation.

Thirdly, the state has his own ends but also its own incomes and, among its main objectives, it must include the implementation of the conditions of social justice starting from the equality of individual initial positions.

Fourthly, public and individual morals have to be clearly distinguished, the first one being dedicated to the achievement of what Walras called the “*Idéal Social*”. Walras therefore introduced in his picture of pure, social and applied economics a conception of the state which strongly contrasts with modern views on standard public economics.

Moreover, it is clear that for Walras, the process of equalization of scarcities or ratios of marginal utilities – which provides the unique foundation of the use of rational choice theory in Walras’s economic analysis – is not always possible; it requires the use of the context of “a perfectly organized market from the standpoint of competition” (Walras, 1900/1976: 45). Therefore, rational choice as such, namely marginal utility maximization can only be used as a norm in order to show which are the conditions of achievement of what Walras called the “*Idéal Social*”. But the state has to play its role in this context and help to the practical realization of this norm.

As Jaffé stressed it, “uniformity of competitively determined price represented for Walras not only an analytical ideal, but an ethical ideal as well, constituting an indispensable pillar of social justice” (Jaffé, 1983: 330). This

uniformity implied “two conditions”: “first, the complete freedom of every trader to pursue his own advantage in the market; and second, the complete elimination from the market of any chance for a trader to profit by exchange at the expense of his counterpart or anyone else” (Jaffé, 1983: 330-331). We find again the issue of the real meaning of Walras’s attempt of finding a maximum of social satisfaction. We will not revisit here the old debate on the normative contents of Walras’s *économie pure*, even if we share the major part of Jaffé’s interpretation of the Walrasian message. There is only one issue to consider here: if Walras’s view of welfare is not only based on an individualistic approach, we must consider more thoroughly Walras’s view of the state.

This view is first related to a French national tradition which we could call Colbertism and considers the state as both a supervisor and a mediator. But it also foreshadows some of the features of the usual conception of the welfare state of the 20th century, especially, the principles of *equality of opportunity* and of *equitable distribution of wealth* (Kaufman, 2013) which are explicitly and deeply investigated by Walras through the difference between *justice commutative* and *justice distributive*. It strongly contrasts with the Utilitarian and the Paretian conceptions of the State (Dockès, 1996: chapter II). Which are the reasons of this major difference?

First, social justice is the main foundation of the society far before utility. For instance, even if slavery could increase the social satisfaction (of free individuals!!) it still had to be blamed and forbidden because it is contrary to the principle of social justice.

Secondly, in Walras’s conception, there is nothing analogous to a classification of societies according to their types of social optimum or their aggregated utility function: as we already noted, society is autonomous and different from individuals. According to Dockès

“Léon Walras is at the Antipodes of the construction of a collective utility function based on individual utilities as well as of the Pareto optimum. It is useless to still regret that he missed such a definition! He used to reject it explicitly even before it might have been formulated!”

(Dockès (1996: 82)

Dockès characterized this autonomous state and its role of supervisor and mediator using the concept of “state rationality” (Dockès, 1996: 226).

Thirdly, in Walras, the state is first a supervisor since it determines the rules of market economies, secures and controls their application, provided that these rules are not contrary to justice and interest. It is a supervisor because no other “collective person” (distinct from “individual persons”) or organization has the abilities and the means of supervision. The state does not only correct market failures; it has its own area of intervention in favor of a public interest because it disposes of the maximal scientific knowledge and the maximal clear-sightedness (“clairvoyance”) to avoid short-termism and take the best decisions for purposes related to long-run and social general conditions.

Finally, the state is also a mediator because it is not submitted to specific individual own interests. It expresses the real social needs (“moral” as well as “utilitarian”). This is why it also disposes of its own means and resources. This explains the kind of economic policy defended by Walras in his *Economie Appliquée* and based on social justice: payment of the State for land in order to give back to society what are its common resources (Dockès, 1996: 169); no direct and progressive tax on individuals (ibid. 173); monopolistic supply of public services (ibid. 210).

This instance of the Walrasian approach to the state reinforces the argument of its collective and social vision and is incompatible with the Paretian interpretation which supports the so-called “neo-classical” view.

## 2.2. Human and social nature in Marshall's contribution

In Marshall as in Walras, self-centered self-interest was not prevalent. Ideals as national unity, patriotism, unselfishness and spirit of sacrifice became increasingly important for Marshall with the passing of time. The following late fragment is rather representative of the shift in Marshall's focus:

“Mankind have developed *social life*, with its *duties and sacrifices*, its resources and its aspirations, from the rudimentary *basis of family life*.”

It is true that *social adhesiveness and cooperation* for the purposes of order internally, and of trade and war externally, have sometimes effected unity of organization and sentiment among people who were united only by geographic proximity; but as a rule community of blood has been the main cause of that unity of spirit, which first *clans* and then a *nation*. The *spirit of patriotism* has been a chief source of the progress of mankind; a man's love of *his country*, or even of *his clan*, has often been closely associated with a suspicious, and even hostile, attitude to those outside it. But the constructive force of his affections and his trusts has nearly always surpassed the destructive force of his dislikes and his distrusts"

(dated Wool 2.7.1921)

(Marshall Archive, Folder 5.11).

As in Walras, affection, trust, cooperation, duties and sacrifices are the elements that characterize a proper social life and their full development and spread would bring the realization of one of the most important economic ideals that is a cohesive and strong nation.

Obviously, in Marshall too, purely self-centered self-interest is neither prevalent nor desirable in the society. By contrast, two types of social relations have to be seriously considered as it was the case in Walras.

The first type is altruism; Marshall always favored altruism interpreting its importance in the society as an indication of economic progress. Altruism is indeed associated to self-sacrifice and reasonable expenses correspond to the capacity of some individuals to reduce the volume of their consumption, to replace the part of it based on 'inferior desires' by a part set up on 'wise desires' in order to be able to pass on a part of their wealth to other individuals. An increasing altruism gives therefore the indication that a growing number of human beings prefer social to their individual well-being. Moreover as Raffaelli stressed it, in Marshall,

"altruism is rewarded by natural selection because it improves the chances of survival of human (and animal) societies. The same opinion, substituting the Darwinian concept of "natural selection" with the Spencerian one of "struggle for survival," will be stated in the *Principles of Economics*: "We find that among so-called social animals, such as bees and ants, those

aces survive in which the individual is most energetic in performing varied services for the society without the prompting of direct gain to himself... The struggle for existence causes, in the long run, those races of men to survive in which the individual is most willing to sacrifice himself for the benefit of those around him." [Marshall, 1920: 137]"

(Raffaelli, 1994: 46)

As in Walras too, the second type we will consider is sympathy:

"Sympathy, reinforced during evolution, bridges the gap between selfishness and altruism. The first arch is the family, typical case in which personal pleasure cannot easily be separated from that of others. The Machine's endowment of sympathy, innate as its intellectual powers, increases with experience and gives rise to voluntary sympathetic actions, in the same manner in which the others, growing in complexity, give rise to the will. This analogy is made explicit in a passage of the *Principles of Economics*: the "unreasoning impulse" which prompts animals and men to act for the benefit of others is transformed into "deliberate, and therefore moral, self-sacrifice," and "gradually, the unreasoning sympathy, of which there are germs in the lower animals, extends its area and gets to be deliberately adopted as a basis of action." [Marshall, 1920: 138]. The contraposition between "self-sacrifice" and unreasoning sympathy" is only apparent, and reminds us of that between voluntary and automatic actions: the latter are "gradually" transformed into the former by the growing complexity of the mechanism. There is no absolute discontinuity. [ibid. 139]"

(Raffaelli, 1994: 46)

Therefore we rediscover in Marshall Walras's stress on and defense of reciprocity, self-regarding self-interest or commitment. This presence of altruism is both positive and normative. On one side both authors are convinced that reciprocity and social cooperation play a crucial role in society: Marshall insisted on different types of inter-individual cooperation while Walras worked with and wrote on what was called at his time the "associations populaires coopératives".

On the other side both authors are in favour of developing altruism in the society in order to improve its organization, its social justice and its economic efficiency. Marshall also emphasized the part played by human factors, including psychology and investigating them in great detail. We may here consider four of these main themes.

The first one is the influence of nature on the inner qualities of a given national population. Marshall began with physiological qualities, referring to « man's strength and energy » (for instance Marshall A. and M., 1891: 10). He attributed a major importance to those factors, showing how they contributed to « industrial efficiency, on which the production of material wealth depends » (Marshall, 1920: 193). He also related those factors with the influence of climate and race, emphasizing the first of these two elements (1920: 195). He also mentioned the role of the national health system, showing its main effects on demography.

Marshall also coped with what he called « mental and moral » qualities, such as integrity, self-confidence, patience, temperance, honesty, loyalty, etc... (Marshall A. and M., 1891 and Marshall, 1920: 16). He attributed most of these qualities to... Englishmen and was convinced they strongly helped to the Industrial Revolution. Demographic qualities are not only natural, however. Intellectual and technical capabilities also strongly depend on the system and the institutions of national education. In this framework, Marshall distinguished between general and technical educations and stress their respective effects on the economy:

General education should (...) aim at causing a man to form an intelligent opinion with regards to the ordinary matters of life and to be full of resources for meeting new emergencies.

Technical education should aim at enabling him to understand the processes and the machinery of the special work in which he is engaged. It should help him to understand the reason of everything that goes on in his trade, and thus enable him to accommodate himself to new machinery or new modes of production

(Marshall A. and M.,1891: 11).

Finally, Marshall tried to illustrate how all these physiological, moral and educational qualities combined to contribute to the emergence of what Marshall

called « a national spirit in industry and trade » (Marshall, 1919, p.1). This emergence was favoured by three main convergent factors. On the one hand, the consciousness of national qualities reached through education was able to convince citizens that they belonged to a great nation:

“Industrial leadership counts for much among national ideas. And if an individual, devoted merely to material ends, is but a poor creature, still more ignoble is a nation that is devoid of national ideas: that is of ideals which recognize a national life as something more than the aggregate of individual lives”

(Marshall, 1919: 3)

Moreover, education - as altruism - was supposed to contribute to reduce social differences.

“The spread of education is rapidly effacing those distinctions of mind and character between different social strata, which have prevailed in nearly all the very peopled countries during several thousand years (...). We are indeed approaching rapidly to conditions (...) under which the relations between the various industrial strata of a civilized nation are being based on reason, rather than tradition”

(Marshall, 1919: 4-5)

On the other hand, institutions which favour free industry and enterprise also reinforce the national or the district consistency (Marshall, 1920: 270):

“Universal education, cheap and popular newspapers combined with the commodious and relatively cheap facilities of railway travel have at least removed almost every trace of the difficulties, which formerly prevented the attainment by a whole country of that full economic unity, which used to be regarded as belonging only to compact trading and industrial cities “

(Marshall, 1923: 6)

Again like Walras, Marshall also stressed the importance of psychology. His psychology was however English and Herbert Spencer had a major influence on his view of the relations between this discipline and economics. This intellectual influence of Spencer is easy to understand if we have in mind his major interest for the evolution of the economy and society which did never really interest

Walras. As we already noticed in our first part dedicated to Marshall, changes in human character are at the center of his preoccupations. Now, the analysis of the formation of character necessarily imply the access to other social sciences and especially to psychology as Loasby (1991) and Raffaelli (2003) showed it carefully and therefore we will not repeat here the general analysis of the relations they built between evolution and psychology.

To conclude we will only focus on the specific example of the Marshallian relation between the evolutionary change of human character, psychological characteristics and the increase of knowledge which is absent in Walras's construction:

« The change that has been made in the point of view of economics by the present generation is (...) not due to the discovery of the importance of supplementing and guiding deduction by induction for that was well know before. It is due to the discovery that man himself is in a great measure a creature of circumstances and changes with them: and the importance of this discovery has been accentuated by the fact that the growth of knowledge and earnestness have recently made and are making deep and rapid changes in human nature »

(Marshall, 1885: 153-154)

These changes in "human nature" are therefore closely related to the type(s) of knowledge with which the various economic agents are endowed at any given point in time.

"General ability", that is, "those faculties and that general knowledge and intelligence which are in varying degrees the common property of all the higher grades of industry" (Marshall, 1920: p. 207) corresponds to social knowledge, whether tacit or codified. This includes the influence of "the surroundings of childhood and youth" (tacit aspect) as well as "the more general influences of school education" (codified aspect) (*ibid*, p. 207). Obviously, the most common method of acquiring general ability is universal education as one of the main determinants of the increase of human capital and the improvement of human capabilities (Caldari 2004).

"Specialized ability", namely "that manual dexterity and that acquaintance with particular materials and processes which are required of the special purposes of

individual trades" (Marshall, 1920, p. 207) corresponds to individual knowledge, both tacit and codified. "Specialized ability" is, to a large extent, automatic. This kind of ability is often highly specialized. It is, for instance, the case of "manual skill that is so specialized that it is quite incapable of being transferred from one occupation to another" (Marshall, 1920, p. 206). This type of knowledge is less and less important in production and, according to Marshall, it tends to be replaced by machinery according to the substitution principle. Put differently, low-skilled or unskilled and tacit specialized ability is destined to disappear:

« It may be estimated roughly that those who are capable only of rather unskilled work constitute about a fourth of the population. And those who, though fit for the lower kinds of skilled work are neither fit for highly skilled work, nor able to act wisely and promptly in responsible position, constitute about another fourth. If similar estimates had been made in England a century ago, the proposition would have been very different : more than a half would have been found unfit for any skilled labor at all, beyond the ordinary routine or agriculture: and perhaps less than a sixth part would have been fit for highly skilled or responsible work »

(Marshall, 1920, p. 716)

Skilled "specialized ability", on the contrary, combines tacit and codified knowledge in a more balanced manner. Marshall describes this type of knowledge when he characterizes "the ideal manufacturer" (Marshall, 1920, p. 297). This manufacturer combines two types of ability. First, he has "a thorough knowledge of things in his own trade" (*ibid.*, p. 297), that is, the ability to form accurate expectations about future economic activities, a degree of caution combined with the capacity to take reasonable risks, and technical knowledge. Secondly, "he must be a natural leader of men" (*ibid.*, p. 297), that is, he is successful in the selection employees, has the ability to bring out their best qualities and skills, and generally is in control.

Knowledge, once again, plays an essential role in this acceleration of economic progress. First, it is central to society's efforts at the accumulation of wealth since, in contrast to material capital, knowledge that has been destroyed cannot be easily replaced (Marshall, 1907, p. 338). Secondly, knowledge becomes even more crucial when, breaking the linearity, it gradually prevails over customary

behavior and generates increasingly conscious mechanisms of adaptation also related to character changes.

« Even when industry remained almost unchanged in character for many generations together, custom was too slow in its growth and too blind to be able to apply pressure only when pressure was beneficial: and in this later stage custom can do but little good and much harm. But by the aid of the telegraph and the printing press, of representative government and trade associations, it is possible for the people to think out for themselves the solution of their own problems. The growth of knowledge and self-reliance has given them that true self-controlling freedom, which enables them to impose of their own free will restraints on their own actions; and the problems of collective production, collective ownership and collective consumption are entering on a new phase »

(Marshall, 1920, p. 751)

Given these distinctions, the first driving motor of evolution is technical change that gradually eliminates unskilled or low-skill jobs in favor of high-skill ones. The second is the growth of universal education for the mass of people. Finally, technical education is also important and, according to Marshall, its efficiency has to be improved by combining social and individual knowledge (Caldari and Nishizawa 2016).

This influence of education on “man’s character” through knowledge is obviously related to the fact that, for Marshall, man is not “an abstract or ‘economic’ man” (Marshall, 1920, p. 27), that is, a calculator or a hedonist. Rather, man is “a man of flesh and blood” (*ibid.*, p. 27), one of his main abilities being that to learn. Learning is, however, a process. We will now turn our attention to the way in which the learning process combines with economic progress.

Institutional inertia is another inherent element of way in which conventions, customs or institutions affect and influence human behaviour. For Marshall, the role played by custom is ambivalent. On the one hand, there can be little doubt that custom can put a brake on economic progress. Yet, as Reisman (1986) has pointed out, even if custom and tradition can slow down economic growth, custom is not, therefore, rigid. It does, in effect, respond to the evolution of

economic constraints and human character. If it is confronted to some « strong active economic force working for many generations persistently in the same direction » (A. and M. Marshall, 1881, p.vii), it will never be sufficiently powerful. to resist to it.

On the other hand, Marshall also stressed the supportive role of custom in protecting the weaker elements of society from excessive repression:

« The greater part of custom is doubtless but a crystallized form of oppression and suppression. But a body of custom which did nothing but grind down the weak could not long survive. For the strong rest on the support of the weak, their own strength cannot sustain them without that support; and if they organize social arrangements which burden the weak wantonly and beyond measure, they thereby destroy themselves. Consequently every body of custom that endures, contains provisions that protect the weak from the most reckless forms of injury»

(Marshall, 1920, pp. 725-726)

However, the sluggishness of cultural evolution and the shielding function of custom combine to generate institutional inertia. Such inertia cannot yet prevent gradual but irreversible change towards more knowledge and, especially, towards modern economic search of self-interest. Normality, however, is not dependent on the emergence of this specific type of rationality. It exists in any type of society since Marshall's definition presents a general validity:

«the course of action which may be expected *under certain conditions* from the members of an industrial group is the *normal action* of the members of that group relatively to those conditions »

(Marshall, 1920, p. 34, italics as in the original)

Drawing together this definition of normality with the existence of institutional inertia, the prevailing 'certain conditions' obviously and again include dominant social conventions, norms, customs or institutions since normality is always context-dependent. Economic evolution thus appears as a succession of economic regimes associated with normal situations. There are therefore *at least* as many normal situations as there are different regimes. Given Marshall's principle of continuity, a change of regime is never brutal, but continuity is

compatible with evolution and irreversibility. This interpretation is reinforced by Marshall's approach to the problem of the communication, dissemination and interpretation of information. As soon as 1879, A. and M. Marshall stressed the "slowness" of the process of diffusion of knowledge (Marshall A. and Marshall M., 1881, p. vii). In societies characterized by limited means of communication, custom is easily maintained and its shielding or defensive function remains strong. At the same time, the dissemination of knowledge is problematic, as shown by the counter-example of industrial districts: in the absence of an "industrial atmosphere", positive externalities are scarcer and social interaction is more limited. Pockets of relative ignorance and archaic common sense persist for a longer period of time. Finally, information is not knowledge. Knowledge presupposes the interpretation of information and its absorption by human mind. If minds are not ready for an open and progressive interpretation of information, informative inputs can be totally useless, exerting no influence whatsoever on existing custom, even if these act as a brake on social and economic evolution. Things are obviously different in modern societies, when custom is progressively replaced by modern forms of economic rationality. These forms prevent custom to become a brake. They are generally associated with a substantial development of the means of information and communication.

However, both the principle of continuity and the existence of institutional inertia are not incompatible with Marshall's conception of human mind and evolution. As Boland noted,

«the non-mathematical version of the application of the Principle of Continuity was very popular at the end of the 19th Century -especially amongst aficionados of biology. But Marshall wishes to go far beyond biology. He attempted to apply this principle to everything by showing that everything is a matter of degree. He takes the same attitude towards the differences between 'city men' and 'ordinary people', the differences between altruistic motives and selfish motives, the differences between short-run and long-run, the difference between cause and effect, the difference between rent and interest, the difference between man and his appliances, the difference between productive and non-productive labour, between needs and essentials»

(Boland, 1990/1996, p. 148)

This finally leads us to the issue of variety.

This issue concerns individuals rather than groups of agents. Marshall concedes that, within given sections of society, individuals' motives differ (e.g. Marshall, 1920, p. 557). However, this intra-group heterogeneity must neither be overestimated nor analysed in its own right, since, within such a framework, economics cannot make predictions or establish laws of individual or personal behaviour (Marshall, 1920, p. 557).

This is the main reason why Marshall's view of inter-individual has to be differentiated from atomism or subjectivism and this provides another interesting methodological affinity with Walras's conception which also rejected what was called by him 'spiritualism':

« In most economic problems the best starting-point is to be found in the motives that affect the individual, regarded not indeed as an isolated atom, but as a member of some particular trade or industrial group (...) To conclude provisionally: economists study the actions of individuals, but study them in relation to social rather than individual life, and therefore concern themselves but little with personal peculiarities of temper or character. They watch carefully the conduct of a whole class of people, sometimes the whole of a nation, sometimes only those living in a certain district, more often those engaged in some particular trade at some time and place »

(Marshall, 1920, pp. 25-26)

Now, variety and variability through time are essential for Marshall's theory of economic change. On the one hand, variety is an indispensable condition of evolution since it permits selection and, therefore, structural change. On the other hand, Marshall's characterisation of organisation based on the tendency to specialisation emphasises the fact that, in a dynamic context, variety is constantly re-created in order to permit continuous social choice among nations, industries or districts. Marshall's emphasis on organisation, the role played by average (or normal) men or groups of society, could be interpreted as advocating some form of organicism. This interpretation is, however, totally misleading. Marshall clearly regards the role played by individuals as central; however, as we stressed it, he does not characterise the inter-individual relations as purely

competitive or selfish (Marshall, 1920, pp. 22-24). Economic life is more complex.

## Concluding remarks

This contribution is only a first step on a rather long and winding road.

First because it is a part of a broader work and this collective work has begun but we are only at the start of our common project.

Secondly our purpose for the near future is much more ambitious than the one which we adopted here. We would not like to investigate only the nature of the relation of both Walras and Marshall concerning the problems of individual decisions and actions but also all the other relevant issues which relate both authors consistently since we are convinced that the relations between our two authors are more based on convergences than on analogies.

Thirdly, our first step was not finally redundant. We first challenged the usual legend which classifies Walras's and Marshall's contributions as the starting-point, the intellectual origin and the main inspiration of the so-called 'neo-classical' tradition based on the theory of rational choice. We also tried to show that Walras and Marshall shared a common conception of economics in which mathematics have a limited but useful role to play; but, far from being central this role does not imply a self-contained and closed approach; it requires an open economic theory able to be combined with psychology, sociology or history as well as mathematics or biology. This requirement might be to-day easier to defend in a period in which interdisciplinary reflections are more readily accepted.

Our road is yet long and winding since Walras and Marshall developed complex visions and wrote various developments and since their messages were often misunderstood. This road is however promising for those who think that history of economic thought can also help to understand better the present issues and difficulties revealed by contemporary economics.

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