

# The Hand(s) Behind Walras' and Pareto's Invisible Hand

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## Abstract

Following Mittermaier's search for "the hand behind the invisible hand" and using some results of my research on the so-called Lausanne school, this article attempts to discuss the two very different invisible hands behind Walras' and Pareto's respective version of general equilibrium. Unlike Mittermaier, today, researchers on Walras and Pareto are blessed with the existence of both men's collected writings allowing them to get a much broader view of what exactly are the hands behind their respective versions of the general equilibrium invisible hand.

*JEL Codes: B13, B21, B31, D50*

*Keywords: Walras, Pareto, General Equilibrium*

## 1. Introduction

Written in 1986, Karl Mittermaier's (2020) book (and its tantalising title) was well ahead of its time. It was only in the 1980s when general equilibrium ceased to be *the* only fashionable place to be seen for top mathematical economists that the profession, and mostly historians of economic thought, started to reflect on "the hand(s) behind this particular invisible hand." Having spent a good deal (too much?) of my time on the tricky question of money and general equilibrium and on the history of general equilibrium, I got hooked (without knowing it at the time) by what Mittermaier calls (following Schumpeter) the "vision" general equilibrium theorists entertain behind their general equilibrium modelling. To paraphrase a remark made by Clower, unlike today's mainstream economists for whom the model *is* the message, for Walras and Pareto (and for very few sophisticated modern general equilibrium theorists) the message was and is much *more* than the model.

So, when I read in Mittermaier's book the familiar quote by Pareto about him being a nominalist among the nominalists, I ventured to think that I could briefly present some results of my research on the so-called Lausanne school; in particular, to discuss the two very different invisible hands behind Walras' and Pareto's respective version of general equilibrium. Unlike Mittermaier, today, researchers on Walras and Pareto are blessed with the existence of both men's collected writings allowing them to get a

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In other words, I would like to demonstrate that scholarly research on Mittermaier's distinction between dogmatic and pragmatic views on competitive equilibrium has made substantial progress, even if this divide has been substantially altered. In particular, it is that proper general equilibrium theorists (as opposed to simple dogmatic users of this model) are among the most cautious in their use of their respective versions of the invisible hand.

Concentrating on the two founding fathers of this tradition, I would like to examine in succession how Walras and Pareto, in their very different own ways, were considering that their respective general equilibrium models were only a small part of their overall messages meant to examine more broadly *better ways of doing economics* (O'Donnell in Mittermaier 2020, 252). Indeed, they were certainly not dogmatic in their use of general equilibrium.

## 2. What General Equilibrium?

Often opposed to the Cambridge or Austrian Schools, the Lausanne School covers more of a “geographical” reality than a true scientific community. This analytical current is at the origin of general equilibrium, the backbone of modern economic theory which finds its completion in the 1960s in the classic technical formulations due to Arrow, Debreu and MacKenzie. Neither Walras nor Pareto (more concerned with the search for a social optimum) managed to offer a convincing demonstration of the existence and dynamic stability of this competitive general equilibrium. Continuing the tradition established by Walras and Pareto, modern economists are now perfectly equipped to define the existence of an equilibrium price vector in a competitive economy with given preferences and initial endowments, but are unable to explain rationally, even in an abstract theoretical set-up, how this balance is established. Similarly, the computable general equilibrium models present behind most modern macroeconomics offer neither a stability theorem nor do they claim explicitly, and from the outset, to work only at equilibrium. Considering stochastic prices and quantity paths as points of equilibrium has become fully accepted by modern theorists for whom, as Lucas asserts, the “concept of equilibrium [and *a fortiori* the idea of general equilibrium] is not a feature of the real world but a way of looking at it” (Snowdon and Vane 1998, 127). Contemporary economists interested in these questions generally place themselves in what they consider as a Paretian instrumentalist tradition. The modern version of the general equilibrium has ceased for nearly half a century to claim any external coherence: for these authors, the frame of reference is no longer any economic system but exclusively the mathematical logic. For some, these authors ceased to be economists and *only* became mathematicians. Hence, the contemporary practitioners of general equilibrium no longer seem to have a vision: their model *is* the vision. Hence, and to use Mittermaier's wording, they have become more dogmatic and far less pragmatic than the Lausanne founding fathers (at the exception of careful modern theorists like Arrow and Hahn).

These few sophisticated champions of general equilibrium theory readily admit today that its heuristic character is linked to the distance more than to the proximity of this model to any reality. This modern conception of the relationship between the explanatory scope of general equilibrium theory and its epistemological status is only the latest avatar of a long debate that began with Walras and Pareto. This old opposition between the two founding fathers of the theory of general equilibrium marks particularly well the break between the old political economy and modern economic theory. For Walras, the originator of general equilibrium (a *realist* in the sense of the philosophical problem of universals), the laws which govern the facts are prior to the facts (*universalia ante rem*); for Pareto, his successor, who called himself a “nominalist among nominalists,” facts pre-exist the laws and the ideas that flow from them (*universalia post rem*). While Walras asserts that pure science makes it possible to reach an understanding of an (ontological?) truth, Pareto always defended the idea that one can only reach an imperfect knowledge of phenomena, a “first approximation,” but that the scientist would never be able to know the “ideal phenomenon.” Uniformities or theoretical generalities are deduced from the facts that they organize. Hence, theories are only relative; only facts are important.

### 3. Walras and the Formulation of an “Ideal” Economic System

Walras adopted a strongly rationalist approach throughout his career. His theoretical efforts are always placed at a high level of abstraction. He shows a certain disdain for the question of the empirical relevance of his abstractions, among which we find, for example, the hypothesis of perfect foresight, the failure to consider out-of-equilibrium transactions, and the absence of any temporal dimension. Far from the “realisticness” so much advocated by Pareto, Walras seems above all interested in the construction of a logically coherent system of pure economics. Walras's “positivism” can be summed up in a rather vague assertion of the need to base all knowledge on experience. Despite this slight concession to an empirical science, Walras's pure science has an almost exclusively logical-deductive flavour: even if it is often invoked, the basis of the scientific approach in experience serves, for Walras, to legitimize the scientificity of the most abstract knowledge (including metaphysical knowledge).

But is there eventually a hand behind this version of the invisible hand? Yes, indeed, and it is an obsession of his seldom discussed theory of justice. In fact, the traditional reading of Walras was until recently strictly restricted to his *Elements of Pure Economics*. As a side effect of i) recent – and not so recent – attempts at “socialising” again market mechanisms and ii) the publication of Walras's collected writings, Walras's early attempts at connecting market efficiency with social justice has been under scrutiny again.

There is now a substantial body of evidence indicating that Walras's original general equilibrium model should not be viewed in isolation but as part of his much more ambitious project, including his applied and social economics. Walras's solution to the *question sociale* was posed in terms of social schemes necessary to correct what he saw as the flagrantly unjust distribution of income and property without, however, infringing on anyone's individual liberty. The basis for this synthesis was his theory of

justice inherited from his father and summarised in his famous *dictum*: *égalité de conditions* and *inégalité de positions*. Social justice requires that no one be allowed to infringe the rights of others to pursue unequal positions (his liberal side); but for these unequal positions in society to be just, the conditions under which they are reached must be the same for everyone (his mildly socialist bend).

Two old concepts of justice borrowed from what Walras calls “the good old [medieval] theory of natural law” are brought into the picture: namely, distributive justice and commutative justice (justice in exchange). And the overall structure of Walras’s entire work, and particularly his famous trilogy between pure, social, and applied economics precisely reflects the interaction between these two notions of justice.<sup>1</sup> Hence, and on the one hand, general equilibrium and the *Elements* contain the theoretical and abstract representation of an ideal and just economy from the standpoint of commutative justice; on the other, distributive justice gets a logically earlier and *separate* treatment in his *Studies in Social Economics* while the prescriptive policies necessary to make the market work according to the principles of commutative justice are discussed in his *Studies in Applied Economics*.<sup>2</sup> To put things even more bluntly, in modern parlance, the distribution of agents’ initial endowments has nothing to do with market mechanisms; it depends strictly and exclusively on a pre-existing theory of distributive justice and adequate institutional reforms for the distribution of wealth. Individually maximising economic agents are moving after all within some sort of social context. To preserve this first type of justice, a working of the actual market mechanisms that leaves unchanged the value but not the composition of these initial endowments must be worked out. And, lo and behold, besides being efficient, the only market system, which guarantees such commutative justice (i. e., justice in exchange) is a strictly atomistic competitive system; and pure economics is “in essence the theory of the determination of prices under a hypothetical regime of perfectly free competition” (1954, 40).

But Walras did not, of course, associate free competition with *laissez faire*. Walras’s most peculiar policy prescriptions aim thus at turning real world markets into competitive markets to guarantee both distributive and commutative justice. Hence, the reconciliation and synthesis between socialists and liberals would be complete. General equilibrium and pure economics are clearly defining the *ideal* working of a market economy in which the principles of commutative justice are upheld. An economic system working along these lines would be both just and efficient: the old man genuinely thought he had found the Rosetta Stone of the social sciences. The full divorce soon to be pronounced by Pareto between rational economic theory and a theory of justice was still completely foreign to old Walras. In modern parlance, and in some kind of pre-Rawlsian fashion, the optimising characteristics of Walras’s general equilibrium model are separate and dominated by a pre-existing theory of justice: “... j’estime... que s’il y avait antinomie entre l’intérêt et la justice, celle-ci devrait passer la première” (1896, 196). Following Hobbes and Rousseau’s social contract approach, with his nat-

<sup>1</sup> See also his earlier *L’économie politique et la justice* (1860 as in Walras 2001).

<sup>2</sup> In passing, note that, logically, Walras was a life-long opponent to any functional marginal productivity theory of distribution. He had some very robust exchanges on that with Wicksteed, his arch-utilitarian enemy trying to insert for the first time an explicit functional distribution of income theory within early marginalism.

ural law argument, Walras suggests a transcendental theory of justice to define a “just” distribution of initial endowments between agents. Having settled this first stage of his general argument, his attempt to define a distributionally neutral market structure will set him on building *ex nihilo* his general competitive equilibrium model.

Justice in exchange would call for strong government interventions in the working of real-world markets to bring them as close as possible to free competitive markets. Natural monopolies, consumers' imperfect information, public goods (such as security, justice, education, etc.) and above all regulation of the price level demand strict governmental policies. Distributive justice would also call for strong institutional and political reforms to alter the unequal distribution of wealth (or alternatively the unequal size of agents' initial endowments). Based on a then already old-fashioned natural law theory of justice, Walras argued that i) individuals have a right to the produce of their own labour, and ii) that differences in wealth arising from differences in personal faculties are perfectly fair. In other words, a redistributive system based on income tax would be unjust. The other source of wealth, land, being by right the property of all mankind, the government as the institution representing the communities has a right to land rents and hence to the property of the entire land. Taxation from income being an infringement on individual property and, hence, on individual liberty, the only just taxation is on land, or, more precisely on its revenue. Nationalisation of land, or the taxation of rents, would thus solve two problems linked to distributive justice. On the one hand, the unjust income tax system would be replaced by tax revenues based exclusively on land to which the state is “naturally” entitled. On the other, the private property of land as the main source of inequality of nineteenth-century France would be eliminated.

#### 4. Pareto and His First Approximation

Despite great similarities, the differences between the analytical apparatus of Walras and that of Pareto are well known. At first, Pareto tries to reconcile the individualistic (and utilitarian) approach of the hedonistic agent borrowed from Edgeworth with the Walrasian concept of general equilibrium. Abandoning Walras' idea of the cardinal measure of individual utility for an ordinalist approach, Pareto constructed one of the earliest versions of modern rational choice theory. On this basis, he introduces the idea of social optimum (the Paretian optimum) which, following the example of Edgeworth's approach, implies that no agent can improve his level of well-being without diminishing that of at least one other agent. The impossibility of making interpersonal comparisons of utility then excludes – within the confines of economic theory – a classification of all possible social states. Thanks to this analysis centred on the individual agent's behaviour, Pareto seeks to explain how, through the interaction of such agents, the different market structures are constructed (the Walrasian competitive equilibrium being only one case among many others). The *Lectures of Political Economy* (1896–97) is criss-crossed by this double Walraso-Edgeworthian influence. Based on a referent of contingent phenomena, his approach remains essentially empiricist, deductive-concrete and “verificationist.” This epistemology exerts a decisive influence on the abandonment of a Walrasian theory of the agent based on a marginal

utility not empirically measurable in favour of a theory of rational choice. This then naturally implies a coordination of this analytical choice with a redefinition of the respective fields of analysis of economic theory and sociology. In his *Manual of Political Economy* (1909), later in his *Treatise on General Sociology* (1917–19), while maintaining with his theory of action a perfect conceptual continuity between economic theory and sociology, Pareto nevertheless restricts the validity of the first to the logical actions of *homines oeconomici* of general economic equilibrium, making non-logical (but not illogical) actions the subject par excellence of sociology.

From the turn of the 20th century, in various writings and in his correspondence, Pareto bluntly asserts, and on several occasions, that “economics is a small part of sociology, and pure economics is a small part of economy” ([1907] 1984–1, 68). In 1913, he confided to Pantaleoni that, in the past, if he had thought that “political economy could be studied independently of sociology” ([1913] 1975–1, 832), he had now completely abandoned this idea: the *Traité de sociologie générale* is written as an “essential complement to the study of political economy” ([1920] 1975–2, 69).

Around the hard core of pure economics are successively nested applied economics and then sociology. Clearly, “pure economics alone cannot give us norms to practically regulate a concrete phenomenon; neither can it make us fully acquainted with the nature of this phenomenon” (1910, 481). The knowledge offered by pure economics can only offer partial and theoretical knowledge of an infinitely complex reality. For example, general economic equilibrium is only a particular case of social equilibrium, but both are only abstractions even if the second, including the first, comes closer to the concrete phenomenon. Applied economics and sociology do not replace but supplement pure economics:

In political economy too, one must add, not substitute, the theories of applied economics to those of pure or mathematical economics. The main purpose of mathematical economics is to bring to light the mutual dependence of economic phenomena; and, up to the present time, we know of no other way of attaining this end (Pareto 1917–19, 16).

Since the 1930s, the modern (and post-Paretian) version of general equilibrium has ceased to claim any external consistency: the frame of reference is no longer any economic system (even idealized), but exclusively mathematical logic. The seriously minded members of the profession are a thousand leagues from the epistemological prudence of Pareto (who was after all a genuine mathematician):

The economist [...] who advocates a law taking into consideration only its economic effects is not too much of a theoretician; it is not enough since it neglects other theories that it should bring together with its own to make a judgment on [a] practical case [...] It would be unreasonable to claim to regulate economic phenomena by pure theories alone (Pareto 1909, 20 and 248).

A (re-)reading of Pareto’s *Treatise on General Sociology* should thus encourage economists to follow the advice of one of their leading mentors. A dogmatic use of the invisible hand discussed in general equilibrium is clearly characteristic of bad economists. Applied economics and sociology do not replace, but should rather be added to, pure economics. This should be all the easier for modern economists since Pareto explicitly extends the conceptual matrix of pure economics to sociology (see Bridel 2023).

The “scientification” of the theory of general equilibrium passes for Pareto by the strict application of the method of analysis and synthesis (borrowed from physics), which is then applicable only to logical actions, the first approximation of a reality which can only be apprehended through the interdependence of the various components of the social sciences. Paretian epistemology thus forces the theory of general economic equilibrium to reduce its ambitions. Until very recently, most economists have remained deaf to this suggestion. Thus, and for the first time in the history of general economic equilibrium, although Pareto appropriates the tools of Walrasian general economic equilibrium theory, his use of them is completely different from the view of his predecessor.

## 5. Concluding Remarks

Walras' hostility to any Pareto-type empiricist approach appears in numerous remarks scattered throughout his work. One of his *notes d'humeur* (“mood notes”) illustrates unequivocally and in a particularly concise way the methodological and epistemological distance which separates the two authors from the so-called Lausanne school: “M. P(areto) believes that the goal of science is to get closer and closer to reality by successive approximations. And I believe that the goal of science is to bring reality closer to a certain ideal; that is why I formulate this ideal” (Walras 2000, 567). Indeed, on the epistemological level, the distance between Walras and Pareto does not exclusively concern the conditions of validity and the methods of scientific knowledge in general and of general equilibrium in particular, but implies, more profoundly, the nature of this knowledge. For Pareto, the referent of the theory is identified with the contingent phenomena that the scientist seeks to apprehend in successive stages including applied economics and sociology. For Walras, the pure theorist seeks to grasp the essence of phenomena which is only imperfectly present in the contingent.

From this point of view, the formal apparatus of general economic equilibrium, although similar, refers to two different objects: the contingent and the ideal. Thus, if it is meaningless to want to translate the Walrasian project directly into a Paretian framework, it is essential for any coherent analytical interpretation of the Lausanne school to understand that the stories of the two authors do not have the same object, and that their theories of general economic equilibrium do not have the same referent either.

Hence, we are of course back to Mittermaier's hand behind the invisible hand and his distinction between a dogmatic and a pragmatic use of general equilibrium. In their very own, different ways—and invoking each a very different hand behind their respective invisible hands—Walras and Pareto were considering pragmatically that their respective general equilibrium models were only a small part of their messages meant to examine more broadly better ways of doing economics.

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