

# HISTORY, PHILOSOPHY, AND DEVELOPMENT OF WALRASIAN ECONOMICS

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## Summary

Walrasian economics means the economics of Léon Walras (1834-1910) and the economics of other economists constructed by using and developing the ideas of Walras' economic theory. Walras established the general equilibrium theory in his pure economics in order to demonstrate the efficiency of price determination under absolute free competition.

Modern economic theory, particularly microeconomic analysis, is based mainly on this idea of Walras, and the developed versions of his general equilibrium theory are more referred to as Walrasian economics today than are Walras' original ideas.

However, Walras and the other Walrasian economists do not have a common ground in their philosophy and policy. Unlike his successors, Walras intended neither to demonstrate the superiority of the market mechanism in the real economy nor to support the free market system unreservedly.

This chapter will show how Léon Walras established his economics, not only pure economics that includes general equilibrium theory but also social and applied economics, as well as how his original ideas were interpreted, criticized, revised, and developed by scholars in the twentieth century. Thus, it aims not only to show the great influence of Léon Walras on modern economic theory but also to rediscover the significance of Walras' original intention to construct an economic system where justice and efficiency are both realized in harmony, which have been lost to sight in the diffusion process of Walras' economics.

## 1. Introduction

Marie Esprit Léon Walras (1834-1910) is a French-born economist who founded the basis of modern economic analysis by constructing a general equilibrium theory for the first time in the history of economics. For Walras, general equilibrium means (1) that demand and supply are equilibrated in all markets (*market equilibrium*) and (2) that all economic agents maximize their satisfaction under given incomes (*subjective equilibrium*). He described the state of general equilibrium using simultaneous equations. Then, in order to obtain equations for maximization of satisfaction, he used the marginal utility theory of value. Together with William Jevons (1835-82) and Carl Menger (1840-1921), Walras is also credited with founding marginalism in the 1870s.

Based on the idea of general equilibrium, Walras completed his theories of exchange, production, and capital and money in his main work *Eléments d'économie politique pure* (*Elements of Pure Economics*) whose first edition was published in 1874-77. Walras' approach makes a stark contrast with the founder of the Cambridge School, Alfred Marshall (1842-1924), in his partial equilibrium approach, which analyzes the market assuming that other conditions are equal. Today, microeconomics is based on the heritage of both approaches.

Walras was a professor of economics at the University of Lausanne in Switzerland from 1871-1892, and his successor was Vilfredo Pareto (1848-1923). They are considered to be leaders of the Lausanne School, which made great contributions to general equilibrium analysis using a mathematical approach and produced many prominent descendants in the field of microeconomics in the twentieth century. Pareto developed Walras' general equilibrium analysis and reached the notion known as the *Pareto optimum*, which means an allocation of resources such that no one can be made better off without someone else being made worse off. Pareto abandoned Walras' approach of maximization of marginal utility and set out this most famous concept of optimality in modern economics. Walras and Pareto are also considered to be the most prominent founders of neoclassical economics. This school's fundamental view is that an economy's equilibrium will be attained after a disturbance thanks to a flexible pricing system. The efficiency of the market mechanism is the main contention of the neoclassical school and today, it is a dominant group of economists in the world, especially in the United States.

Here, it must be noted that the great influence of Walras on modern economic analysis is limited to the field of his pure economics. His original scheme of political economy was actually composed of three branches of economics: pure, social, and applied economics. The first branch was highly evaluated while the other two were almost ignored by his successors, including Pareto. It is partly because Walras was unable to accomplish the systematization of the other two fields, unlike his pure economics achievements. However, for Walras, pure economics consists of only one part of his total scheme. It was his belief that with all three branches, it is possible to reform existing social conditions and realize a system where justice and efficiency are ensured. Walras attacked the advocates of laissez-faire all his life. Walras sought to conciliate liberalism and socialism and to propose the reform of the property and tax system and the state's role in the market in his social and applied economics.

In the preface to the fourth edition of his *Eléments*, Walras defines pure economics as *the theory of determination of prices under a hypothetical system of absolutely free competition*. The object of his economics is called *social wealth*. It means all things, material and immaterial, on which a price can be set because they are *scarce*, that is to say, both useful and limited in quantity. Pure economics is a study of social wealth from the viewpoint of value in exchange. It is a science based on the criterion of truth. Pure economics set out theoretical foundations for the argument for social and applied economics. Social economics is the study of social wealth from the viewpoint of property based on the criterion of justice, and applied economics is the study of social wealth from the viewpoint of industrial production based on the criterion of efficiency. More specifically, Walras proposes his plan for nationalization of land and abolishment of tax in his social economics and argues for monopoly and state intervention to organize a free competition system in a real economy in his applied economics.

In order to understand the true intention of Walras' pure economics in his threefold scientific program of economics, it is essential to understand the process of the formation of his economic thought.

## 2. The Life and Works of Léon Walras (1834-1910)

Léon Walras was born in Evreux in the northern part of France in 1834. His father, Auguste Walras (1801-1866), was the headmaster of a secondary school when Léon was born. Auguste dedicated himself to the study of political economy all his life. In his main works, *De la nature de la richesse et de l'origine de la valeur* (*On the Nature of Wealth and the Cause of Value*) (1831) and *Théorie de la richesse sociale* (*Theory of Social Wealth*) (1849), he developed the *rareté* (scarcity) theory of value and attacked individual property of land. He passed almost unknown as an economist but he had definitive influence on Léon's pure, social economics by initiating him into the social sciences. Supporting Auguste's reform plan of the property system, Léon Walras described himself as a socialist until the end of his career.

While Léon Walras was preparing for the entrance examination to L'École polytechnique in 1853-54, he studied Newton, Descartes, and Lagrange by himself and also had the chance to read Cournot's main work, *Recherches sur les principes mathématique de la théorie des richesse* (*Researches on the Mathematical Principles of the Theory of Wealth*) (1838). This pioneer of mathematical economics was Auguste's classmate at L'École normale supérieur. In the preface to the fourth edition of *Eléments* (1910), Léon wrote he had the greatest inspiration from Cournot as well as his father in the formation process of his pure economics.

Léon failed to enter L'École polytechnique in spite of two years' preparation, and instead entered L'École des Mines in Paris in 1854. However, he was not interested in studying to become an engineer and absorbed himself in literature and criticism. He aimed to be a novelist although he showed no genius in this field. In 1858, Léon eventually decided to give up his aspiration to be a novelist and to devote himself to social science. It was Auguste's persuasion that drove him to take over the father's unfinished great mission.

In 1860, Walras started his career as an economist by publishing *L'Économie politique et de la justice (The Political Economy and Justice)*. This book was intended to criticize Proudhon (1809-1865) and to show his own plan of scientific socialism by showing how the theory of property and that of exchange are related, which suggests the future definition of his pure and social economics. In this book, Léon cited his father's conclusive remarks in *De la nature de la richesse* (1831) on the inequality caused by the increase in rent and land price in a progressive society. Based on this idea, Léon showed more clearly his plan for the nationalization of land when he participated in a congress on taxation held in Lausanne in July 1860. In order to provide more theoretical grounds for his father's contention, he at that time made up his mind to establish pure economics in mathematical form. He recognized two facts that must be demonstrated in pure economics. One is the surplus value of rent in a progressive society and the other is the maximum utility attained by adopting a free competition system. It took more than ten years for him to achieve this objective.

In order to make his living, Walras worked as editor of *Journal des Économistes* in 1859 and of *La Presse* in 1860. He resigned because of a conflict of opinion about the articles. Walras tried to start a new journal by himself but was unable to obtain the government's permission. The academic community in France at that time was dominated by ultra-liberalists who were influenced by J.-B.Say's political economy, to which August and Léon Walras were opposed and of whose theory and policy they were critical. Giving up his career in journalism, Walras found a job as a secretary for a railroad company (le Chemin de Fer du Nord) and continued to study political economy. About this time, he had the specific idea of his division and definition of pure, social, and applied economics. With this threefold research program, Walras intended to reconcile liberalism and socialism and to realize both efficiency and justice in a real society. In order to advertise this ambitious program, Walras planned a number of times to hold open lectures but he did not receive permission from the government.

In 1865, Walras resigned from the railroad company and joined the foundation and administration of the Cooperative Credit Union whose president was Léon Say (1826-96), a future French Minister of Finance (1872, 1875 and 1889). Walras started the journal *Le Travail* with him and published many articles. His lectures for workers of the union were also published as *Recherche de l'idéal social (Seeking the Social Ideal)* in 1868, which were reproduced in his *Études d'économie sociale (Studies in Social Economics)* (1896). In spite of Walras' great zeal, the Cooperative Credit Union went bankrupt in 1868 and the publication of the journal also stopped.

In 1870, Walras found a teaching position in economics at Lausanne Academy (now the University of Lausanne) and became a professor in 1871. This chance was accorded him by Louis Ruchonnet (1834-1893), the provincial head of public education. They became acquainted at the congress on taxation in Lausanne held in 1860 when Walras was awarded a prize for his essay on the nationalization of land.

In Lausanne, Walras started to construct his pure economics in mathematical form in real earnest. In the 1860s, Walras attempted to construct a new price theory based on his father's idea of *rareté* (scarcity). Auguste defined *rareté* as the ratio of the number of

persons wanting the goods to the total quantity of the goods available. He presumed that each person wants only a single unit of the goods and puzzled himself over its irrelevancy in price determination theory. Léon overcame this theoretical flaw with the idea of marginal utility (*the intensity of the last want satisfied by a quantity possessed*), fortunately helped by his colleague Paul Picard's advice.

He was a professor of mechanics at the University of Lausanne and showed Walras how to apply the equi-marginal rule to the theory of value. Thus, Léon Walras gave to his father Auguste's *raréte* a new definition of marginal utility. This transformation of *raréte* is the most important breakthrough in the formation process of his pure economics. Walras presented this idea in 1873. He was behind Jevons in presenting the marginal utility theory of value but based on this theory, he established the general equilibrium theory for the first time in the world. He showed this new model in his main work *Eléments d'économie politique pure*, which was first published in 1874-77.

Walras' works on pure economics were translated into Italian and German at the end of the 1870s. He revised and developed the *Eléments* until the fourth edition (1900) through his life and the definitive edition was posthumously published in 1926.

As a mathematical economist, Walras established a considerable reputation in Italy, Switzerland, and the United States but not in his mother country of France. Walras' dream to teach at university in France never came true. It was partly because his socialist thinking and activities including his land nationalization plan in his social economics were regarded as dangerous and partly because his application of mathematics to pure economics was considered anti-liberalist.

While Walras succeeded in theorizing his pure economics by establishing general equilibrium analysis, his social and applied economics were unfinished. Concerning these two fields, Walras published *Études d'économie politique appliquée* (1898) and *Études d'économie sociale* (1896). They are collections of papers that he had written on these subjects since his younger days. Walras' social and applied economics was generally disregarded by his contemporary economists and successors of the twentieth century. Pareto, Walras' successor in Lausanne, rejected the teaching of Walras' social economics at university because it was too socialist. Although Pareto took over lecturing in applied economics, he in fact taught from a totally different viewpoint from Walras.

In 1909, a jubilee to celebrate Walras' fifty years' academic career was held in Lausanne. He gave a lecture entitled "Ruchonnet et le socialisme scientifique" (Ruchonnet and scientific socialism)." In this lecture, he explained how his scientific socialism is based on his pure, social, and applied economics and how it can bring solutions to the actual problems of society and can be a guide to the future. Léon Walras lived up to his principles as a scientific socialist all his life and believed in the unity of his pure, applied social economics to realize the philosophy and vision of his youth. Ironically, they were ignored by the successors to his pure economics, although they had great influence on modern economic theory in the twentieth century. Walras died in Clarens in Switzerland in 1910.

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### **Bibliographical Sketch**

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