→ K = corn

→ L (wages are paid after the production process, they are not part of capital)

→ no rent

Symbols:

k = capital coefficient; k < 1 (the quantity of corn used to produce 1 unit of corn must be lower than 1)

l= labour coefficient (quantity of labour directly needed to produce one unit of corn)

λ= l + k λ

λ– k λ = l

λ = l / 1 – k labour embodied

r = rate of profits π/ K (capital anticipated)

w = monetary wage

p = monetary price of one unit of corn

P/W = value of the corn in labour commanded

P = W x l + p x k + p x k x r

W x l = wages p x k = cost of capital anticipated p x k x r= profits

P/W = (1 unit of corn expressed in terms of labour commanded)

Difference: in labour commanded we have profit rate

Using EL: I need to know capital coefficient; using CL: I need to know profit rates

Smith introduced a third theory of labour, given the problems behind the first two theories.

“Adding-up-of-components theory”: the value of a give commodity corresponds to the sum of income spent to produce it.

P = workers’ income + landowners’ income + capitalists’ income. In our example there is no rent, so landowners’ income = 0; workers’ income = w x l; capitalists’ income is composed by two components: P x k + p x k x r

Problem: we need primary sources of value for goods. This problem is called vicious circle problem.

LOGICAL INCONSISTENCY: In addition, this kind of solution does not consider the linkages among incomes of different economic sectors. The total income of the economy corresponds to the sum of workers’ income, landowners’ income, capitalists’ income. If the income of one class goes up, the income of another class must be decreased: Smith does not consider that the incomes of different classes is linked by this identity: total income = workers’ income + landowners’ income + capitalists’ income

Total income/total income= workers’ income/ total income + landowners’ income/ total income + capitalists’ income / total income => 1 = W/Y + Rent / Y + Profits / Y

**Economic growth**

New investments (an increasing accumulation of capital) produce an increase of the share of workers over the total population. → ↑L/N → ↑ Y/N

If the aim of capitalists is to increase profit, we should observe this mechanism. The question is: are we sure that capital income continues to grow over time?

In Smith’s analysis, we find two kinds of competition:

* Internal competition: competition inside a single market, which enables to … (invisible hand mechanism)
* Competition among capitalists that links all the sectors in the economy, it is not related to a single market. Capitalists want to realize the higher level of profit and are free to move the source of capital from one sector to the other, as they are interested in finding the most remunerative (?).

This competition implies that the profit that we observe in all sectors in the end must be equal to 0. The competition among capitalists continues until the profit is positive, so they are free to move capital from one sector to the other. Over the long-run, profit tends to 0. This implies that the growth rate is equal to 0. Competition among capitalists results in a 0 growth rate in the long-run.

Competition produces a better condition in the short-run, but if we consider competition among all sectors in the long-run, it leads to 0 growth rate.

**DAVID RICARDO**

- Ricardo claims that the main target of political economy is to explain how the national income is divided between the three social classes: workers, capitalistis, and landlords → Ricardo tries to solve the problem of “vicious cycle” in Smith’s analysis of value using the theory of labour embodied.

- Ricardo adopts the notions of “subsistence level” and “differential rent” to explain the wages and rents, respectively. The profits constitute that part of the income that is not absorbed by rents and wages. In this way Ricardo overcomes also the logical inconsistency of Smith’s analysis of value.

**Ricardo assumes that:**

1 The society is based on the division of labour, with two broad sectors (agriculture and manufacturing) and three social classes (workers, capitalists and landowners) with three corresponding income categories (wages, profits and rents).

2 Wages correspond to subsistence consumption and therefore constitute part of the necessary expenses of production; rent and profits correspond to the surplus.

3 The landlords allot their rents to luxury consumptions, the capitalists are induced by competition to invest practically the whole of their profits. Therefore economic development stems from accumulation of capital.

**Wages:** wages are set at subsistence level → Once wages are subtracted from the total output a surplus remain, which goes to rent and profits. Ricardo focuses his analysis on the distribution of surplus between rent and profits.

**Rents and profits:** imaginethe agricultural system only produces one good (corn) by means of itself (seeds) and labour.

- If there are an abundance of fertile land at an excellent location, only a small portion of it is cultivated. Land is a free good; no rent is paid.

- However, when population grows, land of inferior quality will have to be cultivated, and rent will be paid for the better land.

EXAMPLE: Suppose there are three plots of land:

No.s 1, 2 and 3, each of equal size, but different quality. With an equal amount of labour (one worker receiving a fixed subsistence wage equal to 50 tons of corn) and capital (30 tons of corn as seeds and 50 tons as subsistence for the worker) on each plot, a net product of 100, 90 and 80 tons of corn is obtained on each respective plot. This is the final result of three different stages.

*“Here we assume that wages are paid at the beginning of the period. This implies that they are anticipated by the capitalist and enter in the capital k”*

**Stage 1**:

only land No.1 is cultivated. Given the extreme abundance of the land, no rent is paid and the entire net product of the land (i.e., the surplus obtained by its cultivation) goes to the capitalists.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| LAND | Y | SEEDS | W | NET Y | K | RENTS | SURPLUS | PROFIT | (π/k) |
| No. 1 | 130 | 30 | 50 | 100 | 80 | 0 | 130-30-50 = 50 | 100-0-50=50 | 50/80= 0,63 |
| Total | 130 | 30 | 50 | 100 | 80 | 0 | 50 | 50 | - |

**Stage 2:**

Population increases, the demand for corn increases too and makes it necessary to cultivate land No.2. At this point, capitalits compete to obtain land 1, which is more fertile than land No.2. This competition allows the landlord of land No.1 to obtain a rent to lease his land. (the rent on land No.1 is equal to the difference between the net output of land No.1 and the net product of land No.2 is 100-90=10).

Notably, because the landlords of land No.2 has no alternative use for it and there is no a competition on its usage, the capitalists who ends up cultivating land No.2 pays no rent on it.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| LAND | Y | SEEDS | W | NET Y | K | RENTS | SURPLUS | PROFIT | (π/k) |
| No. 1 | 130 | 30 | 50 | 100 | 80 | 10 | 130-30-50 = 50 | 100-0-50= 40 | 40/80= 0,5 |
| No. 2 | 120 | 30 | 50 | 90 | 80 | 0 | 120-30-50= 40 | 90-0-50= 40 | 40/80= 0,5 |
| Total | 250 | 60 | 100 | 190 | 160 | 10 | 90 | 80 | - |

**Stage 3:**

population increases further and it is necessary to cultivate also land No.3. A mechanism identical to the one described above sets in motion. The competition between capitalists to obtain the most fertile lands pushes the rent of land No.1 to 20 tons of corns, which is the difference between the net output of land No.1 (100) and the net output of land No.3 (80). The rent of land No.2 is 10, which is the difference between the net output of land No.2 (90) and the net output of land No.3 (80). The less fertile land (i.e., the land No.3) pays no rent.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| LAND | Y | SEEDS | W | NET Y | K | RENTS | SURPLUS | PROFIT | (π/k) |
| No. 1 | 130 | 30 | 50 | 100 | 80 | 20 | 130-30-50= 50 | 100-20-50= 30 | 30/80= 0,7 |
| No. 2 | 120 | 30 | 50 | 90 | 80 | 10 | 120-30-50= 40 | 90-10-50= 30 | 30/80= 0,7 |
| No. 3 | 110 | 30 | 50 | 80 | 80 | 0 | 110-30-50=30 | 80-0-50= 30 | 30/80= 0,7 |
| Total | 360 | 90 | 150 | 270 | 240 | 30 | 120 | 90 | - |

Ricardo’s model implies that the rent on a given land is equal to the difference2 between the net product of that land and the net product of the least fertile land brought into cultivation → This is called the marginal land.

**Profits:** Ricardo argues that they are a residual, that is what remains to the entrepreuner after he paid the rent to the landlord and the wages to the workers → In the previous example, for a fixed level of rent, an increase of subsistence level of wages translates in a reduction of profits.

**Falling rate of profits:** “What happens to the rate of profits (π/k) in agriculture?”

- When only land No.1 is cultivated, the profit is equal to the surplus of the land 1, that is, 50 tons of corn (see table (Stage 1)).

- When also land No.2 is cultivated, the pofit on land No.1 shrinks to 40 tons, because 10 tons are now paid for the rent of land 1. Also the profit on land No.2 is equal to 40 (no rent is paid on this land; see table (Stage 2)).

- Finally, when even land No.3 is brought into cultivation, the profit on land No.1 shrinks further to 30 tons. Also the profit on land No.2 declines to 30. And the profit of land No.3, on which no rent is paid, is also equal to 30 tons (Stage 3).

**CONCLUSIONS:**

Ricardo’s model implies that, as less fertile land is brought into cultivation, the profits in agriculture drop. Since in each land are employed the same quantities of workers and capital, also che profit rate (=π/k) drops(see tables Stage 1, Stage 2, Stage 3).

Ricardo also argues that the increase of rents and the decline of the profits in agriculture signals that the general rate of profit in the economy is decreasing. This conlcusion is the result of the idea, introduced by Smith, that when capitalists are free to move their capital from one investment to another, the return on the funds invested in the different sectors — the rate of profits — must exhibit the same pattern → The effects of such developments leadS to a stationary state.

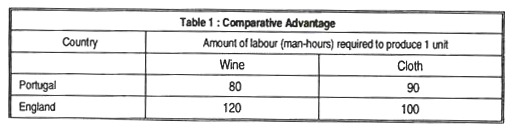
**Ricardo's theory of comparative advantages:**

Ricardo’s theory of comparative advantages is strongly shaped by the world he inhabited. At that time, in England, the mercantilism is the dominant economic view (governments introduce international trade restrictions policies with the attempt to enrich the nations through an inflow of gold).

The theory of comparative advantages reinforces this policy conclusion: the international division of labour brings about increased availability of commodities for every country → Imports of foreign corn are the best way to cope with increased demand for food rather than bringing under cultivation new, less fertile, lands.

Ricardo’s contribution is to examine whether countries would benefit from specializing and trading when one party has an absolute advantage in producing goods. When countries specialize in goods for which they have a comparative advantage, more goods are produced in total, and trade delivers more and cheaper goods to both nations.

→ The company with the lower opportunity cost, and thus the smallest potential benefit which was lost, holds this type of advantage.



**Explanation:**

According to the data reported in table, it is advantageous to England to export cloth and import wine from Portugal, and this trade will even benefit Portugal.

In comparison with Portugal, England is comparatively more efficient in producing cloth than wine, as 120/100 = 1.2, the relative cost of producing wine in terms of cloth, is higher than 80/90 = 0.89. Portugal is comparatively more efficient in producing wine, as 80/90 (the relative cost of wine in terms of cloth) is lower than 120/100. This leads to the conclusion that total production could be increased by specialization and trade. For an international exchange ratio (pwi/cl = 1 wi vs 1 cl) comprised between 0.89 and 1.2, both countries make gains from foreign trade. Assuming that pwi/cl = 1, in our example we find that if each country produces two units of the commodity for which it has a comparative advantage and exchange internationally one unit of this good with one unit of other good, both countries increase their benefits. In other words, they obtain tha same quantity of two goods at a lower cost respect to producing internally. In addition, each country can use the hours saved for increasing the production of the good for which it has a comparative advantage.

**Technical progress generates unemployment:**

- Ricardo’s reasoning may be summarised as follows → The capitalist introduces new machinery with a view to generating an increase in profits. The net product of the economy, identified with profits and rents, increases. However, the investment in machinery implies the decision to employ in the production of machinery a certain number of workers, previously employed in producing subsistence goods. We thus have a lower production of subsistence goods. As a consequence, the number of labourers that the economy can maintain necessarily decreases. Thus employment decreases.

**Theory of value:**

The economy produces two goods: corn (cn) and bread (br).

*Assumptions:*

- No rent is paid on land.

- Wages (w) are paid after the work has been done.

- This implies that wages do not enter in the capital.

- Corn is the only means of production in both production sectors.

- The capital k consists only of corn.

- The production of bread is “capital intensive” (i.e., kbr > kbr ).

- Corn and bread are produced using the same proportion of direct labour (i.e. lcn = lbr = l). - - The labour directly and indirectly embodied in the production of one ton of corn (λcn) and bread (λbr).

1 - λcn = l + λcn · kcn = l/1 − kcn

2 - λbr = l + λcn · kbr = l + (1/1 − kcn)· kbr = l · (1 − kcn + kbr) /1 − kcn

In Eq.s (1) and (2) the following condition holds: kcn < kbr < 1.

The price of corn (pcn) and cotton (pct):

**pcn** = l·w + pcn·kcn + r·pcn·kcn = l · w + (1+r)· pcn·kcn = l · w / 1 − (1 + r) · kcn

**pbr** = l · w + (1 + r) · pcn · kbr = l · w + (1 + r) · ( l · w /1 − (1 + r) · kcn ) · kbr = l · w · [1 − (1 + r) · (kcn − kbr)] / 1 − (1 + r) · kcn

According to Ricardo, the relative prices of goods are approximately proportional (≈) to the relative quantities of labour that were spent for their production: pcn /pbr ≈ λcn /λbr

6 - where → pcn /pbr = **(**l · w /1 − (1 + r) · kcn**)** · **(**1 − (1 + r) · kcn / l · w · [1 − (1 + r) · (kcn − kbr)]**)** = 1 / 1 − (1 + r) · (kcn − kbr).

7 - Λcn / λbr = (l /1 − kcn) · 1 − kcn l · [1 − (kcn − kbr )] = 1 1 − (kcn − kbr )

Eq.s (6) and (7) show that if two commodities contain different proportions of direct and indirect labour, their exchange ratio (pcn/pbr ) depends on the profit rate r of the economy. If the profit rate rises, the exchange rate (i.e., the price ratio) rises too, whereas the quantity of labor employed in corn and bread does not change! The profit rate changes reflect a change in income distribution among classes. In our simplified exercise without rents, a rise in profit rate occurs because a decrease in wages. Remember that the price of a generic commodity using only itself as a mean of production can be written as: p = l · w + p · k + r · p · k. It is immediate to see that a negative relationship between w and r occurs: r = (1/k) − [l · w/(p · k)] − 1. In particular, a decrease in w is accomplished by an increase in r.

The fact that the exchange ratio between commodities depends also on the income distribution is a bad news for the labour-embodied theory of value: it means that this theory does not completely explain exchange ratios between commodities.

**Borrowing and Debt:**

Should government spending be financed by borrowing or taxation?

- Ricardo argues that the method of financing should make no difference. Taxpayers ought to realize that government borrowing today will lead to more taxation in the future. In either case they will be taxed, so they should set aside savings that are equivalent to the amount they would have been taxed today in order to meet that eventuality.

- Ricardo suggests that people understand a government’s budget constraints and continue to spend in the same way regardless of its decision to tax or borrow because they know these will ultimately cost them the same. This idea is known as Ricardian equivalence.

**KARL MARX (1818-1883)**

was a revolutionary German economist and philosopher, and the founder of the Communist movement.

There is a close relationship between Marx and the classical economists. In fact, he adopts

the analytical apparatus of the classical economy (i.e., the theory of surplus, the labour

theory of value, and the analysis of the behaviour of the social classes). But he highlighted

the inability of classical economists to acknowledge the existence of “exploitation" in the

capitalistic mode of production.

Marxism and socialism are part of the consequences of the Industrial Revolution → Marx

was writing against a backdrop of great industrial change.

Overcrowded, newly industrialised cities were expanding, and much of the working class lived in great poverty.

Marx saw history as the story of class struggles, in which the oppressed ght against their

oppressors. (Capitalist bourgeoise exploits the proletariat) →Marx sustained that the capitalistic mode of production is characterized by:

- instability,

- continous crises,

- and a progressively tendency of the rate of prot to fall".

All these aspects will bring to the collapse of the capitalistic system.

**Theory of exploitation:**

Marx's theory of exploitation aims at bringing to light the “true" nature of the capital-labour relationship.

- The worker enters labour market selling his labour power" → The value of labour power is equal to the value of the means of subsistence necessary for the survival and the reproduction of the working class.

- The capitalist enters the labour market with the good he possesses: capital comprising wages. He pays the value of the labour power and acquires its use value.

After the exchange, labour becomes a means of production. The product of labour, i.e. the set of goods produced with the use of labour, belongs to capitalist.

- In the production process, labour produces goods those value is higher to that of the labour power. The difference is the surplus value. Surplus value is the valorization of capital and belongs to the capitalist.

**Expolitation** arises out of the fact that the capitalist exercises command to make the workers

produce a higher value that he pays them as a wage.

Marx analyzes exploitation using the labour-theory of value, in which surplus is produced by and only by labour → Following Ricardo, the value of the product is equal to labour directly/indirectly used to produce it.

Example:

- λ is the labour-value of one unit of corn: λ= l + λ\*k

- if v is the value of labour power (value of means of subsistence): V= v\*l →where v\*l is the labor needed to reproduce the labour power

- S is surplus: s= l\*(1-v)

- C is constant capital: c= λ\*k

- given λ as the sum of s + c + v we can write down: λ=l\*(1-v) + v\*l + λ\*k

**The rate of exploitation** σ= S/V=(1-v)\*l / v\*l= (1/v) -1 →from is easy to see that if v=1, rate of ex. Goes to 0 → this happens when workers work only for themselves and to for capitalists.

**The rate of profit** r= S/C+V or it can be expressed as r= σ \* (1-q) where q is the value of the composition of capital. ( q= C/C+V → ratio btw constant capital and TOT capital invested)

- according to this equation, rate of profit increases when sigma increases and decreases when q increases and vice versa.

- Marx believed that competition btw capitalists would have made r equal in all sectors and so q. In this sense if q is equal in all sectors also rate of exploit.(σ) would have been equal in all sectors.

- normally q is different in sectors and the higher it is the higher is exploitation.

**Transformation of values into prices:**

Marx maintains that goods are exchanged at “production prices"**,** which are prices determined in such a way as to guarantee a uniform rate of prot.

- if we indicate the rate of prof. Of an industry j as rj= SJ/CJ+VJ) Marx proposes this transformation:

1- rate of profits: r= ΣjSj / Σj(Cj+Vj)

2- he applies the so calculated rate of prof. To the cost of production of the single industries to calculate the prices: pj= (cj+sj) \* r for each sector j.

**GENERALLY** the ratio between the production prices of two goods does not coincide with the ratio between the quantities of labour embodied in them.

Lets explain it:

- 1 = kk + kc and

- L = lk + lc

- λk= lk + λk \* kk= lk/1-kk → labour directly/indirectly embodied in production of 1 unit of capital

- λc= lc + λk\*kc = lc + kc\*(lk/1-kk) = ((1-kk) \* lc + kc\*lk)/ (1-kk) → labour directly/indirectly embodied in production of 1 unit of consumption good

- pk= w\*lk + pk\*kk\*(1+r) = w\*lk/ 1- (1+r)\*kk → price of capital

- pc= w\*lc + pk\*kc\* (1+r) = w\*lc + kc\* (1+r) \* ( (w\*lk)/ 1- (1+r) \* kk) → price of consumption good

- λc /λk =((1 - kk ) \* lc + kc \* lk) / (1-kk) \* (1 􀀀-kk )/ lk = lc/lk \* (1 - kk ) + kc → labour values ratio

- pc/pk =

**This occurs when**:

- r=0 but it is impossible in a capitalist economy

- kc/kk = lc/lk or kc/lc = kk/lk but this condition is occasional. In general prices ration is different from labour values ratio 'cause different techniques are used to produce different goods.

- Marx tried to transform labour values into prices but unfortunately he didnt arrive at satisfactory solutions.

**The dynamics of the capitalist system:** Marx analyzes the conditions for an economic growth of a system.

- The *reproductionary scheme is characterisez* by the fact that the levels of production remain constant over time (the surplus is entirely consumed and there is no net investment). It refers to an economy in stationary state.

- The *expanded reproduction scheme* instead, the surplus is, at least partly, absorbed by an additional demand of investments. The maximum growth of the economy will take place when the whole surplus is invested.

It is evident the Say's law rules in a reproduction stationary state (i.e. equilibrium). If the supply and demand are equal in each sector, they must be equal on aggregate.

But Marx believed that the economic reality is not represented by the equilibrium condition of the reproduction scheme. The economy always moves in disequilibrium.

Marx highlights the possibility that the process of (expanded) reproduction of capital may generate problems in the form of crises.

In an expanded reproduction scheme:

- investment is an increasing function of the rate of profit

- rate of profit is a decreasing function of wages

→ According tho these hypotheses, if wages increase, investment will be discouraged. This will reduce the aggregate demand and trigger a crisis. The market prices will fall together with the levels of output, pushing the average rate of prot down again. Thus the crisis will deepen.

→ However, with a reduction in investment, the demand for labour will also decrease and the unemployment will rise. The increasing unemployment will lead to a decline in wages which will allow protsto increase again in a new expansionary phase.

BUT IT IS NOT BECAUSE OF THE PERIODICAL CRISES THAT CAPITALISM WILL EVENTUALLY COLLAPSE

There are longrun factors that will lead to collapse:

1 - In the long run technical progress will lead capitalists to replace labor by machines. This will reduce the labor demand increasing the unemployment and will raise the productivity of labour more than wages. The result will be a falling share of wages on the aggregate output. The falling share of wages leads to the “increasing immiseration" of the proletariat. Moreover workers will become increasingly subordinated to (alienated by) mechanized production processes.

2 - The increased mechanization process brings to a falling rate of profit over the long run. This tendency can be proved quite simply by using a model of an economy in which one commodity is produced.

The maximum level of profit (rmax ) holds when the wage is zero (i.e., when the value of the means of subsistence v = 0):

r= S/C+V = l-v\*l/λ\*k =< l/k\*( 1-k/l) = rmax

It is immediate to see that the upper limit is decreasing when technical pogress improves the quantity of means of production (k) necessary to produce a given quantity of output.

***“The decline in the profit rate and the growing immiserization of workers and the middle class in the wake of the cyclical crises would, sooner or later, lead to stagnation of investment, militant class struggle and the socialist revolution.”***

***NEOCLASSICAL ECONOMIC THOUGHT***

1870 – new school of economics: Marginalism.

A characteristic feature of neoclassicism is the use of marginal concepts – such as marginal utility, marginal cost and marginal product – to determine the behaviour that drives the market forces of supply and demand → The term neoclassical, identifies all economists with a new (“neo”) vision of the reality but still influenced by some classical ideas.

**Difference btw classical and neo-classical thinking:**

**1- Scope:**

- Classical economists → : Economics investigates the functioning conditions of an economic system, focusing on the following aspects: production, distribution, accumulation and income uses.

- Neo-classical economists → Economics investigates the optimal utilization of scarce available resources needed to satisfy the wants and desires of economic agents.

**2- Method of analysis:**

- Classical → They adopt, in the analysis of economic system, an historical-deductive method. In addition, they use contributions coming from various disciplines such as history, politics, sociology, and anthropology (The historical-deductive method starts from observation of a complex, shifting reality. Only after the observation, some general propositions are introduced. Then, deductive reasoning and hypothesis testing are applied).

- Neo-classical → They use an hypothetical-deductive method in which mathematics plays an important role (The hypothetical-deductive method starts from abstract propositions. From these assumptions – principally the maximizing agent –, neoclassical economists deduce a consistent and mathematical theory).

**3- Economic Laws:**

- Classical → They interpret the economic body as an evolving system. As emphasized by Marx, the observed economic system is the result of an historical process.

- Neo-classical → Economics is based upon mathematic laws. Given the universal (absolute) validity of “math laws”, economics is a non-historical science.

**4- Economic agents:**

**-** Classical → At the center of economic analysis we have collective agents, social classes, and “political bodies” (i.e., the aggregate “forces” of the economic system). (Classical writers classifies economic agents in terms of their factor contributions to production (labour, land, and capital).

- Neo-classical → At the center of the analysis we have individual agents (or, at the most, minimum social aggregates characterized by the individuality of the decision-making unit such as households and companies) able to make optimal utilization of scarce resources. (In the neoclassical framework, the class divisions is replaced by the simple distinction between consuming (households) and producing (firms) units).

**5- Exchange values (prices):**

**-** Classical→ emphasis on the cost of production (i.e., the embodied quantity of labour) as determining prices, at least in the long run.

- Neo-classical → They consider prices as determined by the fundamental data of both “tastes and technology”, i.e. by consumer preferences and the available techniques of production.

**6- Government interventions:**

- Classical → They suggest minimum interventions, as suggested by Smith, to maintain infrastructure, education, defense, and justice.

- Neo-classical → They emphasize the “invisible-hand” principle of Smith and reject most government intervention of business in favour of laissez-faire. The idea is that free markets will allocate resources in the most efficient manner if left to themselves. The assumption implies that markets possess a kind of inbuilt self-regulating mechanism.

*Many of NEOc ideas were anticipated and divided in 4 groups:*

- Utilitarianism: Bentham, Gossen

- Marginal principle: Ricardo, von Thumen, Cournot, Dupuit, Gossen

- Laissez-faire: Smith, Mill

- Say's Law: Say

**UTILITARIANISM**

- JEREMY BENTHAM(1748 – 1832):

→ Bentham believes the moral rightness or wrongness of an action to be a function of the amount of pleasure or pain that it produces, pleasure and pain govern not only how human beings act but also how human beings ought to act

→ The principle of utility or utilitarianism: I ought do that act which will bring about the greatest happiness (pleasure). Every human motivation, at every place and time, can be traced back to a single principle: the desire to maximize utility.

→ By tracing all human motives back to a single principle, Bentham laid the foundation for the construction of a science of human happiness.

→ He even suggests a method for the quantification of pleasures: “*The value of a pleasure or pain will be greater or less according to several circumstances: its intensity, its direction; its certainty or uncertainty; its propinquity or remoteness; its fecundity; its purity; its extent*”.

- HERMAN GOSSEN(1810 – 1858):

→ Hermann Heinrich Gossen is a Prussian economist who is famous for being one of the first representatives of the so-called subjective theory of value

→ The subjective theory of value implies that the value of a thing reflects the utility or enjoyment that the individual experiences by the thing.

→ Gossen’s first law is the law of diminishing returns: the added utility of a good decreases as more of it is consumed

→ Gossen’s second law, which presumes that utility is at least weakly quantified, is that in equilibrium an agent will allocate expenditures so that the ratio of marginal utility to price (marginal cost of acquisition) is equal across all goods and services: Mux/Px = Muy/Py

**MARGINAL PRINCIPLE**

- VON THUNEN(1783 – 1850):

→ Is considered the founder of location theory and agricultural economics and he is famous for applying the marginal principle of Ricardo into a theory of employment

→ he introduces the principle that added units of labor lead to successively smaller increases in total agricultural product (i.e., the law of diminishing marginal returns)

→ In contemporary terms, von Thunen suggests that the employer should add units of labor until the marginal revenue product of labor – the extra revenue accruing from the greater yield – equals the wage expense of hiring the worker

→ profit is maximized when resources are employed to the extent that the cost of the last unit of a resource equals the value of its contribution to ouput.

- AUGUSTINE COURNOT(1801 – 1877):

→ He is considered the first economist who applies mathematics to economic analysis

→ much of his analysis focused on the rates of change of total cost and revenue functions. Such rates of change – the mathematical derivatives – translate to what economists now refer to as marginal cost and marginal revenue.

→ He analyzes a case of monopoly in which the firm is able to set the price at any desired level without considering the reaction of rival producers. Let us assume a monopoly situation where, for simplicity, costs are negligible and where the problem for a profit maximizer thus consists only of maximizing revenues. In this simple case, total profits will be maximized at that quantity of output where total revenue (price x quantity) is the greatest

→ The price that yields the largest total revenue satisfies the condition that the first-order derivative with respect to price (marginal revenue) equals zero.

- ARSENE-EMILE DUPUIT(1804 – 1866):

→ Dupuit is the first economist to present a cogent discussion of the concept of marginal utility and to relate it to a demand curve

→ He shows that the utility that an individual (and a collection of individuals) obtains from a homogeneous stock of goods is determined by the use to which the last units of the stock are put. In doing so, he clearly points out that the marginal utility of a stock of some particular good diminishes with increases in quantity.

→ Dupuit suggests that each unit of a quantity of a given commodity will have a di  
erent utility. Each increment of the same commodity carries a di  
ffrent utility because additional units will allow “less pressing, less essential" needs to be met.

→ Dupuit uses the theory of marginal utility to establish the general theory of consumer demand: an inverse, or negative, relationship between a product's price and the amount of it people want to buy.

→ a demand curve is simply a marginal utility curve → consumers will not buy additional units of the good unless its price falls.

**LAISSEZZ-FAIRE:**

JOHN STUART MILL(1806 – 1873):

→Principles of Political Economy, his book, contains one of the most inuential 19th-century affirmations of laissez-faire, free trade, and economic liberalization.

→ Mill says that “laissez faire...should be the general practice: every departure from it,

unless required by some great good, is a certain evil"

*JUST FORERUNNERS.*

*All the above-mentioned authors anticipate some key ideas of neoclassicism. But they do not form a school because some are classical economists (Smith, Bentham, Ricardo and Say) and the others do not belong to any school of thought or have just wrote sporadically on economic issues.*

**NEO-CLASSICAL BREAKTHROUGH**

→ The neoclassical system of economic thought is characterized by a much lower interest in the problems of economic growth than the classical thought

→ Another characteristic is the acceptance of the utilitarian approach: human behavior is exclusively reducible to rational calculation aimed at maximization of utility → The maximization of utility by consumers and of profit by firms lead to choosing the optimal alternative between the available resources

→ individuals, and not social classes, become the center of economic neoclassical analysis

**WHY THAT?:**

→ Classical school seemed to have evolved only in Marxian direction, thus favouring the basis for socialists proposals

→ The inability of classic thought in solving the labour theory of value and the wage-subsistence theory:

→ The classical idea that wage payments are fixed at subsistence level and that wages

have to fall when the population grows and viceversa, could be a reasonable idea only in an agricultural economy → The wage-subsistence theory is incompatible with utility-based theories of prices and factor supplies.

→ The labour theory of value (in all various classical formulations) su  
ffers from difficulties related to “vicious cyle" and “logical consistency" (Smith's analysis).

→ The theory suffers from divergence between prices and labour value ratio (Ricardo's and Marx's analysis).

**FIRST GENERATION**

WILLIAM JEVONS:

Jevons explicitly links himself to Bentham: “In this work I have attempted to treat economy as a calculus of pleasure and pain, and I have sketched out...the form which the science...must ultimately take" → He suggests to “employ the term utility to denote the abstract quality whereby an object serves our purposes...Whatever can produce pleasure or prevent pain may possess utility".

**Jevons' theory of diminishing marginal utility(DMU):** similar to the one of Gossen and Dupuit → the more we consume of a product (for example chocolate), the smaller is the increase in satisfaction. Marginal refers to changes on the “border".

- This theory leads to a theory of prices. If everyone generally agrees that each extra chocolate adds less utility, then it makes sense that we will only demand extra chocolates if the price falls, because additional chocolates will give less pleasure → so we will only buy them if they cost less.

- The resulting demand is negatively/ inversely related to price (more demand if price falls), and this, along with supply, helps to determine the equilibrium or “natural" price of a chocolate.

- you enjoy the last unit of chocolate less than the first.

CARL MENGER:

Menger's long-range goal is to produce a systematic work on economics and a comprehensive treatise on the character and methods of the social sciences in general → Numerous later economists, known as the Austrian school, championed and expanded his principles.

- like javons he bases his theory upon Utility but, unlike Javons, he makes no use of mathematics.

- he discusses needs and satisfaction saying that MAX TOT satisfaction requires that the last unit of money spent on each good makes the same contribution to total utility.

- Emphasis on the role of information in the economy

- analysis of time-structure of production, very important for the later development of “Austrian theory of capital”. → He was Austrian.

LEON WALRAS:

Is a French marginalist economist who interprets the economy as a pure mathematical science.

He analysed the Theory of the general economic equilibrium, already studied by others like Quesnay, but no one before Walras has managed to construct a general theoretical structure

capable of accounting for the multiplicity of relationships linking one market to another.

→ Previous contributions all focused attention on interdependencies among sectors in

production, while interdependence in consumption choices was not considered.

- Walras focused on how exchanges work (interactions btw prices, quantity and demand for goods).

- According to him, everything is interlinked and dependent on everything else → when something changes, everything else also changes (one change can ripple to the whole economy).

**Example:**

Suppose that the price of oil increases:

- The demand for substitute goods such as coal will rise causing an increase in prices of coal;

- The prices of all goods obtained from oil, such as gasoline (Pgas ), will increase;

- The demand for complementary goods, such as cars and car washes, will fall causing a decrease in prices (Pcar and Pwas ).

With all these changes in the markets for consumer goods, the derived demands for factors of production will shift, causing reallocations of resources:

* Less labour needed in car and car was. Industries
* More labour needed in other industries like coal
* Capital shifts as well in response (producers will buy more oil drilling rigs and less new gasoline stations)
* At some point the changes originated by oil change will finish and a general eq. will be reached.

According to Walras model, the economy is made up of a plurality of agents who are present on the market either as consumers or a as supplier of productive services or as entrepreuners. In particular, for simplifying, each consumer has a double role: he buys commodities

and sells services of factors to firms.

Thus for each consumer we have a set of equations consisting of two subsets:

- one describing his demands of the different commodities,

- and the other describing his supplies of factor inputs.

Similarly, for each firm we have two equations:

- one for the quantities of commodities that it produces,

- and the other for the demand for factor inputs for each commodity produced.

In Walras' general equilibrium model the demand (Dx) and the supply (Sx) of each commodity x depend not only on the price (px) of that commodity, but also on the prices (py , pw,...) of all other commodities: Dx = f (px ; py ; pw) and Sx = g(px ; py ; pw). And this holds for all commodities.

**Example:**

- imagine M markets for consumption goods

- imagine N markets for production factors

- in eq. Demand = supply therefore ( Dx=Sx; Dy=Sy; …)

- the unknowns are M+N prices at which all M+N markets are in eq. Hence in “General Equilibrium”

**-** Since the number of equations (M + N) is equal to the number of unknowns (M + N), one should think that a general equilibrium solution exists. Unfortunately, this is not the case. This follows from the fact (known as Walras' law) that in this framework if (M + N) - 1 markets are in equilibrium, the necessary holds true for the last (M + N)-th market → no solution in this sense.

**Possible solution?:**

A solution consists in choosing arbitrarily the price of one commodity as numeraire (or unit of account) and express all other prices in terms of the price of numeraire. With this device prices are determined only as ratios: each price is given relative to the price of the numeraire.

STEP 1 - At the opening of Walras' M + N markets, the auctioneer announces M + N prices. Then, all agents take the announced prices as given (they are price-taker) and declare how much of consumption good and production factor are willing to buy or sell at the announced prices.

STEP 2 - the auctioneer calculates the aggregate demand D and aggregate supply S for each commodity. If all M + N markets are in equilibrium, trades are carried out. Otherwise, the auctioneer announces new M + N prices (more specially, higher prices on markets that displayed an exceed of demand at the initial price, and lower prices on markets that displayed an excess of supply at the initial price). This trial and error process continues until a general equilibrium is reached.

STEP 3 - Now, Walras' auctioneer collects all information about demand and supply and he knows what the aggregate demand and supply of each commodity are and, when the general equilibrium is reached, can allocate all the commodities appropriately.

**CRITIQUES:**

1- The theory, assumes that all markets in the economy are perfectly competitive. Insofar as many real markets are not perfectly competitive, the general equilibrium theory appears problematic.

2- All trades are carried out only when all markets are in equilibrium, that is, all trades are carried out only at the general equilibrium prices. However, it appears implausible that in reality trades are carried out only when all markets are in equilibrium.

3- The theory assumes that the demand and supply of each commodity depend on the price of all commodities, but says nothing about how to specify this dependence.

**THE SECOND GENERATION OF MARGINALISTS:**

The marginalist scholars working btw 19th cty and early 1920 (II generation) contributed to the creation of a new, dominant theoretical system. Respect to the “first generation" who focuses only on demand factors, this “new" group of scholars consider both demand and supply factors for determining the prices of goods, services, and resources.

ALFRED MARSHALL:

Alfred Marshall (1842{1924) is a British economist considered the foremost neoclassicist of the second generation.

Like Jevons, but in contrast to Walras, he especially promotes the partial equilibrium approach, i.e. the analysis of an equilibrium in a single market, rather than general equilibrium in a system of markets.

*The most important contributions of Marshall are on the following topics*:

1- supply and demand diagram (Marshallian cross);

2- consumer and producer surplus;

3- perfect competition;

4- price-elasticity of demand, economies of scale.

1- SUPPLY AND DEMAND DIAGRAM:

- Marshall shows that supply and demand work in tandem to generate the market price. He introduces the famous “Marshallian cross" to explain how the price level of a certain good is determined.

- The Marshallian cross model is a partial equilibrium model of economic equilibrium, where the clearance on the market of some specic goods is obtained independently from prices and quantities in other markets → This makes analysis much simpler than in a general equilibrium model which includes an entire economy.

- Demand and supply curve are derived in a two-step procedure. **First**, individual curves are obtained as a result of an optimization problem (maximization of utility for the consumer and minimization of costs for the producer). **Second**, aggregate curves are obtained by adding-up individual behaviors relationships.

*Demand function*:

- Individual demand functions identify the maximum price the consumer is willing to pay for a given quantity of the good → quantity is independent, price is dependent

- The individual demand function is negatively sloped because the marginal utility is decreasing → Since the marginal utility of additional quantities decrease, the maximum price an individual is willing to pay for them decrease.

- By summing the negatively sloped individual demand functions we obtain a negatively sloped (from left to right) market demand curve.

*Supply function:*

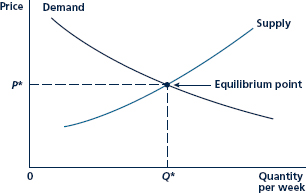
*-* Individual supply function identify the minimum price the producer is willing

to accept to produce and sell a given quantity of the good → quantity is independent, price is dependent

- The individual supply function is positively sloped because the marginal cost is increasing. To produce an additional unit of good, the firm has to take on more labour and work their production facilities more intensively, giving rise to an increase in the cost of production. The assumption that costs rise more than proportionally as output increases is known with the term of

diminishing returns hypothesis.

- By summing the positively sloped individual supply functions we obtain a positively sloped (from left to right) market supply curve.



*-* According to Marshall, the market is in disequilibrium if the supply price is diff  
erent from the demand price

(the price consumers are willing to pay). The existence of a

disequilibrium produces firstly (short-run e  
ffect) a variation in the quantities and only later (long-run eff  
ects) a variation of the prices.

- ps < pd : the quantity in the market rises (first stage) and price decreases

(second stage) as a consequence of the increase in the quantity.

- ps > pd : the quantity in the market decreases (first stage) and price

increases (second stage) as a consequence of the decrease in the quantity.

2-3- CONSUMER AND PRODUCER SURPLUS AND PERFECT COMPETITION

*For Marshall, the relative importance of demand or supply in determining the price of a commodity depends on the length of the period which is taken into account:*

*-* In the short period, some production factors are fixed. Therefore the quantity supplied cannot easily be increased to respond to higher prices. For this reason, the supply is almost vertical (very steep) - because the same amount is produced regardless of price. In this situation the price is governed mainly by demand.

*-* In the long period, all production factors are variable. This allows for the supplier to be more adaptable and efficient. For this reason, the supply is almost horizontal (very flat) - because it is easy to increase the amount produced to respond to increase in price. In this situation the price is governed mainly by supply.

**Perfect competition:**

In short-run:

- many firms in a market, everyone is price taker

- each firm maximizes profit by P=MC

- given the existence of profit, new firms enter

- new entry=more supply and so lower price

In long-run:

- this process leads to eq. Where prices cover average production costs.

To summarize the model is based on:

- presence of large n. of firms

- every firm tries to sell identical products

- freedom on entry/exit

**The problem is that few firms satisfy those assumptions.**

- this model guarantees producers/consumers surplus maximized at mkt. Equilibrium

- This means a competitive market equilibrium is efficient.

4- PRICE ELASTICITY AND ECONOMIES OF SCALE

*“See price elasticity of demand on eco notes”*

Marshall diff  
erentiates between internal and external economies of scale:

- Internal economies of scale are achieved due to better organization and

productivity in companies. Thus, internal economies accrue only to the individual firm by its own organizational ability and e  
ffort.

- External depends on things outside the company and the development

of industry. In other words, benefits of increased production spread on other firms in the industry or in the region.

- On the other hand, diseconomies of scale may appear due to the excessive scale of a firm. Diseconomies of scale occur when average cost per unit increases due to excessive size of production

ARTHUR CECIL PIGOU:

- Pigou tries to provide the theoretical basis for government to enact measures that promoted welfare

- Pigou claims that a competitive market works well only if demand and supply take into account all types of social benefits and costs → often there are costs and benefits of which the market transactions do not take account: Pigou defines these as “externalities”.

- The acts of production and consumption may impose costs or benefits on parties other than the producer and consumer. These external costs and benefits, or externalities, spill over to other parties and are sometimes referred to as “spillover eff  
ects."

1- According to Pigou, there are positive externalities when somebody provides some good for himself and at the same time he provides freely a benefit to the other persons (positive spill over e  
ffect).

- **example:** The production of new knowledge. Producing new knowledge is costly, but once the new knowledge has been produced, the (marginal) cost of using it is very low or even zero: hence the social benet of new knowledge is larger than the private benet provided by the market to its producer.

- This social benefit is not considered by the market and this discourages the production of new knowledge.

2- According to Pigou, there are negative externalities when somebody provides some good for himself and at the same time he provides, without paying, a damage to the other persons (negative spill over eff  
ect).

- **example:** The Pollution coming from the production of a firm damages people living around the firm: it is a social cost. But there is no market price for pollution so that the firm that produces the damage does not pay the relative cost.

- The social cost of pollution is not reected in any private cost provided by the market: it is an external cost to the market

- Pigou proposes to subsidize the activities producing positive externalities and to tax the activities producing negative externalities.

- The tax on negative externalities is known as “Pigouvian tax" → A tax on pollution, which is now known as “environmental tax", is an example of a Pigouvian tax.

- A subsidy on positive externalities is known as “Pigouvian subsidy”.

FRANCIS EDGEWORTH:

Edgeworth contributes in various important economic topics such as the utility theory, monopoly theory, and analysis of exchange.

**Analysis of exchange:**

Edgeworth analyzes bilateral and multilateral trade with theassumption that traders are not price-takers. In doing so, he introduces two tools that have become a fundamental part of

subsequent microeconomic analysis, namely the “indi  
fference curves" and the “Edgeworth box".

- Edgeworth assumes two agents in economy { Robinson (R) and Friday (F) ,who have an initial endowment of money (x1) and labour force (x2), respectively.

- Friday, of course, desires some of Crusoe's money, and Crusoe desires to have the use of some of Friday's labor. They can exchange, and so end up in a final point corresponding to a different allocation of x1 and x2.

- To exchange means to have the consent in both parts → This consent will arise only if the exchange increases the utility of both.

- An equilibrium of exchange is an exchange both Robinson and Friday will consent to, and such that one or both will refuse to move further → in mathematics is where the ratio between the marginal utility of x1 and the marginal utility of x2 must be equal for Robinson and Friday.

**Problem:**

- The problem with this analysis is that, since there is no fixed relative price px1=px2 at which Robinson and Friday have to exchange there is a multiplicity of points that satisfy that equilibrium condition.

Edgeworth calls the set of points where that condition is satised, that is, the set of points where Robinson's utility can be increased only by diminishing Friday's utility and viceversa, the contract curve. But not all points on the contract curve can be exchange equilibria.

At some of these points, in fact, Robinson or Friday would have less utility thain in their initial endowment and thus would refuse them.

Edgeworth concludes that the equilibrium of exchange takes place in the subset of the contract curve containing the points where both Robinson and Friday have a utility not smaller than the utility they have in their initial endowment.

This subset is called by Edgeworth the set of nal settlments. In current economics the same subset is called the core of the economy. The problem, however, is that there is a multiplicity of final

settlements. Therefore, when we assume that agents are not price-taker, the equilibrium of bilateral exchange is indeterminate. *The only conclusion we can draw is that the equilibrium point lies within the set of final settlements.*

VILFREDO PARETO:

Provides a fundamental contribution to utility theory and to the theory of general economic equilibrium.

**Utility theory:**

- unlike Edgeworth, Pareto is not interested in measuring and comparing utility among individuals by constructing indi  
fference maps showing various levels of satisfaction.

- For Pareto, utility can be used in economics insofar as it is intended as an index representing the preferences ranking of an individual→ utility for pareto is only an “Ordinal ranking.”

- Pareto introduces the idea of “efficient allocations" instead of the old utilitarian criterion of maximizing the sum of individual utilities, since utility in nomore a measurable quantity but an order.

- An allocation of resources is socially efficient when it is impossible to change it to improve the welfare of a person without worsening that of another.

- Pareto is also famous for having reconstructed Edgeworth's indi  
fference curves, positioning them in their modern form.

- The other fundamental contribution of Pareto is to the Walrasian theory of general economic equilibrium → Pareto's fundamental result is that each allocation associated with a general competitive equilibrium is efficient → a perfectly competitive general equilibrium of the Walrasian type would lead the economy to an efficient allocation of the resources → This result became later known as the First Theorem of Welfare Economics.

**WELFARE ECONOMICS:**

**- First theorem:**

There are however many possible efficient competitive equilibria, In particular, there can be efficient allocations provided by a competitive Walrasian equilibrium that are not fair from the point of view of the income and resource distribution → Hence “Pareto efficiency" does not imply equity.

**- Second theorem:**

The Second Theorem of the Welfare Economics states that it is possible to change the initial distribution of endowments across economic agents into a less unequal one, and then leave the

competitive market to operate to achieve an efficient allocation.

- In order to avoid any impact on the market decisions of individual agents, the initial transfer of wealth can be done through a form of lump-sum taxation and transfer.

In this way a new efficient allocation of the resources will be achieved, which makes equity more compatible with efficiency.

**NEOCLASSICAL THEORY OF INVESTMENT:**

Investment plays a central role in economic cycles and allows potential output and productivity

to grow in the long-run.

- At the core of this theory of investment is the idea that investment decisions are negatively a  
ected by the interest rate (the cost of using capital).

In particular, the flow of investments moves the capital stock from the current to the desired amount. The firm will keep investing until the marginal productivity of capital is equal to the interest rate.

EUGEN VON BOM-BAWERK:

The key factor in Bohm-Bawerk (1851{1914) analysis of interest rate is the time element.

“For Bohm-Bawerk, the interst rate is the price that compensate an agent for waiting for

future ows of income”

The interest rate arises for three reasons:

1- Present orientation: Goods are appreciated more highly in the present than in the future. People underestimate future needs because they cannot resist present extravagance and because they know that life is short and uncertain and therefore wish to enjoy life today rather than sacrice for the future.

2- Expectation of rising wealth. We are prepared to borrow and pay interest for present rather than future consumption because we expect to have greater wealth in the future.

3- Roundabout methods of production.5 In this case, the rate of interest is the price that compensated for the waiting intrinsic to recourse to more indirect but more fruitful methods of production.

**To summarize:** Interest can be paid by the entrepreneur, because the more roundabout the process of production, the more productive and efficient it becomes. Interest must be paid because people prefer present to future consumption.

IRVING FISHER:

He defines the interest rate as “the impatience of spend income and opportunity to invest it". According to Irving Fisher time preference is the cause of interest payment.

- People prefer present enjoyment of goods to future enjoyment. Thus, in order to induce them to save for future instead of present enjoyment, the borrower pays interest → The greater the degree of impatience for present, the higher will be the rate of interest.

KNUT WICKSELL:

One of the founder of modern macroeconomics → He distinguishes the market rate of interest (i.e., the actual value of the real interest rate) from its equilibrium value, the so-called natural rate of interest.

Specifically, he defines the natural rate as:

1- The rate of interest that equates saving with investment;

2- The marginal productivity of capital;

3- The rate of interest that is consistent with aggregate price stability.

Natural rate has some properties:

1- The notion that the natural rate is consistent with equilibrium

2- The natural rate is a characteristic of the economy in the long run

3- The assumption that, in general, the natural rate would not be fixed at a given value, but instead would uctuate mainly according to changes in technology that a  
ffect the productivity of capital.

Three important renements that either supplement or generalize earlier neoclassical analysis concern **imperfect competition, economic growth model, and controversies on capital measurement.**

***Imperfect competition:***

Neoclassical models have usually been based on one of the two extremes of market forms, perfect competition and monopoly, mostly the former. However, in the 1930s much attention was paid to

intermediate forms like monopolistic competition and oligopoly.

It became, for instance, evident that important conclusions about welfare and trade policy had to be modified if the assumption of imperfect competition was introduced.

- The Dixit-Stiglitz (1977) model of monopolistic competition has become a workhorse model in industrial economics, international trade theory, geographical economics, macroeconomics and manyother fields.

***Growth:***

The point of departure was an article in 1956 by Robert Solow → Solow's model was based on an aggregate production function and built on the assumptions that:

- a certain proportion of total income is saved

- the labour force grows independently of other factors

- the technical progress is exogenous

The key attribute of Solow's model is its demonstration that the economic growth process is stable.

Capital accumulation converges towards a long-term steady state equilibrium that is determined exogenously by the growth rates of population and productivity, and thus, implicitly, by the fundamental data of neoclassical economics, consumer preferences and the state of technology.

→ This implies that saving and capital accumulation does not matter for growth in the long run: per capita income will remain constant in the steady state; it will grow only if there is exogenous technical progress

The charm of the model lay in two optimistic predictions about the economic development of relatively poorer countries:

1- As their capital stock is comparatively small, they have the potential to catch up on the richer countries. This is because in neoclassical production function (which is concave) the growth rates are highest when the capital stock is smallest.

2- poorer countries can benet from a technology transfer from the richer countries without much extra investment.

***Capital controversies:***

The key assumption of a macroeconomic production function had been challenged in the so-called

capital controversies on capital theory that raged from the 1950s until the 1970s.

***-*** The basic idea is that, in a world of heterogeneous capital goods, you need to know the price of capital in order to determine the quantity of capital.

***-*** But, in neoclassical economics, you need to use the quantity of capital in order to determine the price of capital (via supply and demand in the “capital market"), which

creates a fundamental problem for the neoclassical theory of capital

*“The theory of capital is the most controversial topic in the history of economic thought because the theory of capital is the theory of profits, and therefore an answer to the question, do the capitalists deserve the profits they get?*

*The representatives of neoclassicism have not denied the logic of the criticism of neoclassical capital (and growth) theory, but have reduced it dismissively to the question of which approximations are generally acceptable in order to make a problem manageable.”*

**HISTORICAL SCHOOL AND INSTITUTIONALISM**

Ever since the early nineteenth century, economists of various origins have reacted critically to some characteristics of classical and neoclassical school:

1- The idea of universal laws (applicable in all places and at all times)

2- The presence of principles of economic behaviour (self-interest (mitigated by sympathy) for classical economists; optimal utilization of sources by agents for neoclassical economists)

3- The use of deductive method (historical-deductive for classicists), (hypothetical-deductive for neoclassicists).

→ These critical authors argue that the economic laws and principles of (neo)classical doctrines apply under specic historic circumstances → those doctrines presuppose institutional frameworks which may correspond to a certain stage in the development of some nations, but not of others

→ Such \relativist" reasoning was mostly developd by the 19th century historical schools of Germany and by American institutionalism in the early 20th century.

**Four principles were basic in the thinking of the German historical economists:**

1- Evolutionary approach to economics. → The analogy with Darwin's evolutionism in biology is evident: the social organism is born, develops and grows, and finally decays and dies. What is relevant economic doctrine for one country at a particular time may be irrelevant for another country or another age → Relativistic approach.

2- Emphasis on the positive role of government. → The historical school is nationalistic

3- Inductive/historical approach → The economists of the historical school emphasizes the importance of studying the economy historically, as part of an integrated whole → They deny that there are any valid economic laws, with one exception: they believed that patterns of development are discernible in history and can be generalized into “laws of development."

4- Advocacy of conservative reform.

FORERUNNERS:

***Cameralists:***

The eighteenth-century German mercantilists, who are also known as cameralists, pave the way for the historical school by emphasizing the role of the state as the primary economic subject.

***German subjectivists:***

Another group of forerunners are the German subjectivists, who emphasize the importance of historical investigation for the understanding of the present economy.

***Romantic economists:***

The romantic economists are a group of writers who reject the “vulgar materialism" and rationalism of classical political economy, in particular its quantication of value in terms of physical labour → They suggest that value should instead be dened in terms of the “moral contribution" of the citizen to the “organism of the state", the political entity of the nation.

FRIEDRICH LIST:

He does not t any pattern because he used classical, mercantilist and romantic concepts, while rejecting the core ideas of all these schools.

**List's assumptions:**

- List criticizes the classical school, in particular Smith, for holding a naively cosmopolitan view, in which nations are just associations of individuals that all benefit from peaceful division of labour and free trade

- In reality, nations are the relevant subjects to be studied, since the productive forces of the association of industries at the national level are at least as strong as the eff  
ects of the division of labour

- In addition, List severely condemns Adam Smith and classical economics for claiming universality for doctrines that are appropriate for England but inappropriate for underdeveloped countries

- His denition of development is “progressive use of the productive forces" → List criticizes the classical reduction of those forces to labour, land and capital, and included the social order, science and art, and the degree of liberty in the respective state

- List introduces the so-called infant industry protection → The idea is that emerging domestic industries need protection against international competition until they become mature and stable.

- For example: List advocates free trade within Germany while championing a high tari  
ff against imports of manufacturing goods to protect newly emerging domestic industries.

Historical School: There are at least four historical schools in economic thinking: the older German school, the younger German school, the English school, and the French school.

Apart from the younger German historical school none of them was really a school in the sense of holding a unified doctrine and professed membership, but they all have some ideas in common.

***The older German school:***

The breakthrough of historicism in academic economics is connected with the names of Bruno Hildebrand (1812{1878), Wilhelm Roscher (1817{1894), and Karl Knies (1821{1898), three German university professors who are generally considered the founding fathers of the (older) hist. School.

BRUNO HILDEBRAND:

is a German economist, representing the older historical school of economics, famous for being a consistent opponent of classicism and for establishing laws of economic development.

He attacks the classical school for being too static in its formulations → He states, for example, that Adam Smith erred in attempting to build a theory which would apply to all times and all places.

→ In addition, he criticizes classical economists for their materialistic tendencies saying that the scheme must aim at the welfare of the State → Economics, according to Hildebrand, is an historical science and must contain the historical, theoretical-cultural, and ethical explanation of the phenomena of the economy.

Hildebrand sketches an evolutionary model of economic forms suggesting three stages of development: natural economy, money economy, and credit economy:

1- The rst stage can be identied with the economy of the Middle Ages, when there is little trade and much of that is based on barter and when surplus is produced by the labour of serfs

2- The money economy (second stage) emerges in the early modern period, and the credit economy (third stage) will dominate the future

3- The credit economy is characterized by high productivity, mutual trust,and social policies for the welfare of the workers

WILHELM ROSCHER:

Wilhelm Roscher (1817{1894) is considered the founder of the older Historical School. Roscher does not repudiate classical theory completely. He asserts that economic theory should be supplemented with history and studied in close touch with other sciences like jurisprudence, political science, and history of civilisation.

He denies absolute truth as to general economic laws. He holds that the economist should confine himself to the statement of the laws of government which are applicable to his particular economy. In particular, Roscher sees diff  
erences between di  
erent nations as:

- difference stages of a development of human culture

- different endowments with natural resources

- different technological knowledge

- different amounts of capital accumulated

KARL KNIES:

He is more precise in his formulation of the methodological issues respect to his predecessors. Knies not only rejects the view of the classical political economists that there exists natural laws, but even doubts the existence of historical laws of economic development of nations as believed by his predecessors.

He distinguishes the laws of social science (including economics) from those of the natural science:

- In natural science it is postulated that the same cause produces the same effect

- But in economics, which has the task of studying historical phenomena, one cannot expect that the same phenomenon will really recur

- This happens because the preponderance of the irrational and the subjectivity in human action (which guides the economy). Consequently, the so-called laws of economics are merely “laws of analogy".

Two things are noteworthy about the relationship of the older historical school to classical and neoclassical economic thinking:

- The three historicists presented their method as critique of the methods employed by Smith and Ricardo.

- However, in most of their works they use classical methods and arguments rather than than following the historical and interdisciplinary approach they suggest.

Roscher and Knies develops notions of marginal utility and other concepts of subjectivist theories of value that anticipate central elements of neoclassical economy. Fot this reason, some scholars label these authors as “protoneoclassical”.