

Tiziano Raffaelli, Giacomo Becattini, and Marco Dardi (eds) *The Elgar Companion to Alfred Marshall*, Cheltenham: Edward Elgar, 2006, pp. xxv, 727.

The *Elgar Companion to Alfred Marshall* is an impressive accomplishment. The editors have recruited 70 contributors from different countries, many of whom are leading Marshall scholars, to cover a very large variety of Marshallian issues and themes in a multidisciplinary perspective. The result, organized in 99 chapters making a total of no less than 727 pages, can certainly be called a milestone in the current revival of Marshallian studies, of which the editors of the book have been themselves prime movers since the 1980s.

The stated purpose of the project is to move away from today's ordinary, somewhat stereotyped image of Marshall, towards more, better knowledge. One key objective is to offer a coherent picture of Marshall's overall scientific and intellectual project, against a tradition that customarily isolated his analytical tools from his broader view of social science ("Introduction", pp. xiii-xiv). Another major goal is to stimulate reflection on how Marshall can be relevant to contemporary economic analysis ("Introduction", pp. xvii-xxiv).

The book consists of eight parts, each divided into several shorter chapters. It starts with Life and work, Background and influences, then Scope and method. Afterwards comes the Economic analysis part, divided into five sub-sections, respectively on Equilibrium and dynamics, The theory of value, The theory of distribution, Industrial analysis, Money and Commerce. The remainder of the book is dedicated to Social and political issues, Marshall and his contemporaries, Marshall's legacy, Marshall and present-day economics.

This structure is inclusive of a wide range of topics, some of them more traditional (increasing and diminishing returns, the representative firm, internal and external economies, etc.), others reflecting recent tendencies in Marshallian studies. Different approaches to the study of the history of economic thought are represented, from historical research on Marshall's life and work to more analytically-oriented reflections. Finally, the choice of contributors allows different voices to be heard, and existing controversies to be openly recognized. Despite such openness to a variety of perspectives, the book as a whole has an overall harmony, with two transversal themes that emerge across sections and chapters, namely the inherently dynamical nature of economics and a view of economics as the "study of man". These two closely interrelated themes act as a guiding thread throughout the different parts of the *Companion*, unifying Marshall's assorted contributions to economics and social science in a coherent global picture.

The inherently dynamical nature of economics appears as a key issue to understand Marshall, according to an idea already put forward by the editors of the book, most prominently by Tiziano Raffaelli in his *Marshall's Evolutionary Economics* (2003). This interpretative orientation brings to light analogies between Marshall's economic thought and present-day evolutionary approaches, adaptive economic dynamics, agent-based computational economics, and cognitive/behavioural economics, despite the long length of time that separates them. Interest for these fields of study is remarkably strong in Italy, which is where the editors of the book are all from, and explains, at least in part, the current revival of Marshallian studies in the country.

In this perspective, the "ordinary business of life" which forms in Marshall's view the object of economics is interpreted as the interaction in real time of many adaptive processes. To begin with, human behaviour itself can be looked at in terms of adaptive routines –rules for action that are formed in response to stimuli from the external world, preserved for subsequent action, and reinforced or updated according to changes in the environment. Such a model of evolution of human cognitive capacities over time is presented in Marshall's early philosophical paper "Ye machine", which Raffaelli first edited in 1994 and comments on in a chapter of the *Companion* (Raffaelli, pp. 26-30). Interestingly, Raffaelli as well as several other contributors to the book stress that this model and the evolutionary perspective underlying it provide insight on the Marshallian conception of the market mechanism as a dynamic process, in which agents endowed with what would be called today "bounded" rationality, adapt their behaviour to changes in the market environment. While the Marshallian cross has often been understood as an equilibrium condition only, the *Companion* interestingly gives credence to a more dynamic interpretation, by showing that it is not only possible in principle, but also supported by abundant textual evidence.

To see this, it is important to notice that Marshall did not devise demand and supply schedules that indicate the quantities individuals would buy or sell at each possible price, so as to maximize their utility. Contrary to today's textbook microeconomics, he did not envisage agents who take prices as given and use this information to determine optimal quantities, but mapped quantities into prices, with a conceptual experiment in which for each unit of a good, a consumer determines the maximum price she is willing to pay to acquire it, and a producer decides the minimum price she would accept to give it up. Thus as highlighted by Axel Leijonhufvud (pp. 226-235), supply and demand are not *loci* of optimal points but only define the set within which agents can trade at no loss. They can be seen as providing rules of routine adaptation to changes in the environment, so that a consumer should increase purchases if her willingness to pay exceeds the actual price of a given object, and cut back in the opposite case; conversely, a producer should reduce supply if willingness to accept exceeds market price, and

increase it otherwise. Consumers (resp. producers) make sequential decisions on what to buy (resp. sell) depending on how the market price behaves with respect to their willingness-to-pay (resp. willingness-to-accept) (Leijonhufvud, p. 227). Agents, whether they act as producers or consumers, explore an environment that they do not completely know beforehand, and adapt their behaviour as changes in this environment ensue from past transactions. Within this theoretical framework, trading takes place as a series of bilateral contracts in which each pair of traders negotiates a price; after each transaction, the quantity exchanged is withdrawn from the market, so to speak, so that actual supply and demand conditions change. Bilateral trade, disequilibrium exchanges, and the possibility of multiple prices, distinguish this approach from the Walrasian, characterized by a multilateral, simultaneous transaction at the (unique) equilibrium price.

Other chapters reinforce this view, particularly Marco Dardi's claim that Marshall's partial equilibrium supply-and-demand framework of analysis should be understood in light of his view of the economy as a dynamic process. The well-known shortcomings of the partial equilibrium device can be largely attributed to the static interpretation of Marshall that prevailed in the past, but its merits appear more clearly if it is regarded as a tool for understanding economic change over time. Far from neglecting the importance of interdependencies among sectors in the economy, Marshall intended partial equilibrium to be a step in a sequential adjustment process that leads to a general equilibrium of the whole economic system in the long run. In this perspective Dardi, taking up an argument he had already put forward in 2003, interestingly notes that

the classification of Marshallian equilibria by their period of reference is just another way of looking at their level of partiality or generality: the longer the period of an equilibrium, the less partial or more general it is, and vice versa (p. 220).

It follows that Marshall's original approach does not correspond to the "textbook notion of partial equilibrium as being an equilibrium cut out of a *given* state of the rest of the economy" (p. 219).

The other key point that stands out from the *Companion* as a whole is Marshall's characterization of economics not only as the study of wealth but first and foremost as the "study of man" (Marshall 1920, p. 1). Without entirely disregarding the heritage of the classical tradition, with its emphasis on the "wealth of nations" and its focus on aggregate concepts, this definition interestingly opens the way to a more modern approach, putting greater weight on the determinants of individual behaviour and the complex linkages through which they produce effects at the system level. By convincingly showing that the individual is placed at the heart of Marshall's theory, the *Companion* contributes to explaining the aforementioned relationship between the evolutionary model of the human brain outlined in "Ye machine" and Marshall's view of the market as a dynamic process, in which individuals evolve by adapting to external circumstances, while these latter are in turn continuously shaped and reshaped by individual behaviour.

Contributors to the *Companion* interestingly point out that there is no such thing in Marshall as the fiction of a Robinson Crusoe who makes decisions in isolation from others, as in many nineteenth-century economics writings. On the contrary, Marshall focuses on individuals that are embedded in their social and institutional environment, and are in constant interaction with it. His idea, expressed in the language of today's economists, is that individual preferences are endogenous (Backhouse, p. 147):

Man's character has been moulded by his every-day work, and the material resources which he thereby procures, more than by any other influence unless it be that of his religious ideals: and the two great forming agencies of the world's history have been the religious and the economic (Marshall 1920, p. 1).

As finely outlined by Bradley Bateman (pp. 288-92), the assumption of socially-defined rather than self-centred preferences distinguishes Marshall from the theories that were being concocted at the time and that explained individual choice on the basis of calculations of pleasure and pain. While this approach allows for modifications of preferences as individuals adapt to the social context in which they live, it also takes into account how preferences and desires may become habituated over time, thus providing "a basis for supposing that human wants might be stable enough to make measurement a feasible activity" (Bateman, p. 292).

Other contributors to the *Companion* emphasize different ways in which social arrangements may exert an impact on individual economic behaviour. For instance, in studying demand, Dardi highlights how social status concerns may result in placing the utility function in a relation of dependence with respect to income levels: "rises in income large enough to make the consumer feel that he has moved up the social ladder change his utility functions for all the commodities conventionally related to social status" (p. 297). Ekkehart Schlicht (pp. 301-306) emphasizes how "custom" –or socially inherited habits and routines– drives behaviour, acting as a constraint on individual economic choice, with the relative weight of custom and deliberate choice varying over time: while custom guides individual behaviour in the short run, the market forces that orient individual economic choices ("competition", in Marshall's terminology) shape custom in the long run. In his account of Marshall's theory of

capital and interest, Ian Steedman (p. 339) stresses the importance of social motives for saving –be they family affection and the wish to provide for one’s children, or the sheer desire for power and social distinction. This idea is reinforced by Paolo Giovannini’s reflections on Marshall’s conception of the family as the place in which alternatives are weighed and decisions are actually made (pp. 165-167). The hopes and the expectations of the family largely explain people’s choice of occupations, migratory movements, and social mobility.

If economic decision-making can hardly be understood out of the social and institutional context in which it takes place, there is little room for models in which an abstract, a-historical individual with pre-determined preferences makes optimal consumption choices at given prices. This conclusion underpins the above observation that Marshall does not start from individual optimization to build his model of exchange, so that his supply and demand schedules do not identify optimal points but only define upper and lower limits for individual trading behaviour. Actual buying and selling decisions depend on the state of the market: individuals do not know their trading environment in advance, but observe transactions as they take place, and adapt their behaviour accordingly. In this perspective, the lack of a complete and precise model of consumer behaviour in Marshall’s writings, despite his insistence on individual behaviour as the main object of economics, does not appear as a contradiction –he did not develop such a model because he did not feel he needed one.

Far from what later became the neoclassical textbook paradigm, Marshall’s view of consumer behaviour as embedded in its social and institutional context fits with his view of the economy as an evolving, adaptive system. Individuals endowed with limited rationality behave according to rules of routine inherited from their social environment, and they adapt and evolve as the environment changes. In a sense, today’s frontier research on adaptive behaviour, interdependent/endogenous preferences, and social interactions has an antecedent in Marshall’s view of the individual in society.

These intertwining themes open the way to further reflection. To begin with, the dynamic interpretation of Marshall is fascinating, and one may wonder why it seems to have only emerged in recent times. To this question, several contributors to the *Companion* (e.g. “Introduction”, pp. xxi-xxii; Dardi, pp. 222-225; Leijonhufvud, p. 235; Metcalfe, p. 651) answer that the lack of adequate tools for modelling dynamics in the past explains, at least in part, the long eclipse of Marshall’s original view, and the dominance of a static interpretation of the partial equilibrium supply-and-demand framework. Dardi, in particular, maintains that

in Marshall’s time and for a long time afterwards, there were no analytical methods available which could deal with evolutionary processes at a level of exactness and definiteness comparable to the one made possible by ordinary mathematical analysis for Walrasian systems (p. 222).

Marshall himself was only able to devise very imperfect tools. His use of supply and demand geometry in the Cartesian plan was insufficient to fully convey his message, thus lending itself to Piero Sraffa’s well-known criticisms of 1925-26, and ultimately causing the whole of Marshall’s thought to be disregarded for decades:

For the sake of an inessential expository device, he introduced a split into what was a coherent conceptual framework, and laid himself open to criticisms which diverted attention from his deeper theoretical concerns for decades (Dardi, p. 225).

Appropriate tools, it is argued, have only become available in very recent times. The development of computer modelling, especially agent-based simulation, makes it possible to study the behaviour of complex dynamical systems that would be analytically intractable (see e.g. “Introduction”, p. xxiii; Leijonhufvud, p. 235).

This viewpoint calls for further thought. While the claim that the limitations of Marshall’s partial equilibrium supply-and-demand scheme contributed to past misunderstandings is convincing, in general relationships between theory and tools can be highly complex, and the above argument would gain by considering that theoretical reflection can interact with the search for adequate tools in various and multifaceted ways. In the history of thought, there are cases in which key results were obtained with fairly unsophisticated methods: for example, Thomas Schelling, who is widely acknowledged as a pioneer in the construction of dynamical systems capable of self-organization, first obtained his famous social segregation result by simply placing pennies and dimes on a chess board and moving them around manually according to pre-specified rules (1978, pp. 147-155). In other cases, methodological advances parallel improvements in the formulation of research questions: though unavailable at the beginning, appropriate tools and techniques may be developed as theoretical reflection moves forwards, until an appropriate combination of theory and tools is found. The Walrasian paradigm, which is opposed to the Marshallian in the above quotation from the *Companion*, actually relied on mathematical analysis from the very beginning, but its most momentous results appeared only in the 1950s, when a better formulation of the problem of existence of general equilibrium for a competitive economy was accompanied by a switch from traditional mathematical analysis to set-theoretical techniques (Arrow and Debreu 1954; Debreu 1959; Debreu 1983). In light of these considerations, the recognized lack of adequate tools in Marshall’s own time should be combined

with supplementary arguments, in order to account for the limited developments of his dynamic view in the past.

In searching for such arguments, it is useful to ask whether it is really the case that Marshall's dynamic conception of the individual and the market disappeared for a long time before being recently rediscovered; though not prevalent, it may still have survived in some way. The *Companion* does not go deeper into this question, probably because issues relating to Marshall's legacy and the diffusion of his thought will be dealt with at length in a second volume, which is currently in preparation. Nevertheless, a close look at the history of market price formation theory between Marshall and the present time reveals that traces of an interpretation of the partial equilibrium supply-and-demand model in dynamical terms can be found as early as 1948, in Edward Chamberlin's pioneering implementation of an experimental market, subsequently refined by Vernon L. Smith (1962). Laboratory markets apply Marshall's dynamic conception by allowing for sequential transactions between pairs of buyers and sellers, such that prices in successive transactions may differ, and the overall conditions of exchange are modified every time a trade is concluded. Evocatively, the properties of the exchange dynamics generated in such markets are sometimes referred to in the literature as "Marshallian dynamics" or "Marshallian path" (Cason and Friedman, 1993; Easley and Ledyard, 1993; Brewer et al., 2002). In this sense the Marshallian approach, in its dynamic connotation, has been kept alive within this particular field of research, coexisting with the static interpretation that was long dominant. This literature is closely related to the computer simulation techniques to which contributors to the *Companion* refer as possible tools with which to revisit Marshall's theory. Indeed, pioneering work in agent-based modelling has often resulted from conducting parallel market experiments with human and artificial agents (e.g. Gode and Sunder 1993).

In this perspective, the dynamic interpretation of Marshall's view of the market outlined in the *Companion* appears firmly grounded in a line of thought that has a long tradition, though it was a minoritarian one until recently. More precisely, the history of experimental markets suggests that tools that would fit with Marshall's dynamic orientation were being devised already in the 1940s-50s, i.e. at the same time in which set-theoretical mathematical techniques were being implemented to model Walrasian systems. While these tools were rudimentary at the beginning (Chamberlin simply relied on his students and a blackboard to perform his market experiment), they became more sophisticated over time with the increased availability of software for computer-based experiments and for applications both to human and to artificial subjects. It follows that improvements in tools and techniques during the last few years parallel the related emergence of new fields of study in economics as well as the recent revitalization of Marshallian studies and the vindication of his dynamic perspective.

A related issue is whether and how Marshall's view helps to reconsider intra- and inter-disciplinary divergences. Plainly, the evolutionary perspective that pervades his whole work endorses currently emerging fields within economics, distancing itself from conventional neoclassical economics and thus singling out a tension between different approaches within the same disciplinary framework. In addition, the aforementioned Marshallian idea that social arrangements and individual behaviour influence each other reciprocally over time gives rise to a parallel tension between the economics discipline as a whole and neighbouring social sciences, most notably sociology. Indeed Marshall's insistence on the problems of "localization", "historicization", and "contextualization", so to speak, of economic and social phenomena touches on issues that have traditionally been at the heart of the sociological perspective. In passing, his notion of "custom" is not without reminding of Pierre Bourdieu's *habitus* (Bourdieu, 1977). The question that arises then is whether economics in Marshall's connotation amounts in fact to invading the sociological field, or it can rather be seen as part of a broader, unified concept of social science in line with Herbert Spencer and Auguste Comte. These questions have been historically controversial, and it is well-known that Marshall's openness to social sciences other than economics *stricto sensu* has not appealed to all. John M. Keynes, in particular, was one of the first to criticize Marshall for not always sticking to economics (Pigou 1925, pp. 36-7). However, the material presented in the *Companion* draws a much more positive picture, one that can be of interest today for reflections on disciplinary boundaries and relationships between the different social sciences. In particular Giacomo Becattini suggests that while economics in Marshall's perspective is a part of the general science of society, it is a part that is very important in itself, and can be

regarded as the most advanced of the social sciences because economic phenomena, being subjected to the measurement, albeit imperfect, of the market, lend themselves better than do other types of social phenomena to the systematic application of powerful analytical tools (p. 610).

It is the quantifiable nature of economic phenomena that distinguishes them from the objects of other social sciences and that "has enabled economics far to outrun every other branch of the study of man" (Marshall 1920, p. 14). Emphasis on quantification and/or measurement is common to other nineteenth- and twentieth-century economists –but what distinguishes Marshall and makes his contribution particularly interesting is his suggestion that the quantitative nature of economics can still be integrated with the methodological and substantive inputs that may come from sociologically-oriented research. Whether present-day economists and social scientists can

actually benefit from rediscovering Marshall's pluri-disciplinary approach remains to be seen; however, the sheer suggestion that this may be possible is interesting in itself, and is worthy of further exploration, even at this early stage.

On the whole, the *Companion* fully succeeds in its intent to provide a more balanced image of Marshall's thought and work, one not restricted to the analytical tools that have been traditionally associated with his contribution, the limits of which were made apparent long ago. By broadening the object of analysis to encompass Marshall's work as a whole, not excluding parts that had been traditionally disregarded as non-economic, the authors bring to the surface the dynamic interpretation of the economy, the notion of individual behaviour as embedded in the social environment, and provide a more coherent image of Marshall's production, as these same principles underlie all his interests within and beyond economics. Also, they stress how Marshall's views resonate with some of today's most promising trends in economics research, so that they appear far from outdated or irrelevant. All in all, what emerges is a more positive image of Marshall that exceeds the once seemingly decisive critiques proffered by, for example, Sraffa or Keynes. The decades-long decline of Marshallian economics definitely seems to be over.

Paola Tubaro
EconomiX-Université de Paris X
CMH-CNRS, Paris

Bibliography

Arrow, K. and Debreu, G. (1954) "Existence of an Equilibrium for a Competitive Economy", *Econometrica*, July, n. 22, pp. 265 – 90.

Bourdieu, P. (1977) *Outline of a Theory of Practice* , Cambridge University Press.

Brewer, P.J., Huang, M., Nelson, B. and Plott, C.R. (2002) "On the Behavioral Foundations of the Law of Supply and Demand: Human Convergence and Robot Randomness", *Experimental Economics*, n. 5, pp. 179 –208.

Cason, T. and Friedman, D. (1992), "An Empirical Analysis of Price Formation in Double Auction Markets", in *The Double Auction Market: Institutions, Theories, and Evidence*, eds. D. Friedman and J. Rust, J., Santa Fe Institute Studies in the Sciences of Complexity, vol. 14, Reading, MA: Addison–Wesley, pp. 253-284.

Chamberlin, E.H. (1948), "An Experimental Imperfect Market", *Journal of Political Economy*, Vol. 56, n. 2, pp. 95-108.

Dardi, Marco (2003) "Alfred Marshall's Partial Equilibrium: Dynamics in Disguise", in *The Economics of Alfred Marshall. Revisiting Marshall's Legacy* , R. Arena and M. Quéré (eds.), Houndmills, Basingstoke, Palgrave Macmillan, pp. 84-112.

Debreu, G. (1959) *Theory of Value. An Axiomatic Analysis of Economic Equilibrium* , New York, Wiley.

Debreu, G. (1984) « Economic Theory in the Mathematical Mode », Nobel lecture, *American Economic Review*, vol. 74, n. 3, pp. 267-278.

Easley, D. and Ledyard, J.O. (1993), "Theories of Price Formation and Exchange in Double Oral Auctions", in *The Double Auction Market: Institutions, Theories, and Evidence*, eds. D. Friedman and J. Rust, Santa Fe Institute Studies in the Sciences of Complexity, vol. 14, Reading, MA: Addison–Wesley , pp. 63–98 .

Gode, D.K. and Sunder, S. (1993), "Allocative Efficiency of Markets with Zero-Intelligence Traders: Market as a Partial Substitute for Individual Rationality", *Journal of Political Economy* , n. 101, pp. 119–137.

Marshall, A. (1920), *Principles of Economics* , eight edition (first published 1890), London, Macmillan and Co.

Pigou, A.C. (1925), ed., *The Memorials of Alfred Marshall* , 1966 reprint, New York, Augustus M. Kelley.

Raffaelli, Tiziano (2003), *Marshall's Evolutionary Economics* , London and New York, Routledge.

Schelling, Thomas C. (1978) *Micromotives and Macrobehavior* , New York, W. W. Norton and Co.

Smith, V.L. (1962), "An Experimental Study of Competitive Market Behavior", *Journal of Political Economy* , Vol. 70, n. 2, pp. 111-137.

Sraffa, P. (1925), "Sulle relazioni fra costo e quantità prodotta", *Annali di economia* , n. II, pp. 277-328.

Sraffa, P. "The Laws of Returns under Competitive Conditions", *Economic Journal*, n. 144, Vol. XXXVI, pp. 535-550.