

A Contribution to Value-Price Theory

Alternative price analysis in industrial and service sectors

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H. Gürak

hgurak@gmail.com

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The most obvious way in which sciences advance is by new departures, that is, by the discovery of new facts, or new aspects of old facts, or new relations between facts. But there is another way... We add here and correct there and so this apparatus slowly develops into a different one.

J.A. Schumpeter
History of Economic Analysis

... the method we employ must not be suffered to mislead. M. Léon Walras says very happily of this method, which he himself employs, that it "idealizes".

F. Wieser
The Austrian School and the Theory of Value

"The composition of this book has been for the author a long struggle of escape, and so must the reading of it be for most readers if the author's assault upon them is to be successful -a struggle of escape from habitual modes of thought and expression. The ideas which are here expressed so laboriously are extremely simple and should be obvious. The difficulty lies, not in the new ideas, but in escaping from the old ones, which ramify, for those brought up as most of us have been, into every corner of our minds."

J.M. Keynes
Preface to the *General Theory*

INTRODUCTION

Questions concerning economic growth and distribution have always been a fascinating field of economic analysis. There had to be some rational explanations as to why some countries are more developed than the others are, or why some grow faster than the others do, or why income produced is distributed unequally among the individuals, households, sectors, regions and countries, as well as functionally.

These questions have also bothered me enough that I have committed myself to their study since 1970s. An academic student in the West is, primarily, exposed to the neoclassical version of economic relations ranging from the price system, production, exchange to distribution. There was no exception in my case either. The dominating neoclassical doctrine, however, had not made a satisfying impression on me and something about it did not seem quite proper. However, who was I to judge this as a student, at the early stages of learning? Besides, in addition to our lecturers, a great number of well-known economists, some with Nobel Prize, were using the theories themselves and lecturing them around the world as "good theories". Meanwhile, the competition from the Keynesian school was descending and Marxism was withering away.

After more than 10 years of business experience in the private sector in 1980s, the time seemed ripe to start elaborating my "own vision" and combining my academic background with the experiences of life. The initial purpose was to give an account of the phenomena like uneven growth and distribution of income. However, as the time and research progressed, the old dilemma reappeared and it became more and more clear that the prevailing economic (especially neoclassical) models were rather inadequate to make "proper" analysis. They seemed

incompatible with the actual practices and incapable of providing a sound and proper interpretation of the actual economic transactions. Accordingly, there seemed to be no compatible price theory to my satisfaction based on, and capable of, explaining the actual economic relations. The dominating economic doctrine was based on unrealistic assumptions and fictitious economic relations among mechanically behaving fully rational homo-economicus. The advanced mathematical methods made economics look like a branch of mathematics, rather than a social science with "inexact" relations. The "scientific (!)" predictions and explanations of the theory seemed more accidental rather than owing to inherent predictive qualities of the theory.

The Neoclassical theories on price, production, exchange and distribution, all have a rather distinctive characteristic; exact (mathematical) relations. The mathematical formulations are no longer used as the tools assisting the analyst in explaining economic relations but, rather, as the **reasoning itself**. The inexact socioeconomic relations are transformed into exact mechanical patterns, independent of all human will, action, history, physiology, etc. Economic theories explain relationships resembling to the phenomena in physical sciences rather than socioeconomic relations. The models and relations seem like a "science fiction" version of actual economic relations. Yet, it is called "positive" economics with "universally valid laws". Although the science of physics that inspired the Marginalist school had undergone drastic changes since Newton's era, the economic science has grown up to become a castle of rigid conservatism, loyal to the parables.

The exact economic relations was the result of more than a century long attempts to make economics a science like the physics and astronomy, and the scholars have come a long way in this respect. Today we have access to a number of quite sophisticated, logical and consistent economic models with precise patterns and **normative** relations. However, these models are oversimplified idealizations, a hypothetical version of the reality.

Marshall had foreseen the trend and warned the economists to be cautious when applying mathematics, and not to transform economic science into a branch of it. Overemphasis on the individualism and abstract analysis was pointed out as an impediment. However, the trend turned out to be, in contrast to Marshall's warnings, a highly abstract discipline digressed from reality. If logical consistency and precise patterns based on exact mathematical equations were sufficient conditions for a theory to be acknowledged as a "universally valid scientific theory", then economists should also prize "scientific" Marxist theories with

advanced mathematical models. The modern mathematical Marxist theories are not less scientific than the neoclassical ones in this respect.

Why discriminate against **scientific Marxism**?

Historical background

In contrast to the contemporary approach, economic science before 1870s used to be an interrelated social science with historical past, political concerns and even with moral values. Inexact but real, rather than exact and fictitious, economic relations were the point of departure. Exchange relations based on value was considered as the backbone of political economy and the concepts like "justice" and "equality" was not regarded as irrelevant or unscientific.

However, since the 1870s a radical transformation process began to take place focusing the analysis around a new economic agent, homo-economicus. The prime purpose was to transform the political economy into an "exact" science as Jevons and Walras set out to accomplish. Economics was converted to a study of utility and self-interest. British economist Jevons once had proudly claimed that his model of exchange relations did "**... not differ in general character from those which are really treated in many branches of physical science**" According to Jevons, all human experience could be accounted for by "**one scientific methodology and one mode of explanation -that of physics-**" (Blaug, 1990; 147).

As in all natural sciences, economics was regarded to be "independent of all human will and action" immune from history and metaphysics. As a result, the pure relations of economic science, it was claimed, required and justified the application of advanced physico-mathematical techniques as in other pure sciences.

In similar fashion, Walras had pointed out that his "conception of the equilibrium" was "**an abstraction completely analogous to the conception of mechanics**". He had aimed to establish socioeconomic laws as **scientific** as the laws of physics and astronomy of his time. "The pure theory of economics", he claimed, "**... is a science which resembles the physico- mathematical sciences in every respect**" (Blaug, 1990;147).

"**I continue to believe**", said Walras, "**that my conception of the equilibrium is not a *fiction* but an *abstraction* completely analogous to the conception of mechanics**". (Blaug, 1990;253)

More than a century passed since the attempts of Walras, Menger, Jevons to make economic science to resemble the natural sciences. In the mean time, however,

natural sciences has undergone serious and radical changes in various aspects and adapted to changing conditions, while economics, the imitator of natural sciences, has successfully (!) preserved its initial philosophical standpoint, as in 19. Century.

Many prominent economists of the neoclassical heritage are not unaware of the "unrealistic" nature and relations of their abstract theories. They are well aware of the fact that neoclassical theories fail to account for the actual economic relations and that many of the assumptions are unrealistic and extremely abstract simplifications. That is the only "toy" they have to play with. However, there are also many defenders of the conventional doctrine who regard it as positive science with universally valid economic laws and interpret conventional analysis as a scientific point of departure to account for the actual relations. For these people the neoclassical heritage represents the "Holy Ground" of the analysis capable of revealing the true nature of economic man and relations. Any dissent from this "Holy World" of eternal truth is regarded as a serious error, if not a sin. An outside observer can easily get the impression that the neoclassical doctrine is the "final frontier" and the "highest stage" of economic thought.

Fortunately, not all people agree. As Hicks put it:

"Pure economics has a remarkable way of producing rabbits out of hats -apparently a priori propositions which apparently refer to reality. It is fascinating to try to discover how they got in; for those of us who do not believe in magic must be convinced that they got in somehow." (1983;367).

If your faith in the Neoclassical School fails you, and if you try to assault on the "Holy" playground of neoclassical theory, or try to develop an alternative vision, you should better prepare for a rather chilly, if not hostile reception. For the disciples of the neoclassical faith do not welcome criticism of other faiths. Attempts to present an alternative are, in a way, regarded as an unscientific assault; even a greater sin. Advocats of conventional ideology are no more tolerant or receptive to alternative ideas than the **Holy Church of the Middle Ages**.

According to one of the prominent proponents of neoclassical parable Friedman, as long as a theory makes good predictions, it should be considered a good theory. The falsity of the assumptions and the relations are of minor importance. Because of this attitude, conventional economists today live in a "scientific but virtual" economic world consisting of economic agents with mechanical relations. As long as the conventional theories are logical and consistent "at the blackboard" or in

"academic textbooks", there is nothing to worry about the "universal validity" (!) of the scientific theories.

The Neoclassical parables are partly to blame for this situation, but the main blame should be credited to the non-conventional economic scholars for **failing to provide alternative cogent theories**.

- Are the exact and sophisticated methods and models of the neoclassical doctrine of no value to us?
- Are they useless and incompatible with the actual economic relations?
- Is it not possible to draw any lessons at all from those advanced and sophisticated physico-mathematical models of Newtonian heritage?

Logically and intuitively, something so irrelevant to the facts of life should not be expected to be of much use to the practical men like business people or consumers. However, there is another side of the medal; the **normative** relations. The neoclassical parables contain many useful features for normative rather than positive (actual) relations. Assumptions like Homo-economicus, perfect knowledge, perfect competition, etc., all refer to an idealized world and therefore belongs to a **normative** world. If the conventional ideology is treated as such, it could make rather useful contributions to economic science.

Academic scholars may find great virtues in comparing the **ideal** economic relations with the deviations from the actual relations. In other words, the sophisticated neoclassical models can serve a great purpose as a benchmark of economic relations treating the actual economies as **transitional** and the ideal models as the **final** stage. For instance, everybody knows that the assumption of "perfect competition" has no relevance to the reality. On the other hand, we all know that perfect competition would maximize the production efficiency and consumer benefit. Interesting and relevant questions would be; how much do actual economies deviate from the ideal one? In addition, how to transform the real world to make it compatible with the normative standards of neoclassical doctrine?

So much is enough for the normative economics. Meanwhile, we are still in need of economic theories, especially a price theory, explaining the actual phenomenon, e.g. our **transitional** economies, subject to imperfect economic agents, inexact relations and uncertainty. As Hicks put it:

"Economics is a social study. It is concerned with the operations of human beings, who are not omniscient, and not wholly rational; who (perhaps because they are not wholly rational) have diverse, and not

wholly consistent, ends. As such, it cannot be reduced to a pure technics." (1983;289).

The question is; do we have a logical and consistent alternative theories based on the actual relations?

The purpose

The initial purpose of this work was to study the phenomena of the international economic relations and growth. However, in the absence of a satisfactory value/price theory, which is the backbone of economic science, it seemed like building a house on loose ground. The analysis had to be based on a theoretically logical as well as on practically applicable premises with more realistic and compatible assumptions as well as relations. At the early stages of research, one thing became quite clear: since there was assumed to be something fundamentally wrong with the existing theories of growth, production, exchange and distribution, its point of departure, the price theory, had to be to blamed for this. Because of this conclusion, there was no choice but to start with an alternative price theory before proceeding further. Hence, this study of price formation began. The initially intended study on economic growth and distribution remains to be done.

Why an alternative price theory?

The value/price theory holds a very crucial position in economics as the **fundamental base of all related analysis**. Producers as well as consumers adjust their market behavior according to the price signals, which determine the cause of all transactions. Price signals are capable of inducing serious fluctuations in the magnitude of crucial variables like growth, inflation and unemployment. Therefore, it is imperative to have access to a competent price theory, which is logical, consistent as well as practically relevant (applicable).

A price theory should not only be able to explain the exchange ratios, e.g., relative prices, between two commodities, but also the objective (market) prices. In addition, the price theory should also be able to explain the price formation in the **service sector**, which accounts for the greater part of the GDP than the manufacturing sector in terms of output and employment. In addition, even more importantly, a price theory must be able to account for the source and generation of the value, transformation of values into prices, profit and capital. Only then, a more realistic insight and interpretation of the economic relations would be possible, thus paving the way for the further development of both logical and

relevant theories in the related fields like growth, distribution, etc. As the Neoclassical theory fails to satisfy expectations, the need for an alternative theory emerges.

The overwhelming majority of economists around the world acknowledge the neoclassical version of the price theory. It is one of the most analytically developed fields of the neoclassical parables but at the same time one of the least relevant to the facts of life. There is a huge discrepancy between the neoclassical teachings and the facts of life it is intended to account for.

Mode of vision

As Schumpeter once put it:

"... in practice we mostly do not start from a vision of our own but from the work of our predecessors or from ideas that float in the public mind." (Schumpeter 1954;562)

Throughout this study, I have attempted to escape from the habitual modes of thoughts and expressions, which shaped the backbone of my economic formation and reasoning during my studies. It is not an easy task after years or decades of indoctrination at undergraduate and postgraduate levels of education. Nevertheless, I will try to do my best to find and follow my **own path**. However, that approach does not imply, in any sense, that the contributions of the past and present economists are rejected or ignored. On the contrary, this work owes a lot and is based on the accumulated contributions of numerous scholars. It will attempt to reassess and reinterpret the existing theories. Without the immense and undisputable contributions of scholars like Smith, Ricardo, Marx, Keynes, Marshall, Schumpeter, Solow, Lucas and many others, this work could not have emerged.

The approach throughout this work to the value-price theory is, in principle, a **labor embodied** approach, but somewhat distinct from the Classical ones. It acknowledges the labor-power (labor effort) as the source of all value-added and economic growth, along with the fact that no exchange value can be produced without the gifts of nature. Labor-power is not claimed to be the "invariable" measure of value nor does it assert that the profit (surplus value) is "unpaid" labor. Exchange is not based on equal "quantities" of labor-time employed.

Method

The study covers only "short-run" analysis with **given** technology, mental faculties of labor force and plant capacity. The point of departure of the approach is **productive knowledge**, the mental effort (brain-power) of the laborer, given the gifts of nature. In other words, the **labor input is placed in the center** of all value-adding economic activity, assisted by the means of production, given technology, and other necessary inputs of production. "Capital goods" are treated as the transformed gifts of nature by labor-power. As distinct from capital goods, the concept capital refer to the total inputs, including labor inputs, productively employed, i.e., engaged in the output of goods and services to meet needs and wants. Accordingly, profit is defined as the return on such capital for the risks assumed.

The four main subjects of interest analyzed in the short-run are as follows:

- 1- The approach to the value/price theory where the "**productive knowledge** of labor-power plays a pivotal role in the progress and prosperity of nations.
- 2- Explanations of the profit and capital: distinguishing **earned** incomes from the **unearned** incomes.
- 3- Separation of the production cost and production price from the final market price in manufacturing sector.
- 4- Separate price formation analysis in the service sector as distinct from the manufacturing sector.

The approach used to explain the generation and exchange of value in Chapter-1 is similar to Classical analysis with two-hunters, as initiated by Adam Smith. The major distinction is the emphasis on the role of productive knowledge developed by the mental component of labor-power leading to (productivity) growth as well as to increased personal and total prosperity. Chapter-1 will analyze value generation and exchange relations with reference to **relative prices**.

However, though of significant academic value, the relative prices are not of much use with reference to the price formation of a product in actual relations. Thus, the urge arises for the separate pricing analysis as in Chapter-3. As distinct from the value generation and exchange ratio analysis in Chapter-1, the focus will be on the determination of sale price for a single-product enterprise subject to increasing returns, in Chapter-3. Assumption of increasing returns is a fact of actual production that, due to (ever growing) fixed costs, unit costs of production

tends to diminish and profits increase as the output approaches optimum plant capacity. In other words, increasing rather than decreasing returns occur until optimum plant capacity. After having reached that point, the rational economic behavior would be setting up a new plant, not the continuation of production, except for very short time.

When working with abstract models, some simplifying assumptions are unavoidable. There was no escape from this in this study, either. The degree of abstraction, as Marshall indicated, is a sign of inadequacy rather than a precondition of scientific growth. Unfortunately, we are still in need of abstractions and simplifying assumptions in our analysis, to simplify the analysis and understanding of facts. They distort the reality, but, at the same time, help us to understand how the highly complex machinery of economy works.

Throughout this work, the utmost attempt will be made to remain within a realistic framework resembling, as close as possible, to the actual economic facts and transactions. The neglect of oligopolistic and monopolistic practices might seem as oversimplification. Unfortunately, they are the unpleasant facts of life, but avoidable ones, if the decision-makers take the right steps in the right direction. Everybody agrees that increased competition is beneficial for producer efficiency, consumer utility and growth. But, there is no consensus on the means and measures of getting there. Reassessment of international "patent rights" system could be a good point of departure.

Neglecting the role of state intervention in the analysis is a rather unfortunate, but necessary abstraction. The state, with all its organs and authority to enforce its decisions, is always and everywhere a very important factor of our socioeconomic life. Who can tell what the world economic order would look like if there were no protective interventions by the authorities of developed countries, during the last two centuries? How would the global production and distribution look like, if they themselves implemented the highly praised virtues of liberal market economies? There has never been full-fledged liberalism without state interventions to protect the economic interests of domestic population. It is true that there has always been a tendency in the developed countries to increase competition by eliminating trade and investment barriers, but only as they see fit, and when they want it. There are still many visible as well as invisible barriers to imports from the less-developed countries. Analysis of such protectionist interferences will be ignored in order to concentrate on the main argument, the price formation.

The assumptions like fair and free competition, instead of perfect competition, supply-demand stability instead of equilibrium, increasing returns instead of decreasing ones in accordance with plant capacity utilization, separation of sale price from the production price, and separate analysis of price formation in service sector, are all more realistic ones than their alternatives in Neoclassical version. I hope that such realistic simplifications shall not undermine the essence or the outcome, of analysis.

Value is the essence of things in economics. Its laws are to political economy what the law of gravity is to mechanics.

Friedrich von Wieser
Natural Value

The theory of value expresses in a generalized way the angle from which the economist believes the process should be analyzed.

Ronald Meek
Studies in the Labor Theory of Value

Chapter-1 VALUE, RELATIVE PRICES, CAPITAL & PROFIT

On value and exchange

Value is a metaphysical concept. Like all metaphysical concepts, it is vague and difficult to measure, if ever possible. Therefore, its role in the "scientific" (?) Neoclassical theory has been rather controversial. After all, modern economic theory claims to be a universally valid, moral- and value-free scientific theory.

A contemporary student of economics has, unfortunately, no choice but digest the neoclassical doctrine since there is no rational, consistent and logical alternative theories in textbooks. Neoclassical analysis is, in fact, rather sophisticated and elegant. However, what do they tell us about the real world transactions? To what extent do they convey realistic explanations or foresight on relevant matters? Are the tools and measures suggested practical and applicable? If Classical value analysis is rejected because of its metaphysical context, where do we place the concept **utility**, "the" foundation stone of the Marginalist and Neoclassical doctrines?

It is a common fact that end-users assign some values to the products demanded. Things possess some value because of their ability to satisfy end-users one way or another. This ability to satisfy the needs and wants is called, from the end user's point of view, the **use-value** of products. A glass of water, an automobile, a house, a computer, etc., all designate some use-values to the end-user. A flat tire or rotten meat, on the other hand, would be of no use-value, because they fail to satisfy any of the desires of end-users. In short, the use-value designates the

utility of products supplied. Without the use-value, there would be no demand for the products supplied.

Use-value is one aspect of the concept "value"; the other is **exchange-value**. In commercialized societies, end-users (meaning consumers of consumption and production items) do not normally engage themselves in the production of products for personal use, but rely on others to supply them. The products with use-value for the end-users imply exchange-value for the producers. For instance, bread produced by the baker is a product with exchange-value aimed to satisfy the need of end-user. Meanwhile, the same bread is a product with use-value for the end-user for it helps to eliminate the hunger. In other words, while the producer assess a product from the angle of exchange-value the end-user assess it on the principles of utility.

According to the above statements, two distinct properties of the concept value appear, as the Classical economists indicated;

- 1- use-value or utility (for the end-user), and
- 2- exchange-value (for the producer)

Exchange- and/or use-value of a product do not show a direct and proportional relationship with one another. A rather useful product, from the point of end-user, could have a low exchange value, or vice versa, depending on the technology used, degree of competition and strength of demand.

What causes variations in the use- and exchange-values in the short- and long-run? **Do we assign products exchange-values because of their labor content? Alternatively, do they acquire values in accordance with varying levels of (marginal) utility? Alternatively, do products acquire values in accordance with the marginal productivities of production factors, capital and labor?** The answers to these important questions shall be discussed in Chapter-3. For now, we continue with the definitions of critical concepts.

Use-value (utility)

Use-value is a subjective concept indicating that a product supplied by the producer possesses an inherent feature, which meets the requirements of the end-users. In other words, the products demanded by the end-users possess an ability to meet the needs and/or wants of end-users. Otherwise, they would not be demanded. A car, a loaf of bread, a house are different items with quite different qualities and degrees of satisfaction to meet the demand of end-users. Thus, the

use-values assigned to them would be in accordance with their contribution to satisfy needs and wants. For instance, when you are in the middle of a desert without water and far away from the nearest well, a glass of water would be of unlimited use-value and you would not exchange it for all the gold or diamonds in the world. However, in a modern town where you can have practically unlimited access to the city pipeline water, it would imply a far much lower use-value. In other words, the degree of use-value of a product is not "**static**" but changes with the changing circumstances such as costs, culture, tastes and preferences. A mature wine or a twelve years' old whisky might be very valuable in the Western countries but, at the same time, extremely invaluable for faithful Muslims, for alcohol is forbidden by religion. All these things show us that the degree of use-value of a product is subject to individuals' **subjective evaluations** fluctuating over time.

Scarcity

Scarcity increases the use-value and plenteousness reduces it. However, scarcity of a man-made products is often a temporary situation and is/can be eliminated by the increased output in the long run. There is one frequently and quite rightly referred exception to this; the scarce collection items like antiques and paintings. Irrespective of all the technological progress and human skill development, it is impossible to increase the numbers of original ones. However, collection items display a unique feature; they are mostly demanded for their exchange-values in the market and social prestige rather than their use-values for the owners. Irrespective of the acquirement motive, they are exceptional cases.

Utility

One crucial aspect of the concept use-value (utility) is marginal utility (MU) of the products. Marginal utility refers to the degree of usefulness of the last item acquired and/or consumed, and has a tendency to decrease with each additional item acquired. As well known from the textbooks, the second slice of bread or the second TV-set would not produce the same degree of marginal utility as the first ones. Moreover, the third and fourth additional units would produce even lower degree of marginal utility. Such variations in the marginal utility add to, or reduce, the use-value attributed to products. As we shall see later, fluctuations in the marginal utility, which influences the degree of subjective evaluation of products, also exerts serious impact on the shape of market prices and profit rates.

Exchange-value

Exchange-value of a product is an **objective** concept for the producer designating what the producer can obtain in return of the value expended. In commercialized societies, the common denominator for the value of products is money, i.e., products are exchanged for the universal medium of exchange called money. Traditionally, however, the relative prices of two products produced and exchanged with one another are the subject of economic analysis. The same path shall be followed below, e.g., analysis of relative values.

Two critical questions of the economic science are:

- Do things **possess** an exchange-value before they are attached a price tag for exchange? Or:
- Do things **acquire** an exchange-value because of the price tag attached?

Classical economists advocated the first view, and the "modern" scholars of neoclassical heritage, the latter. For Ricardo and Marx, labor-power was the source of all value created. The commodities were exchanged in accordance with the quantity of **labor time contained** in them. Accordingly, a five hours' work would exchange for another five hours' work, assuming homogeneous labor inputs. This conclusion does not mean that the Classical economists including Marx were unaware of the varying degrees of qualities of the labor-force. However, it was assumed, obviously quite mistakenly, that all labor-power spent on a particular product could be reduced to homogeneous labor expressible in measurable quantitative terms. Thus, **relative quantities of labor-power** contained in a product were assumed to determine **relative exchange-values**. In addition, what they had in mind was the **commodity production**; only, while service sector activities were considered as parasite. Exchange-value was treated independent of demand schedule and the labor (power) contained determined the exchange-values of commodities.

Beginning in 1870s, the Marginalist school preferred to concentrate on the other side of medallion, e.g., the demand side. Subjective evaluations shaped by the successively decreasing marginal utility, it was asserted, determined the exchange-values of commodities. In other words, utility and the consumers, not the producers, were placed in the focus of analysis.

As to the question whether it was the labor-power content or the marginal utility expressed through effective demand that determined the relative exchange-values, Marshall pointed out;

"... it cannot be true that the value of a thing depends simply on the amount of labor spent on it." (Marshall, 1961;587).

The fact is that sale price paid always exceeds the past and present labor costs spent (labor contained) on a particular product. On the other hand, utility expressed through demand could not explain the relative exchange-values. Unless the market price exceeds the production costs, demand alone would not be sufficient to induce production. A more rational and realistic approach would have to take into consideration both sides, supply as well as demand, i.e., use-value for the end-user and exchange- value for the producer. One side of the medallion alone would not be sufficient.

Applying both sides of the scissors

In order to survive, human beings require certain things like food, shelter and clothing, which are referred to, as the **basic needs**. But, as the society climbs up the ladder of development, the human mind develops an appetite for more products than the mere basic needs, which are referred to as the **conveniences of life**. As the income elasticity on the basic products is low, the general tendency is that the higher the incomes, the greater percentage of income is spent on the conveniences of life, such as cars, TV-sets, entertainment, holidays, etc. There seems to be **no upper limit to the appetite of mind**, subject to the wealth and income. This appetite indicates a potential (as well as effective) demand, which induces the suppliers to engage in production. Dismissing scarcity of resources, demand of the end-users would be met by the producers given an acceptable rate of profit. For instance, if the average rate of profit for alternative employment of money capital were 15 percent, a rational producer would not even consider initiating production, generating profits below that rate. Accordingly, one can conclude that the use-value of the products expressed through actual and/or potential demand is a precondition of production. Whether the supply takes place or not, is determined by the "expected" rate of profit for that particular product.

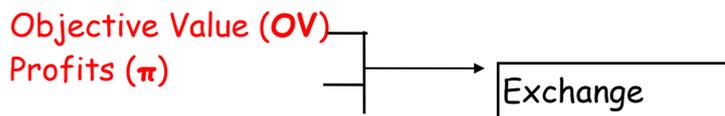
In case of effective demand exceeding supply, an artificial scarcity would arise, which, as we observed above, would affect the use- and exchange-values. Supply falling short of demand implies that product's marginal utility and the price end-users are prepared to pay would be relatively higher than under normal conditions. To conclude, both production costs and effective demand play an important role in exchange relations and formation of prices.

Exchange-value

Let SV_x denote the **subjective value** of product x for consumers, P_x price of the product x , MU_x the marginal utility of product x , P_y the price of substitutes and P_z the price of complementaries. In the absence of supply-demand imbalance, SV function of product x would look like as follows:

$$SV = f (P_x , P_y , P_z , MU_x , \text{Income, Preferences}) \quad \text{eq. 1}$$

Now, let us see what happens on the supply side. As mentioned before, a product designates an exchange-value for the producer, including some reward, e.g., profits. Therefore, it would be rational and practical to divide the exchange-value into two different departments:



OV = Fixed costs + Production costs incl. wages but excl. profits.

OV designates what a product costs to produce, i.e., pure costs of production, in terms of labor effort, raw materials, machinery, energy, tools, etc. It indicates the minimum acceptable level of exchange-value, or the break-even point. However, a rational producer would not be induced to engage in production at that point. To induce production, the exchange-value must include some reward and exceed the production costs, e.g., OV .

In a competitive environment with stable supply-demand relation, OV would be a function of the costs of production (CP):

$$OV = f (CP) \quad \text{eq. 2}$$

In order to initiate production, the (market) sale price, (SP), must exceed the OV and include profits for the producer:

$$SP > OV \quad \text{i.e., } L\text{-commanded} > L\text{-contained} \quad \text{eq. 3}$$

which makes the SP including average profit rate (r), a function of OV and π :

$$SP = f (CP, \pi) \quad \text{eq. 4}$$

Or, alternatively,

$$SP = \{CP (1+r)\} \quad \text{eq. 5}$$

When

$$SP = CP$$

Which is the break-even point, then

$$\pi = 0.$$

Cost of production (**CP**) in our case does not involve any opportunity cost of the money capital or wages of self-employment. Since the **CP** can be measured by summing up the costs of inputs of production employed, there remains only one factor to influence the rate of profit to make **SP** exceed **CP**; the subjective value judgments of the end-users (**SV**).

Thus, we can rewrite the equation. 4 as:

$$SP = f(SV | OV) \text{ i.e., } \frac{f(SV, OV)}{f(OV)} \quad \text{eq. 6}$$

where **SV** determines **r**.

$$r = f(SV) \quad \text{eq. 7}$$

The relevant question is; given **OV**, what makes the **SV** fluctuate?

As indicated by the eq. 1, **SV** fluctuates in accordance with the marginal utility of product, price of the product, prices of substitutes and complementaries, income, preferences. Given income, preferences and prices **in the short-run**, marginal utility (**MU**) appears to be the only factor influencing fluctuations in **SV**.

$$SV = f(MU) \quad \text{eq. 8}$$

The **MU** analysis refers to the variations of value at the margin of a given product, which influences the average exchange-values. At the initial stage of production, the **MU** would be much higher than a later stage as markets approach the saturation point;

$$MU_i > MU_{i+1} \quad i = 1, 2, 3, \dots, n \quad \text{eq. 9}$$

which implies that

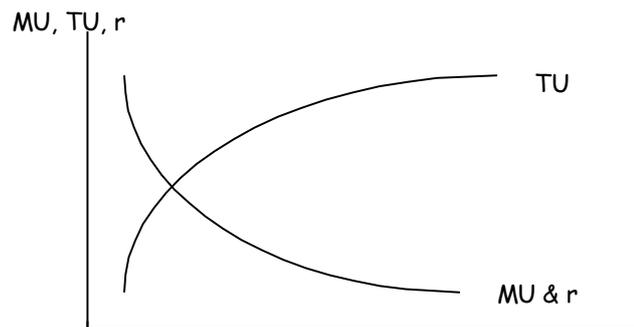
$$SV_i > SV_{i+1}$$

for the same product. In practice, that means that the end users' subjective values expressed through effective demand causes variations in the " π " and " r ".

Graphically, the relation between the **MU** and quantity supplied can be displayed as in Figure-1:1. As the quantity supplied increases, the market gradually saturates while at the same time the total utility (**TU**) increases at a decreasing rate. Meanwhile the **MU** and **r** continue to decrease successively. Eventually, as the markets saturate, **MU** and **r** approach zero. Theoretically, beyond that point neither the end-users nor the producers would have any incentives to engage in any economic transaction. However, in actual world, the producers would stop production before the rate of profit falls to zero, though the **MU** could still be above zero.

In Figure -1:1, both the **MU** and **r** are a declining function of increased supply, but do not necessarily fall at the same proportion.

Figure - 1:1



A case with profits

Assume a community of two persons (A and B) with **unskilled** labor-power both producing a quantity of commodity-**X** and **Y** for self-consumption, e.g. no exchange takes place. Further assume that community member-A starts spending some additional labor-time to produce commodity-**Z** with the purpose to exchange against other products for money or in kind. Since the commodity-**Z** is produced with the purpose to exchange, it will merely possess some **exchange value** for A. Assume that 8 hours of unskilled labor is required to provide 100 units of commodity-**Z** at a cost price, no profits involved, of 200 TL. The buyer must offer either, at least, 200 TL or a product of equal use-value to the producer of commodity-**Z** in order to realize a transaction. The 200 TL is the **objective value**, e.g., cost of production without profit or **labor-contained**, of 100 units of

commodity-Z containing 8 hours of unskilled labor. In other words, the objective value of a product designates its pure costs of production excluding profits, i.e., what it costs to produce, in our case, in terms of **labor-time spent**. Anything less than the objective value would mean "bad business" for the producer of commodity-Z and exchange would not take place.

In order to induce production and exchange relations in commercial communities, there has to be some incentives for the producer. In other words, in a system where profit is the driving force, the **exchange value** of a product supplied must exceed its **objective value**, i.e., the buyer must be prepared to pay more than 200 TL. If there were, only two persons engaged in exchange transaction, exchanging two products for the production cost of 200 TL (objective value of each product) would not be irrational. But, in commercial communities the final exchange value, including some surplus value (profits), would depend on the use-value of Commodity-Z to the buyer, i.e., what the buyer is willing to pay. And with regard to willingness to purchase, not only the objective value but also other factors such as income, rank of preferences and **MU**, influence the price. Thus, **while the quantity of unskilled labor embodied regulates the exchange value, demand, or "haggling and bargaining" of the market, adjusts it to final level.**

In the "virtual" world of transactions with relative exchange-values, products would have to exchange with one another according to the "labor-time spent" concept. But, as we all know, products are not exchanged among two or more producers in barter but are sold to the end-users for a price including profits. Therefore, the analysis of relative exchange-values/prices fails short of providing useful and realistic insights into actual exchange relations.

So far, for the simplicity of argument, reference was made only to the labor-time spent argument to identify and analyze different concepts of value. Introducing the mental faculties of labor-power into exchange-value/price analysis would have different implications, as will be seen.

The sources of value: nature and labor-power

In order to initiate the production process, the entrepreneur has to combine the inputs of production such as raw materials, energy, machinery, tools, etc., with the labor services. But, according to the economic textbooks, there are only two factors of production, capital and labor, and it is customary to treat capital as a "productive" factor of production. What the term capital refers to is, in general, capital goods, which are the necessary inputs of production but not productive

ones. On the contrary, they are, by themselves, rather unproductive unless employed to assist the labor in the production process.

For instance, a person can possess large sums of investable funds, e.g., savings, but it does not make him a producer but just a money-holder. In addition, the money saved is not capable of producing anything on its own. Such savings could not increase by itself unless used to hire the services of labor-power to transform the inputs of production into useful things with exchange values. In short, money capital is not fertile, at all. It becomes a meaningful economic concept only if used in economic transactions.

Capital goods are no more productive as such than the money-capital itself, unless employed to assist the labor-power. Being manufactured inputs of production, capital goods help to increase the productivity of man. Even a production plant employing computers and robots at every stage of production has to employ labor-power to maintain production process. All capital goods including tools are useless things in the absence of labor-power. Therefore, it is neither logical nor rational to describe them as "productive"? The best one can do is to call them "indirectly productive", if one may say so.

The money-capital employed to combine the labor services with the other inputs of production might seem like a "productive" factor of production. But, actually, it is the labor services and material inputs, whether processed or unprocessed, which account "directly" for the supply of products and whatever value they designate. It is a common knowledge that all material inputs of production are originally the output of nature in the form of raw materials. Only after being processed by the labor-power, they are transformed into useful things demanded by the end-users. Thus, every output may be reduced to land and labor.

To put it differently, there are **only two productive factors** of production; **nature and the services of labor-power**. Only the natural inputs processed by the services of labor-power can supply the physical products. For the supply of services, on the other hand, labor-power alone might be sufficient in many cases.

Labor-power services

Human beings are the provider of labor services, who also happen to be the ultimate beneficiaries of the output; an aspect sometimes overlooked or undermined in the economic analysis. Human beings are both, the producer as well as the consumer of the same output. The services of the **labor-power** enter the

output in two ways: as **mental labor (brainpower)** and **manual labor (physical-power)**. Therefore, the labor-power can be defined, as Marx did, as:

"... the aggregate of those mental and physical capabilities existing in the physical form, the living personality, of a human being, capabilities which he sets in motion whenever he produces a use-value of any kind".
(Capital, Vol.I;270)

Given the physical labor, it is the mental faculties of labor-power that accounts for the supply of **productive knowledge**, which accounts for the quantitative growth and qualitative improvement of the products supplied. The physical labor-power is, on the other hand, a necessary ingredient of the production but not a sufficient one alone to produce ever increasing or advanced products with exchange values. To possess an exchange value, the contribution of mental and physical labor power is imperative. Without the assistance of mental labor power, it would be impossible to produce the sophisticated goods and services and reach the contemporary standards of living, which, some of us around the globe, so lavishly enjoys.

The invaluable **productive services of the mental labor-power** can be divided into five groups:

- 1- **New goods/services** (entirely new ones, or old ones in new form ranging from raw materials, intermediaries to final outputs);
- 2- **New production processes** (new producer goods to produce;
 - a-) more with given inputs,
 - b-) cheaper with given inputs,
 - c-) entirely new products);
- 3- **New organization** (reorganization with given inputs to reduce costs, or to increase output);
- 4- **Experience** (knowledge accumulated through years and utilized by, the mental faculties of labor power); and
- 5- **Learning-by-doing** (practice contributing to the productivity of physical labor-power).

1-, 2- and 3- above are the products of mind, e.g. mental labor-power, while 4- and 5- are time related properties separated by an arbitrary line, but related to the mental capabilities of human beings.

To sum up; it is the mental faculties of labor power that accounts for the ever increasing and sophisticated living standards. But it would have no significance if

there were no gifts of nature to transform into useful things. The nature or, as some might prefer, the land, provides the basic inputs for the transformation, and the labor power with its mental and physical components carries out the work. The productivity of the nature is, in practice, increased with the assistance of labor power, which, eventually, converts nature's gifts into processed products.

Men need the output of nature both to survive and to increase his lot. Men and nature are, therefore, **two indispensable and inseparable sources, or productive factors**, of prosperity. All goods and services are the products of both of these productive forces. And all physical products, no matter how complex and sophisticated, whether it be a computer or a space shuttle, can be reduced to nature's gifts as raw materials, if stripped from its mental and physical manpower content.

Productive knowledge and variations in value

What are the conditions influencing and/or determining the use-value, objective-value and exchange-value of a product? Is it the supply-demand relation? The labor-contained or labor-commanded by the final products? Or, is it the roundaboutness or time-aspect of the production? What is the role-played by the "marginal productivities" of labor and capital?

Let us begin, as Adam Smith did, with the famous hunter model and assume two hunters and no tools of production except for the labor-power with its two basic components, e.g. **manual** and **mental** labor power. Being a quantitative concept, the manual labor-power is measurable by the hours, days or some other unit of account while the latter term, the mental labor-power, or the source of all **productive knowledge**, refers to an analytical concept. Unfortunately, the economic science still offers rather limited premises in the identification and assessment of such analytical concepts.

Keeping in mind the distinctive features of mental labor-power, let us assume that the two hunters in our model work 10 hours a day and the first one, Maria, hunts 2 deer while the second, Leyla, hunts 4 rabbits a day. Given their preferences, at the end of the day, the two hunters exchange one deer for two rabbits, half a day's physical work, which is a fair exchange with respect to the physical labor embodied, e.g., 10 hours work, in both products. Leyla consumes one deer and two rabbits, just like Maria. Nobody is better off or worse off after the exchange, which produces no surplus value, and the supply-demand is in balance.

Leyla's contribution = 4 rabbits = 10 hours' work

Maria's contribution = 2 deer = 10 hours' work

Total supply a day = 2 deer + 4 rabbits = **20 hours' manual work**

Leyla's consumption = 1 deer + 2 rabbits

Maria's consumption = 1 deer + 2 rabbits

So far, our two hunters did not make use of their mental faculties in their daily work. Assume that some day one of the hunters, Leyla, utilizing her mental capabilities and combining them with her physical labor inputs, develops a method, which enables her to double the daily catch from 4 rabbits to 8 rabbits within the same 10 hour time-span a day. To be more specific, let us say that she makes some simple tools to assist her in the hunt of rabbits. Leyla's still works 10 hours a day but her daily production in terms of economic value increased. Her output is now worth instead of 10 hours' manual work to 20 hours' manual work, though she effectively works only 10 hours a day.

New total supply/day = 2 deer + 8 rabbits = 20 hours' physical labor

Or alternatively:

= 20 hours physical labor + Leyla's mental labor worth 10 hours

= 30 hours' physical labor

What would happen to the exchange relations with the other hunter, Maria?

With regard to the new situation, the exchange relations will have to change. Previously, there were 2 deer and 4 rabbits in the market. Now, there are 2 deer and 8 rabbits. **What would the new exchange ratio look like?**

Case-1:

Following the footsteps of 19th century economists like Ricardo and Marx, one can argue that it still requires 10 hours' work to catch 2 deer and 8 rabbits. Equal quantities of labor time are embodied in both cases, and therefore, 1 deer should exchange for 4 rabbits instead of 2, in order to maintain the equality of exchange of the labor-time employed. (Figure-1:2) As a result, at the end of the day, Leyla would be expected to give up 4 rabbits which equal to 5 hours' physical labor for 1 deer which also requires 5 hours' physical labor a day.

Leyla's consumption = 1 deer + 4 rabbits = 10 hours' manual work

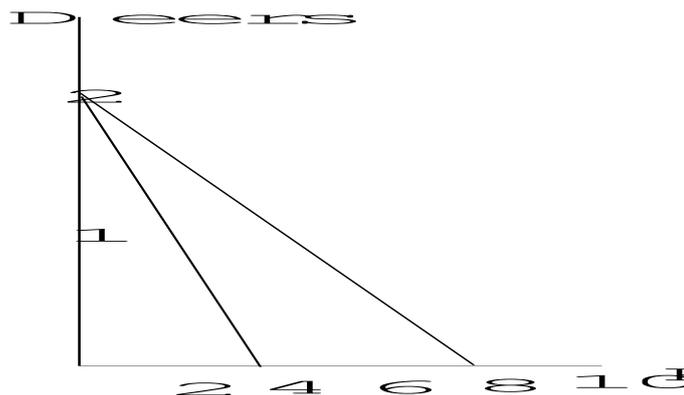
Maria's consumption = 1 deer + 4 rabbits = 10 hours' manual work

Total supply = 2 deer + 8 rabbits = **20 hours' manual work**

If one ignores the productive contribution of Leyla's mental labor effort, i.e. the development and employment of some tools, which increased her productivity (daily catch), exchanging 1 deer for 4 rabbits would **seem** like an egalitarian exchange.

However, Leyla has not been rewarded, yet, for her mental contribution to the common prosperity, which increased the total supply by 4 rabbits. Instead of combined 20 hours' physical labor's output, there is now a **total output equivalent to 30 hours' physical work**, in terms of the initial exchange relations. Maria, the second hunter, who is the less productive one, would be the beneficiary of the new exchange relations based on the time-spent approach. She works for 10 hours but consumes 15 hours' output. Meanwhile, Leyla producing 20 hours' output consumes only 15 hours' output. This would be neither logical nor economically rational from the point of further development of technology as well as common prosperity. The system is unable to provide any incentives.

Figure-1:2 Equal Exchange



Case-2:

Initially, Maria and Leyla were exchanging 1 deer for 2 rabbits. Assume that after the introduction of tools developed by Leyla, which doubled her productivity from 4 to 8 rabbits, the initial exchange relations are maintained. Maria and Leyla still exchange and consume 1 deer and 2 rabbits each, worth 10 hours' physical labor. Total output is worth 20 hours' physical labor.

But now, Leyla has access to "additional" 4 rabbits worth 10 hours' physical labor time in terms of initial values in Case-1, which she can exchange for another product, say for 2 sheep. Maria still consumes 1 deer and 2 rabbits (equivalent to 10 hours' manual output) while Leyla now has 1 deer, 2 rabbits and additional 2 sheep at her disposal for daily consumption. Given demand, new tool developed by Leyla entitles her to the consumption of 1 deer, 2 rabbits and 2 sheep. (Figure-1:3)

Total value of her consumption, in terms of labor time embodied at initial values, has risen from 10 to 20 hours' of labor. But, the total hours effectively employed by Leyla has not changed, 10 hours.

Leyla's consumption= 1 deer+2 rabbits+2 sheep= 20 hours' manual work

Maria's consumption = 1 deer + 2 rabbits = 10 hours' manual work

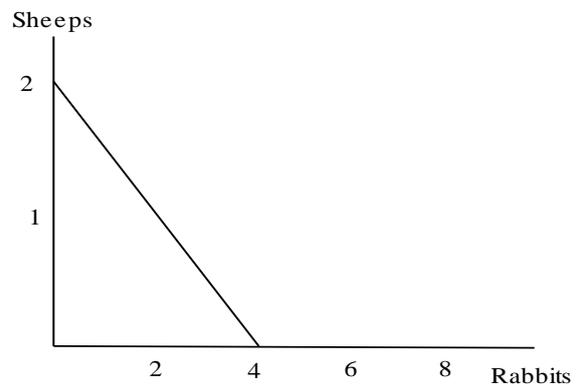
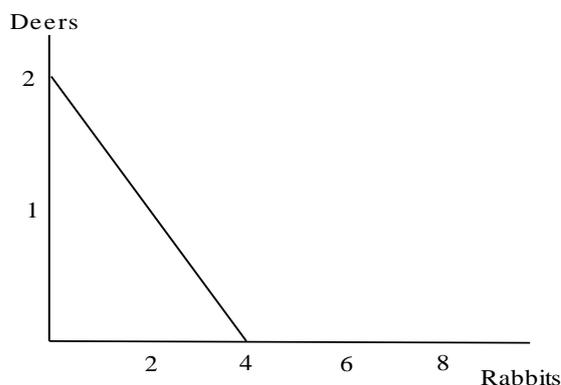
In this case, there is no egalitarian exchange in the Ricardian or Marxist tradition of equal quantities of physical labor expressed in time-unit employed. However, neither Leyla nor Maria consume less, in fact, there is an increase in the total output and consumption thanks to the contribution of Leyla's productive knowledge. As a result, she is now able to consume more than ever before. This outcome is both, more logical and economically rational, than the foregoing one.

Figure-1:3 Rational Exchange - 1

Exchange between Leyla and Maria Exchange between Leyla and "other" person

(a)

(b)



Case-3:

If Leyla cannot dispose "all" of her additional 4 rabbits in exchange with "other" persons outside her own community consisting of Maria and Leyla, then even Maria would benefit from the increased productiveness of Leyla and enjoy more consumption of rabbits. It might work as follows:

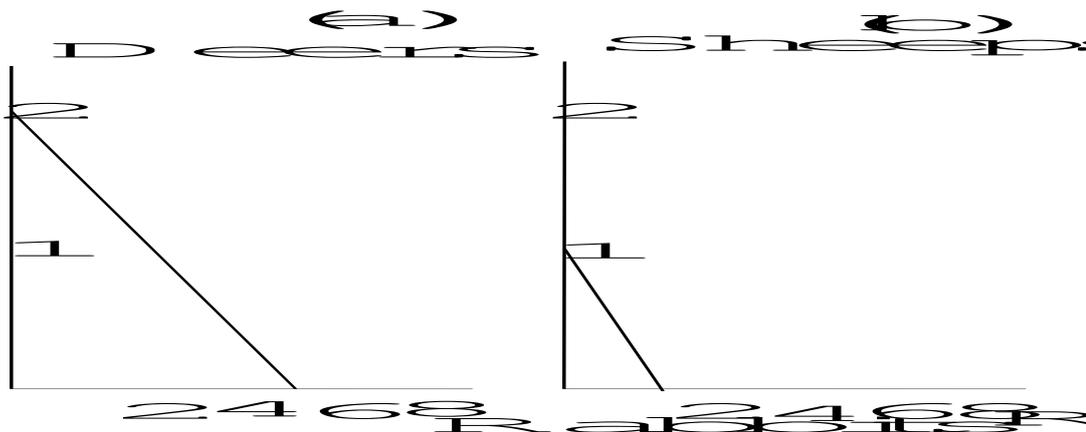
Assume that only 2 rabbits out of 4 extra ones due to productivity increase are exchanged for 1 sheep. Leyla would now have 6 rabbits at her disposal in internal exchange transactions with Maria. Assume that all output supplied is exhausted, new exchange relation for Leyla and Maria would look like as follows; 1 deer for 3 rabbits. Now, it is not only Leyla who benefits from productivity growth but also

Maria who actually did not make any contribution to the increased total supply (see Figure-1:4).

Leyla's consumption = 1 deer+ 3 rabbits + 1 sheep

Maria's consumption = 1 deer + 3 rabbits

Figure-1:4 Rational Exchange - 2



Both consume more in terms of economic value though the effectively worked hours have not changed.

This situation seems to have a closer resemblance to the reality than the prior two cases, for it allows even the less productive person(s)/sector(s) of the economy to benefit from the overall productivity growth taking place in "dynamic" sectors. In terms of modern economies, not only the inherently more dynamic and productive manufacturing sector but also the service sector, which is prone to relatively lower productivity growth, benefits from such developments. For, any development in the more productive sector reflects an overall improvement in the quality and/or quantity of the "total" output supplied. This is, probably, the fairest result from the **distributive justice** point of view because each specific contribution of the productive knowledge, as a product of mental labor efforts is, in principle, a **(marginal) by-product** of the accumulated **common (public) knowledge**. Therefore, all individuals of the community should benefit, to more or less extent, from the improvements in more dynamic and progressive sectors.

Regardless of the degree of quality of mental faculties, nobody acquires knowledge "manna from heaven". Today's pool of knowledge of individuals as well as of

communities is the product of inherited and accumulated knowledge based on thousands of years of learning, experience, research and development. Therefore, today's contributions to productive knowledge (new technologies) are defined as "marginal" contributions to the total.

Some persons are more fortunate than others are, regarding the allocation of personal endowments, e.g., natural abilities and talents. Differentiations in the allocated personal endowments offer different degrees of premises for fruitful exploitation of the accumulated pool of knowledge. Some individuals/firms/countries make better use of such opportunities and benefit more than others. The result is an ever-increasing trend in the prosperity of nations, in spite of disparities in cross-country income distribution.

Regarding our model with two hunters and adapting it to present day, it implies that Leyla's contribution would only be a **marginal** one to the accumulated pool of knowledge from which she drained her productive knowledge. The past knowledge is a **common inheritance of all humanity** and therefore, it is not only fair to share the accruing benefits with others, but also logical and economically rational.

Consequently, we can conclude that, given the natural endowments, the productive capacity of labor-power composed of mental and physical faculties, is the **only** source of all past and present prosperity and of future growth. Alternatively, to put it in William Petty's terms, substituting the word material with service and material:

**"... labor is the father of (material) wealth, the earth is its mother."
(in Marx, Vol.I:133-134).**

Value-price relation

How do values transformed into prices? This question was one the central issues troubling the minds of Classical economists and later the followers. There was, and never has been, unfortunately, any satisfactory explanation offered on this matter. After Marx, especially since Jevons and Walras, more and more economists tended to seek the reply in the new Marginalist explanation of price theory where prices are determined in accordance with the **law of diminishing returns**. In *perfect* market conditions, the supply and demand curves determined the market price. Accordingly, the interception point of the "increasing" marginal cost and "decreasing" marginal utility curves reflected the price level with economic efficiency. However, one could sometimes, assign the job of price determination to the marginal productivities of the factors of production, labor

and capital. Under monopoly or monopolistic competition, there was no trouble at all to find the market price based on highly abstract and extremely unrealistic assumptions and economic relations.

The result is a great leap forward in "**blackboard economics**".

What criteria should be used to transform the exchange-values into prices? What determines the market price of a product? Is the Classical labor-value approach capable of explaining the prices? Or, is it the marginal productivities of the capital and labor that determine the price level? What is the role of demand? Can one claim, as Kaldor did, that;

"... prices are mainly cost determined; demand has virtually no influence on prices (except of course by an indirect route in that demand determines the quantities produced, and changes in the latter may have an influence on unit costs." (Kaldor,1985;31).

Ricardo had searched for an "**invariable measure** of value to apply in the transformation of values into prices but could not find one which satisfied him. He claimed that;

"... there is no commodity which is not itself exposed to the same variations as the things, the value of which is to be ascertained; that is, there is none which is not subject to require more or less labor for its production." (Ricardo,1990;44-45).

For Marx, using the same use- exchange-value relations developed by Ricardo, the answer was obvious but Ricardo was not aware of his own discovery. The invariable measure Ricardo was looking for was the labor-power, which Marx defined as;

"... the aggregate of those mental and physical capabilities existing in the physical form, the living personality." (Marx, Vol. II;270).

According to Marx, the labor-power was a commodity like any other commodity in a capitalist system, which had to be reproduced, and its value was determined by the socially necessary labor-time for its reproduction. Therefore, claimed Marx,

"... the labour-time necessary for the production of labour- power is the same as that necessary for the production of those means of subsistence." (Marx, Vol.II;274).

Marx had attempted to reduce the labor-power with its physical and mental faculties into a simple *quantitative* concept in terms of socially necessary labor,

neglecting the separate analysis of the contribution of productive knowledge, the product of mental labor-power generating value, prosperity and growth. As a result, the exchange relations as in the Case-1 above, where equal quantities of labor time were exchanged seemed like an egalitarian exchange relation.

As we have seen in the previous parts, given the nature's indispensable role in production, the **faculties of labor-power** or synonymously the **human capital** was the source of our ever-increasing growth and prosperity. Therefore, a proper price theory should be based on a **labor value theory accountable for the dual properties of labor-power**. An exception can be made for the agricultural prices on which the nature still seems to have a great influence on the seasonal supply-demand conditions.

As mentioned before, estimation of the quantity of physical labor spent for the supply of a given quantity of output is a relatively easy mathematical process. But, which is the appropriate method capable of measuring the contribution of mental faculties of laborer, which is an analytical concept? What criteria can we use to provide a rational basis for the calculation of its contribution to the value generated? Does the market price paid by end-user reflect the true value of a product, by any chance?

Relative prices

Let us start by reconsidering our simple economy with two hunters and introduce money as the medium of exchange in transactions, instead of barter trade. Assume that 1 deer is worth 30 TL and 1 rabbit 15 TL. The initial exchange relations based on manual labor-power inputs of 10 hours' a day can be expressed as follows:

$$2 \text{ (deer)} * 30 \text{ TL} = 4 \text{ (rabbits)} * 15 \text{ TL}$$

where;

$$1 \text{ deer} = 2 \text{ rabbits}$$

or, alternatively

$$15 \text{ TL} = 15 \text{ TL}$$

Now, let us assume again that Leyla, the rabbit hunter, utilizing her mental faculties, develops a tool, which doubles her daily hunt of rabbits from 4 to 8 within the same time-span of 10-hours. Ignoring any incentives for Leyla as reward for her productive contribution, and adapting the Marxist stand in estimating the value created by labor-time embodied, the new exchange relation between Maria and Leyla would look like as follows:

$$2 (\text{deer}) * 30 \text{ TL} = 8 (\text{rabbits}) * 7.5 \text{ TL}$$

where:

$$1 \text{ deer} = 4 \text{ rabbits}$$

As mentioned before, the equal labor-time approach of exchange actually rewards the stagnant hunter, Maria, while penalizing, in a way, Leyla, the progressive one. Under such circumstances, there would be incentives for Leyla to make any efforts to increase productivity, assuming that she is driven by some "personal gain" motive in exchange relations. Naturally, a person may also be driven by other motives than personal gain, but for the sake of argument, we shall ignore such exceptional cases.

Given the initial price level and exchange of 1 deer for 2 rabbits a day and Leyla's increased productivity, she is now in a position to enjoy additional consumption of 4 rabbits worth 60 TL a day, if she can sell the surplus to third parties. Given the price of rabbit (15 TL), her total income has now increased from 60 TL to 120 TL a day, while that of Maria remains at 60 TL a day.

The total income of both, Maria and Leyla, has also increased from 120 TL to 180 TL thanks to the contribution of Leyla's productive knowledge. A reward in the form of additional income worth 60 TL accrues for Leyla, because of productivity growth. It is both, rationally and morally justified and provides the necessary incentives for the further development of productive knowledge.

Introducing wages and profits into exchange relations

Introducing profit for employers, wages for employees and even taxes for state into our simple model would not affect the conclusions in substance. Assume that each hunter employs one employee and pays wages (w) equivalent to 15 TL a day and making 15 TL profits (π). At the initial stage, the following relative prices would emerge:

$$\begin{array}{ll} p_d = 30 \text{ TL} & p_r = 15 \text{ TL} \\ w_d = 15 \text{ TL} & w_r = 15 \text{ TL} \\ Y_d = 60 \text{ TL} & Y_r = 60 \text{ TL} \\ q_d = 2 \text{ deer} & q_r = 4 \text{ rabbits} \end{array}$$

where p_d and p_r denote unit prices of deer and rabbits, w_d and w_r wages, π_d and π_r profits, Y_d and Y_r the total incomes, and q_d and q_r quantities, for each hunting

"firm", **M** and **L**, respectively. Technologies, incomes and profit rates as well as the consumption patterns and the 10-hours' working day are identical in both sectors.

Once again assume that Leyla, the owner of the rabbit hunting enterprise-L develops a new tool (technology), which is a product of her mental-labor and doubles the daily catch from 4 to 8 rabbits, as assumed before. The stagnant deer-hunting sector initially consumes 2 rabbits a day, which is acquired in exchange of 1 deer.

In the new situation after the introduction of new tools (technology), assuming that Maria is the only trading partner and exchange takes place in accordance with the labor-time employed, the price of rabbits would fall from 15 TL to 7:50 TL each, leaving the wages, profits and total income in the rabbit sector unchanged. Total income is still 120 TL. Meanwhile, however, the total supply has increased from 2 deer-4 rabbits to 2 deer-8 rabbits, an increase by 4 rabbits. There is an egalitarian exchange relation in appearance, but at the expense of the productive enterprise-L, which has not been rewarded, yet.

Let us assume that there is another market with new "potential" customers outside our community. If Leyla can sell additional supply of 4 rabbits in this market for a price of 15 TL for each rabbit, she can increase her total income from 60 TL to 120 TL.

If the exchange ratios are undetermined, the price will depend on the "haggling and bargaining" between the two trading parties with regard to the subjective-values of products. Depending on the size and rate of profit, enterprise-L will now be able to afford to wage-rise for employee(s).

The productive contribution of Leyla's mental faculties would have widespread "potential" benefits from community as a whole, to wage earners, and enterprise-L. Even the stagnant sector, the deer hunting enterprise-M, would benefit from the developments. Because, as the productivity increases in the rabbit sector, the progressive sector might eventually end up with decreasing terms of trade, which is the subject of following section.

Deteriorating terms of exchange and demand

Suppose that in the **new** market conditions, 1 deer is exchanged for 3 rabbits, thus leaving 2 out of 8 as additional rabbits for enterprise-L. According to new exchange relations, 1 rabbit is now worth only 10 TL in our community consisting of

two enterprises; enterprise-M and enterprise-L. New but deteriorated exchange ratio for enterprise-L would look like as follows;

$$2 \text{ (deer)} * 30 \text{ TL} = 6 \text{ (rabbits)} * 10 \text{ TL}$$

Enterprise-L can sell the additional two rabbits in "other" markets and acquire some additional income, say 20 TL. Enterprise-M could now acquire three rabbits instead of two for one deer. The total income of enterprise-M and enterprise-L is now 140 TL (60 + 80, respectively). Enterprise-L can even afford to pay, say 5 TL taxes and 5 TL wage-rise, and still have an additional surplus of 10 TL. This outcome reflects, very likely, much better the actual transactions taken place and refer to a more rational and logical exchange relation than the labor-time contained approach, which denies some reward to the progressive enterprise-L contributing to productivity increase.

Ricardo was obviously right in not employing the abstract labor-quantity concept as the standard "invariable" value, as Marx did, because the value of labor-power itself is subject to variations as its mental faculties display various degrees of contributions to increased productivity and growth.

To conclude, it can be asserted that, with regard to the variations in the degree of contribution of labor-power, unit costs and marginal use-values, given incomes, there is no way to predetermine **exactly** at what ratios the exchange would take place in the market. The lowest limit for exchange will be the costs of production without profits, while the upper limit with profits would be what the market can bear.

Fluctuations in the short run demand reflected as the imbalance in supply-demand conditions have an influential impact on the determination of market (sale) price. However, it has no impact at all on the cost of production, which is independently determined. If the market (sale) price falls short of the production costs, then the firm will suffer losses. According to the neoclassical doctrine, the firm would be expected to leave the market. But in actual relations, the firm would quite likely continue to produce as long as the revenue exceeds the variable costs of production.

Use-value (utility) or rather the marginal use-value together with the purchasing power of individuals has an influential impact on the market (sale) price, but not on the costs of production. The rank of preferences of conveniences plays a significant role in the allocation of income. Preference of, for instance, a luxury

car to a residence of higher marginal utility is an irrational behavior, but also a fact.

Relative prices in the service sector

Price formation in the service sector requires somewhat different approach than the price formation in manufacturing sector. Since nothing tangible/storable is produced by the service sector, like marketing, consulting, banking activities, there are no physical quantities to exchange as in the two-hunter model of Adam Smith. Moreover, it is an easy task to study the exchange relations between a commodity and a service.

Let us consider an exchange relation between shoe repair and consulting. Both involve labor-time employed based costs of production. The former, shoe repair, in addition to labor-time spent, is subject to some material costs while the latter might be supplied even without such material costs. Yet the latter, a consultancy service, can be much more expensive than the former. In addition, how can one evaluate, in a satisfactory manner, the exchange ratio between a haircut and a computer?

Reducing the labor-power inputs into a standard measure like the labor-time spent might seem as an appropriate means to determine the relative or market prices in service sector activities. But, once we take into consideration the role-played by the contribution of mental labor-power as a qualitative concept, all quantitative approaches loose credibility. Because of such estimation problems, it seems more appropriate to skip the relative exchange ratio analysis in the service sector and focus on the price formation analysis for each service separately. The economic science would not suffer a loss since the actual transactions and related decisions are also based on individual price analysis rather than on the relative exchange ratios and relations.

Transformation problem reconsidered

So far the focus of analysis was on the transformation of "relative values" into "relative prices". The size and the rate of profit displayed no significance for emphasis was on the "**relative**" value-price determination. In the actual economic transactions, however, as we all know, economic agents do not consist of two producers only, like Leyla and Maria who produce as well as exchange the products in barter style among themselves. Producers, supplying products of utility **for exchange** are guided by the **profit** motive, while the end-users are driven by the **maximum utility** motive. The end-user may be a consumer of inputs of production

with the purpose to produce final products. The driving force, profits, would emerge at the end of production period as producer of final products. If the end-user were a consumer of final products, maximizing utility at the lowest possible cost would be the driving motive for transaction.

All economic transactions in commercialized communities take place with money, e.g., the medium of exchange. The employees, who are normally also the consumers, sell their labor-time in return of a money-wage or salary and the producer exchanges the output for money. Therefore, although it might shed some light on the transformation problem, relative prices approach is far from being capable of providing a sound and realistic analysis and interpretation of the transformation problem.

Alternatively, an approach investigating the producer/end-user transactions based on money exchange seem to be much more appropriate to get an insight to the matter. In other words; how to transform the relative exchange-values into relative prices? seems to be an improper question. Exchange of relative-values does not take place in the actual world transactions,.

Regarding actual exchange relations, there are, on one hand, producers in possession of exchange-values for which they wish to get the highest possible price to realize the **maximum** possible profits the market can bear. On the other hand, there are conscious end-users for whom the output represents some use-value, which they wish to acquire at the **minimum** possible cost, thus **maximizing** their benefits. That means that both sides of the market transactions aim to **maximize the returns** while **minimizing the costs**. This is the natural behavior of rational economic agents. The question is; given the technology, where should the market price be set in a competitive market?

Price determination with given technology

The short-run market sale price (**SP**) is determined by three factors; objective value (**OV**), subjective value (**SV**) and profit rate (**r**). **SV** refers to the demand function or the willingness to pay (**WTP**), by the end-users, while **OV** reflects the past and present labor-efforts plus past profits. The **SP** equation looks like;

$$SP = f(OV, SV) \qquad \text{eq.9}$$

which implies, "**w**" denoting the wage-rate, "**L**" the number of employees, and "**KG**" the value of capital goods, excluding, for the sake of simplicity, all "other" inputs of production. All **KG** is consumed after one production process.

$$SP = wL + KG + \pi \tag{eq.10}$$

where,

$$PC = wL + KG \tag{eq. 11}$$

PC denoting the production costs. When average **SP=PC**, production is at the break-even point producing no profits. Therefore, the following has to be realized:

$$SP > PC$$

Thus,

$$SP = PC + \pi \quad ; \quad \pi > 0 \tag{eq. 12}$$

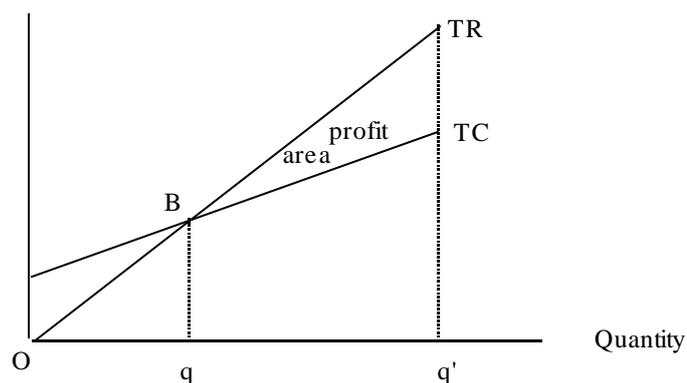
And

$$\pi = f(WTP) \quad \text{or} \quad \pi = f(SV) \tag{eq. 13}$$

Who is entitled to the profits (π)? Why is it so? are the questions to be considered in the sub-chapter below. For the time being, we simply assume that it exists and determines whether the supply of a product would take place or not. If the end-users are willing to pay for the product(s) in excess of their PC, then the rate of profit, "r", will be determined, given fair competition, by the relation of quantities supplied and the degree of aggregate marginal utility (**MU**). Figure-1:5 shows the relationship between the quantities supplied and profits. Given demand, the size and the rate of profits would increase as the total quantity supplied moves to the right of q towards q'.

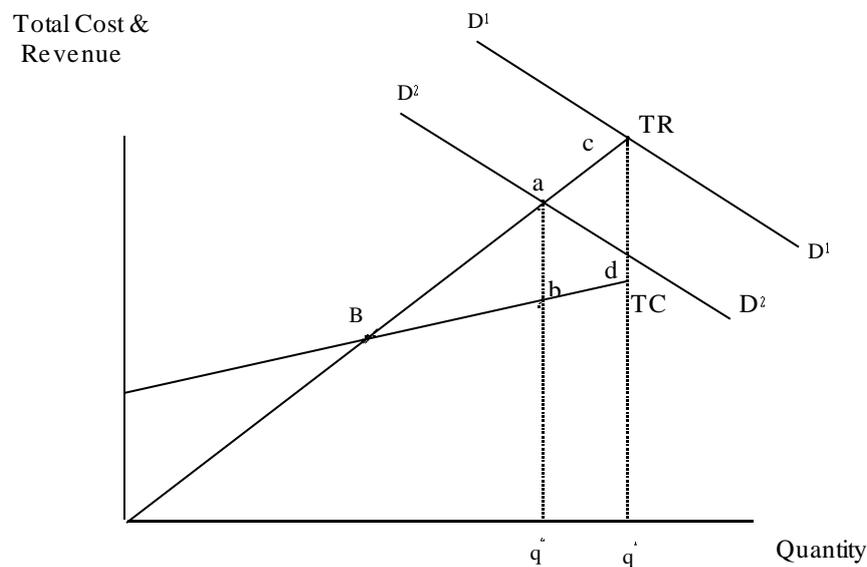
Figure-1:5

Total Cost & Revenue



Given the total quantity supplied by q^1 as in the Figure-1:6, the shift in the demand curve causes fluctuations in the size and rate of total profits. Assume that, for some reason, demand falls from D_1D_1 to D_2D_2 . The profits would follow the trend and drop by the area of rectangular "abcd", also causing a decline in the quantity supplied by the distance " q_2q_1 ", e.g., " $Oq_1 - Oq_2$ "

Figure-1:6



To conclude; given the products of nature, mental labor-power is the only source creating/adding value by transforming nature's output into useful products. In addition, the **SP** always exceeds the **PC** in market transactions. Our analysis indicate that the **PC** displays the minimum quantity required to reproduce the output without profits, while the intensity of aggregate marginal utility (**MU**) shows what the size and rate of reward for the producer would be, if engaged in production. As Marshall had once indicated, the marginal utility explains the demand side and **PC+ π** the supply side of the production. Labor-content argument alone falls short of explaining the market prices, especially in the short-run.

Production conditions that regulate the minimum supply-price level and the market prices adjust by the specific aggregate supply-demand conditions for the commodity/service, both in the short- and long-run. In case of excessive demand, the price tends to be upwards flexible. In case of excessive supply, the price tends to be rigid, showing no tendency to fall below the production cost. No production whatsoever would take place unless the market sale price covers, at least, the variable costs of production. There are, of course, always some exceptions to this rule. For instance, the producer might continue the production with hope that the prevailing conditions might change soon. Alternatively, perhaps, for some strategic reasons with regard to global interests.

Capital and its nature

For the supply of goods and services with exchange values, the entrepreneur must have access to investable funds (production capital), which is "a requisite of production". Without the production capital, a combination of physical inputs with the services of labor-power could not take place.

What is, actually, capital? Is it simply a certain quantity of money? Does the term refer to the "capital goods" of production? Could it imply both? Alternatively, does it imply something else? What is human capital? In which way does it differ from "other" kind of capital? Which capital contributes most to total output? Is it, by any chance, **a productive factor of production** like the nature or labor-power?

Capital has always been a mysterious and controversial subject of economic theory. According to Hausman **"Economists possess no good theory of capital and interest."** (Hausman,1981,Ch.10).

They possess elegant models and theorems, which, he continues, **"... do not enable one to explain real phenomena of capital and interest"** (Hausman,1981, Ch.10) for they fail to understand the phenomena, he claims. His discontent does not seem unjustified, especially with regard to the Marginalist teachings.

For Classical economists, the term capital referred not to capital goods only but also to wages of labor force and other inputs of production. Ricardo defined it as:

"... that part of the wealth of a country which is employed in production, and consists of food, clothing, tools, raw materials, machinery, etc. necessary to give effect to labour". (Ricardo, 1990;95).

Following Ricardo's line of reasoning, Marx defined capital as "a sum of money" with some special characteristics in the hands of capitalists. Self-employed entrepreneurs were not regarded as capitalist though they might be driven by the same motive, i.e., profits or "increasing the sum of money". Marx said:

"In itself this sum of money may only be DEFINED as capital if it is employed, spent, with the aim of INCREASING it, if it is spent expressly in order to INCREASE it." (Marx, Capital, Vol.I;976).

Another well-known Classical economist, J.S. Mill, had a similar approach and pointed out that:

"What capital does for production is to afford the shelter, protection, tools, and materials which the work requires, and to feed and otherwise

maintain the laborers during the process...Whatever things are destined for this use ... are Capital." (in Schumpeter,1954;634).

With the Marginalist revolution, the neoclassical economists tended to define the capital as a scarce "physical" input of production. Being a "scarce" and a "productive factor of production", they treated the capital as one of the original productive factors along with land and labor-power, eligible for income, e.g., profit, or "interest". Austrian school was not quite satisfied with this line of reasoning and attempted to show that capital could not possibly be considered as one of the original factors of production contributing to production. Nevertheless, the Marginalist school survived the challenge.

For Marshall, capital itself was the product of "**labour and waiting**". He disliked the propositions that capital was the "product of labor alone", which would compel us; "**...by inexorable logic to admit that there is no justification for Interest**". (Marshall,1961,Vol.I;587). He defined capital as; "**... a store of things, the result of human efforts and sacrifices, devoted mainly to securing benefits in the future rather than in the present.**" (Marshall,1961,Vol.I;587).

Production capital

Definition of production capital, in this work, seems quite compatible with the approach of Classical economists to capital, rather than Neoclassical or Austrian. Yet, the Classical definitions seem somehow incomplete or inadequate. They, usually, tell us what the capital is used for, but not much about **its origin**. Or, about how it emerges, Not satisfactorily at least.

Let us start our analysis of (production) capital by recalling the essential characteristic of labor-power; generation of value with its mental and physical faculties. Originally, it was the former, the mental labor-power that contributed to the increased personal as well as common prosperity by improving the hunting **technology** and increasing the supply of rabbits from 4 to 8. The new technology was embodied in Leyla's capital-good.

Assuming constant demand and exchange ratios e.g., one deer= two rabbits, Leyla would now be in a position either to expand her total consumption worth additional 4 rabbits or to save them or a combination of both. Assuming that she decides to save the money worth of four additional rabbits, the savings itself would imply **money hoarding**, keeping the product of her labor-power **intact**, but **unproductive**, which does not fit our definition of capital.

In the initial two-hunters model of relative exchange-values, capital-good of Leyla was introduced as productive knowledge of laborer; nature's gift transformed into physical tools by Leyla. Assume that, Leyla decides to employ her surplus value worth of four rabbits to employ some workers and tools to increase the supply of rabbits or another product demanded. In this case, she would be employing her savings in a productive capacity, driven, naturally, by the motive of increasing the initial outlay, e.g., to make profits. This productive employment of the savings, as distinct from the "hoard of money", makes it **(production) capital**. Note that saving itself is not capital unless it is invested to earn surplus value (profit).

To put it differently, (production) capital is a fund (money) employed by the profit motivated entrepreneur to combine the productive knowledge (technology) embodied in the transformed products with the services of labor-power, given, of course, the gifts of nature. The producer activates the money-savings through the purchase of raw- materials and processed inputs of production, and by hiring the necessary labor services required. Thus, money-savings or money-capital is converted into (production) capital. Processed inputs range from the semi-finished items to tools and machinery. Therefore, given the gifts of nature, the mental and manual faculties of the labor-power appear to be the **genesis of capital**.

Many economists define the "**hoard of money**", or pure savings, also as capital, for it generates an "income" for its owner in the form of interest. As distinct from the production capital defined above, such savings do not produce any goods or services, i.e., no competitive risks and labor-efforts are assumed. Since no supply of any goods or services is involved, a line clearly distinguishing money-savings from the productive employment of savings is not only proper but also necessary. The return on such unproductively employed savings will be called as "**unearned income**".

A third category of savings presents itself in the form of jewelry and/or collection items, which can be classified as "**unemployed savings**". For, such savings are status symbols without any relation to value generation and progress. For the owner, such items may reveal some pleasure or satisfaction. Their value in terms of money might increase in time. However, this increase is normally due to "other" reasons than an increase in use-value for the owner.

To sum up, capital is not simply "**hoarded money**" as some would be inclined to describe it. For it would imply that all persons with access to some money are capitalists, i.e., persons assuming competitive risks by combining the inputs of production to supply useful products.

Production capital is not identical with the capital goods, for it covers the payment for the services of labor-power and all material inputs as well. It certainly is not a **productive** factor of production for it supplies nothing on its own except for indirectly by assisting the productivity of labor-power. Without labor-power, there would be no concept of production capital at all.

Concisely, (production) capital is money employed to combine the (un-) processed gifts of nature with the services of labor- power to supply goods and services in return of some reward (profits). As J.B.Clark remarked, it is "expressible in money, but not embodied in money".

Money-savings can:

- 1- Earn income if employed to make profits;
- 2- Receive income if employed in financial transactions;
- 3- Display status and exchange-value like jewelry and art objects; or
- 4- Remain idle.

A logical conclusion of the preceding discussions is if the genesis of savings is labor-power, then all rich people or their antecedents must have made significant contributions with their labor-power.

Well, not necessarily! There are, has always been, plenty of legal and fair as well as "**otherwise**" ways and means to accumulate money-savings. However, since the emphasis, in this study, is on the value-price analysis, highly relevant, essential and interesting subjects like capital accumulation, income distribution and growth will have to be neglected.

Profit and its origin

Classical economists had no clear-cut definition and consensus on the subject. As Schumpeter (1954, p.648) observed that: "**A. Smith may be credited with two different `theories' of interest, and Ricardo ... with three or even four**"

- 1-) abstinence,
- 2-) residual,
- 3-) entrepreneurship (productivity) and
- 4-) unpaid-labor. But, he says,

**"... it is more realistic to say that they had no definite theory at all."
(Schumpeter,1954;648).**

For Marx, profit meant surplus value, e.g., the unpaid labor. The abstinence theory treated the profit as the return on the service rendered by saving, e.g., the price of saving.

For some economic analysts, profit implies the return on the capital goods invested. For a businessperson, profit can simply be defined as the return on the initial capital advanced, including the payments for wages and salaries of the employees, and costs like rent, capital goods, raw materials, etc. It is the difference between total costs and total revenue.

In this study, the profit (or the surplus over costs) is treated as the return on savings *productively employed* (invested), subject to risks, to supply utilities, by combining the raw materials and processed inputs of production embodying labor services. It comes to existence because of some specific economic activity with labor effort.

We have seen above how the mental faculty of labor-power contributed to the productivity growth and thus to the increased personal as well as common prosperity. Leyla's initial capital was her productive knowledge. When she later employs her savings to produce utilities with profit motive, she risks her savings. The driving motive is obtaining more profits over the initial costs of production. It is not only a return on the capital goods advanced but also a return on the other outlays of production, which are purchased with the accumulated savings, including the payment for the services of labor-power.

Profit motive was introduced as the only driving force inducing the individuals, called entrepreneurs, to engage in the supply of products ranging from basic products to conveniences of life, from raw materials to commodities and services. Rational objective of any enterprise is to generate the maximum profits possible. Without profits, the enterprise would cease to exist. In the short or medium run, however, the enterprise may pursue other temporary objectives such as acquiring a targeted market share, keeping the shareholders satisfied, maintaining the status quo or reaching a sale target.

In the pursuit of the profit maximization, the enterprise makes some direct and indirect contributions to the community such as paying taxes, creating new jobs, generating economic growth and introducing new products. However, all these useful contributions of the enterprise are the byproducts of profit maximization

motive. An entrepreneur never sets up an enterprise with the purpose to generate employment, to pay taxes, or to develop a region/community. Without the profit motive, the enterprise would lose its jugular and wither away.

Profit: What is it paid for?

Returning to our two-hunter model, assume that Leyla, the producer of the productive knowledge, **saves** her daily income worth 20 TL, instead of consuming it immediately. After a time-span of, say five days, she would accumulate savings worth 100 TL. Further assume that she employs her savings (invests) to hire additional workers to increase the supply of products with exchange-value. Given demand, the new investment would increase the total output, thus increasing the total wealth of the community while at the same time generating employment. Is Leyla still entitled to profits in excess of initial costs, though she no longer directly participates in the production process? After all, she does not supply any direct labor-power services, except performing some managerial duties for which she can receive a salary.

The answer ought to be obvious; yes! Leyla, being a capital-owner entrepreneur in this case, is employing her accumulated savings by transforming them into productive capital (investment), to increase the total output. By doing this, she pursues, no doubt, her own interests (profit) but also takes the risk of losing her accumulated savings. Therefore, it is only natural that she is rewarded with profits for taking **risks**. The profits, or surplus value or reward or whatever one might name it, is both morally and logically justified as well as economically rational. In the absence of such a reward, nobody would have incentives to invest. It is against the human nature or rather greed.

Returning to the question on: Who are entitled to the accruing profits? The reply ought to be either:

- 1- The producer(s) of the productive knowledge; and/or;
- 2- The supplier of production capital; or
- 3- Both.

More than a century ago, **James Mill** (1821) and **McCulloch** (1825) had treated profits as "the wages of accumulated labor" and the capital goods as "accumulated or hoarded labor", thus going on "earning" wages, e.g., profit. Analogously, the maturing wine in the cellar was pointed out as earning wages (profits) for the owner as the time goes on. According to this approach;

"... **capital goods are the result of saving**" and "**any net yield of these capital goods is in the nature of a payment for the service rendered by saving**". (Schumpeter, 1954;659).

It seems that the "earning wages" proposition undermines one critical aspect. The earnings are not only a return on the capital goods alone but on the total capital advanced. For wages and other inputs of production are also paid from the same accumulated savings.

Regarding savings, two interesting questions arise with reference to actual economic transactions. First, it is a common practice for the enterprises to assume production financed partly by "**borrowed capital**" rather than employing own funds only, even though there might be adequate resources, in order to take advantage of the loopholes in the tax-system. Therefore, the profit rate on "**total productively employed capital**" may seem much lower than the profit rate on "**own capital**". The present tax systems actually favor the use of borrowed capital by providing generous deduction facilities thus, in a way, subsidizing the profits of enterprises. Taxation policies, in practice, seem to redistribute income in favor of the unproductively employed capital.

Secondly, and perhaps more importantly from the point of view of income distribution, the lion-share of the productive knowledge in the form of patent rights, are owned and controlled by the enterprises, especially giant ones of developed nations operating globally. To the extent, an enterprise finances the invention and/or innovation of a new technology; it would be justified to reap, at least, some of the accruing benefits. As we have seen, it is the mental part of labor power, which actually accounts for the generation/addition of new productive knowledge, draining from the pool of accumulated knowledge in thousands of years. Any new formation of the mental labor-power (new technology), exploiting the **accumulated knowledge of the humanity**, could only be a marginal contribution, regardless of its significance. No knowledge is an isolated property distributed from heaven. In the absence of accumulated pool of knowledge and its transmission through the educational and training system to the individuals, there would be no utilities of contemporary standards. The relevant question is; **who is entitled to the accruing benefits of the productive knowledge** produced by the labor-power based on thousands of years of accumulation of knowledge: **The inventor? The enterprise? The mankind? Or all together?**

Earned vs. unearned incomes

Having established the indispensable role of profit motive in the market economy business transactions, it would be appropriate to distinguish between the **"earned"** and **"unearned"** incomes. Otherwise, it would be difficult to separate the reward on productively employed capital from the return on unproductively engaged capital.

The concept "profit" refers only to the income generated by the productive employment of capital. It is the **"reward"** of taking risks under uncertainty, i.e., assuming business transactions, which contribute to the increased output for the satisfaction of human needs and wants. **Savings directly employed** to produce utilities is therefore, called **productively employed capital**.

Unproductively engaged capital, on the other hand, in the form of financial assets such as bank deposits, real estate or obligations/bonds, makes **no "direct" contribution** to the supply of products nor does it assume the related risks. There are no labor-efforts involved either. It merely provides an **indirect** pool of financial funds without involving in the production and sharing the risks. No output of useful products takes place. This is why it is considered as unproductively engaged capital and its income as **"unearned"** income.

On interest

Defined as the **money charged for the use of money** or **money producing money**, interest has always been one of the most controversial subjects of economics. According to Aristotle and many other scholars since then, interest has frequently been treated as **unjustified** and **irrational**. The Classical economists had failed in drawing a distinct line between the profits and interest. And the neoclassical school has never been able to present an universally acceptable theory on the subject. Interest was, sometimes, defined as the **price of waiting (abstinence)** (Senior), and sometimes as the **price of capital disposed** (Cassel). According to Schumpeter, interest was the **price of potential capital** while for Keynes it meant the **price of not hoarding** inducing the capitalists not to keep liquid funds, e.g., savings.

Is money just a means of exchange or is it capable of producing more money by itself? Is it morally justifiable and economically rational to pay for the use of money? In case of inflation, some additional payment to the nominal value just to cover the inflation rate is undoubtedly both, just and fair, in order to maintain the actual purchasing power of money. What if more is charged than the initial outlay?

If the borrowed money is used for consumption, interest charged would imply that the money produces more money for the lender. Charging something additional would be like **reselling** a product to the consumer for a higher price than its original market price without actually adding anything to its original value. An argument in favor of such charges on loans used for personal consumption would be that the consumer has the choice not to borrow. If he/she voluntarily accepts the additional charge, it means that the present consumption of the product provides more utility now than in future. The consumer would not have to postpone the satisfaction acquired by consumption, assuming the absence of finance the basic needs by loans. Therefore, the argument says, interest seems both rational and justifiable.

Using the borrowed money in production presents a different matter. If the money is placed at the disposal of a producer who is short of financial funds and the accompanying **risks** (profits or losses) are shared proportionately by both sides, the return on loan would be called profit not interest. Since the supply of useful products is subject to risks, the additional payment (profit) is both economically rational and morally justified.

If the moneylender does not share any of the risks of supply and, nevertheless, demands interest, the issue becomes complicated. As in the case of consumer, one might present an argument advocating the **personal choice** aspect, which does not appear incorrect, at first. However, such loans do not directly supply any useful products nor share the risks of production, at least not as the production capital does. Moneylender is often subject to very limited risks because the loans are usually secured by mortgage or other means. Such loans are like taxes on profits; obtained without sweat, because money produces more money.

The holder of the money savings might prefer to place the liquid funds in a bank deposit or to purchase bonds or obligations with secure return. The risks are minimized if not non-existent. Because though banks sometimes go bankrupt, the sovereign states never do. There is neither directly nor indirectly any engagement in the supply of useful products. That the bank or the state might invest the money in production is another matter. The money holder produces nothing, yet the money produces more money for the owner. Are payments (interest) on such savings economically rational and morally justifiable? It would be very hard to present a case in favor.

A rational economic system with rational economic agents should reward persons and funds used in production, which increases our living standards.

Rewarding the hoard of money savings, i.e., money producing more money is irrational leading to misallocation of resources. For the hoarded money as such is infertile. However, unfortunately, money hoarding seems to provide higher returns than the profits on production in contemporary economies.

Assume an economic system where all kinds of interest on savings or borrowing are forbidden by law, *cet. par.* What would be the consequences?

As rational economic agents show a tendency to increase and maximize the personal gain by seeking self-interest oriented outlays, there would be two options left:

- 1- To invest directly in the supply of useful products; or
- 2- To invest indirectly by holding shares in a public firm.

In both cases, the investors would be subject to risks, which might result with profits or losses. In addition, in either case, the total economy would be the winner in comparison to what we have.

Chapter-2: SOME KEY CONCEPTS, DEFINITIONS & ASSUMPTIONS

In Chapter-1, focus was on the source of (use-, exchange-) value and determination of relative prices/values. As we observed, the fabulous world of the relative values is capable of enriching our minds in understanding the transformation phenomenon of values into prices but, unfortunately, fall rather short in explaining it in a realistic way. Therefore, it would be much wiser and appropriate to approach the issue from a different angle where products are exchanged directly for money. In this model world, there are abundant end-users and many small-scale producers aiming to maximize the profits. Profit driven commercial firms supply the products and no barter exchange of relative exchange-values takes place. Money is used as the medium of exchange in transactions to express the monetary value of products.

Certainly, it is not difficult to identify this model it represents the real world and economic transactions around us. But, let us start with defining the meaning of some key concepts, before proceeding with the price formation analysis. Discussion of some key concepts like the enterprise (synonymously, the firm or company), its objectives, the entrepreneur, end-users and some other related concepts like "output", "commodity", "service" will be the subject of following sections.

Enterprise

The concept enterprise refers to a social form of organization owned by the self-interest (profit) motivated individual(s) to assume various business transactions on contractual terms. It is neither a price-taker nor a price-maker. In price-formation, it has nothing to do with marginal productivity or marginal utility analysis. Its end-users are human beings, not mechanical interacting robots without feeling and emotions. In addition, both the enterprise and the end-users can have a past (history) and relations initiating in the past, which would not affect the outcome of relations, at all. In short, it is an ordinary firm common to us all in our daily live.

The enterprise procures the necessary inputs of production, e.g., machinery, tools, raw materials, etc., and combines them with the services of labor-power, to supply the products desired by end-users, e.g., consumers as well as buyers of semi-finished inputs. The ultimate purpose of this process is to maximize the difference

between the total costs of production and the total revenues, in other words, the profits (π). However, the long-run profit maximization objective of the enterprise can sometimes be pushed down to lower rank of priority in order to attain some other objectives, in the short- and/or medium-run, such as keeping up with competition, acquiring a targeted market share, etc.

Assuming the existence of a nonprofit maximizing enterprise would be utopian and against the very nature of system. Therefore, all nonprofit oriented forms of organizations are beyond the scope of analysis here. The state is engaged in the supply of traditional types of public services, only, like maintaining the law and order, national defense and public administration.

During the process of production of commodities and services, the enterprise, by combining the inputs of production with the services of labor-power, contributes various services to the community ranging from the generation of employment opportunities, paying taxes, to meeting the needs and wants of the end-users. But, all these contributions are the byproducts of the self-motivated interests of individuals. No commercial enterprise is set up specifically to pursue such objectives.

Regardless of its size and future plans, an enterprise aiming to produce commercial goods and/or services must initially have access to money-capital, i.e., a financial fund of purchasing power, whether it be own or borrowed, or both. This production capital must be large enough to cover the initial (feasibility/fixed) costs, output dependent variable costs (tangible/non-tangible), and the wages of the labor-services.

Entrepreneur

An entrepreneur is an individual or group of individuals who make decisions on business transactions, by combining the means of production with the services of labor- power. Profits are the driving force. Managers making routine administrative decisions are also driven by the same profit motive. However, as distinct from the duties of managers, entrepreneur's decisions concern also tomorrow's projects of **new investments**. To put it differently, while an entrepreneur makes decisions on the new risk bearing business transactions, managers are generally responsible for the routine works of enterprise. However, managers with entrepreneurial duties are not exceptions. To initiate a new business transaction, it is imperative for the entrepreneur to have access to production capital in order to purchase/hire the required inputs and to pay for the services of labor power.

As we observed in previous parts, the concept of production capital differs from the definition supplied by Fisher who treated capital as "**A stock of wealth, consisting of all commodities whatever sort and conditions, in existence at an instant of time.**" (in Fetter; 1977). This is, in fact, a definition of the capital goods similar to that of Walras, among many others. Production capital, in our study, is a fund employed to buy the necessary inputs of production in the supply of goods and services demanded by end-users.

The entrepreneur does not have to own the entire required production capital. It can partly be borrowed from the external financial sources. Success or failure of business transactions, however, is attributed to the entrepreneur who bears the ultimate responsibility. The fact that some managers with entrepreneurial responsibilities do not risk their own savings does not imply that the capital-owners do not exercise any power or control at all. The ultimate goal for the enterprise is still the same; maximizing the long-run profits. Any professional management ignoring or undermining this fact hardly unlikely would survive the next annual shareholders meeting. However, the interests of capital-owners and professionals are not always fully compatible. The latter might pursue, from time to time, policies favoring or consolidating the professional's interests in terms of salaries or managerial positions or retirement schedules. Especially when enterprise belongs to numerous small shareholders with small voting rights unable to alter the course of events, the professionals may run the enterprise as they see fit.

At the initial stages of capitalism, the entrepreneur capitalist and the manager of the enterprise were often the same person, owning and managing their production capital themselves. Still, capital-supplying entrepreneurs own and run most of the small and medium size enterprises in both developed and developing countries. In the larger size enterprises, especially in globally operating Giant Enterprises (GEs), the ownership and management of the enterprise, in general, are separated. One of the major reasons for this is the difficulty as well as impracticality to assume full time managerial responsibilities for such enterprises with global operations. Thus, the capital-owners prefer to delegate, at least some, of the responsibilities and authority to the "professional managers" who, on behalf of the capital-owners, set the target policies and strategies for the enterprises and carry out them, both on routine matters and on new investment decisions.

Consumer/End-user

The end-users in our study consist of buyers of inputs of production ranging from raw materials, all intermediary inputs to consumption products. In contrast to the

consumers in neoclassical price theory, the end-user has only an indirect role on the formation of market prices. This indirect but, nevertheless, significant role is exercised by the effective demand schedule subject to prices of competitors, income, and rank of preferences. Effective demand schedule does not determine the market price but it certainly determines the size and profit. This is done by fluctuations in effective demand, which affect the plant capacity utilization, which, in its turn, influences the size and rate of profit specific to the enterprise.

Some other related concepts

Concepts like goods, commodity, service, primary products, output and product will be used frequently throughout this work. In order to avoid misunderstanding or confusion, it is necessary to explain what they mean.

Primary products are the **unprocessed** gifts of nature produced with the assistance of labor effort. For instance, the coal or oil under surface is gifts of nature. They are defined as **primary products** when brought to the surface with some labor effort, normally assisted by capital goods. In other words, all gifts of nature supplied to the disposal of end-users with labor effort are called **primary products**.

A **commodity** is a **processed** gift of nature sometimes finished and sometimes semi-finished, produced by labor-power with the assistance of man-made tools and capital goods to satisfy the needs and conveniences of the end-users. Accordingly, the wheat on the field is a primary product but a loaf of bread a commodity; iron-ore brought to surface a primary product but steel a commodity.

Production of a finished commodity (final good) normally requires several and complex stages of production process before reaching the end-user. After each stage, labor-power adds value to the total value-added. To put it differently, all commodities before reaching the end-users, are processed by labor-power with the assistance of physical implements of production and the final output is a physical unit. If the end-user of commodity is a producer, the commodity continues to contribute to the supply of other products. If the end-user is a consumer, it serves as an object of satisfaction.

A **service**, on the other hand, though also providing some utility, contains some distinctive properties from the commodities. In contrast to the commodities, a service is often consumed, e.g. exhausted or vanished, as being produced, like a haircut or entertainment. The distinctive feature is that it is **not a tangible object** and **cannot be stored**. It can be asserted that, in principle, commodities are

produced in the past and consumed at a later stage while services are produced and consumed at the same time and of production.

A modern service is often supplied with the assistance of tools or equipment like computers, music instruments, etc. But tools or equipment are not always required inputs of output. For instance, a teacher can transmit the knowledge even without any such inputs.

The quality of a service supplied depends partly on the quality of commodities but, mainly, on the quality of labor-power. However, the lower the quality of tools and/or capital goods employed during the process of supply of service, the lower the quality of the service supplied is likely to be. The quality of service supplied, whether in tourism, banking, hotel, or cleaning sector, normally reflects the development level of the community and the infrastructure within which it is supplied.

The term **product** is used to designate both, services as well as commodities supplied. In other words, all industrial goods and the services supplied to meet the demand of end-users are simply referred to as products.

Goods are synonymous to commodities, thus excluding services. A car is an industrial good, coffee is an agricultural good, petrol is an unprocessed industrial good, but a haircut or music concert are supplies of services.

Competition

Given technology and uncertainty, the enterprise operates, in the short-run, in competitive markets characterized by small scale and ease of entry enough to facilitate "fair" competition. Assumption of given technology implies that all production methods as well as final products are known and constant in short-run but not homogenous. All products supplied are subject to competition. In other words, there is competition not only within the sector producing the same products but also from other substituting products and enterprises. The supply is flexible but the upper limit is given by the optimum plant capacity. As we shall see in later, supply is subject to increasing returns.

Demand for products is a variable factor shaped by the competitive prices, income and the rank of preferences. Income and prices are given in the short-run but not the rank of preferences, which allows demand to fluctuate causing fluctuations in the quantities demanded, which, in its turn, causes fluctuations in the rate and size of profit in accordance with the degree of plant capacity utilization.

Distortion of competition by oligopolies, cartels, monopolies and restrictive practices are beyond the scope of this study, because, an efficient economic system with appropriate policy measures promoting competition could overcome this problem, at least to a significant extent. The major factor leading to competitive distortions seems to be the present **patent (intellectual property) rights** system, along with mergers, takeovers, trade barriers, domestic economic policies and restrictive practices of globally operating enterprises, especially in the less developed countries.

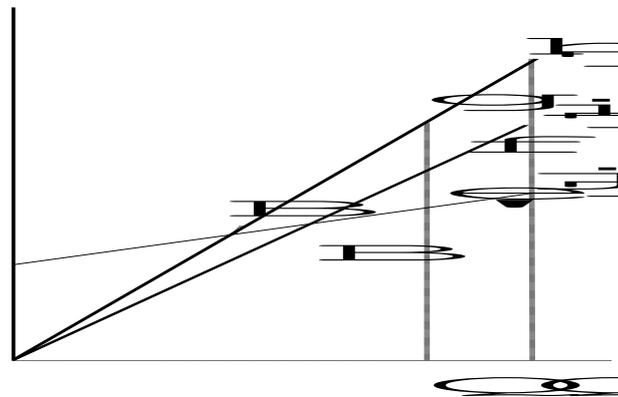
Imperfect competition and patent rights

Under imperfect competitive conditions, there are only few producers, who can collectively determine the market price as well as the quantities produced. As a result, profits would be higher but quantities demanded lower, which would be against the interests of end-users. This is a rather common phenomenon in our economic system.

Unfortunately, imperfect competition is a very real and unpleasant fact ranging from constraints on output, export, import, and price determination to marketing, quality, etc. Oligopolies and monopolies have a tendency, by their inherent features, to raise the price above the average competitive level including the average profit rate. The inevitable outcome of this action is extraordinary profits for the enterprise, but higher prices for the end-users, thus lower output and consumption than the optimum level attainable.

Let Q denote the quantity supplied, TR the total revenue and B the break-even point, where average cost equals average income and Bij the size of profits (see Figure-2:1). Due to imperfect competition, say oligopoly, the price will be set at SP^1 , higher than competitive sale price SP . Assuming undiminished demand, revenue would increase from $OQTR$ to $OQTR^1$, and the profit area would increase to B^1TCTR^1 from $BTCTR$. But, if demand falls as a result of price increase, say quantity demanded falls from Q to Q^1 , profits would be reduced by the rectangular of $eghj$.

Figure-2:1



Patent right and imperfect competition

Patent ownership rights and global distribution of patents appear as the major cause of market imperfections, deserving special attention for it facilitates serious market restrictions, restraining competition. A patent right implies monopolistic advantages of "productive knowledge" for a time span. But, if productive knowledge is drained from the pool of thousands of years of accumulated knowledge of mankind, the present patent rights system cannot be claimed to be just; it is, in fact, rather **unjust**, leading to the distributive injustice within as well as among the nations. Depending on the spectacles used, one can even assert that the present patent system is economically irrational for it obstructs competition. Because, the patent holder does not acquire the patented knowledge "from heaven", or develop it from the scratch to its final stage. The patented knowledge is never a genuine creation but only a marginal addition to the pool of the past and present knowledge. Without the access to such an accumulated pool of knowledge, no person, enterprise, or country would be able to further develop and obtain the "ownership rights" for any technology.

In addition to the "knowledge pool accumulated in thousands of years" argument, one can add the argument of development of skills and talents of individuals. Normally, the communities supply the education and training facilities of individuals who further develop the productive knowledge. However, in the final stage, almost always it is the enterprises, not surprisingly mainly of the developed countries, which acquire the exclusive rights to the new technologies.

From the perspective of pricing system, all types of market distortions are of great importance. In spite of their widespread practice in the actual economies and their serious adverse impacts, the study of such practices will be neglected.

Increasing returns

In the short-run, physical capacity of production plant and availability of the inputs of production such as raw materials, capital goods, energy, quality of labor-force, determine the upper limit of output supplied. Assuming the absence of scarcity of the human resources and inputs of production, at the upper limit of plant-capacity, e.g., "optimum plant capacity" per unit average costs of production is minimized. Entrepreneurs make their investment plans regarding plant capacity with fixed capital expenditure with the purpose of full exploitation of it. For anything, less than optimum plant-capacity implies increased fixed costs¹ per unit of output, i.e., decreasing returns (increasing costs). The higher the share of fixed costs the lower (higher) per unit costs would be with increasing (decreasing) output. The optimum plant-capacity utilization offers the maximum attainable economic and technical efficiency level.

Our standpoint of increasing returns is in contrast to, and in violation of, the neoclassical law of decreasing returns, which was initially advocated by Clark, Fetter and Ricardo and eventually adopted by all scholars of neoclassical heritage. Ricardo had used the concept with regard to land (the fixed factor) and labor (the variable factor), which resulted with decreasing returns beyond an optimum level of production. Overlooking developments in technology and human resources, he had a point. Although the Neoclassical doctrine regards it as a universal fact applicable under all circumstances, decreasing returns argument is, under normal conditions of supply, just a fallacy.

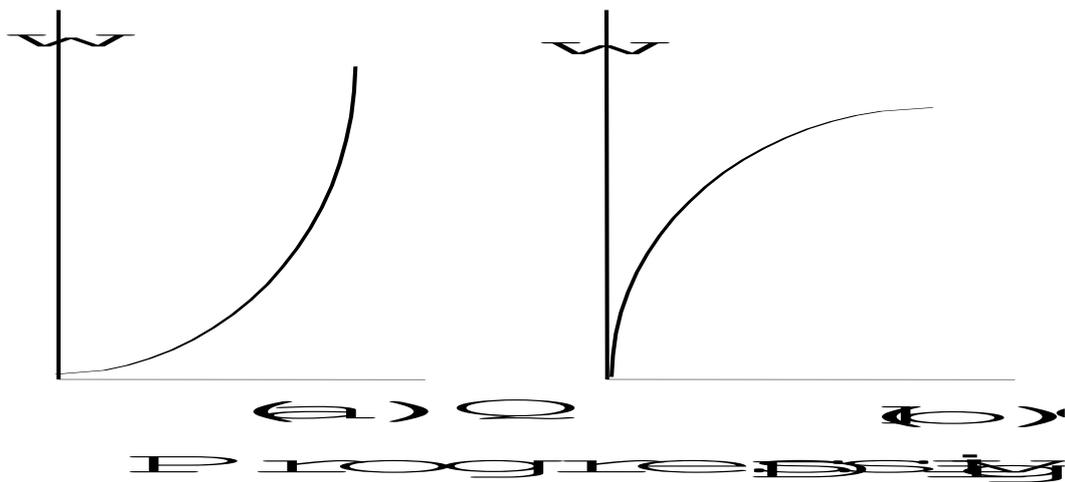
Optimum production level is a crucial point with regard to profit maximization. But, the extent of fixed-costs of production is also crucial, which influences the profit level, given prices. Physically, it is out of the question to increase the output beyond the maximum plant capacity level, which minimizes the per unit fixed costs. But, for the sake of argument, assume that the irrational entrepreneur intends to push the output beyond the maximum by extending the hours of employment of laborers, given the upper limit of production. Would the total and marginal output of additional workers start falling, as the law of decreasing returns predicts?

¹ Fixed costs include R&D costs.

The answer is negative. The **marginal output** of the "extra" worker(s) would be **zero** but not negative. Accordingly, total output would remain the same, while the **average output** per worker would begin to **decrease** with each successive employment. The only thing decreasing with extra employment would be the size and rate of the profit, as additional wage costs rise.

Even in the absence of fixed-costs, increasing costs (decreasing returns) would not be a certain result and depend on how wage-costs and other input costs change. If operating-costs rise progressively with additional employment and output, as in Figure-2:2-(a), then rising output would be subject to increasing costs. However, if operating-costs rise digressively, as in Figure-2:2-(b), then the rising output would imply decreasing costs (increasing returns).

Figure-2:2 Progressive-Digressive Operating Costs



Basic assumptions

Given the technology, plant capacity and labor-power faculties, per unit fixed costs (**FC**) would decline with increasing plant capacity utilization, and vice versa. Operating costs (**OC**) per unit output vary in constant proportion in accordance with varying output. There is no shift-work or overtime. Small-scale enterprises realize production, which facilitates the ease of entry. Oligopolistic and monopolistic practices, including patent rights and economies of scale are absent. State authorities are the bystanders not intervening in the operation of market forces.

Prevailing competitive conditions make the average profit rate be rather close, if not uniform, for all enterprises. The basic **short-run** assumptions, unless the otherwise stated, are:

- Rational economic agents:
- Single-product enterprise:
- Given wage-level:
- Given technology (products and production methods):
- No scarcity of human resources (mental and/or manual):
- Given plant capacity:
- Fixed costs include Research and Development expenditure:
- Proportionately changing operating costs, including wage costs:
- Flexible profit rate changing with capacity utilization:
- Small-scale enterprises:
- No market distortions or restrictive practices:
- No inflation:
- No state intervention (no taxes, subsidies, or regulations):
- No shortage of inputs:

Supply-demand stability

Given the competitive conditions and supply-demand stability, not equilibrium, short-run fluctuations in the output affect the rate of profit, but not the price level. If supply at optimum plant capacity exceeds demand, enterprises would get lower rates of profit than the average, because unit costs would increase.

When demand temporarily exceeds optimum capacity supply, the enterprise would attempt to meet the excess demand by overtime employment of resources. If, however, demand persistently exceeds supply, quite likely a new production plant would be set up. Until then, the price and the profit rate would quite likely rise above the average level, inducing increased output and eventually encouraging new enterprises to enter the market. In general, however, there might occasionally be excess plant capacity but no persistent excess demand leading to price level changes in the short-run, as in Figure-2:3.

Figure-2:3 Persistent Excess Demand and Price Change

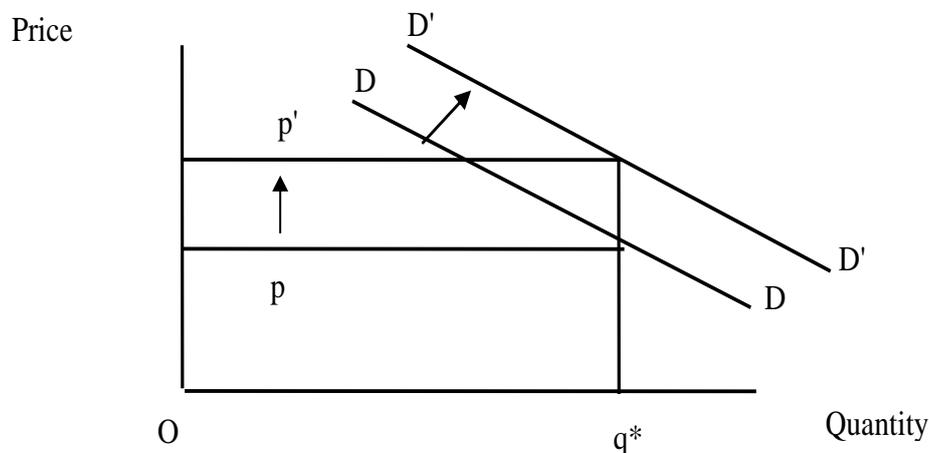
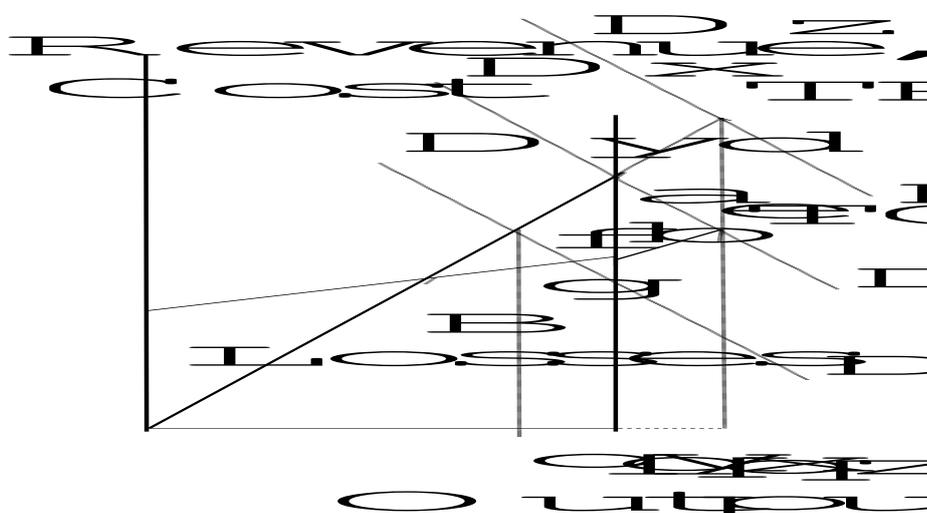


Figure-2:4 displays a hypothetical case of a shift in demand curves from $D_x D_x$ to $D_y D_y$, say, due to a change in tastes. The shaded area **Bab** shows full plant capacity profits. Given the plant production capacity (O_{q_x}) and price level, the decrease in demand reduces the output level from optimum quantity of q_x to q_y implying lower rate and size of profits. The profit area denoted by **Bfg** is smaller than the profit area of **Bab**.

If demand curve shifts to $D_z D_z$, the quantity supplied increases from q_x to q_z by overtime employment of resources at constant price. The area of **abde** denotes additional profits realized beyond the full plant capacity.

Supply and demand can be in equilibrium only when optimum capacity supply exactly equals the effective demand, which is an imaginary situation. Therefore, given price and income, the concept **stability** around the optimum plant-capacity utilization is preferred to the concept of equilibrium.

Figure-2:4 Shifts in Demand Curve and Quantity Adjustment



Short-run demand

One of the critical assumptions of conventional economic theory is supply-demand equilibrium condition. This is an unrealistic assumption because demand is practically always liable to fluctuations, both in the short-run as well as long run. Consumer preferences are always subject to change, while purchasing power can be constant, especially in the short run. The prime reasons for the fluctuations in demand are changes in preferences. Incessant competition of enterprises and gradual saturation of the markets also contribute to changes in demand schedule. It would be a major analytical error to claim that the markets saturate only in the long run. As Ricardo observed:

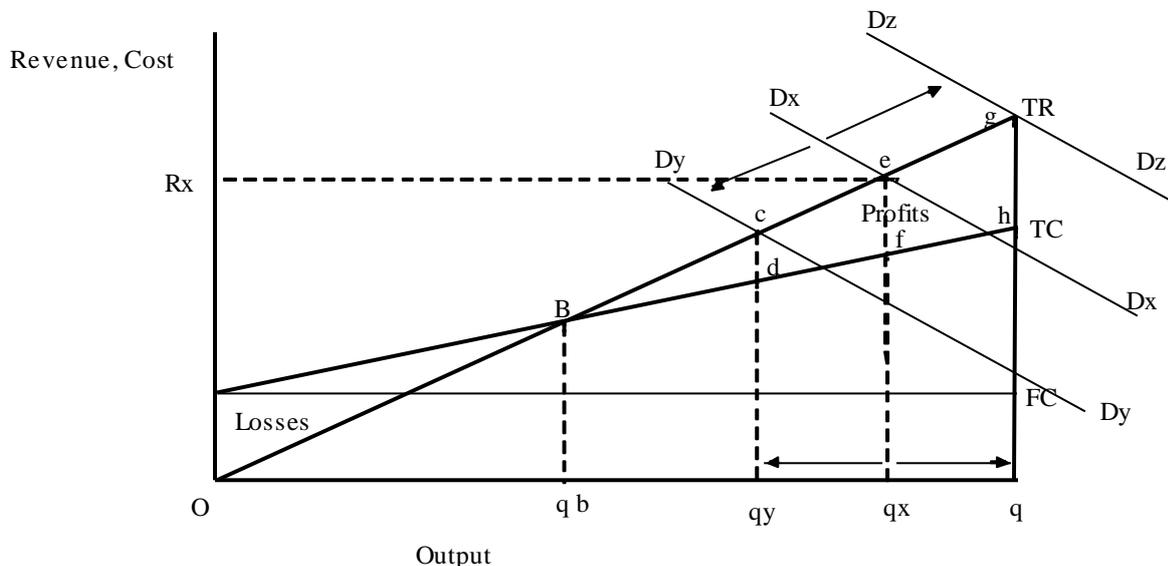
"In the ordinary course of events, there is no commodity which continues for any length of time to be supplied precisely in that degree of abundance, which the wants and wishes of mankind require, and therefore is none which is not subject to accidental and temporary variations of price." (Ricardo,1990:88).

For the sake of argument, assume that, as Figure-2:5 displays, $D_x D_x$ represents the effective demand for the output Q of an enterprise, while B denotes the break-even point where total income (TR) equals total costs (TC) and the constant FC -line the fixed costs. q_x and R_x , respectively give present output and total revenue levels of the firm. Total profits are designated by the triangle denoted by Bef and the unit price is $p = TR_x / q_x$.

A shift to the left in demand curve ($D_y D_y$) reduces the quantity supplied from q_x to q_y and the profits to Bcd due to the increasing per unit fixed costs. A shift in demand curve in the opposite direction to $D_z D_z$, on the other hand, would increase the profits to its maximum attainable level, $B-TR-TC$, while optimizing plant capacity utilization at q_z , e.g., maximum technical efficiency. q_b is the quantity, which raises just enough revenue to cover the total costs, but failing to produce any profit. q_b is a very critical point because no rational entrepreneur would continue to supply any products below this point.

As we observe from the changes in Figure-2:5, short run fluctuations in demand affect the short run economic and technical efficiency levels, which, in their turn, influence the long run expectations. However, to avoid too many deviations from orthodox line of reasoning, it will suffice to assume short run supply-demand stability.

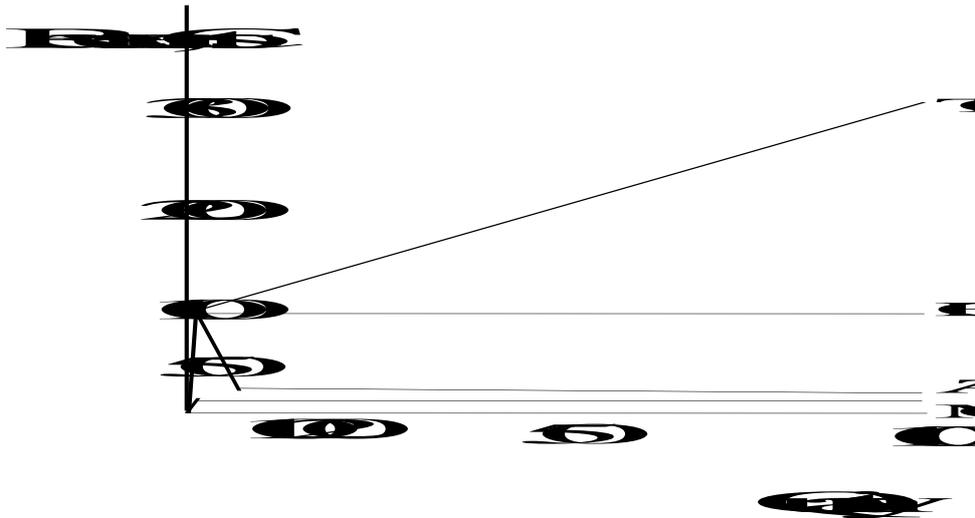
Figure-2:5 Demand, Profits and Capacity Utilization



Given the short-run assumptions, let us see in Figure-2:6, what the cost curves would look like for an enterprise producing 100 T-shirts as displayed in Table-2:1. Marginal operating costs are rising in equal proportion to the marginal output. Excluding the fixed costs, marginal operating costs (MOC) would be constant at 20 TL per unit. However, when fixed-costs are included in the marginal costs analysis, the first unit output would have the highest value because it would include FC plus

MOC. Assuming 80 TL **FC**, the **MOC** of first unit would be 100 TL (80+20), while the **MOC** of the rest is 20 TL, only (Figure-2:6). Average total cost (**ATC**), on the other hand, displays a continuous decline as marginal output increases, until reaching the full capacity at 100 T-shirts.

Figure-2:6 Short-run Cost Curves



What happens, when plant capacity utilization is optimum and entrepreneur wants to increase the output? Assume first that overtime employment of resources is introduced to produce additional 10 units of T-shirts. Due to higher overtime costs, the marginal operating costs as well as total costs increase by 30, instead of 20 as before. In spite of this, average cost per unit does not rise because of falling rate of fixed costs. Assuming that demand doubles inducing the entrepreneur to introduce double shift-work, while marginal costs remaining the same. Because of falling fixed costs, the average cost per unit would drop to 2:50 (see Table-2:1).

Table 2-1: Decreasing Costs - Increasing Returns

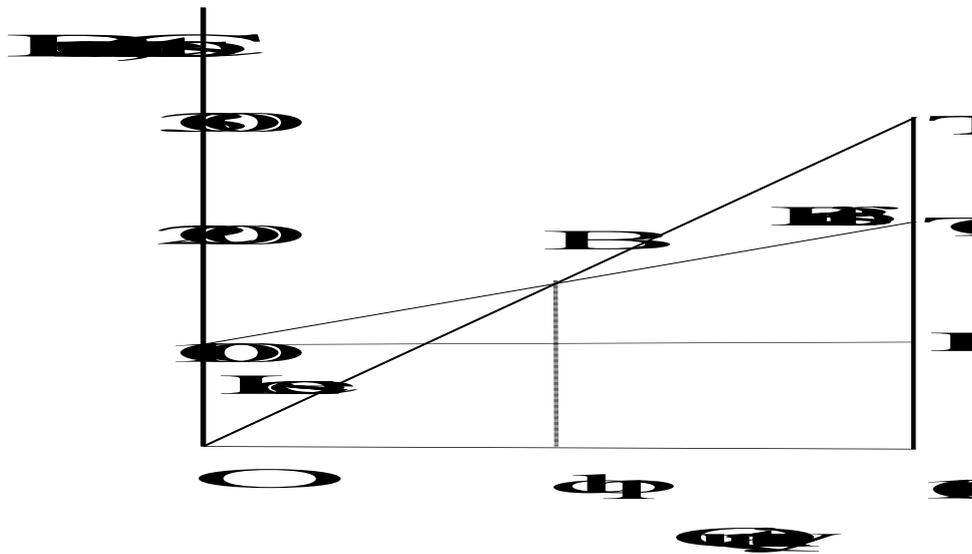
Quantity q	Fixed Costs	Operating Costs	Marginal Costs	Average Costs	Total Costs	Revenue
0	100	0	0	0	100	0
10	100	20	20	12:00	120	50
20	100	40	20	7:00	140	100
30	100	60	20	5:33	160	450
40	100	80	20	4:50	180	200
50	100	100	20	4:00	200	250
60	100	120	20	3:66	220	300
70	100	140	20	3:42	240	350
80	100	160	20	3:25	260	400
90	100	180	20	3:11	280	450
100	100	200	20	3:00	300	500
110 ^a	100 ^a	230 ^a	30 ^a	3:00 ^a	330 ^a	550 ^a
200 ^b	100 ^b	400 ^b	70 ^b	2:50 ^b	500 ^b	1,000 ^b

a Hypothetical figures for overtime production

b Hypothetical figures for shift work

Assuming the T-shirt is sold for five per unit, the total revenue, total cost and fixed cost curves would take the shapes as in Figure-2:7. At point **B**, the break-even point, costs equal revenue at the quantity **qb**. Any quantity below this point implies loss and above this point profits for the enterprise. Only at full plant capacity output of 100 units, profits would be highest.

Figure-2:7 Revenue, Cost and Output



The magnitude of fixed-capital in production is important from the break-even point of view where costs equal the revenue. In a relatively more technology-intensive production process, the break-even point would be reached at a larger quantity of production (see Figure-2:8.a) than in a more labor-intensive method of production (see Figure 2:8.b). The reason for this is the much greater share of fixed costs in the total costs in technology-intensive production.

Assume that fixed costs in Figure- 2:8 (a) and (b) are 5 TL and 2 TL respectively for a plant with 10 unit's production capacity, and total costs of 10 TL. The break-even point for **high technology intensive (FC-intensive)** plant is six units output and for **low technology intensive (L-intensive)** plant only 2.5 units, or at 60 percent and 25 percent plant capacity, respectively.

So far, the emphasis was on the proportionately changing operating costs, i.e., marginal operating costs fluctuating in proportion to marginal output of the enterprise. In practice, the marginal operating costs (**MOC**) might change progressively or digressively, as in the Figure-2:9. **TC** or **MOC** increasing faster than the marginal output are called "progressive costs" (Figure- 2:9.a). **TC** or **MOC** increasing at a slower pace than the increase in marginal output is called "digressive costs" (Figure-2:9.b). The latter, in defiance of conventional theories, resembles more to the actual practices. It would be an extremely irrational behavior for any entrepreneur to increase the supply beyond the point, where average profit-rate starts declining, unless the price increases enough to compensate for the progressively increasing costs.

Figure-2:8 Level of Technology and Total Cost Curve

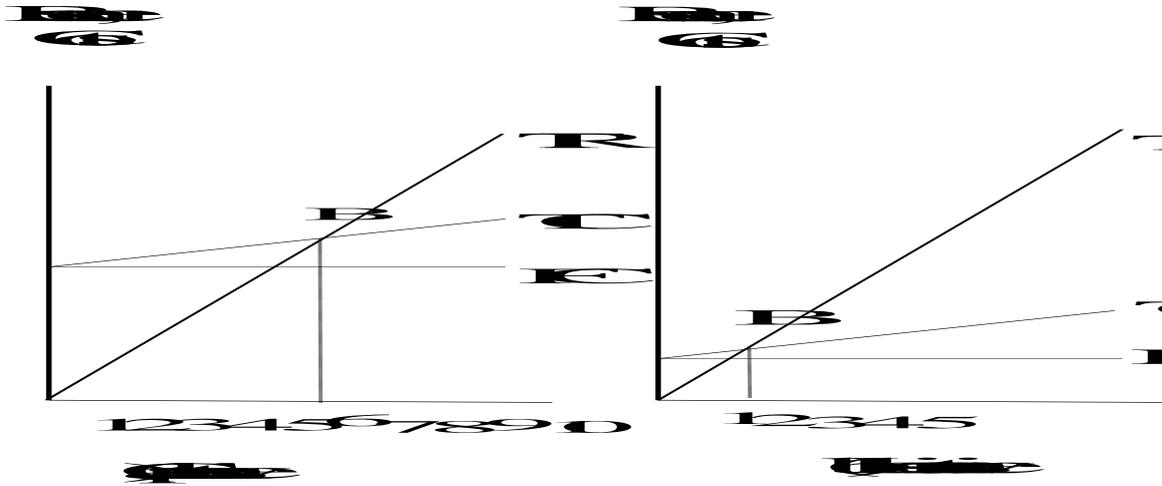
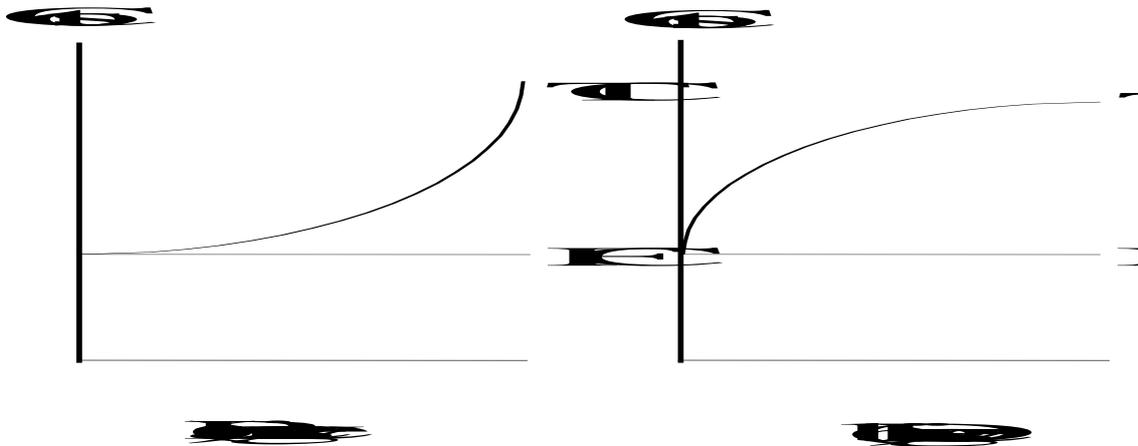


Figure-2:9 Progressively or Digressively Changing Costs



The neoclassical heritage still has a great influence, not only on the teaching of economics but in forming public opinion generally or at least in providing public opinion with its slogans. But when it comes to an actual issue, it has nothing concrete to say. Its latter day practitioners take refuge in building up more and more elaborate mathematical manipulations and get more and more annoyed at anyone asking them what it is that they are supposed to be manipulating.

Joan Robinson
Economic Philosophy

Chapter 3: SALE (MARKET) PRICE FORMATION

In Chapter-1, we studied the value and exchange relations with reference to relative exchange ratios between two commodities, which are not of much practical value. Actual prices are not determined on relative-exchange-ratio parable between two commodities. Market price depends partly on the objective-value (**OV**) to entrepreneur of each specific product subject to competitive environment on the supply side and partly on the shape of demand from end-users' perspective. On supply-side, the exchange-value of an individual product is expected to be above its **OV**, e.g., cost of production, if sustained supply is expected. Given **OV**, the upper limit for the market price and for the rate of profit is, normally, what the market can bear with due regard to competition, income and preferences.

In order to get a proper insight into the actual economic relations, the emphasis in this chapter will be on the individual market price formation of the output of a single-product enterprise. As in the previous chapter, we assume supply-demand stability and the rate of profit is subject to plant capacity-utilization in the short-run. Technology and income are given, but the former, given technology assumption, will be relaxed later. However, the price formation analysis of **entirely new products** normally accompanied by new processes will be ignored.

In the following subchapters, one important distinction from the orthodox theory is the exclusion of profits from the concept of costs of production. As well known, the orthodox theory treats profits as a part of the costs. Throughout this study, the cost of production (**CP**) will only refer to the "realized" cost of production, e.g., the **OV**. The concept production price (**PP**) will also include profits in addition to the **CP**.

Separating CP from PP

In the neoclassical doctrine price includes "normal" profits, which covers both the foregone wage income of the capitalist and the foregone interest on savings. Profits above the normal profit rate are extraordinary or excess profits. Such an approach presents three critical problems:

- 1- Estimation of foregone wage-income:
- 2- Estimation of foregone interest on savings: and
- 3- Explanation of extraordinary profits:

(1) Foregone wage-income can be measured in terms of the average earnings of the managers in the economy. It might be the average salary of an equivalent top-level executive job, of course, if such alternative employment opportunities really exist. But, how to measure the foregone wage income if there are, indeed, no alternative employment opportunities? One argument in favor could be that, the capitalist would otherwise employ a professional executive and pay salary, which is the alternative employment cost of capitalist. However, this is a biased argument assuming that the capitalist would perform the same duties as a professional. If capitalist actually performs the managerial duties, as in the case of many small-medium-size enterprises, then the argument would be rational. Otherwise, as in the case of many enterprises run by professional management, it would just be a biased and ideological argument.

(2) Second problem arises in conjunction with the estimation of interest rate on savings. After having defined interest as "unearned" income, it is rather difficult to include it in the analysis of profit, which was defined as "earned" income. Recall that interest on savings simply implied that money is capable of producing more money. Therefore, it was claimed that interest was neither justifiable nor rational. Based on this approach, how can one defend arguments including interest in profit analysis? If the money-holder employs financial resources as "production capital", then profits are both rational and justified. How can one draw any parallels between the **risk-taking productive savings**, and the **risk-avoiding unproductive savings**?

(3) And the third problem of explanation of extraordinary profits; although the holders of unproductive savings are (highly) rewarded in contemporary economies, profits realized normally tend to exceed the bank interest rates on loans by some margin. That means, in practice, that profits generated tend to be greater than the interest on loans. Otherwise, producers would lack the incentives to undertake

production. Any attempt to explain excessive profits in conjunction with interest rates can only be a neoclassical one in nature.

In the light of analysis made above, to make a sound market price analysis, it seems rather rational to separate the cost of production (**CP**) from the production price (**PP**), in contrast to the orthodox approach.

PP vs. SP

Another unorthodox approach in the following sections will be the separate analysis of production price (**PP**) from the sale (market) price (**SP**) or ultimate market price. The reasons for this are partly that, in actual transactions, production and marketing activities are exercised usually by separate enterprises though the owner(s) might be the same, and partly because marketing-distribution activities are **service-sector** activities. The wholesale and retail trading enterprises, for instance, though treated as a natural extension of manufacturing enterprises, are in fact "**service**" supplying and often independent units trying to maximize profits of their own unit.

The services supplied range from transportation to marketing and distribution all of which contain somewhat different properties in price formation as distinct from the commodity production sector. Therefore, it would be more rational and appropriate to separate the trading practices of enterprises from the production. Because of such a separation, the share and importance of the industrial sector in the **GDP** in terms of output and employment would decline at the expense of industrial sector while increasing for the service sector.

As we shall see below, the pricing system in the primary sectors display somewhat different features as well, which influences the formation of sale price. Using the same price formation argument for all three sectors, the primary, commodity and service sectors, in spite of the differences, as orthodox theory does, would only lead to misleading interpretations and conclusions.

That the service sector activities became the largest sector in terms of both, employment and value of output, in developed as well as less-developed countries, is a common knowledge. What is astonishing, however, is the neglect of separate service-sector price formation analysis. Not even the highly praised price theory of neoclassical heritage provides an account of the service-sector price formation. This is not only a serious shortcoming but also a major impediment to produce "good theories" with "predictive" values of the actual world.

Giant enterprise, also referred to as Multinational Enterprise, operating globally in the production and distribution of various kinds of output, shaping the global structure of division of labor, distribution of income and the rate of growth of nations, is one of the most important, if not the most important, economic agent of our global socioeconomic order. Their intra-firm pricing practices, especially restrictive transfer-pricing practices, and global production-distribution policies, have always meant serious and significant implications on the growth and distribution of income among the nations. In spite of their immense importance to global economic order, the practices of the Giant Enterprises will be neglected in our analysis in this study. This is a highly unfortunate but a necessary step for the sake of analysis, e.g., price formation.

A typical enterprise in this study will be assumed to be small- scale and subject to competitive conditions, as described in Chapter-2, thus leaving no room for market distortions arising from oligopolistic or monopolistic practices.

Price formation in manufacturing sector

Production Price (PP)

An ordinary manufacturing enterprise combines the inputs of production like raw materials, components, capital goods, etc., with the hired services of labor-power, to produce commodities and services containing exchange values. During the production process, the enterprise incurs some costs called "costs of production", e.g., payments for labor-power services and all other inputs of production, all of which are paid by (production) **capital**. Since entrepreneurs are driven by the profit motive, the market price of the output supplied is, naturally, expected to exceed the costs of production in order to compensate for the **risks** taken by the productive employment of **savings**. The price including the profit is referred to as the production price ($PP=CP+ \pi$).

PP consists of the following components.

$$PP = \text{Fixed costs (FC)} + \text{Variable costs (VC)} + \text{Wages (LWC)} + \text{Profits (\pi)}$$

Operating costs (OC)

The unit production price (**pp**) equals:

$$pp = PP / q \quad q: \text{quantity supplied.}$$

The r , rate of profit, is assumed to correspond to the average r^* in long run.

Assuming supply-demand balance and optimum plant-capacity utilization, the **pp** per unit would equal to the total **CP** plus π , divided by **q**, excluding the "service" costs like transportation, marketing, selling. The **pp** reflects the price ex-factory, e.g., at site of the production unit. A separate and independent trading company provides the services of transportation, marketing, etc.

FC denotes fixed costs like plant construction or rent and tools/capital-goods; **VC** all variable costs ranging from raw materials, to energy, intermediary components, varying with the size of output; **LWC** the earnings of the blue- and white-collar employees; and π the size of profits. **VC** and **LWC** together comprise the "Operating Costs" (**OC**) of the enterprise. **VC** changes at a constant rate to the output.

We discussed the concept profit, π , in the Chapter-1 and defined it as the surplus value or additional income in excess of the initial capital advanced for the process of production. The ratio of this surplus (π) to the initial production capital (**PC**) advanced gives the rate of profit (**r**).

$$r = \pi / PC \quad \text{or} \quad r = \pi / TC$$

Given the optimum utilization of productive capacity and supply- demand stability, what would be the **pp** assuming the following hypothetical production figures?

$$FC = 25,000 \text{ TL}$$

$$VC = 15,000 \text{ TL}$$

$$LWC = 10,000 \text{ TL}$$

$$q = 1,000 \text{ units}$$

Costs of production or the initial production capital required is 50,000 TL, to pay for the requisite inputs and the services of the hired labor-power:

$$TC = FC + VC + LWC = 25,000 + 15,000 + 10,000 = 50,000 \text{ TL}$$

The enterprise's income must exceed the initial costs of production in order to generate profits for the entrepreneur. Assume that the average profit rate in this particular branch of business is 20 percent, which also applies to our sample enterprise. The production price of total output including the profits would be:

$$PP = TC + \pi = 50,000 + (50,000 * 0.20) = 60,000 \text{ TL}$$

Where the **pp** per unit is:

$$pp = TC + \pi / q = 60,000 / 1,000 = 60 \text{ TL}$$

And,

$$r = \pi / TC = 10,000 / 50,000 = 20 \%$$

To conclude, the **PP** is composed of two components, the actual costs of production and the average profit rate. The former reflects its minimum price acceptable while the latter indicates the degree of incentive for the entrepreneur, or the rate of return on investment.

Own vs. loan capital

In the estimation of profit rate (r) in actual world, a serious problem pops up; should one take into consideration the "actual" amount of capital advanced by the capitalist or the "total" capital supplied, including the loans? The choice of criterion affects the outcome considerably.

Assume that the **Enterprise-X** has two options to employ 50,000 TL as capital; providing the entire capital from accumulated savings, or combining 30,000 TL own capital with 20,000 TL loan capital, to produce 1,000 units chairs worth 60,000 TL, including profits of 10,000 TL.

What would be the rate of profit?

Case-1: Rate of profit on "own" capital (K) worth 50,000 TL

$$r = \pi / K = 10,000 / 50,000 = 20 \text{ percent}$$

Case-2: Rate of profit on "own plus loan" capital (KL) worth 50,000 TL

$$r = \pi / KL = 10,000 / 30,000 = 33 \text{ percent}$$

Where K denotes entrepreneur's own capital advanced, KL the total capital including the loan, r the rate of profit and π the size of profit.

Case-1 with own capital obtains a lower profit rate at the end of the period while in Case-2 where owned capital is combined with loan capital, profit rate is greater. Certainly, there are interest costs on loan, which adds to production costs. However, the taxation-systems, in general, with their generous deduction clauses and/or subsidies, relieve most of the burden of such costs, in favor of the enterprise.

Sale (market) price (SP)

Separation of service sector activities from the commodity production is a common practice in the actual business transactions, though not in the orthodox theory. There are numerous wholesale as well as retail enterprises operating either as

independent profit-making entities or as an extension of the manufacturing unit, constituting a vital and indispensable intermediary chain of economic relations between the producers and end-users. Their activities range from marketing to transportation, all of which are various kinds of services required before the commodities reach buyers. Therefore, it would be rational to make a separate analysis of service sector pricing in manufacturing sector, which shall be done later. For now, for the simplicity of analysis, we shall assume the sale price includes **pp** plus "trading" (marketing, advertising, etc.) expenditure (VC^\dagger).

What the trading enterprise does is purchase commodities from the manufacturing enterprise in order to convey to the end-users. The supplies of the trading activities involve some additional costs, causing the involve **pp** to rise. The final market price or alternatively, the ultimate sale price (**SP**) of a commodity consists of the following components:

$$SP = pp + FC^\dagger + VC^\dagger + LWC^\dagger + \pi^\dagger$$

As distinct from the manufacturing sector, the **SP** covers production price ex factory (**pp**) plus fixed costs of trading enterprise (FC^\dagger), variable costs of trading enterprise (VC^\dagger), wage cost of trading enterprise (LWC^\dagger) and profits of trading enterprise (π^\dagger). The quality and the quantity of the services supplied depend mainly on the level of skills of labor-power and partly on the quality of material inputs of production. The higher the quality of human resources and technology, the higher would be the quality of the services supplied. Productivity, on the other hand, tends to grow at a much slower pace than in the manufacturing sector, regardless of the quality of labor force.

The relevant question arising in conjunction with the pricing of trading activities is: what are the implications of trading practices on the formation of ultimate sale price, **SP**?

Let us assume an enterprise producing 1,000 chairs at the cost of 50,000 TL and sells with 20 percent profit rate. What would be the unit production price (**pp**) and sale (market) price (**SP**)?

Case-1: The enterprise supplies the chairs ex factory implying there are no trading activities and related costs. **SP** indicates unit market price.

$$pp = SP$$

$$r = 20 \text{ percent}$$

$$SP_1 = [CP * (1+r)] / q = [(50,000 * 1.2)] / 1,000 = 60 \text{ TL}$$

The sale price including profit but excluding trading cost is 60 TL per unit output.

Case-2: The enterprise undertakes the trading activities to bring the chairs to sale points (shop centers) at an additional cost of 5,000 TL.

$r = 20\%$ on total capital including trading expenditure.

$$SP_2 = [(CP + CP^*) \cdot (1+r)] / q = [(50,000 + 5,000) \cdot 1.2] / 1,000 = 66 \text{ TL}$$

CP^* denotes trading costs. The sale price including trading costs and profit is 66 TL per unit output. $SP_2 > SP_1$

Case-3: Assume that an independent trading enterprise undertakes trading activities and related costs. Total cost of services supplied is 5,000 TL. Both, the manufacturing as well as trading enterprises adds 20 percent profit on top of the production costs, respectively.

$r = 20\%$ for both firms

$$SP_3 = [(SP_1 + CP^* \cdot (1+r))] / Q = [(60,000 + 5,000) \cdot 1.2] / 1,000 = 78 \text{ TL}$$

The sale price including trading costs of separate enterprise and profits is 78 TL per unit output. $SP_3 > SP_2$

As we observe in Case-3, undertaking of trading activities by an independent enterprise causes SP to rise from 60 TL ex factory to 78 TL per unit, a difference of 30 percent $(78-60/60)$. When manufacturing enterprise undertook the trading activities as in Case-2, the pp had already jumped from 60 TL to 66 TL per unit. But it was still about 18 percent cheaper than in the third case, where manufacturing and trading activities were carried out by independent entities. This is an important aspect of price formation and, by itself, a sufficient reason to justify the separate analysis of price formation in service sector.

Demand and market price

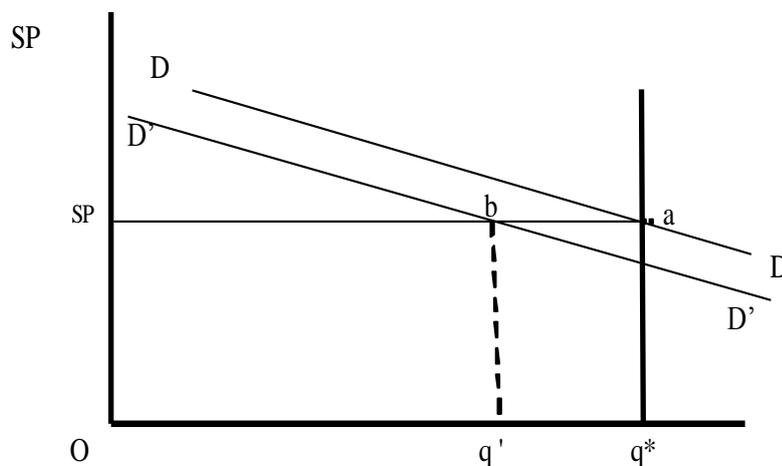
So far, focus was on the supply side of production only and price formation with given profit rate. However, there is another and important side of the medallion; **demand** schedule, which influences the sale price and can fluctuate, even in the short-run.

Given technology, plant production-capacity and cost of production in short-run, effective demand function subject to income, competitive prices and preferences, **determines the rate and size of profits and influences the sale price.**

Given production costs, quantities demanded determine the size and rate of profit. Sale price determination is a different matter, where demand can only influence the price. Because, given production costs, sale price cannot be at or below the break-even point. In the absence of profits, there would be no incentives to undertake production. Therefore, sale price has to exceed the break-even price. If there were full competitive (not perfect) environment and flexibility of supply, demand would not have a remarkable impact on sale price. If demand is in excess of supply and supply cannot be increased, then demand would make an impact on the sale price and cause a rise.

As in Figure-3:1, demand schedule (DD) is, normally, a decreasing function of the price, and the sale price (SP) of a product in a particular industry is a straight line determined by the competitive conditions. If DD drops to D'D', then quantity produced would drop from q^* to q' , which implies reduced total income by the rectangular area abq^*q' . Decreased output with given production costs implies increased unit fixed and average costs.

Figure 3:1



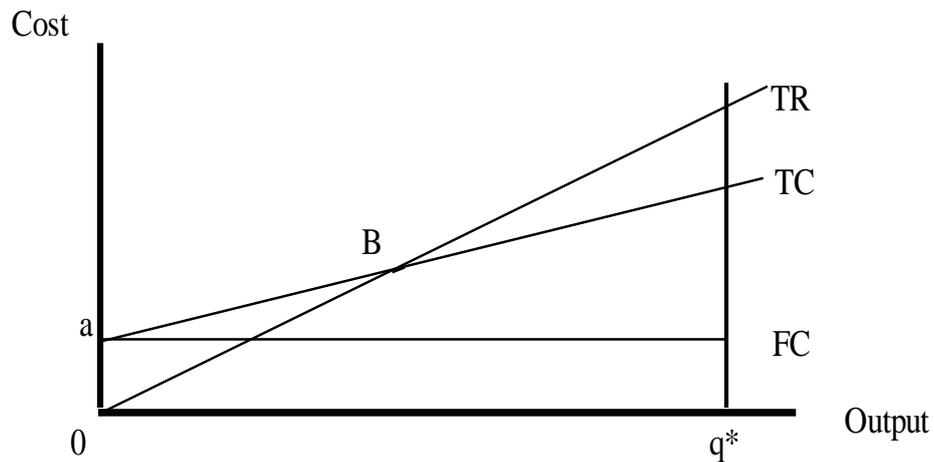
Fluctuating demand and profits

Given the sale price, let us investigate what happens to the profit when demand fluctuates. By assumption, fluctuating demand does not affect the sale price, given full competition, technology, production cost, incomes and preferences.

Enterprise is subject to fixed-costs (FC) as well proportionately rising (diminishing) operating costs (OC) including labor wage costs, indicated by straight-line $a-TC$, as the output supplied increases (decreases) (see Figure-3:2).

Maximum profits is obtained at the quantity denoted by q^* and **BTRTC** represents the profit area.

Figure-3:2



Assume that

$$TC = FC + OC = 100 + 10 q \tag{eq. 1}$$

where fixed-costs equal 100 TL and the variable costs rises by 10 TL with each successive unit supplied indicating constant **OC** including **LWC** but excluding **FC**.

$$OC = \frac{dTC}{dq} = 10 \tag{eq.2}$$

If we include **FC** in calculation, we would obtain a rather high **OC** for the "first" unit produced, for it would have to include all **FC**.

$$OC_1 = \frac{dTC_1}{1} = 100 + 10 / 1 = 110 \text{ TL} \tag{eq.3}$$

The average cost (**AC**) equals:

$$ATC = \frac{TC}{q} = \frac{100 + 10 q}{q} \tag{eq.4}$$

Demand function (**DD**) is exogenously given and all output is consumed with given price at 15 TL. Assume a hypothetical firm with optimum (maximum) plant capacity of 125 units.

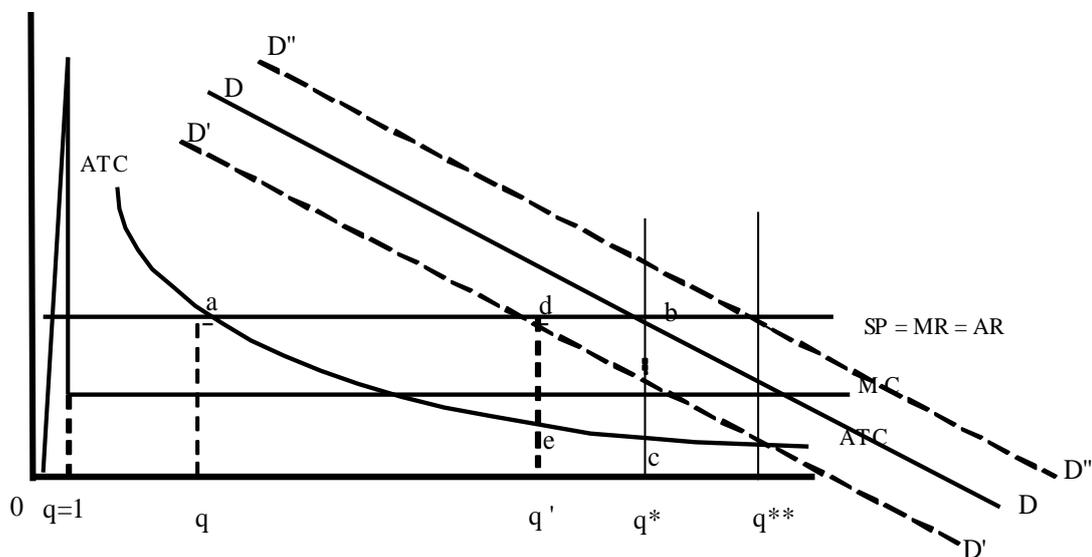
Total revenue (TR) is:

$$TR = p * q \tag{eq. 5}$$

And the marginal revenue;

$$MR = SP = 15 \tag{eq. 6}$$

Figure-3:3 Shifts in Demand Curves and Supply



If DD falls to $D'D'$, profits would be reduced from abc to ade and the quantity supplied would fall to q' from the optimum level q^* . Intersection point a represents the break-even point. If DD rises to $D''D''$, the enterprise meets the growing demand by overtime work at the quantity of q^{**} . However, both, the excessive and insufficient demand with regard to the optimum plant production capacity are regarded to be temporary situations rapidly readjusting to stable conditions.

In the long-run, demand curve is expected to shift to right until the market saturates. The market response expected would be to extend the production capacity by additional "expansive" investment. Eventually, the market sale price for the industry would be re-established, say, at the quantity q' , as in Figure-3:4, *cet. par.*

Figure-3:4



Price formation in service sector

During the discussion of price-formation in commodity producing manufacturing sector, which was the study subject of Classical economists and “disguised” study subject of Neoclassical doctrine², only lip-service was paid to price formation in service sector. Now, it is time to go into detail with the analysis.

Service sector activities in contemporary economies constitute an important share of the GDP and are incessantly growing in significance. The sector's share in the GDP, in terms of both, value of output and employment, has already exceeded that of the manufacturing sector in developed as well as in less developed countries, and continues to grow at the expense of primary and manufacturing sectors. However, paradoxically, it usually has been the manufacturing sector activities, which attracted the attention of economic theorists and constituted the genesis of mainstream economic analysis since the time of Classical economic analysts, from value-price theories to growth and international trade.

Supply of services range from trading activities, as observed in previous parts in connection with manufacturing sector price formation analysis, to consulting, haircut, education, banking, tourism health care, marketing, sanitation services, etc., all of which are very familiar to us all. In the process of supply, employment

² Economic textbooks of neoclassical heritage claim to refer to the production relations of both, commodities and services. However, the analysis clearly bears the characteristics of manufacturing sector production.

of some equipment or tools (capital goods) may be required but they are not a necessity. A teacher or a tourist guide can be quite productive even without the assistance of any physical elements. Some services, on the other hand, prerequisite the employment of physical inputs of production like transport companies or repair workshops to supply the required services.

Supply of services displays some distinguishable features than the commodity production sector. One of the distinctive features is that services, with some rare exceptions like education, do exhaust as being produced. For instance, a haircut service or massage is consumed during the process of supply. To put it differently, in the service sector, there is **no tangible and storable output**. Consequently, as distinct from the industrial sectors, there are **no inventories**. Since the output cannot be stored, there cannot be successive stages of production each adding value to total exchange value, either.

Another interesting feature of the service sector output is that it, not seldom, is less capital-goods³ intensive and productivity grows relatively slower than in the manufacturing sector.

Estimation of productivity in service sector is not an easy task. In the supply of relatively more labor-intensive services, such as teaching and consulting, the "time spent" approach for the output required seem to be a useful benchmark for the evaluation of productivity and efficiency and facilitates some comparison. However, the question is; how to measure the quality of the service supplied? The quality of service depends mainly on the quality of labor-power.

Price formation in the service sector is, more or less, subject to the same short- and long-run conditions as in the manufacturing sector, i.e., decreasing costs and increasing returns per unit output, given technology and productive capacity. SP consists of the following components:

$$SP = FC + \frac{OC}{VC} + LWC + \pi$$

where variable costs (VC) includes costs like maintenance, advertising/marketing, transportation, distribution, finance, etc. Fixed costs include not only production site like buildings but also all physical inputs assisting the service output ranging from furniture in hotels to surgical equipment in hospitals. In addition, operating

³ "Capital-goods intensive" is the term preferred to orthodox term "capital-intensive", which is a misleading term.

costs (**OC**), including labor wage costs, are assumed to increase in constant proportion to output supplied.

Drawing a clear line distinguishing the supply of services from commodities is not always an easy task. For instance, is the software of a computer a service or a commodity? In contrast, a hairdresser's output fits quite well to the definition of service; it exhausts as being produced. It is non-tangible and non-storable. Education, on the other hand, is often considered as a service sector activity. However, as we all know, the knowledge transferred by teacher does not exhaust, at least some of it, and knowledge can be stored in the brain to be utilized in future. Yet, knowledge is neither tangible nor measurable.

Another interesting issue arises when, for instance a person lets his/her house and obtains 1,000 TL as rent per month. Assume that this person rents an apartment and pays 1,000 TL rent. Does **GDP** indeed increase by 2,000 TL? Alternatively, assume that all husbands pay half of their income to their wives in return of the services supplied at home. It contributes to nominal **GDP**. But, does it contribute to actual output, as well?

Increasing returns in service sector

Assume a hotel with 100 guest rooms and 100 beds. In order to reach the break-even point, (B), where total income just covers the total costs at zero profit rate, say, 50 rooms must be hired during a given time-span. Further, assume that the hotel requires at least 50 employees in order to provide and maintain the standard minimum services, regardless of the number of rooms hired or the idle time of employees.

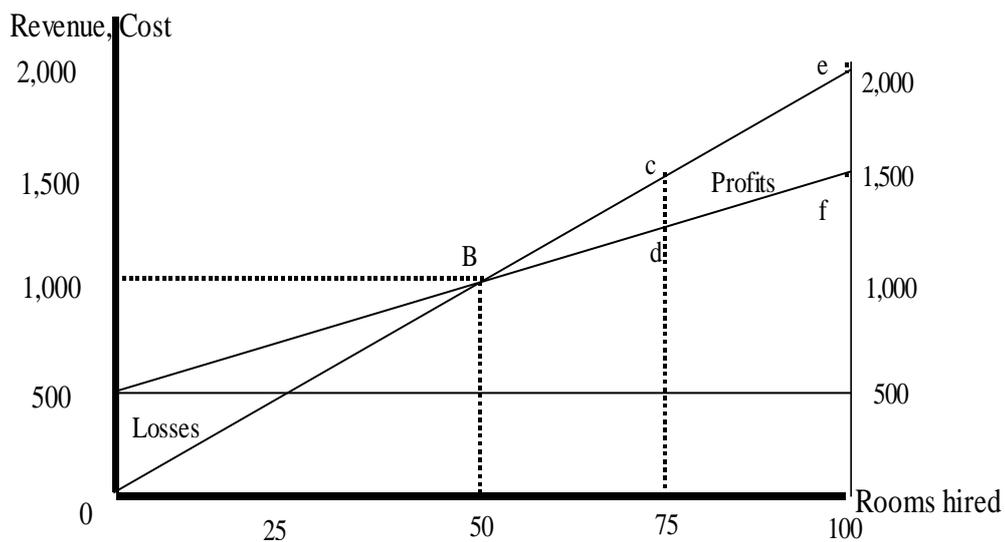
The management of hotel, as managers of a profit maximizing rational enterprise, would naturally not be content with the performance at break-even point and make efforts to increase the number of rooms hired above 50 units to reduce the costs per hotel room, in order to make some profits. The more rooms hired than 50, the lower would be the fixed costs and the more would be the total income and profits. The profits would continue to increase as capacity utilization approaches the optimum level of 100 rooms, because of decreasing fixed and average costs per room hired (see Table-3:1).

Table-3:1 Capacity Utilization and Costs in Service Sector (in TL)

Rooms hired	Revenue (p*q)	Operating costs	Fixed costs	Total costs	Average cost per room
0	0	300	500	800	800:00
25	500	400	500	900	36:00
50	1,000	500	500	1,000	20:00
75	1,500	600	500	1,100	14:66
100	2,000	700	500	1,200	12:00

Assume that only 75 rooms are rented. Because of less than optimum capacity utilization, profits would fall from the maximum attainable, the area of "Bef", to "Bcd". Demand determines the degree of capacity utilization, which, in its turn, determines the size and rate of profits, given the room prices, number of rooms and production costs of services (see Figure-3:5).

Figure-3:5: Capacity Utilization, Costs & Profits



Price formation in primary sector

Primary sector activities refer to agriculture, fishing, forestry and mining, i.e., output depending on the generosity of nature. The share of the primary sector activities in the GDP tends to decline as the countries climb up the ladders of development and increase the supply of commodities and services. But, in spite of its declining share, its significance has not been affected, in fact, cannot be, because every commodity has its origin in the nature. By providing the initial inputs of production, nature still plays a very crucial and indispensable role in shaping the standard of living. Without the gifts of Mother Nature, it would be impossible to supply the commodities of needs and convenience, nor the quality of the services supplied would be as sophisticated as we enjoy today. Nature is the mother of our material well-being.

Price formation in primary sector resembles the manufacturing sector. Production price (**pp**) ex factory is:

$$pp = FC + VC + \frac{OC}{LWC} + \pi$$

The sale price (**SP**) including expenditure like marketing, distribution, etc. plus profit ($CP^\dagger + \pi^\dagger$):

$$SP = pp + CP^\dagger + \pi^\dagger$$

Regarding agricultural output, weather conditions still play a significant role on shaping sale price, by influencing the quantity supplied. As long as the humankind is unable to master fully the nature's powers, the latter will continue to have a determining role in the total supply of primary products, thereby on their production and market prices.

Decreasing returns in primary sector

As well known from the economic textbooks, diminishing returns argument asserts that, given the technology and a fixed factor of production, e.g., land, additional laborers employed produce a decreasing proportionate output. In other words, the marginal output will grow in less proportion than the marginal employment, thus increasing the marginal costs of each additional output (see Table-3:2).

It should be noted, however, it is not the employment of additional "inferior" land that causes decreasing returns, but the additional employment of laborers (or capital goods or both) on a given plot of land, output of which is subject to decreasing returns. As a result, the "modern" theory of neoclassical heritage

predicts that the enterprise would face increasing marginal costs and decreasing returns.

Employment on a given plot of land is never increased in an arbitrary way, as the textbooks say. Given technology, labor skills and land size/quality, there is a predetermined optimum employment and output capacity, *cet. par.* A rational producer would highly unlikely push the output by employing laborers beyond optimum employment level. Nevertheless, assume that producer is "irrational" enough to employ additional labor. What is important from the producer point of view is not, **never has been**, the marginal costs (**MC**) but average costs (**AC**) of production. As long as **pp** exceeds **AC**, it is rational as well as economically feasible to continue production. According to the hypothetical case indicated in Table-3:2, **AC** is falling while **MC** is rising; a sufficient ground to continue production, irrespective of the sale price of product.

Table-3:2 Decreasing Returns in Land (in TL)

Output Q	Variable costs	Fixed costs	Total costs	Marginal costs	Average costs
0	0	1,000	1,000	0	1,000:00
50	200	1,000	1,200	4:00	24:00
150	400	1,000	1,400	2:00	9:33
300	600	1,000	1,600	1:33	5:33
360	800	1,000	1,800	3:33	5:00
410	1,000	1,000	2,000	4:00	4:87

In addition, diminishing returns argument is founded on the critical assumption that price is given, which is not a very realistic one. Assume a hypothetical producer initially operating at predetermined optimum capacity. For a rational producer there would be no incentives to increase the production beyond this optimum level, unless the price increases enough to compensate for the increasing costs. In other words, there would be no "incentives" at all for the enterprise to increase the production unless the price increases enough to cover the increasing costs to maintain the average profit rate; a fact overlooked by the textbook analysis of orthodox heritage.

To illustrate this situation, assume the following values for a hypothetical enterprise in the primary sector.

$$q = 1,000 \text{ tons}$$

$$pp = 5 \text{ TL/tons}$$

$$TR = 5,000 \text{ TL } (pp * q)$$

$$TC = 4,500 \text{ TL } (FC+VC+LWC)$$

$$\pi = 500 \text{ TL } (TR-TC)$$

$$r = \sim 11 \text{ percent } (\pi/TC)$$

Assume that demand doubles from 1,000 tons to 2,000 tons and the only way to meet this demand is to double the output with given technology and human skills and profit rate. However, increasing output under the given conditions is subject to increasing costs.⁴ The cost of the additional 1,000 tons is 4,900 TL, an increase by 400 TL, compared to the production cost of 4,500 TL for the first 1,000 tons. Given the sale price (SP=5 TL), the size and the rate of profit on "additional" quantity would be as follows:

$$\pi = 100 \text{ TL } (5,000 \text{ TL} - 4,900 \text{ TL})$$

And,

$$r = \sim 2 \text{ percent } (\pi / TC) = (100 \text{ TL} / 4,900 \text{ TL})$$

Since the average rate of profit for the initial 1,000 tons is greater than two percent ($\sim 11\%$), there will be absolutely no incentives for the primary sector enterprise to increase its output beyond the initial 1,000 tons. Unless **SP** increases, there are no rational reasons to increase output, thus no ground for decreasing returns to appear, as the orthodox theory assumes.

In order to promote production at 11 percent profit rate corresponding to initial profit rate, the price for the "additional" output must rise to about 5:45 TL/ton, given the cost of production 4,900 TL/ton. However, the new price would apply for the initial output of 1,000 tons as well, increasing the rate of profit to about 20 percent.

$$r_1 = (5,450 - 4,500) / 4,500 = \sim 21 \text{ percent for the initial 1,000 tons,}$$

And,

$$r_2 = (5,450 - 4,900) / 4,900 = \sim 11 \text{ percent for additional 1,000 tons}$$

⁴ Increasing output by harvesting less productive land would not affect the outcome.

providing an average profit rate about 15 percent for the total output of 2,000 tons. Since the market average-profit rate is 11 percent, it is more likely that the price might settle down at 5:22 TL/ton.

$$pp = 5.22 \text{ TL/ton}$$

$$q = 2,000 \text{ tons}$$

$$TR = 10,440 \text{ TL}$$

$$TC = 9,400 \text{ TL} \quad (4,500 \text{ TL} + 4,900 \text{ TL})$$

$$\pi = 900 \text{ TL}$$

$$r = \sim 11 \text{ percent} \quad [(10,440 - 9,400) / 9400]$$

To sum up, there would be no incentives at all for the enterprise what so ever to increase production subject to increasing costs, unless the price is increases sufficiently.

Technological change and its impact on price

So far, we assumed that technology was given. It is time to release this assumption and assume changing technologies. Demand continues to be flexible and adjusts itself to the variations in supply, thus maintaining supply-demand stability. Thus, the only variable left to cause changes in price level is "changes in the method of production" or technology. In the following sections, the focus of analysis will be on "given product" but "new production processes", ignoring the crucial role and contribution of "new products with new production processes".

As observed in previous parts, fluctuations in demand in the short-run affect the short-run profit rate, due to increasing per unit fixed costs, and give signals to entrepreneurs. These signals are extremely important, along with expectations, in adjusting their short-run policies and the long-run strategies. The sound analysis of short-run dynamics is expected to pave the way for long run and sustained developments.

Since profit was identified as the difference between the total expenses and revenues of the enterprise, every new production method introduced increases either, output with given costs or to reduces costs with given output. In both cases, new technology increases profits per unit output, *cet. par.* In other words, new technology introduced is always **production-capital saving**, *cet. par.*

According to the textbooks, we are accustomed to classify new process technologies as 1) capital-saving, 2) labor saving, and 3) neutral. The common

feature in all cases is that new technology actually saves production-capital per unit output.

Below, new technologies are defined in four different ways:

- 1- By cheapening the **FC** of production for a given quantity of output, i. e., **fixed-capital saving technology**, given **VC** and **LWC**; or
- 2- By decreasing the **OC (=VC+LWC)** for a given quantity of output, i.e., **operating-capital saving technology**, given **FC**; or
- 3-a- By increasing the quantity of output with given **FC**, **VC** and **LWC**, i.e., **(total) capital saving technology**; or,
- 3-b By decreasing **FC**, **OC** and **LWC** with given output, i.e., **(total) capital saving technology**.

Let us study each case with the assistance of figures.

Initial-case

Assume that the following prices and quantities reflect the initial position before the introduction of new production method for **given Commodity-X**, where the rate of return (r) is 10 percent. There are no trading expenditures.

$$FC = 6,000 \text{ TL}$$

$$VC = 4,000 \text{ TL}$$

$$w = 20 \text{ TL}$$

$$L = 100 \quad \text{number of employees.}$$

$$LWC = 2,000 \text{ TL} \quad \text{total wage bill}$$

$$q = 1,000$$

pp (production price) per unit output is:

$$\begin{aligned} pp &= [FC+VC+LWC] * r / q = (TC*r)/q \\ &= [12,000] * 1.1 / 1,000 = 12,000*1.1 / 1,000 = 13:20 \text{ TL} \end{aligned}$$

Average total cost:

$$ATC = TC/Q = 12,000 / 1,000 = 12:00 \text{ TL}$$

Size and rate of profit per unit output:

$$\pi^* = pp - ATC = 13:20 - 12:00 = 1:20 \text{ TL}$$

$$r = \pi / ATC = 1:20 / 12:00 = \mathbf{10 \text{ percent}}$$

ATC denotes average unit costs, π^* the size of profits per unit and r the rate of profit.

Case-1: FC-saving technology and profit

Assume the same conditions as in initial case prevail, except for this time FC is saved by 20 percent and the cost reduced from 6,000 to 4,800, after the introduction of new production method, implying a FC-saving technology. The costs of production will change as follows:

$$TC = [4,800 + 4000 + 2000] = 10,800 \text{ TL}$$

And,

$$ATC = 10,800 / 1,000 = 10:80 \text{ TL per unit}$$

Where,

$$\pi^* = 13:20 - 10:80 = 2:40 \text{ TL per unit profit}$$

While,

$$r = 2:40 / 10:80 = \sim 22 \text{ percent}$$

The new **FC-saving** production method increased the profit rate from 10 percent to about 22 percent, which is the purpose of introduction of new technologies.

Case-2: OC-saving technology and profit

Once again, assume the same initial conditions prevail, but this time an **operating-capital saving** new technology reduces the number of employees from 100 to 80. The new values, given price and quantity, will be:

$$TC = [10,000 + (20 * 80)] = 11,600 \text{ TL}$$

And,

$$ATC = 11,600 / 1000 = 11:60 \text{ TL per unit}$$

Where,

$$\pi = 13:20 - 11:60 = 1:60 \text{ TL per unit}$$

While,

$$r = 1.60 / 11.60 = \sim 14 \text{ percent}$$

The new **OC-saving** or **LWC-saving** technology increases the profit rate from 10 percent to about 14 percent.

Case-3: Capital- (TC-) saving technology

Assume that the new method of production increases total output by 20 percent from 1,000 to 1,200 units, while maintaining the same "total" costs of production. In other words, the amount of capital required to undertake production remains

the same, implying unchanged quantities of inputs of production. Total production cost is still 12,000 TL as in the initial case, but ATC falls considerably.

$$ATC = 12,000 / 1,200 = 10:00 \text{ TL per unit.}$$

Given demand and pp:

$$\pi = pp - ATC = 13:20 - 10:00 = 3:20 \text{ TL per unit}$$

And

$$r = 3.20 / 10:00 = \mathbf{32 \text{ percent}}$$

These hypothetical cases are illustrated in Figure-3:6 (a), (b) and (c).

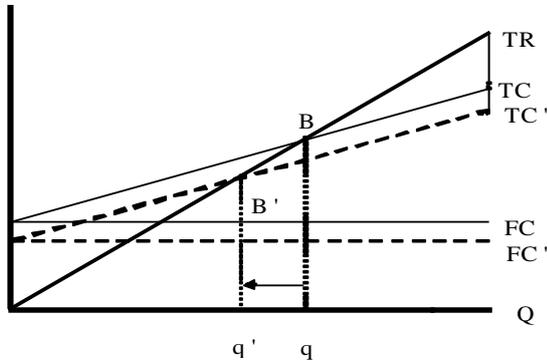
In all cases of production with new technology increases the size as well as the profit rate. That is why, as Marx and later Schumpeter emphasized, incessant search for new technologies is the most dynamic and progressive feature of capitalist system. Some economists, especially those of Neoclassical heritage, prefer to differentiate the types of new technologies as labor-saving, capital-saving and neutral technologies. In a sense, this kind of classification is not wrong. But, since the main purpose of introducing new technologies is to increase the profit per unit capital employed, it would be more appropriate to call them all as different types of **capital-saving technologies**.

Price implications of new technologies

How can increased profitability due to technological progress affect sale prices?

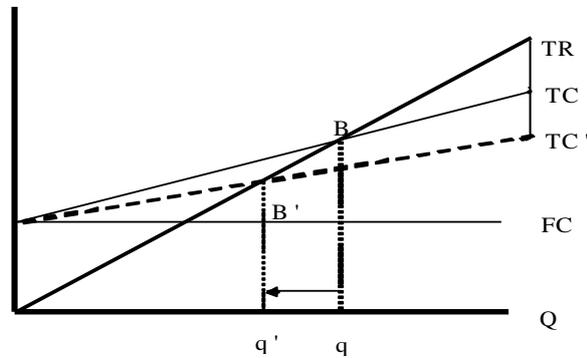
Given demand and product, technological progress in all three cases reduced per unit costs, thereby contributing to higher profit rate realization. Driving force behind the introduction of new technology is competition. Cheaper production cost does not only imply higher profits but also a better competitive edge over the competitors. Because of **capital-saving** technology per unit output, entrepreneur would be now in a rather advantageous position compared to competitors. He/she can lower the price in order to increase market share and eventually drive them away from market, unless competitors keep up with technological progress.

Figure-3:6 Types of Technological Changes



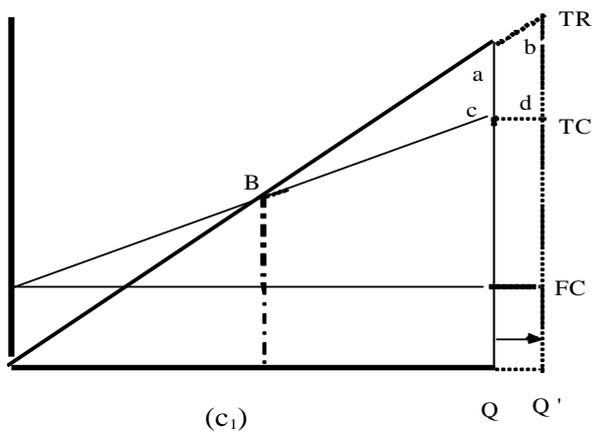
(a) **FC-saving technology**

- given output
- $B \rightarrow B'$
- profits grow by $BB'TCTC'$

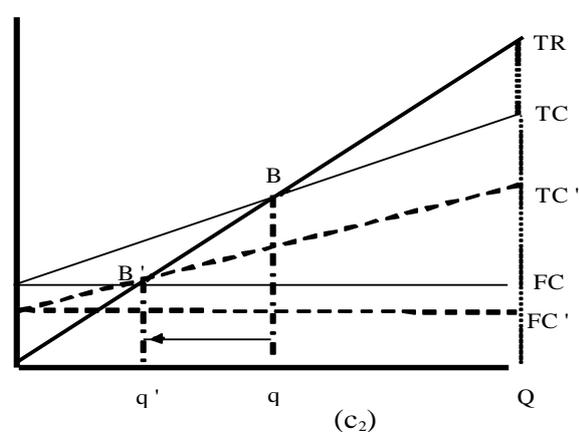


(b) **OC-saving technology**

- given output
- $B \rightarrow B'$
- profits grow by $BB'TCTC'$



(c₁)



(c₂)

(c) **(Total) Capital saving technologies**

- output grows: $Q \rightarrow Q'$
- B constant
- profits grow by "abcd"

- given output: Q
- $B \rightarrow B'$
- profits grow by $BB'TCTC'$
- $TCTC' > ab$

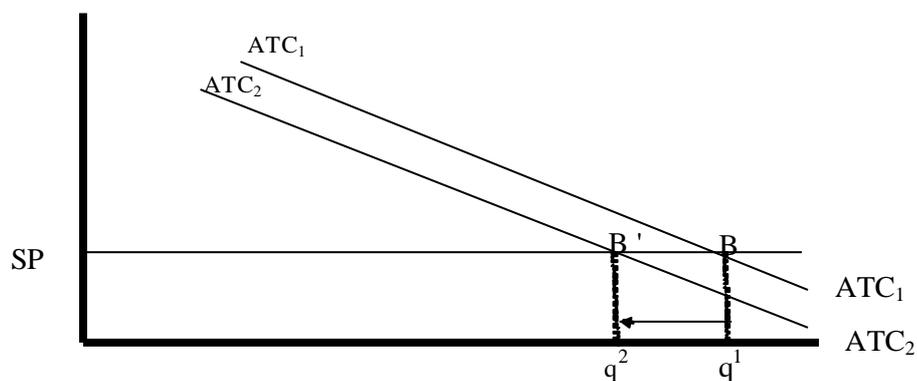
In short, given supply-demand stability, changes in technology, e.g., productive knowledge, affect not only the rate of profit but also, if desired, production price as well.

In distorted markets like, for instance, those of the developed countries where domestic production is protected by various sophisticated measures, in spite of the preaching of the virtues of free trade for global prosperity, many less efficient producers continue to enjoy higher profit rates than average under the competitive conditions at the expense of consumers. In addition, oligopolies and monopolies, though they sometimes possess advanced technologies, reap greater profit rate than average because of the lack of competition.

Supply-demand stability is of vital importance even in the long run. Rising or falling demand causing deviations from the optimum capacity utilization would have serious implications on the output and prices. In the long run, not only markets saturate but also preferences and incomes change, which inevitably lead to fluctuations in demand. In addition, entrepreneurs constantly introduce "**new products with new production methods**", which changes the premises of price formation. In other words, new conditions require new analysis.

All sorts of technological improvements imply that, given the price and demand, average total costs (ATC) diminish, as in Figure-3:7 below, from ATC_1 to ATC_2 , reaching the break-even point at quantity of q_2 instead of q_1 .

Figure-3:7



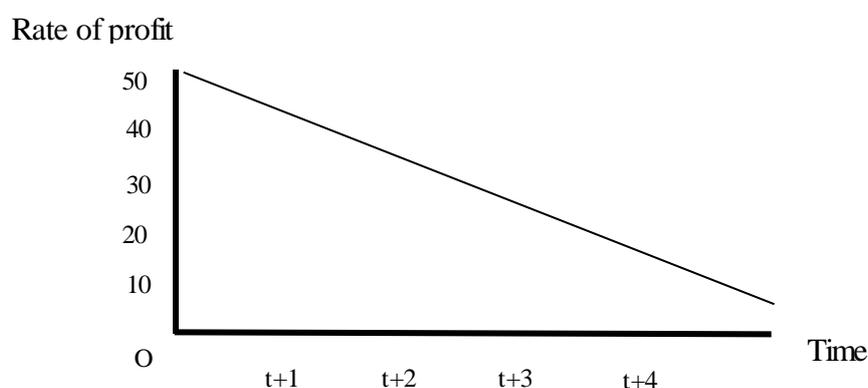
Patent right and temporary monopoly price

It is not entirely out of the question that an enterprise might have to reduce its price although strength of demand does not change. To illustrate a case we assume an Enterprise possessing the "only" patent for a product demanded, say a medicine against AIDS. There is a huge demand for that medicine and the Enterprise enjoys monopoly position due to patent ownership. It can set the sale price at a level with

a greater profit margin than the market average, say, 50 percent profit rate, while the average profit rate is only 10 percent.

Given time, other enterprises in the same branch would eventually catch up with the Enterprise-X and develop similar product(s) with the same effect. Due to the growing competition, Enterprise-X will soon be no longer in a position to dictate the market price as a monopolist. Consequently, as price falls, rate of profit would fall, too. Due to the fall in price and profit rate, the revenue curve per unit of output will display a declining slope in time (see Figure-3:8)

Figure-3:8 Competition and Diminishing Returns



Concluding remarks

The cultural and institutional environment around them shapes the vision of individuals. If you were constantly told that drinking wine is unhealthy, you would develop a tendency to avoid it. To develop a conscious version of our own as to why it is unhealthy, one requires knowledge, which, in its turn, requires time as well as ability to learn and reinterpret knowledge. Some day you may come to conclusion that others might be wrong in their argument. It might even prove that drinking a couple of glasses a day might be quite useful for health. But, what would be your chances of convincing the dedicated people of other faith that you might have a point?

The price theory of neoclassical doctrine enjoys a rather dominant position resembling the argument against wine drinking. Attempting to present counter arguments, or even considering it, makes one feel rather uncomfortable, at first. After all, what would be the probability of so many bright minds around the world, being wrong in substance? If the theories possessed have serious shortcomings,

why there are no alternatives? If there are alternative solutions and/or explanations with better insight and practical use, why has nobody discovered them yet? How can one convince the proponents of one conviction that they might be fundamentally wrong? Moreover, finally, what is the probability of alternatives being fundamentally wrong?

I do not think that alternative approaches to neoclassical price theory, or to any theory of Neoclassical doctrine, enjoys a better chance of reception among its proponents than the sale chance of pork meat in Jewish or Muslim quarters.

It is the challenge of "stylized" facts or the anti-thesis of "established" knowledge that promotes the progress of the mind and humanity. Not every challenge has to be a path-making contribution. It may not even be of significant importance. Yet, it might contribute. It is this hope of contribution to economic thinking that gave me the courage to commence this work. Maybe it is high time to reconsider the virtues of the so-called "modern" theories and look for alternative and more realistic explanations. How can we develop new **vision(s)**, unless we tolerate them?

Orthodox price theory begins and ends with the study of relative prices in a virtual world with robotic individuals and mechanical relations. It refers to commodity production analysis in manufacturing sector, though often the opposite is claimed. There is no clearly defined specific analysis of the service sector activities, which display some substantially different characteristics than manufacturing sector.

In this study, one of the major deviations from orthodox approach was separate analysis of production price (**pp**) from final market price (**SP**). This might, at first, strike as an unnecessary attempt, but, on the contrary, it is rather necessary and useful to get a proper insight into actual economic transactions. Another deviation from orthodox approach was the separate price formation analysis in primary, manufacturing and service sectors.

Diminishing returns argument is one of the foundation stones of orthodox economic thinking, which is one of the major fallacies. It has fundamental shortcomings, especially with regard to output in industrial sector. Any open-minded person with some experience from actual world would easily see the shortcomings, unless brainwashed by "scientific" virtual theories of academic economics.

Evaluation of employed savings as capital and of profits as the return on risk-taking is not an original approach. But incorporation of "productive knowledge" (technology) into analysis of capital and price formation here is unorthodox.

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