Alfred Marshall’s Methodology

J. Daniel Hammond
Wake Forest University

One tends to think of Alfred Marshall’s contributions to economics as consisting of theory, such as his unification of the cost of production and utility theories of value, rather than methodology. For example, Mark Blaug devotes two chapters of Economic Theory in Retrospect exclusively to Marshall’s economics. But Marshall takes a back seat to others in The Methodology of Economics. In his chapter on 19th-century British methodological thought Blaug reviews Mill’s essay and his System of Logic, Cairnes’s Logical Method, and Keynes’s Scope and Method, but makes only the briefest mention of Marshall.1 Likewise, Ronald Coase begins a paper on Marshall’s methodology with the observation that “in a sense he can be said to have held no views on method” (Coase, p. 27). Coase contends that Marshall was little interested in “philosophical economics.” He quotes Pigou to the effect that Marshall “would have nothing to do with controversies between deductive schools, inductive schools, historical schools and so on. There was work for all, and he welcomed all. Constructive work was what he wanted” (1975, p. 27). This casts Marshall’s methodology as a footnote, a parenthetical, in the larger discussion of Marshall’s place in the history of economics.

The relative neglect of Marshall’s methodology may be simply the result of the weight of his accomplishments in theory, coupled with the fact that he did not publish an explicitly and predominantly methodological book on the order of those by Mill, Cairnes, and Keynes. But the neglect of a leading economist’s views on methodology is particularly unfortunate in Marshall’s case, because he did have well-formed and distinctive views. Furthermore, the methodology/theory distinction underlying Blaug’s two distinguished books may impede our ability to fully appreciate Marshall’s contributions to the discipline of economics, because for Marshall theory was method. The meaning and significance of this statement will emerge from the review of Marshall’s vision of scientific economic method that follows.

An important element of the marginal revolution was a change in the distinction between theoretical and applied economics.2 J.S. Mill was proto-typical of pre-marginal revolution economics in making a sharp distinction between the science of political economy and the art of applying economic theory. The science concerns man’s pursuit of wealth, which emanates from but one part of human nature. Man’s actions that are tied to other parts of human nature lie outside the purview of political economy. Yet these non-economic “disturbing causes” must be accounted for by anyone who would apply economic theory in explaining actual behavior or formulating policy. The application of economic theory (the development of “rules or directions for conduct”) is the art, as opposed to the science (development of the “collection of truths”) of economics. Testing or verifying economic theory with data drawn from observations of behavior external to the analyst is problematical in Mill’s view because in actual behavior the economic causes are invariably tied up with disturbing (i.e., non-economic) causes.

J.E. Cairnes’s view was much like Mill’s with respect to this distinction; yet Cairnes was a transitional figure. He typified the pre-revolution view in arguing that disturbing causes are important, but he saw more scope for empirical verification than did Mill. But Cairnes also argued that “economic engineering” (i.e., economic policy) does not provide a test of economic theory.

W.S. Jevons recast the distinction between theoretical and applied economics. He thought of utility theory as general and universal and had confidence that this theory would be verified through physiological research. So for Jevons “economic man” was all there was to flesh and blood man. This belief broadened the scope of scientific economics and correspondingly diminished the importance of non-economic disturbing causes.

In Marshall’s recorded views on methodology we find not so much a recasting as a removal of the distinction. For Marshall there was no place in economics for doctrinal dogma – for universal claims about facts or about policy.
This is because economic theory is not a collection of purported truths, but rather an analytical approach – a method. Concerning the substance of economic theory, Marshall stated in his inaugural lecture as Professor of Political Economy at Cambridge that “it is becoming clear that the true philosophic raison d'etre of the theory is that it supplies a machinery to aid us in reasoning about those motives of human action which are measurable .... But, while attributing this high and transcendent universality to the central scheme of economic reasoning, we may not assign any universality to economic dogmas. For that part of economic doctrine, which alone can claim universality, has no dogmas. It is not a body of concrete truth, but an engine for the discovery of concrete truth ....” (Pigou, 1956, pp. 158-59). Here Marshall writes of theory as machinery, as an engine, which one applies to real world problems to discover concrete truth. The theory does not contain concrete truth, but is a method for its discovery. Just as a machine's value is derived from its use, theory's value is derived from its application to problems or phenomena that call for explanation. So in Marshall's view as stated here, to make any practical distinction between theory and application would be to render that which is inseparable.

Contrary to what Coase contends, Marshall does not seem to have turned his back on philosophy or otherwise to have tried to insulate his economics from philosophy. Whitaker reports that early in his academic career, and not at all reluctantly, Marshall forsook mathematics for the study of philosophy. “Plunging headlong into philosophy, discovering Kant and Hegel, absorbing Darwin and Spencer, the newly-awakened Marshall came at last to ethics, psychology and – rather reluctantly – political economy ....” (1975, v. 1, p. 5). Of the time that Marshall was getting his start in the intellectual life of Cambridge, Whitaker writes, “It was an age of religious and intellectual ferment, with the yeast of The Origin of Species fully at work; an age of earnest disbelief and perplexity, and of feverish search for new intellectual foundations for life and social duty on the part of those who found the traditional tenets no longer acceptable. Marshall appears to have been among their number, suffering a sharp loss of religious faith shortly after gaining his B.A.” (1975, v.1, pp. 5-6).

German philosophy, Darwin's theory of evolution, and Darwin's method were important influences on Marshall's economic methodology. From the German philosophers Kant and Hegel, and from Darwin, Marshall acquired the principle of continuity – continuity of human nature, human institutions, of the natural world, and of the scientific enterprises. This principle is invoked in the epigraph of Principles, “natura non facit saltum” (nature makes no leaps). It is manifested in elements of Marshall's methodology, from his refusal to separate the “economic” motive from “non-economic” motives, to his rejection of once and for all definitions. It is also characteristic of Marshall's view of the history of economics, i.e., the continuity of contemporary economics with classical economics, and of his position regarding the Methodenstreit.

A Hegelian dialectic between the particular and the general is also at the center of Marshall's methodology. This is the economist's pursuit of "the Many in the One and the One in the Many," an elusive, but in Marshall's view, vital dialectic. The dialectic, however, did not fit into either of the Methodenstreit camps' recipes for science. It called for extensive and close observation of behavior, institutions, and customs, as was typical of those on whom Darwin's method had impressed (See Whitaker, p.52). But Marshall reserved an essential role for analysis, for the search for and use of that which will bind particulars together.

For Marshall scientific economics was a search for causes and, Hume notwithstanding, causation was something more than temporal priority. For Marshall the "special business" of the economist was "to study and interpret facts and to find out what are the effects of different causes acting singly and in combination" (1962, p.33). The search for effects of known causes and for causes of known effects was part and parcel of Marshall's quest for "the Many in the One and the One in the Many." With this aphorism Marshall presents us with a paradox that is the energising force of his economics: reality is complex, with many causes for any event; yet this same reality is subject to explanation through relatively few principles. He referred to the Many as the ground of study for economists and the One as economists' Holy Grail. "Much of economists' work is to search for hidden causes and hidden effects; not infrequently, Marshall thought, these are more important than the more obvious.

Marshall viewed prediction and
explanation as parallel operations, with both identifying causal connections. He wrote in *Principles* that "we can explain an event completely only by first discovering all the events which can have affected it, and the ways in which they can severally have done so ..... In so far as our knowledge and analysis are complete, we are able by merely inverting our mental process to deduce and predict the future almost as certainly as we could have explained the past on a similar basis of knowledge" (1962, p. 638). Induction and deduction were required for both explanation and for prediction. Indeed Marshall protested against those who would claim that one or the other was more important to economics that in practice one never used one mental process without the other. However Marshall warned that in practice prediction of the future was more hazardous than explanation of past events, because there is necessarily less data to provide a check on one's prediction at the time it is made than there is to warn of incorrect explanations. "It is only when we go beyond a first step that a great difference arises between the certainty of prediction and the certainty of explanation: for any error made in the first step of prediction, will be accumulated and intensified in the second; while in interpreting the past ..... observations or recorded history will probably bring a fresh check at each step" (1962, p.638).

For Marshall the distinctiveness of economics and its status as a science had more to do with measurement than with its focus on material wealth. Where Mill had seen the quest for material wealth as the subject matter of political economy, Marshall excluded no measurable motive. He recognized the central place of material wealth in economics but attributed that to the relatively greater measurability, via money values, of the wealth motive than others. Marshall thought that Adam Smith, whom Whitaker identifies as his ultimate exemplar (1975, p.50), made his greatest contribution to economics by showing "the manner in which value measures human motive" (Pigou, 1956, p.157). He thought economics' elevated position among the social sciences was due to the fact that economists studied measurable motives; it was not because the wealth motive held a dominant position in human behavior. He thought it appropriate for modern economic analysis to focus on money values because of the dominance of monetary exchange in modern societies. But if monetary exchange were to become less important in actual affairs, then monetary values would properly become less important in economic analysis, but economic analysis would be no less important.

We have seen that, according to Marshall, economic theory is an aid in the discovery of "concrete truth," but there is no economic dogma. One might expect concrete truth to be dogma. If it is not, then what is it? Marshall's answer is that concrete truth is facts drawn from the world through perception and explained analytically. But the facts, and thus the truths, vary from one time and place to another. Marshall thought that human nature was among the facts that are time and place specific. He thought that economic conditions themselves would influence character in ways that economists should account for. So for Marshall the truths arrived at through economic analysis are concrete, but they are not universal. This is an important part of Marshall's vision of economic methodology – one that sets him apart from Jevons, and from deductivists who would rely heavily on introspection for insights into human nature. He applies the label "truth" to claims about the world as perceived, but withholds from these claims the modifier "universal," and reverses the modifiers for theory.

Marshall's universal engine for the discovery of concrete truth (i.e., his theory) was the equilibrium theory of demand and supply. He wrote in the preface to the first edition of *Principles* that just as "in spite of the great differences in form between birds and quadrupeds, there is one Fundamental Idea running through all their frames, so the general theory of the equilibrium of demand and supply is a Fundamental Idea running through the frames of all the various parts of the central problem of Distribution and Exchange" (1962, vii). And it is significant here that of the six books that comprise his *Principles* Marshall reserved the name theory for book five, "General Relations of Demand, Supply, and Value," alone. He saw other parts such as book six, "The Distribution of the National Income," as applications of theory.

Marshall characterized his effort as an economist as one of "'real'-ising the results of abstract quantitative reasoning....." (Pigou, 1956, p.371 and Whitaker, 1975, p.83). Like Jevons, Marshall thought that realistic economics dealt with "man as he is: not with an
abstract or ‘economic’ man; but with a man of flesh and blood” (1962, p.22). But contrary to Jevons, Marshall did not think that “economic man” is all there is to flesh and blood man. In Marshall’s writings and in commentary on his work such as Whitaker’s (1975) this “real” izing or realism means placing a crucial reliance on perceptual facts. And again, in Marshall’s view facts cannot be gathered once and for all. “The study of theory must go hand in hand with that of facts: and for dealing with most modern problems it is modern facts that are of the greatest use ..... the economic conditions of early times are wholly unlike those of free enterprise, of general education, of true democracy, of steam, of the cheap press and the telegraph” (1962, pp. 32-3).

Theory alone does not yield concrete truths about the world; this is possible only with theory informed by and applied to perceptual facts. “Induction, aided by analysis and deduction, brings together appropriate classes of facts, arranges them, analyzes them and infers from them general statements or laws” (1962, p.644). Marshall ruled out “long trains of deductive reasoning” on the basis that reality was so complicated that factors omitted from the analysis would vitiate the results. His emphasis on the use of facts and his devaluation of formal proofs could be characterized as a call for broad but thin analysis, and remind us of Duhem’s characterization of the English mind. In this regard Marshall wrote that “the function then of analysis and deduction in economics is not to forge a few long chains of reasoning, but to forge rightly many short chains and single connecting links” (1962, p. 638).

But Marshall also ruled out any non-analytical, straightforward appeal to facts. He was favorably inclined toward Wagner and other moderates of the German historical school, but he disapproved of the extreme version of historicism. Thus he warned that “it must then always be remembered that though observation or history may tell us that one event happened at the same time as another, or after it, they cannot tell us whether the first was the cause of the second. That can be done only by reason acting on the facts” (1962, p.639).

His inaugural lecture as Professor at Cambridge contained a response to historicism. To the extreme historicists Marshall objected that “.... facts by themselves are silent. Observation discovers nothing directly of the action of causes, but only of sequences in time. It may find that an event followed on, or that it coincided with, a certain group of other events. But this gives no guidance except for other cases in which exactly the same set of facts occurs over again, grouped in just the same way. And such repetitions never occur in the life of man; nor indeed anywhere save in physical laboratories; history does not repeat itself. In economic or other social problems no event has ever been an exact precedent for another. The conditions of human life are so various: every event is the complex result of so many causes, so closely interwoven that the past can never throw a simple and direct light on the future” (Pigou, 1956, p.166).

Marshall continued this line of thought by suggesting that even the more extreme proponents of historicism slip an analytical component into their work. He thought that an urge to identify causes of events in a sense firmer than that of temporal priority was part of human nature and that to ignore this was folly. “Experience in controversies such as these (American protectionism versus free trade) brings out the impossibility of learning anything from facts till they are examined and interpreted by reason; and teaches that the most reckless and treacherous of all theorists is he who professes to let facts and figures speak for themselves, who keeps in the background the part he has played, perhaps unconsciously, in selecting and grouping them, and in suggesting the argument post hoc ergo propter hoc” (Pigou, 1956, p.167-8).

Mark Blaug (1980, p. 161) writes that before Marshall, the Law of Demand was regarded as a deterministic relationship, and after Marshall as statistical. Marshall discussed the nature of economic laws in chapter 3 of his Principles. He says there that “the term ‘law’ means then nothing more than a general proposition or statement of tendencies, more or less certain, more or less definite” (1962, p.27). He considers two analogies for economic laws, the laws of astronomy and the laws of the tides. The latter he finds more apt because the relative weakness of the pull of the moon and sun on the tides in the presence of conditions such as the weather compared to the relative strength of the forces of gravity on planets. Does this indicate that Marshall thought that human behavior was fundamentally non-deterministic – that there was an irreducible statistical component? The tides analogy suggests that there are important causes of which we have little knowledge and
predictive ability. This is related to the fact that not all causes are even indirectly measurable. So at least on the economist's practical grounds, it is as if behavior was non-deterministic.\textsuperscript{11} Closely related to the issue of the nature of economic laws is that of the role of \textit{ceteris paribus} in economics. Marshall contended that all scientific laws specify, or if not imply, conditions.\textsuperscript{12} O'Brien (1981) credits Marshall with being the first economist to make explicit use of \textit{ceteris paribus}. \textit{Ceteris paribus} is a way of dealing with the complex nature of reality, where every event is the result of a number of causes. \textit{Ceteris paribus} serves as a "pound" into which factors are placed, to be dealt with one at a time. Properly used, \textit{Ceteris paribus} does not presume simple unicausal relationships. On the contrary it is useful precisely because causal relationships are complex and man's powers of reasoning are limited.

Strictly speaking, Marshall saw this as a method appropriate in the early stages of economic analysis. With his optimistic outlook for the enterprise of economics, Marshall foresaw a development of the "organon" of knowledge that would allow causes (those that are understood) to be released from the pound. In "Mechanical and Biological Analogies in Economics," he wrote: "With each step of advance more things can be let out of the pound; exact discussions can be made less abstract, realistic discussions can be made less inexact than was possible at an earlier stage" (Pigou, 1956, p. 315). He viewed immature economics as similar to physical mechanics and foresaw mature economics as like biology. In the latter stages of the discipline's development, as economics neared its "Mecca," our knowledge would be such that the \textit{ceteris paribus} pound would no longer be used. Marshall's optimism may appear rather remarkable to us today, with the benefit of ninety years of the discipline's history that was not available to him in 1898. But even on his terms it is rather remarkable in light of his belief that economics is not a collection of once and for all truths.

Notwithstanding his confidence that in the face of complex and ever-changing reality the organon of economic science would grow, Marshall viewed scientific method as one of a kind with everyday means of explanation. In "The Graphic Method of Statistics" he wrote that we use observations and experience as "materials from which we must ourselves infer the connection of cause and effect. We may do so with the formalism of elaborate science, or in the rough and ready language of ordinary life; but in substance our method is always the same" (Pigou, 1956, p.179). He wrote in the preface to the eighth edition of \textit{Principles} that the \textit{ceteris paribus} device has always been used by sensible men to deal with difficult problems. He argued that the economist's indirect measurement of incentives via their effects (money values) simply mirrors what people do in their ordinary lives. The real distinction between the scientific enterprise and ordinary conversation is not one of logic or of structure, but simply of care about details. By virtue of their commitment to a problem, scientists are likely to be more thorough in identifying causes and effects and more cautious in judgments about them than are people in their everyday lives.

Marshall saw mathematics (differential calculus) as a terse language conducive to precise statements, but he saw the substance of mathematical science as the same as everyday, nontechnical explanation: "(Economists) are facing the fact that at the basis of nearly all modern knowledge there lies a study of tendencies, in the form more or less disguised of a study of the relations between the infinitesimal variations of different things. This study the shrewd ordinary man makes, though he may not know it: the man of science makes it, and knows that he does so: though before he addresses a popular audience he may fitly wrap up what he has done in language that is less terse and clear, but more familiar" (Pigou, 1956, pp.300-01).

Marshall was loath to make general prescriptions of specific methods for scientists. His vision was for a "constructive" enterprise with particular methods tailored to individuals' abilities and proclivities and to the exigencies of particular problems. But we have seen that this does not indicate that he thought methodology uninteresting or a waste of time. He did have a unique vision of the nature of the scientific enterprise. Key elements of science were for Marshall measurement, regularity of phenomena, explanation and prediction, and verification. The scientist would need perception, imagination, and reason, "and most of all he needs imagination, to put him on the track of those causes of visible events which are remote or lie below the surface, and of those effects of visible causes which are remote or lie below the surface" (1962, p.36).

The Methodenstreit was viewed at the time, though perhaps mistakenly, as a dispute over the
roles of induction and deduction in economics.\textsuperscript{13} In Germany and Austria the protagonists were Schmoller, along with others of the Historical School, and Menger. In Britain, Ashley, Leslie and Ingram came closest to representing the Historical School, and Menger’s place was taken by the Senior-Mill-Cairnes tradition.\textsuperscript{14} As a reference point for Marshall’s position regarding this debate we can take J.N. Keynes’s depiction of the Senior-Mill-Cairnes tradition as summarized by Blaug. This is composed of five points: “(1) that it is possible to distinguish between a positive science and a normative art of political economy; (2) that economic events can be isolated at least to some extent from other social phenomena; (3) that the direct induction of concrete facts, or the method a posteriori, is inappropriate as a starting point in economics; (4) that the right procedure is the a priori method, of starting from ‘a few and indispensable facts of human nature….. taken in connection with the physiological properties of the soil, and man’s physiological constitution’; and (5) that economic man is an abstraction and hence that ‘political economy is a science of tendencies only, not of matters of facts” (1980, p.83). A sixth point in the tradition is what was referred to earlier as Mill’s science versus art, whereby application of economic laws requires that account be taken of non-economic disturbing causes.

Our review of Marshall’s views on methodology indicates that they stand out distinctively from this tradition and from the views associated with the extreme branch of the Historical School. The only one of the six points of the Senior-Mill-Cairnes tradition that Marshall might appear to be squarely in line with is the first. For in the preface to the first edition of Principles he wrote that “….. the Laws of Economics are statements of tendencies expressed in the indicative mood, and not ethical precepts in the imperative” (1962, v). Elsewhere he suggested that Adam Smith sometimes failed to make the distinction between positive and normative natural law as clearly as he should have. But Whittaker points out that ethics claimed a not insignificant role in Principles (1975, v.1, pp.111-13). He identifies three ways that Marshall makes use of ethical considerations. The first is in treating ethical precepts held by people as part of the data for explanation of behavior. The second is in analyzing the morality of economic relations in light of specific ethical precepts. And the third is in providing conventional economic analysis (i.e., identifying hidden effects of known causes and hidden causes of known effects) as supporting material for anyone who might wish to engage in applied ethics.

Marshall’s position regarding the second point in the Senior-Mill-Cairnes tradition would most likely have been to reject the distinction between economic and non-economic social phenomena. He did not identify an economic motive as distinct in kind from other motives. His distinction which comes closest is between (indirectly) measurable motives and non-measurable motives. Any measurable motive was within the domain of economics.

The third and fourth points are where Blaug finds Marshall conciliatory, for he rejects both the inductivist and the deductivist positions. But we have seen that he had a well developed alternative, though one that could not be defined and packaged as sharply and tightly as an argument for induction or for deduction could.\textsuperscript{15}

On the sixth point, Marshall did see economic laws as statements of tendency by virtue that the economist could not account for all causes. But this position was based on the complexity of behavior and the difficulty of measuring some causes rather than on a carving up of behavior into its economic and non-economic portions.

Marshall’s methodological aim was more substantial than conciliation or avoiding controversy. His placing himself outside the schools of inductivism, deductivism, and so on was not a rejection of “philosophical economics” so much as an implication of his recognition that his views did not fit into others’ boxes. Marshall’s live and let live attitude referred to in the Pigou quotation (“….. he welcomed all. Constructive work was what he wanted” (Quoted in Coase, 1975, p.27)) should not be interpreted as merely an escape from controversy. It is mirrored by another assessment of the Methdenstreit, by an economist who by no means “held no views on method” or avoided “philosophical economics.” Schumpeter wrote that “the quarrel was about precedence and relative importance and might have been settled by allowing every type of work to find the place to which its weight entitled it” (1954, p.814).

Notes
1. He mentions that Marshall and Keynes shared a
conciatory attitude toward the Methodenstreit and that Keynes's Scope and Method and Marshall's Principles were published in the same year.


3. On this point and for a brief treatment of Marshall's methodology that touches on a number of points developed here see O'Brien (1981, pp. 37-41).


6. Here Marshall, intentionally or not, also put economists in a position to confound critics, by pointing out the complex nature of reality to those with simple explanations of events, and likewise pointing out patterns in nature and society to those who abjure "simplified" theory.


8. Marshall realized that human motives are not directly measurable: "It is essential to note that the economist does not claim to measure any affection of the mind in itself, or directly, but only indirectly through its effect" (1962, p.13).

9. According to Mary Paley Marshall, he thought that Bentham had more influence on economics than any other non-economist, and that his most important contribution was in stressing measurement. See Whitaker (1975, v.1, p.11).

10. In "The Present Position of Economics" (Pigou, 1956, pp.152-74) Marshall defended the English classical economists from the charge that they neglected facts, but conceded that they erred in regarding the English city man as a universal model of human nature.

11. We have seen that economic laws are also dated and placed; there is no economic law for all times and peoples.


13. See Backhouse (1985, p.90) and Hutchison (1981, ch.6).


15. One wonders how Marshall might have responded to the suggestion that a third process akin to Hanson's retrodiction (or Peirce's abduction) is at work in science. See Hanson (1958, ch.4).

Bibliography


