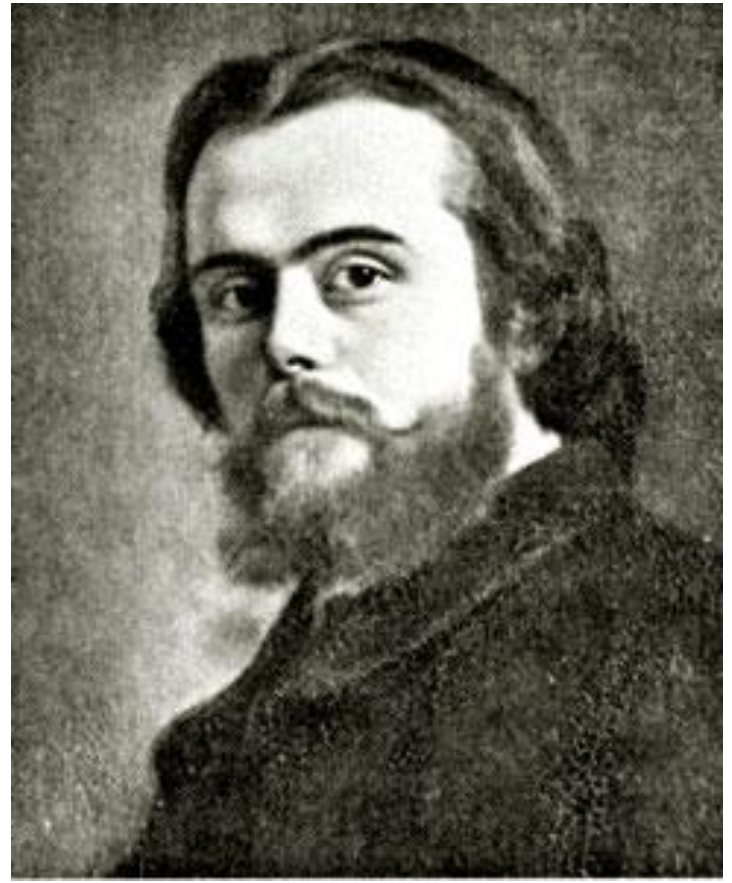




Alfred Marshall (1842-1910)



Léon Walras (1834-1910)

Alfred Marshall (1842-1910)

Life

- Authoritarian father
- Wealthy uncle
- Studies mathematics in Cambridge (honor student)
- ...switched to economics !
- Fellowship in Cambridge, then Bristol
- Mary Paley
- In total 82 publications

Work

- *Principles of Political Economy* (1890)
- *The Economics and Industry* (1879) (co-written with his wife Mary Paley)
- *Industry and Trade* (1919)
- *Money, Credit and Commerce* (1923)

Cambridge tradition in economics

- ❖ J. M. Keynes
- ❖ A. C. Pigou
- ❖ Joan Robinson
- ❖ D. H. Robertson

What is the contribution of Marshall to the history of economic thought?

- The definition of economics and of an economic law
- The relation of Marshall's concept of time to markets and market periods
- His famous conception of competitive equilibrium (the partial equilibrium)

So what's new in
the way that Marshall sees things?

What is partial-equilibrium ?

A method or a theory ?

Marshall's GENERAL QUESTION :

If nature is complex and the human mind is limited, how specifically are we to acquire knowledge about economic subjects ?

Marshall's SPECIFIC QUESTION

- With direct application to any market, for example, how are we adequately to analyse prices and profits when tastes, income, technology, and costs are continuously changing through **time**?

Marshall clearly explains how time is to be handled in economic analysis.

Fishing trade

- 1) Quick changes : vagaries of the water
- 2) Changes of moderate length: decrease in the demand for fish owing to a cattle plague of some duration
- 3) Long term : change in tastes

PERIOD OF TIME (According to Alfred Marshall)

Market period

Very short time period, absolutely no change supply, but demand can increase or decrease.

Short period

Longer than market period, variable factors can be changed while the fixed factors remain constant.

Long period

Longer than short period, fixed factors and variable factors can be changed.

	Short Run (months)	Long Run (years)	Very Long Run (decades)
Physical Capital	Capital utilization	Capital mobility	Capital accumulation
Labor	Labor demand (hiring and firing)	Migration	Population growth Demographic change
Human Capital	Training		Education
Technology	Technology transfer		Improved institutions Decline in natural resources Innovations and inventions

Focus on demand

Influences :

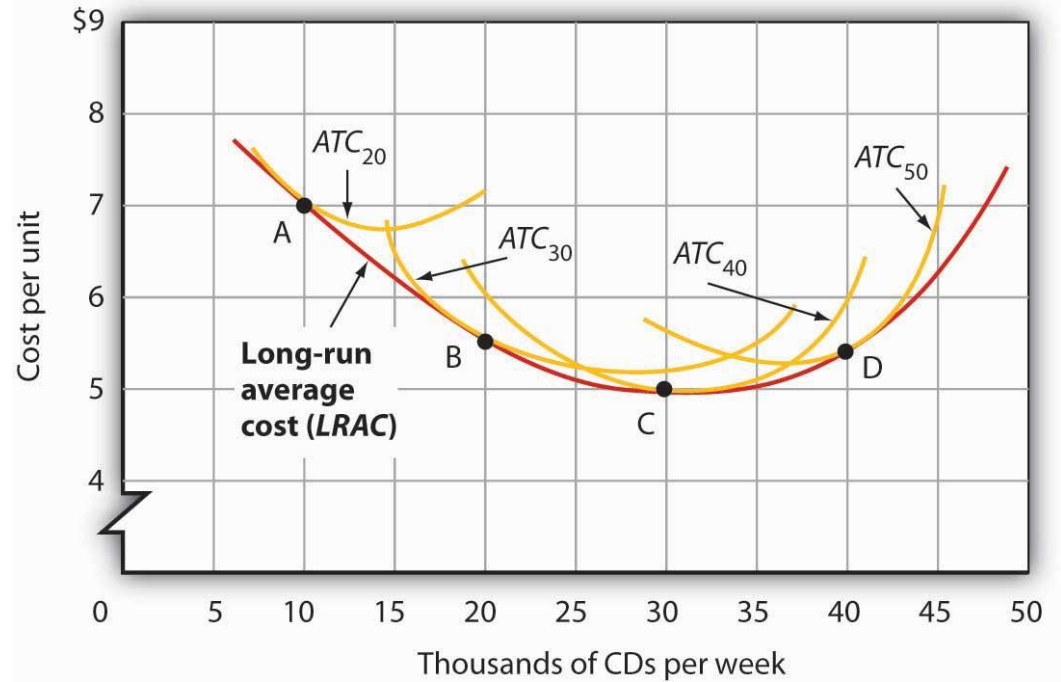
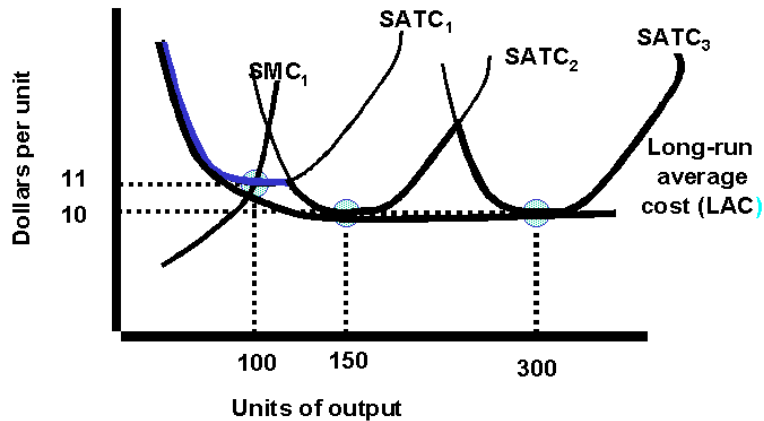
Cournot

Dupuit

J. S. Mill

- ✓ Time period for adjustment
- ✓ The subject's tastes, preferences and customs
- ✓ The amount of money (income and wealth) at subject's command
- ✓ The purchasing power of money
- ✓ The price and range of rival commodities

Relationship between long-run and short-run cost curves



Focus on supply

Same question as asked by classicals :

How to increase production?

Changing some conditions :

- 1) External to the firm : ex. Silicon valley
- 2) Internal to the firm : ex. Inefficiencies of management

Léon Walras (1834-1910)

- His Life
- His Work
- The differences between Walras and Marshall
- General equilibrium

His life

- He was born in 1834 in Normandy in France.
- His father Auguste Walras was the only teacher of economics he knew.
- Event though his work is influenced by his father's in many matters of economic policy, but in economic theory he reached new heights of originality.
- His father had been a classmate – and possibly an admirer – of Cournot at the Ecole Normale Supérieure in Paris. Subsequently, Léon Walras' work called the world's attention to the pioneering work of Cournot.

His life

- An ordinary education, taking two baccalaureate degree – one in letters and one in science.
- He flunked the mathematics section of the entrance exam to the Ecole Polytechnique – France preparatory school for civil engineering and he went to an other good school of engineering, Ecole des Mines, but Walras showed less interest for in subsequent engineering studies.
- In 1858 he turned to literary pursuits, publishing a mediocre novel in that year and hardly more noteworthy story the following year.

COLLECTION DES PRINCIPAUX ÉCONOMISTES
ÉDITIONS ALCAN
Publiée sous la direction de Gaston DROUOT et François GÉRONZI

AUGUSTE WALRAS

DE LA NATURE
DE LA RICHESSE
ET DE L'ORIGINE
DE LA VALEUR

INTRODUCTION DE GASTON DROUOT
Traduction de la 1^{re} édition de 1896

PRÉFACE DE GASTON DROUOT
Traduction de la 1^{re} édition de 1900



LIBRAIRIE FÉLIX ALCAN

CLASSIC REPRINT SERIES

RESEARCHES INTO THE
MATHEMATICAL
PRINCIPLES OF THE
THEORY OF WEALTH,
THE WITH AN ESSAY

by
Augustin Cournot

Forgotten Books

The common economic subjects of Auguste Walras and Léon Walras

- ❖ Nationalization
- ❖ Mathematical economics
- ❖ A subjective theory of value **in contrast** of
Ricardo's cost-of-production

Centre Walras Pareto (International Walras Association)

<https://www.unil.ch/cwp/fr/home.html>

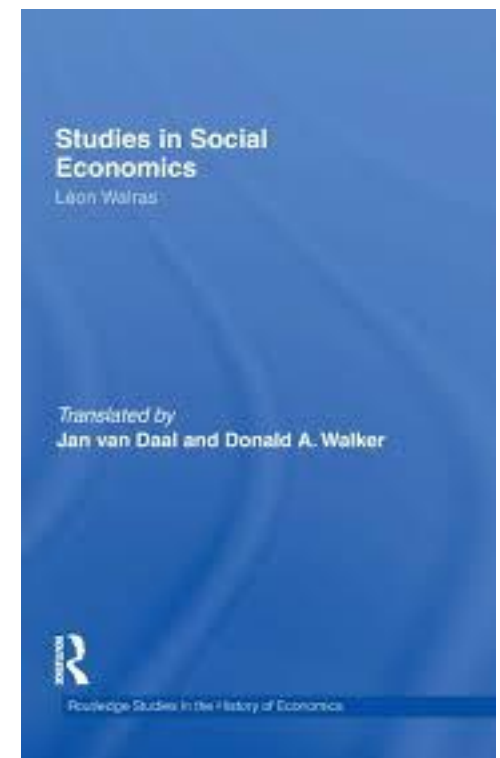
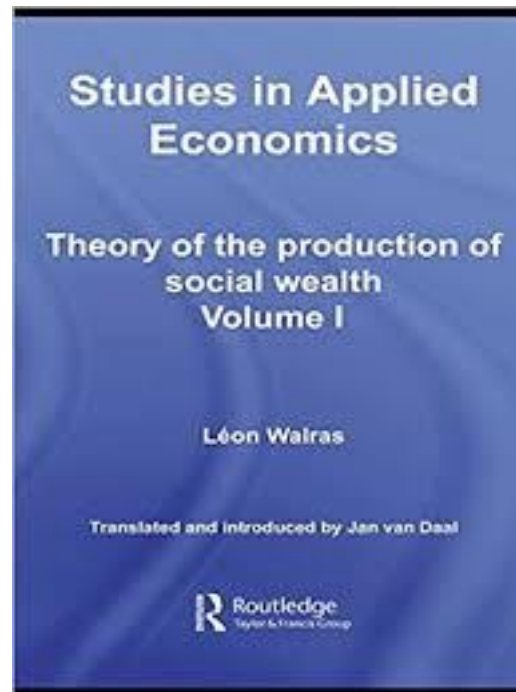
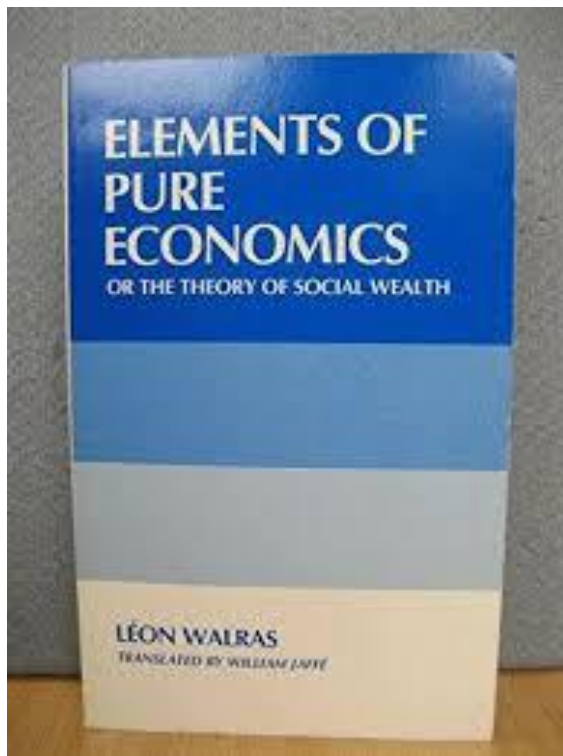
<https://wp.unil.ch/walras/resources/oeuvres-economiques-completes/>

Auguste Walras' work

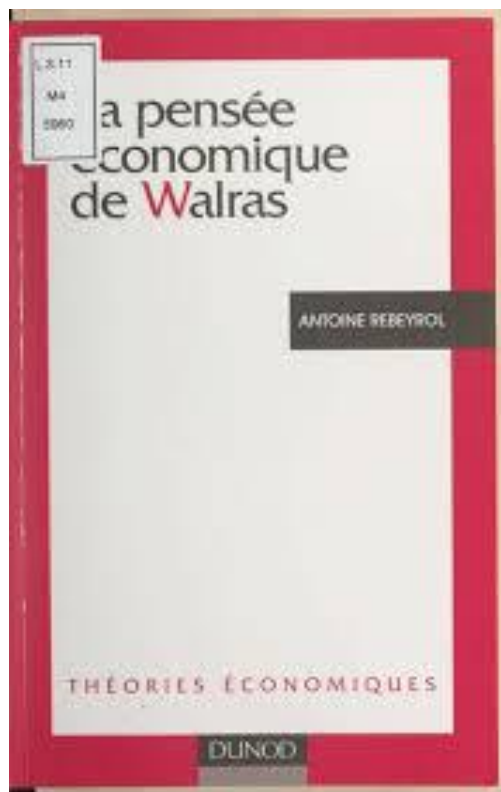
- I. Richesse, liberté et société
- II. La vérité sociale
- III. Cours et pièces diverses
- IV. Correspondance

Léon Walras' work

- V. L'économie politique et la justice
- VI. Les associations populaires coopératives
- VII. Mélanges d'économie politique et sociale
- VIII. Éléments d'économie politique pure ou théorie de la richesse sociale
- IX. Études d'économie sociale : théorie de la répartition de la richesse sociale
- X. Études d'économie politique appliquée : théorie de la production de la richesse sociale
- XI. Théorie mathématique de la richesse sociale (et autres écrits mathématiques et d'économie pure)
- XII. Cours d'économie sociale et d'économie politique appliquée
- XIII. Œuvres diverses
- XIV. Tables et index



Walras' magnum opus



Differences

Marshall

Principles of Economics (1890)

- Dominant figure in England
- Partial equilibrium analysis
- Ceteris paribus assumption
- Audience : business people
- Quantity adjustment mechanism
(Quantity is independent variable)

Walras

Elements of Pure Economics (1874)

- Dominant figure in the world
- General equilibrium analysis
- Focuses on the interdependencies that exist between markets
- Audience : academic people
- Price adjustment mechanism
(Price is independent variable)

maximum demand prices

minimum supply prices

In

Walrasian price adjustment

Marshallian quantity adjustment

The basic difference:

For Walras : Price is independent variable (adjusting variable)

Price as the adjusting variable when markets are in disequilibrium.

$$Q_{dx} = f(P_x)$$

$$Q_{ds} = f(P_x)$$

For Marshall : Quantity is independent variable (adjusting variable)

$$D_{px} = f(q_x)$$

$$S_{px} = f(q_x)$$

W

quantity demanded and quantity supplied of some commodity x are said to be functions of the price of x.

M

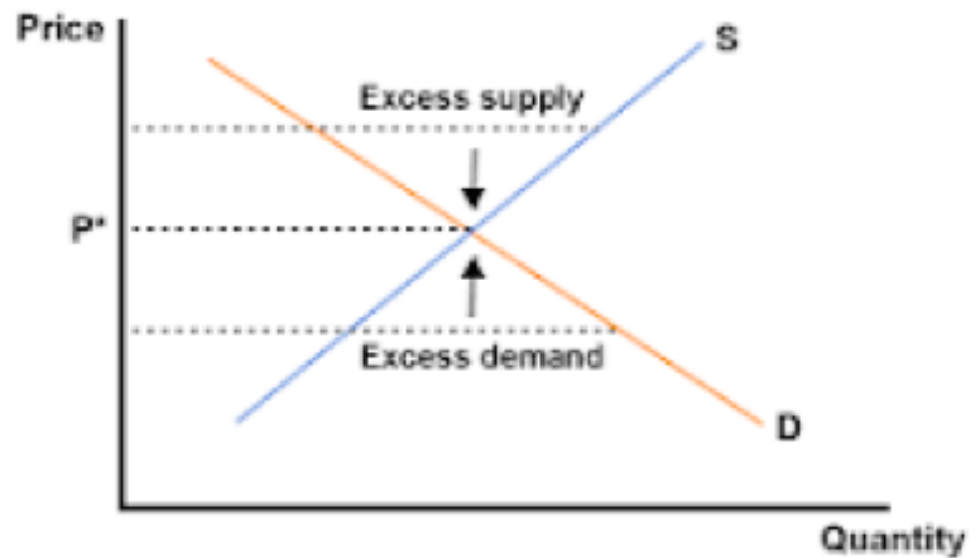
the demand and supply price of some commodity x is related to the quantity of x demanded and supplied.

Ceteris Paribus

Depending on the time period, we are neglecting **other independent variables** in the demand and supply relations such as

- Income
- Prices of substitutes/complements

The system described here is stable. → that returns to the equilibrium points.



- **Excess demand** is defined simply as the difference between **quantity demanded** and **quantity supplied**.

At any given price, or symbolically as

$$ED = (Q_d - Q_s)$$

The General Equilibrium Theory

- Unstable market → Price and quantity “explosions” away from equilibrium.
- Contemporary economic theorists, following W and M, have demonstrated a persistent interest in **discussing the stability properties of their analytical models**. Many of the most important contributions to modern macroeconomic and monetary theory, for example, deal with **displacement of market equilibrium and the process by which equilibrium is restored**.
- This is **the general equilibrium theory**.

Tâtonnement (groping)

- It is a complex process of pricing.
- Walras called this complex process of pricing as ***tâtonnement*** – “groping” for equilibrium
- J. R. Hicks and K. Arrow have devoted a great deal of time to such questions as :

Is a competitive equilibrium possible, and if there is a displacement, will the system return to equilibrium ?

- M and W made stability as an essential part of their analytical system.
- How has general equilibrium system been expressed mathematically?

Lesson 5 of W's book called *Elements*

-
- W's notational system has been revised and modernized.
- **Marginal rate of substitution** is W's term for marginal utility
- Then
 - the individual's budget constraint
 - income
 - endowment
- are introduced.

- **Optimum bundle of goods and services** for the individual (given his or her budget constraint) is defined.
- Then marginal conditions for **utility maximization** are derived and the **demand** and excess-demand functions are specified.
- W's law is the expressed.

- Demand is just another way of looking at supply.
- Individual should decide **how to allocate production time so as to maximize his or her well-being (or satisfactions)**.
- In a more advanced state of society, it is a **complex question**.
- Because of **specialization** that occurs in production and exchange.
- Specialization creates greater interdependence that increase the output.
- More goods are always preferred to fewer.

The General Equilibrium Theory

The individual utility function

$$U = u(q_1, q_2, q_3, \dots, q_n)$$

q_1 = haircut

q_2 = music

q_3 = 8 slides of pizza

Changes of utilities

$$\Delta u / \Delta q_1 > 0$$

$$\Delta u / \Delta q_2 > 0$$

$$\Delta u / \Delta q_n > 0$$

- non satiety of wants (do you think it is a realistic assumption?)
- Ratios of **marginal utilities** of any two goods in the individual's collection. This is called **individual rate of substitution**. It is just the individual's internal valuation of any one good in terms of another. That would show his/her level of total utility or satisfaction the same.

$$V_{ij} = MU_i / MU_j$$

- Individual's valuation of any good in terms of any good j
- **Ex:** The marginal utility of **eggs per dozen** to the individual is 10 and the marginal utility of **haircut** is 5. **Marginal rate of substitution of eggs to haircut** is 10/5 is 2. This means simply that the individual can trade 2 haircuts for 1 dozen eggs without altering his or her level of total utility. (no time to question but isn't it strange?)

- But it should be introduced a **base good**, we can go nowhere **expressing good in terms of other goods**.
- We found “**numéraire**”. It is a **base good**
- It is an **exchange rate** (like Ricardo and relative prices). It's the commodity in terms of which the prices of all the others are expressed.
- It is usually associated with monetary unit.

Gold is choosen as “numéraire

So **the value of all other goods** ($p_1, p_2, \dots, p_n$) could then be expressed in terms of gold, and **the price of gold** would always be **unity**, since its value defined **in terms of itself** (supply of gold).

$$Y = p_1^e q_1^e + p_2^e q_2^e + \dots + p_n^e q_n^e = \sum_{i=1}^n p_i^e q_i^e$$

Y is the **sum of the quantities of each good received by the individual multiplied by good's price.**

Each individual will choose **an optimum collection of goods.**

i. e. **utility-maximizing bundle of goods**, given the price of each good and **the budget constraint.**

$$E = \hat{q} = p_1^e q_1^e + p_2^e q_2^e + \dots + p_n^e q_n^e = \sum_{i=1}^n p_i^e q_i^e$$

E= individual expenditure (demand for good)

It should be limited to the value of his or her weekly endowment

$\hat{q}$ = the individual's utility-maximizing collection

E=Y The budget constraint

Given this constraint, **the individual consumer** will buy goods up to the point where **the marginal utilities of all goods consumed per unit of the base good** (usually money and thus, per dollar) are equal :

$$\frac{MU_1}{P_1} = \frac{MU_2}{P_2} = \dots = \frac{MU_n}{P_n}$$

In terms of **numéraire**

$$\frac{MU_1}{MU_p} = p_1 \quad \frac{MU_2}{MU_p} = p_2 \quad \frac{MU_n}{MU_p} = p_n$$

equilibrium = W's law

The demand of any good

$$q_g = h^g(P_i, Y)$$

h_g = unknown from that depends upon the individual's utility function

Excess demand for grapes:

$$ED_g = (q_g - q_g^e)$$

$\hat{Q} =$

Birinci q_g = the desired quantity

q_g^e = supplied

$$ED_g = H_g(p_i, q_g^e, Y)$$

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h_g = unknown from that depends upon the individual's utility function

Excess demand for grapes:

$$ED_g = (q_g - q_g^e)$$

$$\sum_{i=1}^n P_i E D_i = \sum_{i=1}^n P_i (q_i - q_i^e)$$

The budget constraint:

$$0 = \sum_{i=1}^n p_i - q_i - \sum_{i=1}^n p_i q_{qi}^e = \sum_{i=1}^n p (q_i - q_i^e)$$

W's law :

$$\sum_{i=1}^{n-1} P_i (q_i - q_i^e) = - P_n (q_n - q_n^e)$$

- **The sum of the values of the excess demands for all goods except one must be equal to minus the value of the excess demand for the other good.**
- **W's theory describes the necessary interconnections between input and output markets in a competitive, idealized economy.**
- **This is also a law on the manner of expressing basic interrelations in individuals' economic behavior.**
- **Given individual tastes and an income constraint, the excess demands and supplies of all goods must sum to zero.**

- The demands and supplies of goods in real terms, in other words, are not independent.
- The last remarks on Walras will go to **the social character of W's theory** in
- *Studies in Social Economics Etudes d'économie sociale*
- This book presents an economic blueprint for a social ideal in which **poverty** and **other evils**, such as **economic injustice**, would be banished.
- He wanted to solve what was then called **the Social Question**.

W's ideal:

- W created a **positive empirical economics** but he had **normative ideas** applied to economic behavior. He thought on **social justice**.
- But the most instructive contrast is the so-called “**law of markets**”.
- I repeat: this is called the “**adjustment mechanism**” in microeconomic discussions of markets.
- Here we talk about **the method of adjustment to equilibrium of supply and demand** are concepts of **excess demand** and **stability of equilibrium** in the Walrassian and Marshallian systems. They are related to each other.

Gold is choosen as « numéraire »

- So the value of all other goods ($p_1, p_2, \dots, p_n$) could then be expressed in terms of gold, and the price of gold would always be unity, since its value defined in terms of itself (supply of good)
- Add doc (pdf) WALRAS (general equilibrium)
- <https://www.youtube.com/watch?v=5pCeeU5Jbbk>

W and M similarities

- Both had an incredible influence on the economists of 20th century economists.
- In macro, micro, money etc. the theoretical structure have been shaped by their theories.
- First thing to remember is that both economists were concerned essentially with the microeconomic foundations of price formation.
- They both viewed the equilibrating process of prices and quantities as the result of market exchange.
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W and M Differences

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W and M Differences

- Their theoretical superstructure is very different than each other. That create fundamental differences between these two giants of neoclassical economic analysis.
- First Walras's *Elements of Pure Economics* (1874) Then Marshall's *Principles of Economics* (1890) have been published.
- Marshall, and practically all writers on microeconomics before him, used a convention in dealing with particular markets that is called partial equilibrium analysis.
- Walras, on the other hand, developped a broader and more complex method of looking markets called general equilibrium analysis.