

An Alternative Price Theory

Price formation in industrial and service sectors

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I wholeheartedly endorse the following statements
by J. A. Schumpeter and J. M. Keynes.

H. Gürak

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. When we use the concepts and theorems that we have inherited from our predecessors ... change in our hands. We add here and correct there and so this apparatus slowly develops into a different one.

J.A. Schumpeter

History of Economic Analysis

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 fascinating fields of economic analysis. There had to be some rational explanations as to why some countries are more developed than others, or why some grow faster than others, or why the cake produced is distributed among the citizens and countries unequally.

These questions have attracted many concerned people's attention, including the author of this work, that led to the committed of study of global issues since the 1970s. An academic student in the West is, primarily, exposed to the Neoclassical fallacies and parables of economic relations, ranging from the price system, to production, exchange, and distribution. So called "mainstream economics" of Neoclassical heritage, however, had not made any satisfactory impression regarding the remedies of global problems and something about it did not seem quite proper. Besides, a high number of reknown economists themselves were using the Neoclassical parables and the Western ideologs were disseminating 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 experience in the private sector, 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 attempt to give an account of phenomena like uneven growth and the distribution of income among nations. But as time and research progressed, the old dilemma reappeared, and it became more and more obvious to me that the prevailing economic (especially Neoclassical) models were inadequate, i.e., incompatible with the actual practices and incapable of providing a sound and proper interpretation of the actual relations. For instance, there was no realistic price theory capable of explaining the actual economic relations. The dominant economic teachings were based on fictitious economic assumptions and relations that have made economics look like a branch of mathematics attempting to build models with "perfect knowledge and exact relations". The "correct" predictions of the theory seem more accidental than a sign of the inherent predictive quality of the theory. Recall that even a broken watch shows the time correctly twice a day.

The Neoclassical theories, dominating the fields of pricing, production, exchange, and distribution, have a very distinctive characteristic; exact mathematical relations. The mathematical formulations are no longer used as tools assisting the analyst in explaining economic relations but, rather, as the **reasoning itself**. The inexact socioeconomic relations are converted into exact mechanical patterns, independent of all human feelings, will and action. In analogy, the mainstream economic theories explain relationships resembling phenomena in the physical sciences rather than socioeconomic relations. It all seems like a "science fiction" or "virtual" version of economics. Yet, it is called "positive" economics.

The mathematical reasoning of economic relations was the result of more than a century-long attempt to make economic science an "exact" science like the physical sciences, 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 assumptions and **normative** relations. But these models are oversimplified idealizations, a hypothetical version of reality. Although the science of physics or astronomy that immensely inspired the Neoclassical ideology has undergone drastic changes since Newton's era, economic science has grown up to become a castle of rigid conservatism.

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. But, the trend turned out to be, in contrast to his warnings, a more and more abstract discipline digressing from reality. If logical consistency, precise assumptions, and exact equations are sufficient conditions for a theory to be acknowledged as a scientific theory, then they should also devote equal time and effort to the further development of Marxist theories. 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 Marginal School or Neoclassical school doctrines, economic science before the 1870s was treated more like an interrelated social science concerned even with moral values. Inexact but actual, rather than exact and fictitious, economic relations were the point of departure. The theory of value was considered as backbone of political economy, and concepts like 'justice' and 'equality' were not regarded as irrelevant.

But since the 1870s, a radical transformation has begun to take place, focusing on a new economic agent, “Homoeconomicus”. The prime purpose was to transform the political economy into an "exact" science, as Jevons and Walrus set out to accomplish. Economics was treated as the science of utility and self-interest. British economist Jevons 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*". (Blaug,1990,p.147)

According to Jevons, all human experience could be accounted for by "one scientific methodology and one mode of explanation -that of physics".

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

As in all pure sciences, economics was assumed to be "independent of all human will". 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. "*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*". (Ibid.,p.253)

More than a century has passed since the aspirations of economists to make economic tools and analysis resemble those of physics. During that time, physics has bowed to the new developments in science and adapted itself to changing conditions, while economics, the imitator of physics, has successfully (!) preserved its initial philosophical standpoint.

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 highly unrealistic simplifications which seem like the only “toys” they have to play with. But, there are also those who, following the mainstream line of argument, interpret the Neoclassical models as the true relevant point of departure to account for the actual economic relations. It seems like, for these people with strong and dedicated devotion, 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 teaching 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." (Hicks (1983,p.367)

If your faith in the Marginalist School fails you and you try to assault the holy playground of Neoclassical theory or attempt to develop an alternative vision, you should better prepare for a rather chilly and even hostile reception. That is because the disciples of the Neoclassical faith do not welcome criticism of other faiths. Coming up with an alternative is even a greater sin. Though they label themselves as democrats and fought for freedom of expression until they paved the way for their own doctrine, nowadays, they are no more tolerant or receptive to new ideas or approaches than the **Holy Church of the Middle Ages**.

The general approach towards the Neoclassical parable seems to be that as long as a theory makes good predictions, as Friedman asserts, it should be considered a good theory. The falsity of the assumptions and the relationships are of minor importance. As a result of this attitude, many of the modern economic theorists today do not even bother to pay (sufficient) attention to the practical men. The "modern" theories are partly to blame for this, but the main blame should be placed on the economic scholars for **failing to provide alternative and cogent theories**.

Are the exact and sophisticated methods and models of the Neoclassical doctrine of no value to us? Are they entirely incompatible with 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 cannot be expected to be of much use to practical men like business people or consumers. However, there is another side to the coin, the academic world is interested in questions concerning **normative** relations. Normative rather than positive, as commonly acknowledged, because the **pure scientific** world deviates radically from the actual one we live in. An approach so irrelevant to the actual events has no right to claim to be positive. Homoeconomicus, perfect knowledge, perfect competition,

etc., all refer to an idealized world. It exists only in the mind of the theorist, and therefore, at best, it can be a **normative** concept.

Academic scholars may find great virtue 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 for economic relations, treating the actual economies as **transitional** and the ideal models of the **final** stage. For instance, everybody knows that the assumption of "perfect competition" has no relevance to reality. On the other hand, we all know that perfect competition would maximize efficiency in production, and consumer benefits. An interesting and relevant question would be; how much do actual economies deviate from ideal circumstances? Or how to transform the real world to make it compatible with the normative standards of Neoclassical doctrine?

So much for normative economics. Meanwhile, we are still in need of economic theories, especially of a price theory, explaining the actual phenomenon 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. (Hicks (1983,p.289)

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

THE PURPOSE

The initial purpose was to study the phenomenon of international trade, income distribution and growth. But, in the absence of a satisfactory, e.g., realistic value/price theory, which is the backbone of economic science, it seemed like building a house on sand.

The planned work had to be built on theoretically logical as well as practically applicable premises, containing more compatible assumptions and relations. At the early stages of research, one point became clear: since there was assumed to be something fundamentally wrong with the existing theories of growth, production, exchange, and distribution, their point of departure, the price theory, had to be to blame for this. As a result of this conclusion, there was no choice but to start with an alternative price theory before proceeding further. Hence, this study began while the initially intended study on economic growth and distribution remains to be done.

WHY PRICE THEORY?

The overwhelming majority of economists around the world seem to acknowledge the Neoclassical version of price theory. It is one of the most developed fields of the Neoclassical school but, at the same time, of very little relevance to the facts of life. There is a wide discrepancy between the Neoclassical explanations and the real world events, they are intended to account for.

The value / price theory holds a very crucial position in economics as the **basic tool of analysis**. Producers as well as consumers adjust their market behavior according to the price signals, which determine the allocation of their resources. 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 that is logical, consistent, and practically relevant (applicable). As the Neoclassical parable fails to satisfy the last condition, the need for an alternative theory emerges.

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

MODE OF VISION

As Schumpeter 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, p.562)

In this study, I have attempted to escape from the habitual modes of thought and expressions that shaped the backbone of my economic thinking. It is not an easy task after years or decades of

indoctrination. But I will try to do my best to follow my **own path**¹. This does not, however, in any sense, imply that the works of past and present economists will be rejected or ignored. On the contrary, this work, based on the accumulated knowledge and methods of analysis of numerous former scholars, and will attempt a reassessment and (subjective) reinterpretation of the existing theories. Without the undeniable contributions of scholars like Smith, Ricardo, Marx, Marshall, Schumpeter, Solow, and many others, there would be nothing to present now.

The approach in this work to value-price theory is basically a **labor-embodied** approach, but somewhat distinct from the Classical ones. Though it acknowledges the labor-power as the source of all material wealth, given the gifts of nature, of course, and that no exchange-value can be produced without it, it makes no claim to be an "invariable" measure of value, nor does it assert that the profit is "unpaid" labor.

Exchange is not based on equal "quantities" of labor-time spent. In the essence of commercial production is **knowledge** provided by the mental abilities of the laborer. In other words, the **mental labor of human mind is placed at the center** of every value-generating economic activity, assisted by the physical labor.

"Capital" is treated as the "accumulated" (saved) labor-power in form of physical inputs of production or in form of money, and profit is the return on production capital or, alternatively, on the past and present mental labor and physical labor-power employed by the monetary capital to produce commodities and services demanded.

The two main subjects presented differently, in this study, are:

- 1- 1-The approach to the value / price theory where the **knowledge, e.g., mental labor-power** plays a pivotal role;
- 2- Separate price formation analysis in the service sector as distinct from the traditional manufacturing sector analysis.

METHOD

The method used to explain the generation and exchange of value in Chapter-1 will be the classical analysis of the two-hunter model as initiated by Adam Smith. The major distinction is the emphasis on the productive knowledge developed by the mental component of laborers,

¹ As far as my knowledge of the English language allows. After all, English is not my native language, and I am aware of my shortcomings.

leading to productivity increases, e.g., economic growth, as well as to increased personal and aggregate income. Chapter-2 will analyze value generation and exchange relations regarding **relative prices**. However, though of significant academic value, the relative prices are not of much use about the price formation of a product in actual relations. Thus, the urge arises for a separate pricing analysis, as in Chapter-3.

In Chapter-3, as distinct from the value generation and exchange ratio analysis in Chapter-1, the focus point will be the determination of the market price for a single-product enterprise subject to increasing returns. The assumption of increasing returns is not just for academic reasons but because it is common knowledge to all business people that, due to (ever-growing) fixed costs, unit costs of production continuously tend to fall and profits to increase, as the output approaches optimum plant capacity. For this reason, increasing rather than decreasing returns is more realistic.

Throughout this work, the point of departure will be the works of so-called Classical like Smith, Ricardo, and Marx, who concentrated on the development of a labor theory of value. They were all quite aware of the importance of mental labor power in value generation and exchange relations, but, nevertheless, neglected (or, perhaps consciously ignored?) to analyze its contributions separately and treated the whole labor power, with its manual and mental components, as a "quantitative concept". The abstract quantitative approach certainly simplifies the theoretical analysis, but it, also overlooks the indispensable and indisputable role of the essence of value generation, e.g., the productive knowledge of brain power.

Working with abstract models, some simplifying assumptions are unavoidable. There was no escape from this in this study, either. Abstraction, as Marshall indicated, is a sign of inadequacy rather than a precondition of scientific growth. Unfortunately, we are still in need of such abstractions and simplifying assumptions in our analysis, for they simplify the analysis and interpretations. They distort reality, but, at the same time, they help us understand how the highly complex machinery of the economy works, despite its shortcomings.

Throughout this work, the utmost attempt will be made to remain within a realistic framework resembling, as closely as possible, the actual economic conditions and relations. The neglect of oligopolistic or monopolistic practices might seem like an oversimplification to some people. Unfortunately, they are a fact of life, but not unavoidable ones, if the proper steps in the right direction are taken by the decision-makers.

The neglect of state intervention in the operation of market forces is an unfortunate but necessary assumption. Because the state, with all its organs, policy decisions, and authority to enforce its decisions, is always and everywhere a critical factor in our socioeconomic lives. Who can tell what the global economic order would look like if there were no market interventions by the authorities of developed countries, during the last two centuries? How would the global production and distribution of resources seem if they themselves implemented the highly praised virtues of liberal market economies? One can only approach these questions from a hypothetical point of view. There has never been full-fledged competition without interventions by the authorities to protect the economic interests of the domestic economy. It is true that there has always been a tendency in developed countries to increase competition by eliminating trade and investment barriers, but only as they see fit, and when they want. There are still huge barriers to imports from less-developed countries in terms of customs duties and quotas for labor-intensive products. Investigation of such political and protectionist aspects will have to be ignored to concentrate on the main argument, the price theory.

Our short-run simplifying assumptions, like fair and free competition, instead of perfect competition, supply-demand stability instead of equilibrium, the level of plant capacity utilization and accompanying profit rates, increasing returns instead of decreasing ones, and separation of the sale price from the production price, are all more realistic ones than the alternatives in mainstream price theory. As will be observed, such realistic simplifications do not undermine the essence, or outcome, of the 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, EXCHANGE RATIOS, RELATIVE PRICES, PROFIT and CAPITAL

ON VALUE AND EXCHANGE

In economics, the concept of value is a key concept that reflects the degree of importance of commodities and services supplied, for the end-users. Its exact measurement is not possible and therefore, according to some scholars, it has no place in modern "positive" economic theory. Modern economic theory, e.g., Neoclassical ideology, it is claimed, is a non-moral and value-free scientific theory.

A scholar of Neoclassical heritage would, naturally, prefer economic analyses without value, moral and political issues to study. The resulting analysis might turn out to be rather neat and elegant, even logical and consistent, as they often are. But what can they tell us about the real world? How much useful information do they convey on relevant actual matters? What practical and possible remedies can they offer? If value analysis is worthless because it is immeasurable, how shall we treat **utility, a cornerstone of the Neoclassical ideology?**

As we all know, it is a fact of life that human beings as consumers assign some subjective value to the products which possess some value because of their ability to satisfy our needs and wants, in one way or another. This ability to satisfy our needs and wants is called, from the end-user's point of view, the **use-value** of things. A product would be assigned some use-value in accordance with the degree of satisfaction provided. For example, a glass of water would have a much greater use-value in the middle of a desert than in a town with a normal water supply. Food would have much greater use-value when you are hungry. A rat or a fly, on the other hand, would be of no use-value because they fail to satisfy any of the desires of human beings. In short, the use-value designates the utility of things supplied. Without the use-value, there would be no demand for the products supplied.

Use-value is one aspect of the concept of "value²". 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 for the supply of them. The same things were provided to designate use-value for the end-users of all kind while designating exchange-value for the producers. For instance, bread produced by the baker is an **objective** product aimed at satisfying a human need. Meanwhile, the same bread is a **subjective value bearing** product for the consumer, for it helps to eliminate the hunger of the body. In the former case, it displays an exchange-value while in the latter case, it designates a use-value. Thus, the concept value displays two distinct properties, as the Classics indicated;

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

So far, we have said nothing new or different from what the Classical economists said. There is one more thing to add to what has been said so far: the use-value of a product imply two different things that should not be mixed up. Air is extremely useful for our survival but displays no use-value, simply because it is not produced with the purpose of exchanging. It is a gift of nature, thus displaying neither use- nor exchange-value.

The exchange value and use-value of a product do not show a proportional relationship with one another. A useful product, from the perspective of the end-user, could have a low exchange

² In the first version of this work, the concept of value was described as a "metaphysical" concept. The idea was to describe it as a **concept beyond the description of physical existence**. The intention was good, although some felt it was inappropriate.

value, or vice versa, for the producer. As the frequently cited example says, bread is more useful than a diamond, but the latter is much more expensive. What makes the diamond possess more exchange-value than bread? What causes variations in the use- and exchange-values in the short- and long-run? Do we assign products exchange-values because of some man-made properties like labor content? Or, do they acquire varying values because of our changing desires or marginal utility?

USE-VALUE

Use-value is a subjective concept indicating that a product supplied by the producer possesses an inherent feature that meets the requirements of the end-users. In other words, the products demanded by the end-users contain a feature to meet the needs and/or wants of human-beings. Otherwise, they would not be demanded. A car, a loaf of bread, and a house are quite different items of satisfaction with quite different qualities and quantities of inputs to meet the requirements. According to the degree of want or need for such products, individual end-users attribute them some use-value. For instance, when you are in the middle of a desert without a water supply and far away from the nearest well, a glass of water would have unlimited use-value, and you would not exchange it for all the gold or diamonds in the world. But in a modern town where you can have practically unlimited access to the city pipe-line water, it would imply a far lower use-value for you. In other words, the degree of use-value of a product is not "**static**" but changes with changing circumstances, culture, tastes, and desires. A mature wine or a twelve-year-old whiskey might be very valuable in Western countries but, at the same time, extremely invaluable for faithful Muslims. All these things indicate that the degree of use-value of a product is subject to individuals' **subjective evaluations**, and it fluctuates over time.

Scarcity

The example of water in the desert indicates that **scarcity** is an important factor in the subjective evaluation of products. Scarcity adds to the use-value and abundance reduces it. This is why one would be prepared to pay an extremely high price for a glass of water in the desert. But scarcity of a man-made product is often a temporary situation and is/can be eliminated by increased output in the long-run. There is one frequently and rightly mentioned exception to this; the scarce collection items. Irrespective of all the technological knowledge, it is impossible to increase the supply of the "original" ones. But, collection items, just like diamonds and jewelry,

possess a distinctive feature; they are usually acquired for their exchange-value in the market rather than their use-values. Irrespective of the acquisition motive, they are exceptional cases.

Utility

One crucial aspect of the concept of use-value is the utility, or rather, the marginal utility (MU) of the products. Marginal utility displays the degree of usefulness of the last item acquired or consumed, and it decreases with each additional item. As we all know from the economics textbooks, the second slice of bread or the second TV-set would not produce the same quantity of marginal utility as the first ones. And the further added items would produce an even lower degree of marginal utility. Such variations in marginal consumption add to or reduce the use-value attributed to products. Naturally, scarcity or abundance affects the degree of marginal utility of things.

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

The exchange value of a product is an **objective** concept for the producer, designating what the producer can get in return for the value expended. In commercialized societies, the common denominator of the products is money, i.e., products are exchanged for the universal medium of exchange called money. But, in Classical theoretical economic analysis, traditionally, products are exchanged with other products. So, we shall follow the same path, e.g., relative values, for the time-being.

Two essential and crucial questions in 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 as a result of the price-tag attached?

The first view was advocated by the Classics, and the latter by the "modern" scholars of Neoclassical heritage.

For Ricardo and Marx, labor-power is the source of all value created. The commodities are exchanged in accordance with the quantity of **labor-time contained** in them. Accordingly, five

hours' work would be exchanged for another five hours' work, regardless of the qualitative differences. This conclusion does not mean that the Classics, including Marx, were unaware of the varying degrees of contributions, depending on the varying qualities of the labor-force. But it was assumed, obviously quite wrongly, that all labor-power spent on a particular product could be reduced to simple labor expressible in measurable quantitative terms. Thus, the **relative quantities of labor-power** contained in a product would determine its **relative exchange-value**. And what they had in mind was only **commodity production**. Exchange-value was treated as independent of demand, and the answer to the question above was crystal clear; the labor (power) contained determined the exchange-value of commodities.

The Marginalist school preferred to concentrate on the other side of the coin, e.g., the demand side. Subjective evaluations shaped by successively decreasing marginal utility, it was asserted, determined the exchange-value of commodities. In other words, the consumer, not the producer, was placed in the focus of analysis.

To repeat the question; is it the labor-power content, or the marginal utility expressed through effective demand, that determines the relative exchange-values of products supplied? Marshall had a clear answer:

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

Because the actual price paid always exceeds the past and present labor costs spent on a particular product. Demand alone could not explain the exchange-value because, 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 and demand, i.e., use-value for the end-user and exchange-value for the producer. One side alone would not be sufficient.

APPLYING BOTH SIDES OF THE SCISSORS

Human beings require certain things like food, shelter, and clothing, which are referred to as the basic needs, to survive. But, as society climbs 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 of basic products is low, the general tendency is that the more human beings earn, the greater percentage of their income will be 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 the mind**, subject to wealth and income. This appetite implies a potential and/or actual effective demand, which induces the suppliers of products to engage themselves in the production. Assuming the absence of scarcity, the demand, representing the subjective use-value for the end-users, would be met by the producers in the market given an acceptable rate of profit. For instance, if the average rate of profit for alternative employment of money capital is fifteen 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 rate of profit for that particular product.

Scarcity, as we observed above, adds to the use- and exchange-values, and abundance reduces them. When a product is scarce, its marginal utility is relatively higher, which, in turn, implies that the end-users are prepared to pay a relatively higher price for the product in question. In terms of relative exchange-values this means that the scarce product will be able to purchase more of the other product, say, 3x instead of 2x. In practice, it means that the end-users are prepared to spend more on the product than under normal conditions without scarcity. And both cases indicate that the intensity of use-value plays an important role in exchange relations.

EXCHANGE-VALUE: RECONSIDERED

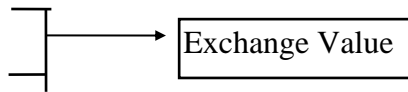
On demand side, let **SV** denote the **subjective value** for the consumer, e.g., end-users, **P_x** price of the product x, **MU_x** the marginal utility of product X, **P_y**, the price of substitutes, and **P_z** the price of complementarities. In the absence of scarcity, SV in the real world would look like the following:

$$SV = (P_x, P_y, P_z, \text{Income, Wealth, Tastes, Tradition}) \quad \text{eq, 1}$$

Now, let us see what happens on the supply side, in the same world. As mentioned before, a product represents an exchange-value for the producer, which includes a reward, e.g., profits for the risks assumed. Therefore, it would be rational and practical to divide the exchange-value into two different departments for producers:

1. Objective Value (OV)

2. Profits (#)



$$OV = \text{Fixed Costs} + \text{Operating Costs incl. Wages but excl. profits.}$$

OV designates what a product costs to produce, i.e., the pure costs of production, in terms of manpower, raw-materials, machinery, tools, energy, etc. It shows the minimum acceptable level of exchange-value, or the break-even point for a product. But a commercial producer would not be induced to engage in production at that point. To induce production, the exchange-value must include a reward, e.g., profit (#), and exceed the OV.

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

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

To start production, the sale price, (SP), must exceed the OV and include profits for the producer:

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

which makes the SP^* containing the average profit rate (r^*), a function of OV and #;

$$SP^* = f(CP, \#) \tag{eq. 4}$$

or, alternatively,

$$SP^* = \{CP (1+r^*)\} \tag{eq. 5}$$

When $SP = CP$ which is **the break-even point**, then

$$\# = 0.$$

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

Thus, we can rewrite the equation. 4 as;

$$SP = f(SV \mid OV) \quad \text{i.e., } \dots \tag{eq.6}$$

$$f(OV)$$

where SV determines the # and r (the rate of profit),

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

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

As indicated by eq. 1, SV fluctuates in accordance with the marginal utility of the product, the price of the product, the prices of substitutes and complementarities, income, wealth, tastes, and traditions. Assuming constant income, wealth, prices, and tastes, marginal utility (MU) appears as the only factor influencing the SV;

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

The MU in our analysis refers to the **aggregate consumption** of a given product. At the initial stage of production, the MU would be much higher than at a later stage where markets approach the saturation point;

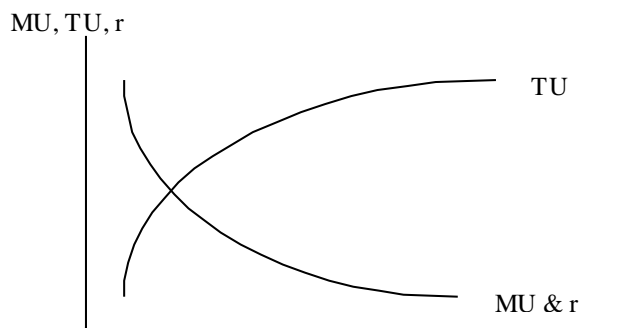
$$MU_i > MU_{i+1} \quad i = 1,2,3,\dots,n \quad \text{eq. 9}$$

Implying;

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

for the same product. In practice, that means that the end-users' subjective values expressed through effective demand cause variations in the "# and "r". Graphically, the relation between the MU and the quantity supplied can be displayed as in Figure-1:1.

Figure - 1:1



As the quantity supplied increases, the market gradually saturates, while at the same time the TU increases at a decreasing rate. Meanwhile, the MU and the rate of profit successively decrease. Eventually, when the market is saturated, the MU and the rate of profit approach zero.

Theoretically, beyond the saturation point, neither the end-users nor the producers would have any incentives to engage in any economic transaction. But, in practice, the producers would cut or cease 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 indicated by the same curve. It is done so just to show that both are declining functions of increased supply, but do not necessarily fall proportionately.

A HYPOTHETICAL CASE WITH PROFITS

Assume a community with **unskilled** labor-power producing and consuming exactly what they need to survive. Say, that after some time, our community members start spending some additional labor-time producing some wine with the purpose of exchanging it for money or products in kind. Since the wine is produced with the purpose of exchanging, it will merely possess some **exchange value** for the producers while representing a **use value** for the buyers. Assume that 8 hours of unskilled labor is required to provide 100 liters of wine at a cost of \$200, with no profits involved. The buyers must offer, either, at least \$200 or a product of equal use-value to the wine-producers to realize a transaction. \$200 is the **objective value**, e.g., cost of production without profit. Anything less would imply "bad business" for the wine-producers and exchange would not take place.

In commercial communities where production is based on personal gain, e.g., profits, to induce an exchange relationship, there must be some incentives for the producer. In other words, the **exchange value** of a product supplied must exceed its **objective value**, i.e., the buyer must be prepared to pay more than \$200.

If the two communities consist of only two people who are the producers as well as consumers of the exchanged products, then exchanging two products for \$200 (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 wine to the buyer, i.e., what the buyer is willing to pay. And regarding willingness to purchase, not only the objective value but also the purchasing power, tastes, and scarcity (abundance) are crucial factors. The

unskilled **labor quantity** embodied **regulates**, and the **demand**, or "haggling and bargaining" of the market, **adjusts, the exchange value**.

In the theoretical world of relative exchange-values, profits would have to be abandoned from the analysis, and the products would have to exchange with one another according to the "labor-time employed" concept. As we all know, products are not exchanged among two or more producers but are sold to end-users, whether they are consumer goods or semifinished goods, in return of a price including profits. Therefore, the analysis of relative exchange-values fails to provide us with useful and realistic insights into actual exchange relations.

Since the purpose was to identify different concepts of value, for simplicity, reference was made only to labor-power in general. Introducing the mental component of labor-power, exchange-value argument will have a different dimension, as will be seen.

THE SOURCES OF VALUE: NATURE AND LABOR-POWER

To initiate the supply of a product, the exchange-value generator, e.g., the producer, has to combine the material inputs of production, such as raw materials, machinery, tools, energy, etc., with the services of manpower. In mainstream theories, it is customary to treat capital as a "productive" factor of production. Money-capital or capital-goods are necessary inputs of production, but they are not productive ones, as such. On the contrary, they are, on their own, rather unproductive unless related to the production of some goods and/or services with the assistance of manpower.

For instance, a person can possess large sums of investible funds, e.g., savings, but it does not make him a producer but just a money holder. And the money saved is incapable of producing anything, except receiving interest. Such savings could not produce anything by themselves, unless used to hire the services of labor-power to transform the inputs of production into useful things or services with exchange values. In short, 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 man-made inputs of production, capital goods help to increase the productivity of man or the output of per unit manpower inputs. Even a production unit run entirely by computers and robots has to be started and maintained by some manpower. All capital-goods including all kinds of computers or high-tech machinery, are useless without

manpower. The best one can do is call them "indirectly productive", if one may say so. All material inputs in 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 physical output may be reduced to land and labor.

To put it differently, there are **only two productive factors** of production; **nature (land) and the services of labor-power**. Only the natural inputs processed by the services of labor-power can supply the physical products.

LABOR-POWER SERVICES

Services of labor-power are provided by human beings who also happen to be the ultimate beneficiaries of the output, an aspect sometimes overlooked or undermined in the economic analysis. The labor services enter the output in the form of **mental labor (brain-power)** as well as **manual labor (physical-power)**. The labor-power can be defined 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. (Marx, Capital, Vol.I, p.270)

Given the quantity of employable time, it is the "creative" mental component of the labor-power that accounts for the supply of **productive knowledge**, which accounts for the quantitative growth and qualitative improvement of the physical items as well as of the services supplied.

On the other hand, manual labor-power is, a necessary ingredient of 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 labor power, one way or another, 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 that some of us, around the globe, so lavishly enjoy.

The invaluable **productive services of the mind** can be divided into five groups:

- 1- **New products** (entirely new, or old ones in new forms);
- 2- **New production processes** ("given" product but new process technology to produce);
 - a-) more output with given inputs,

b-) cheaper with given inputs,

- 3- **New organization** to increase productivity (reorganization with given inputs to reduce costs, or increase output);
- 4- **Experience** (knowledge stored in and utilized by the mental faculties of labor power); and
- 5- **Learning-by-doing** (practice contributing to the productivity increase).

All items above are the products of mind, e.g., mental labor-power, related to the mental capabilities of human beings.

To sum up; in principle, it is the “creative” along with qualified mental component 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. Nature, or, as some might prefer, the land, provides the basic inputs for the transformation, and labor-power with its mental and physical components, carries out the work. In practice, the productivity of nature is 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 their lot. Humans and nature are, therefore, **two indispensable and inseparable sources, or productive factors**, of wealth. 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 of their 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 relationship? Perhaps the labor embodied in, or commanded by, the final products? What is the role played by the marginal productivity of labor and capital? Roundabouts or the time aspect of the production?

Let us begin, like 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, manual labor-power is measurable in hours, days, or some other unit of account, while the latter term, mental labor-power, or the

source of **productive knowledge**, refers to an analytical concept. Unfortunately, economic science still offers limited premises for the identification and assessment of such 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 a day while the second, Leyla, hunts 4 rabbits every day. Given their preferences, at the end of the day, the two hunters exchange one deer for two rabbits, or half a day's physical work, which is a fair exchange regarding the physical labor embodied approach, e.g., 10 hours of 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' <u>manual work</u>"
Leyla's consumption	= 1 deer + 2 rabbits	
Maria's consumption	= 1 deer + 2 rabbits	

So far, our two hunters have not made any use of their “creative” mental capabilities in their daily hunt. But, assume that someday one of the hunters, say Leyla, utilizing her “creative” mental capabilities in her spare time and combining them with her physical labor inputs, develops a method that enables her to double the daily catch from 4 rabbits to 8 rabbits within the same 10-hour time span of a day. To be more specific, let us say that she makes some simple tools to assist her in the hunt for rabbits. Leyla’s daily production in terms of economic value increases from 10 to 20 hours of manual work, though she effectively works only 10 hours a day.

New total supply a day = 2 deer + 8 rabbits = 30 hours' manual work

or alternatively;

New Total Supply a day = 20 hours manual work + Leyla’s creative mental work worth 10 hours

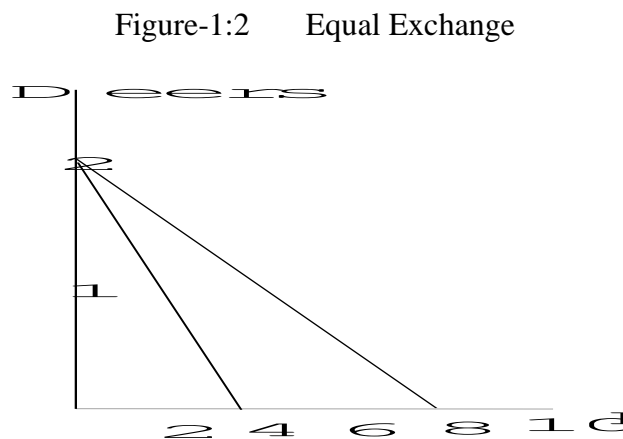
What would happen to the exchange relations with the other hunter, Maria?

Regarding the new situation, exchange relations will have to change. Previously, there were 2 deer and 4 rabbits on the market. Now, there are 2 deer and 8 rabbits.

What would the new exchange ratio look like?

Case-1:

Following in the footsteps of 19th century economists like Ricardo and Marx, one can assume that it still requires 10 hours' work to catch 2 deer or 8 rabbits. Equal quantities of labor time are embodied in both cases, and therefore, 1 deer should be exchanged for 4 rabbits instead of 2, 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 equals 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 consumption = 2 deer + 8 rabbits = 20 hours' manual work

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

But Leyla has not been rewarded yet for her creative mental contribution to the common wealth, which increased the total available supply by 4 rabbits. Maria, the second hunter, who made no contribution to increased productivity, would be the beneficiary of the new exchange relations based on the labor-time spent approach. She works for 10 hours but consumes 15 hours' output, compared in terms of initial values expressed in labor-time. Meanwhile, Leyla, who produces 20 hours' output, consumes only 15 hours' output. This would be neither logical nor economically rational from the point of view of the further development of technology and wealth. Because the system is unable to provide any incentives to be creative.

Case-2:

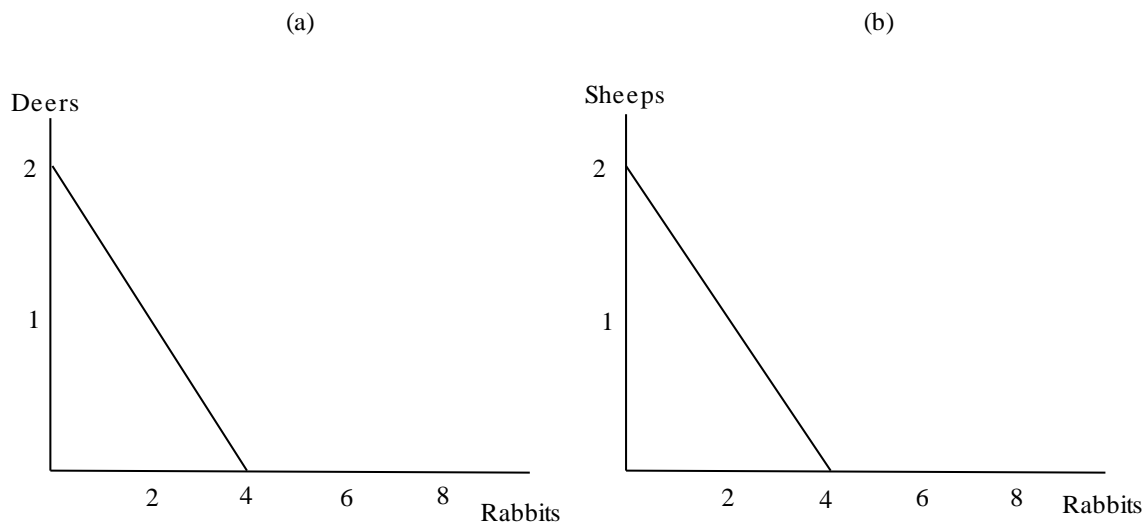
Initially, Maria and Leyla were exchanging one deer for two rabbits. Assume that after the introduction of the new method developed by Leyla, which doubled her productivity from 4 to 8 rabbits, the initial exchange relations are maintained. Maria and Leyla still exchange and consume 1 deer and 2 rabbits each.

But now, Leyla has access to an additional 4 rabbits, which she can exchange for another product she needs or desires, say 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 an additional 2 sheep at her disposal for daily consumption. The new method developed by Leyla entitles her, given the demand, to the consumption of 1 deer, 2 rabbits, and 2 sheep. (Figure-1:3) The total value of her consumption, in terms of labor hours embodied, has risen from 10 to 15 hours' of labor. But, the hours effectively employed have not changed.

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

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

Figure-1:3 Rational Exchange - 1



In this case, there is no egalitarian exchange in the Ricardian or Marxist tradition of equal quantities of manual labor expressed in time units employed. Nevertheless, neither Leyla nor Maria consume less; in fact, there is an increase in total consumption, thanks to Leyla's creative mental labor. As a result, she can now consume more than ever before. This outcome is, both more logical and economically rational, than the foregoing one.

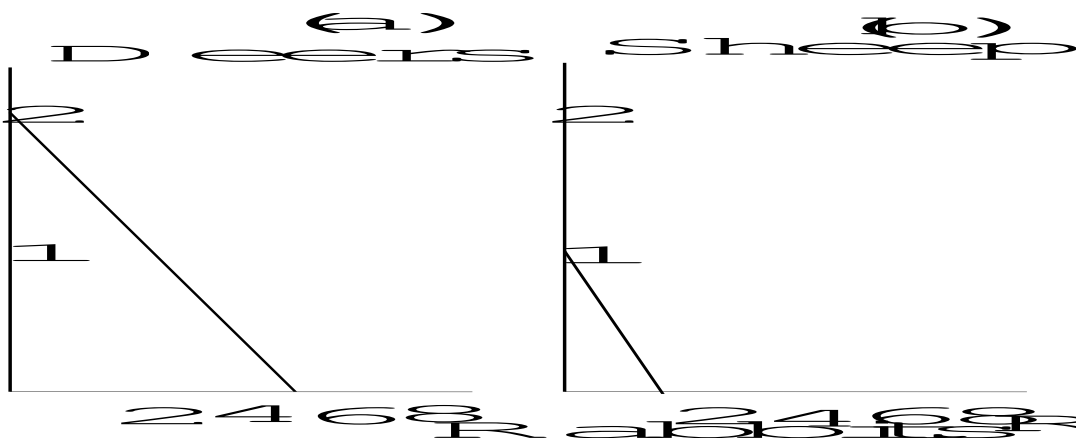
Case-3:

If Leyla cannot dispose of all of her surplus of four rabbits outside her own community, which consists of Maria and herself, in exchange for products of use-value to her, then even Maria might benefit from the outcome, e.g., increased productivity, and enjoy more consumption.

It might work as follows;

Assume that only 2 rabbits out of 4 surpluses are exchanged for 1 sheep (Figure-1:4 Rational Exchange "b"). Leyla would now have 6 rabbits at her disposal in her community before entering into exchange relations with Maria, (Figure-1:4 Rational Exchange "a"). Assume that Maria somehow "convinces" Leyla to accept a new exchange relation; 1 deer for 3 rabbits. Now, it is not only Leyla who enjoys a higher amount of consumption but also Maria, who actually did not make any contribution to the increased total supply. (Figure-1:4)

Figure-1:4 Rational Exchange - 2



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

Maria's consumption = 1 deer + 3 rabbits

Both consume more in terms of economic value, though the effective working hours have not changed.

This situation seems to have a closer resemblance to reality than the prior two cases, for it allows even the less- (un-) productive person(s) or sector(s) of the economy to benefit from the overall development originating from other "dynamic" sectors. Not only the inherently more productive manufacturing sector, but also the service sector, which is prone to relatively lower productivity growth, benefits from such developments. Because 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 point of view of **distributive justice** because each specific contribution of productive knowledge, as a creative product of mind, is, in principle, a **(marginal) by-product** of the accumulated **common (public) knowledge**.

Nobody, no matter how brilliant his/her mind is, does acquire the knowledge "mana from heaven". Today's pool of knowledge of an individual as well as of a community is the product of inherited and accumulated knowledge based on thousands of years of experience, research, and development.

Some people are more fortunate than others regarding the allocation of personal endowments, e.g., natural abilities. Such endowments offer the premises for the exploitation of the accumulated pool of knowledge, and some people do not miss such opportunities. As a result, the trend is ever-increasing wealth among nations.

Regarding our model with two hunters and adapting it to the present day, it implies that Leyla's contribution would only be a **marginal** one to the accumulated pool of knowledge from which she drained and based her productive knowledge. Past knowledge is a **common inheritance of all mankind**, and therefore, it is not only fair that the accrued benefits are shared to some extent by others as well, 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 components, is the **only** source of all past and present wealth and of future growth. Or, 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.**"

(Marx, Vol. I, pp.133-134)

VALUE-PRICE RELATION

How are the values transformed into prices? This question was one of the central issues troubling the minds of Classical economists. There was, and unfortunately, never has been, any satisfactory theory offered on this matter. After Marx, especially since Jevons and Walras, more and more economists tended to seek the reply in the new "pure" economic explanation. In *perfect* market conditions, the supply and demand curves determined the market price, though one could, sometimes, get the impression that the marginal productivity of the factors of production.

Accordingly, the intercept points of the "increasing" marginal cost and "decreasing" marginal utility curves reflected the price level with economic efficiency.

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 formation of prices? Or is it the marginal productivity of capital and labor that determines the price level? What is the role played by demand?

Ricardo had searched for an "**invariable measure** of value to apply in the transformation of values into prices but could not find one that 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, pp.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 labor-power which Marx defined as;

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

According to Marx, the labor-power was a commodity like any other commodity in a capitalist system that 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, p.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, a product of mental faculty, to growth and wealth. As a result, the exchange relations as in Case-1 above, where equal quantities of labor time were embodied in two products, seemed to be an egalitarian exchange relationship.

Can one claim, as Kaldor did,

... 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, p.31)

As we have seen in the previous parts, given nature's indispensable role in production, the labor-power with its special mental and physical faculties, is the source of our ever-increasing growth and wealth. Therefore, a proper price theory should be based on a **labor value theory that accounts for the dual properties of labor-power**. An exception can be made for agricultural prices, on which nature still seems to have a great influence.

The estimation of manual labor, embodied in terms of a time unit required for the supply of a quantity of output, is a relatively easy mathematical process. But how and where do we find an appropriate process capable of measuring the contribution of mental faculties of humans, 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? Could the actual price paid by the end-user, reflect the labor embodied in a product, both in the quantitative (manual) and qualitative (mental) sense?

RELATIVE PRICES

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

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

Where;

$$1 \text{ deer} = 2 \text{ rabbits} \quad \text{or,} \quad \text{accordingly} \quad \$15 = \$15$$

Now, let us assume again that Leyla, the rabbit hunter, utilizing her “creative” mental faculties, develops a new hunting method that doubles her daily hunt of rabbits from 4 to 8 within the same 10-hour working period. Ignoring any incentives for, or rights of, Leyla to a reward for her productive contribution, the new exchange relation between Maria and Leyla would look like as following:

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

where;

1 deer = 4 rabbits

The equal labor-time approach to exchange as presented by Marx actually rewards the less productive hunter, Maria, and, in a way, penalizes the more productive one, Leyla. Under such circumstances, there would be no incentives for Leyla to make any efforts aimed at further improving productivity, assuming she is driven by the profit motive. Naturally, a person might also be driven by other motives than profit, but for argument's sake, we shall ignore such exceptional cases.

Given the initial price level and demand of Maria for 1 deer and 2 rabbits a day, for consumption, Leyla, the rabbit hunter, is now in a position where she can enjoy additional consumption of 4 rabbits worth \$60 a day ($=4*\15), if she can sell the surplus to third parties. Given the price of rabbits (\$15 each), her total income has now increased from \$60 to \$120 a day, while that of Maria, the less productive one, is still \$60 a day.

The total income of both, Maria and Leyla has also increased from \$120 to \$180 thanks to Leyla's productive knowledge.

A reward in the form of greater income for Leyla than the initial \$60 as a result of productivity growth, is both rationally and morally justified and provides the necessary incentives for the further development of productive knowledge. In our simple model of hunters, Leyla's income is expected to be greater than the initial \$60 and the upper limit is \$120, depending on the market price, which is influenced by demand conditions and the purchasing power of potential buyers. Thus, the price of each rabbit is expected to range between the lowest possible price of \$7.50 and the highest price of \$15. There is no way to tell in advance what the final price will be unless demand is specifically given.

Introducing wages and profits

Introducing employers, employees, or even taxes into our simple model would not affect the outcome. Assume that each hunter employs one employee, pays wages (W) equivalent to \$15 a day, and makes \$15 profits ($\#$). At the initial position, the following relative prices would emerge:

$$P_d = \$30 \quad P_r = \$15$$

$$W_d = \$15 \quad W_r = \$15$$

$$Y_d = \$60 \quad Y_r = \$60$$

$$Q_D = 2 \text{ deers} \quad Q_R = 4 \text{ rabbits}$$

where P_D and P_R denote unit prices for deer and rabbit, 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, respectively. The production methods, incomes, and profit rates, as well as the consumption patterns and the 10-hour working day, are identical in both sectors.

Once again, assume that Leyla, the owner of the rabbit hunting firm, introduces a new method that is a product of her “creative” mind, and doubles the daily catch from 4 to 8 rabbits, as before. The stagnant deer hunting firm of Maria initially consumes 2 rabbits a day, which are acquired in exchange for 1 deer.

In the new situation, after the introduction of the new technology, e.g., new method of hunting, if there is no other buyer of rabbits than Maria, and exchange takes place in accordance with the time employed, the price of rabbits would fall from \$15 to \$7.50 each, leaving the wages, profits, and total income in the rabbit sector unchanged. Meanwhile, however, the total supply has increased from 2 deer and 4 rabbits to 2 deer and 8 rabbits, an increase of 4 rabbits. There is an egalitarian exchange relationship in appearance, but at the expense of the more productive sector, which has not been rewarded yet.

Let us assume that there is another market with third-party traders where the exchange relations are the same, i.e., 1 deer is exchanged for 2 rabbits. If Leyla can dispose of her surplus, the additional 4 rabbits, in this market, she can increase her total income from \$60 to a maximum of \$120 since each rabbit in the third market brings in an additional \$15.

If the exchange ratios are undetermined, the price will depend on the “haggling and bargaining” between the two parties, reflecting the marginal use-values, rank of preferences, and purchasing power. Depending on the size and rate of profit, Leyla will now be in a position where she can afford to raise the wages of her employee(s).

Everybody benefits from the productive contribution of Leyla's “creative” mental faculties; the community as a whole, the wage earner, and Leyla herself. Even the stagnant sector, the deer hunting firm, benefits from the developments. Because, as productivity increases in the rabbit sector, the expansive sector might eventually end up with decreasing terms of trade.

DETERIORATING TERMS OF EXCHANGE AND DEMAND

In previous sections, we assumed that Leyla increased her productivity from 4 rabbits a day to 8 rabbits, due to her “creative” mental contribution. Suppose that after Leyla’s productivity increase, 1 deer is exchanged for 3 rabbits while total consumption increased from 2 deer plus 4 rabbits to 2 deer plus 6 rabbits. . The new exchange relations will be as follows:

1 deer = 3 rabbits

2 (deer) * \$30 = \$60 where **Pd = \$30**

6 (rabbits) * \$10 = \$60 where **Pr = \$10**

This is a deteriorated exchange ratio for Leyla with Maria where she has to give up 3 rabbits instead of initial 2.

Nevertheless, Leyla now has 2 out of 8 as surplus, worth \$20 and she can sell the additional 2 rabbits in “new” markets and acquire an additional income of \$20, exceeding the initial income of \$60.

Let us see what we have in terms of incomes after selling Leyla’s surplus at third market for \$20 which increases Leyla’s total income to \$80. Maria can now consume 3 rabbits instead of 2, worth \$60. And the total income of Maria and Leyla is now \$140 (\$80 + \$60).

Now, Leyla can even afford to pay, say, \$5 in taxes and a \$5 wage rise, and still have an additional surplus of \$10. The probability of resemblance of this situation to the actual relations is greater and represents a more rational exchange relation than the labor quantity embodied approach, which overlooks the right of reward to the productive knowledge supplied by Leyla’s “creative” mental faculties.

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 component displays fluctuating productivity levels.

To conclude, it can be asserted that, regarding the variations in the value of mental and physical labor-power embodied, the decreasing marginal use-values (utility), altering tastes, and limited purchasing power, there is no way to predetermine **exactly** at what rates the exchange-values would be exchanged in the market.

Fluctuations in short-run demand, reflected in the imbalance in supply-demand conditions, have an influential impact on the determination of market (sale) prices. But it has no impact at all on

the pre-determined cost of production, which is determined independently by the cost of inputs to production. If the market (sale) price falls short of the production costs, then the firm will suffer losses. The use-value (utility) or rather the marginal use-value, together with the rank of preferences, have an influential impact on the market (sale) price, but not on the costs of production. According to the Neoclassical doctrine, the firm would be expected to leave the market when it encounters a loss. But in actuality, the firm would highly likely continue to produce as long as the revenue exceeds the variable costs of production.

In the long-run, the consumers, eventually, reach a stage where the basic needs are met, and the excess income is spent on conveniences in accordance with the marginal use-values. The rank of preferences plays a significant role in the allocation of purchasing-power among conveniences. The preference of, for instance, a luxury car over a residence of higher marginal utility is an irrational behavior, but not an uncommon one in life.

RELATIVE PRICES IN THE SERVICE SECTOR

Price formation in the service sector requires a somewhat different approach than price formation in the manufacturing sector. Since nothing tangible/storable is produced by the service sector, as in marketing, consulting, and tourism, there are no physical quantities to exchange, as in the two-hunter model of Adam Smith. It is not an easy task to determine the exchange ratio between a commodity and a service, either.

Assume an exchange relationship between reparation and consulting services. Both involve time-employed based costs. The former service, in addition to time spent, is subject to some material costs, while the latter, consulting, might also be supplied without such costs or at a much lower fixed costs. Nevertheless, the latter, a consulting service, can be much more expensive than the former. How can one determine, in a satisfactory manner, the exchange rate between a reparation and consulting? Or, a haircut and a computer?

Reducing the labor-power inputs into a standard measure like time-spent might seem like an appropriate means to determine the relative or market prices of service sector activities. But once we take into consideration the role played by the contribution of mental labor-power, such quantitative comparisons lose all of their value and significance. Because of such estimation problems, it seems more appropriate to skip the relative exchange ratio analysis in the service

sector. The economic science would not suffer a severe loss, since the actual business decisions are not based on the relative exchange relations.

TRANSFORMATION PROBLEM - RECONSIDERED

So far, the transformation of relative values into relative prices has been considered in the analysis. The size and the rate of profit displayed no significance, for the emphasis was on the **relative** value-price formation. In actual economic transactions, however, economic agents do not consist of two producers only, like Leyla and Maria, who produce as well as exchange the products among themselves. Producers, who supply objects of utility **for exchange**, are guided by the profit motive, while end-users are driven by the maximum utility motive. If the end-user is a component purchaser, the utility would manifest itself in the form of profits at the end of the production period. If the end-user is a consumer of final products, maximizing utility at the lowest possible cost would be the driving motive for the transaction.

In principle, economic transactions take place in return of a medium of exchange, e.g., money. Therefore, although it might shed some light on the transformation problem, the relative price approach is far from capable of providing a sound interpretation of the problem.

Alternatively, an approach to the matter based on investigating producer / end-user transactions using money in transactions seems much more appropriate to get an insight into the matter. In other words; the question of how do we transform the relative exchange-values into relative prices? seems to be the wrong kind of question to get a sound and proper insight into the problem, simply because no direct exchange of the relative exchange-values takes place in practice.

Regarding the values, there are, on the 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 the end-users for whom the produced output represents a use-value that they wish to acquire at the **minimum** possible cost, thus **maximizing** their benefits. That means that both sides of the market transaction aim to **maximize the returns** while **minimizing the costs**. This is the natural behavior of rational economic agents. The question is; where to set the market price in a competitive market, “**given the technology**”?

Price formation with “given” technology

The short-run, market sale price (**SP**) of a product is determined by two factors; the objective value (**OV**) and the subjective value (**SV**). The latter refers to the demand function, or willingness to pay (**WTP**), by the end-users, while the former, **OV**, reflects the past and present human-capital spent (labor contained, **LC**) in the product plus the costs of raw materials. Therefore, the **SP** shows us not the labor-employed but the labor commanded (**LK**), i.e., the quantity of other products that can be purchased. Thus, the SP equation looks like;

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

or, alternatively,

$$\mathbf{LK} = \mathbf{f}(\mathbf{LC}, \mathbf{WTP}) \quad \text{eq. 10}$$

"**w**" denotes the wage, "**L**" the number of employees, "**B**" the depreciation rate of physical capital, and "**KG**" the value of capital-goods. For simplicity, all **KG** is exhausted after one production process of a given product.

$$\mathbf{SP} = \mathbf{wL} + \mathbf{BK} + \# \quad \text{eq.11}$$

where,

$$\mathbf{LC} = \mathbf{wL} + \mathbf{BK} \quad \text{eq. 12}$$

When **LK = LC**, production is at the break-even point producing no profits. **LC** can be estimated from the costs of inputs of production, and **LK** must always exceed the **LC** to induce output, i.e.,

$$\mathbf{LK} > \mathbf{LC}$$

thus,

$$\mathbf{LK} = \mathbf{LC} + \# \quad ; \quad \# > \mathbf{0} \quad \text{eq. 13}$$

and

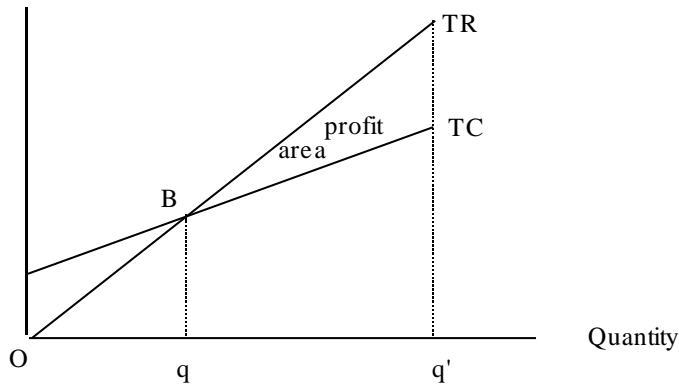
$$\# = \mathbf{f}(\mathbf{WTP}) \quad \text{or} \quad \# = \mathbf{f}(\mathbf{SV}) \quad \text{eq. 14}$$

For the time-being, we simply assume that profit rate, "**r**", is given and its rate determines whether the supply of a product will take place or not. If the end-users are willing to pay a price for the product exceeding its **CP**, then the "**r**", will be shaped, by the relation of quantities supplied and the degree of marginal utility (**MU**), given a fair competitive environment.

Figure-1:5 shows us the relationship between the quantity supplied and profits. Given the demand, the size and rate of profits would increase as the total quantity supplied moved to the right of q towards q'.

Figure-1:5

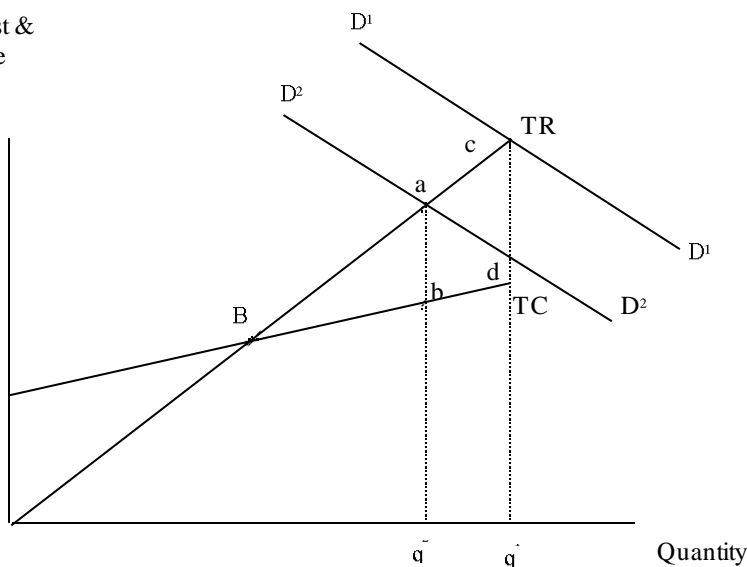
Total Cost & Revenue



Given the total quantity supplied by " q^1 " as in 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

Total Cost & Revenue



To conclude, given the products of nature, **mental labor-power** is the only source of **creating/adding value** by transforming nature's output into useful products, and the **SP** always exceeds the **CP** in actual market transactions. Our analysis indicates that the **CP** 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 indicated, **MU** explains the demand side and "**CP** + #" the supply side of production. Labor-embodied or -commanded argument alone falls short of explaining market prices, especially in the short-run.

It is the production conditions that regulate the minimum level of supply-price, and the market price is adjusted by the specific aggregate supply-demand conditions for the product, both in the short- and long-run. In cases of excessive demand, the price tends to be higher. In cases of excessive supply, the price tends to be rigid, showing no tendency to fall below the production cost.

CAPITAL AND ITS NATURE

For the supply of products with exchange values, the entrepreneur must have access to investible funds (production capital), which is "a pre-requisite of production". Without production capital, a combination of physical inputs with the services of labor-power could not take place. But, what is, actually, capital? Is it simply a certain quantity of money? Or does the term refer to the "capital goods" of production, only? Or both? Or does it imply something else?

Is capital a **productive factor of production**, like nature or labor-power, as assumed by mainstream theories?

Capital has always been a mysterious and controversial subject of economic theory. According to Hausman, economists possess elegant theorems and models of capital and interest which, says he,

"... do not enable one to explain real phenomena of capital and interest,"

(Hausman,1981,Ch.10)

for they fail to understand the phenomena. His discontent does not seem unjustified, especially regarding to the mainstream teachings.

For the Classicals, the term capital referred to not only capital goods but also the wages of the 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, p.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 purpose, i.e., making 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, p. 976)

Another well-known 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, p.634)

With the Marginalist revolution, the Neoclassical economists tended to define capital as a scarce and distinct factor of production. They treated the capital as one of the "productive" factors along with nature and labor-power, eligible for income, e.g., profit, or "interest". The Austrian school was not quite satisfied with this line of reasoning and made attempts to show that capital could not possibly be considered as one of the original factors contributing to production. But the Marginalist school survived the challenge.

For Marshall, capital itself was the product of "**labour and waiting**". He disliked the proposition 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, p.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, p.787).

The definition of production capital in this work seems quite compatible with the Classical approach to capital, rather than the mainstream ones. 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, how does it emerge? At least, not satisfactorily.

Human Capital vs. Mental Labor

Let us first start by recalling the essential characteristic of the labor-power with its mental and physical faculties which was considered as the only source of all added value. Originally, it was the former, the mental labor-power or rather the “creative” mental labor-power that contributed to the increased personal as well as common wealth by inventing and improving the **technology** and increasing the productivity. The new technology, whether in the form of "hardware" like machinery and tools or in the form of "software" like organizational knowledge, can be referred to as a laborer's capital, or as Human Capital (**H**), in order to promote the concept of capital. But in fact, what is called human capital refers to the talents and skills of a laborer and therefore should rather be called as “**productive abilities of human labor-power**” to “**create and implement the technologies**”.

Hoarded Capital

Assuming constant demand and exchange ratios in our initial model, e.g., one deer = two rabbits, Leyla would now be in a position either to expand her total consumption by an 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 saving would simply imply **hoarding** of money, keeping the product of her labor-power **intact but unproductive**.

Production Capital

In the initial two-hunter model of relative exchange values, capital was presented in the technological sense as the productive knowledge of the “creative” mental labor-power assisted by physical labor-power, transforming the nature’s products into into physical inputs of products and/or organizations. It was assumed that after some time, Leyla would decide to employ her additional value of four rabbits to employ some hunters and tools for the supply of more rabbits or another product in demand. In this case, she would be using her saved-up labor-power in a productive capacity, driven, naturally, by the purpose of increasing the initial outlay, e.g., to make profits. This type of employment of the saved-up (accumulated) labor-power is called the **capital** of production. Note that saving itself is not capital unless it is invested to earn surplus-value (profit), as Marx indicated.

In commercial communities, production capital not infrequently appears in the financial form of a fund of purchasing power (money), employed by the profit-motivated investor or capitalist to combine the accumulated productive knowledge (technology) with the services of present labor-

power, given, of course, the gifts of nature. The investor activates the money-savings through the purchase of raw-materials and processed inputs for production, and by hiring the necessary labor-power services. Thus, the money-savings or money-capital are converted into the capital of production. Processed inputs range from semifinished items to tools and machinery. No matter which angle one uses, whether the model of relative values or the real-world economic transactions, mental labor of the laborer with its mental and manual faculties appears to be the **genesis of production capital**.

Unearned Income

Ordinary people are also inclined to treat the "**hoard of money**" as capital, for it generates an "income" for its owner in the form of interest on bank deposits, state bonds, etc. As distinct from the production capital defined above, such assets do not produce, at least not directly, any goods or services for the community, except for "**unearned profits**" for the owner of the money. The only risk the money owner takes is speculation oriented, such as in the case of high inflation wiping out or reducing the real rate of return or the bankruptcy of the borrower. Since no supply of any goods or services is involved, a line separating it from the productive employment of savings is not only proper but also necessary. Therefore, the return on such unproductively employed savings will be called "**unearned income**".

Unemployed Savings

A third category of savings presents itself in the form of jewelry and/or collection items, which can be classified as "**unemployed savings**". Because such savings are status symbols without any real contribution to our standards of living. Idle cash holdings can also be classified as "unemployed savings."

To sum up, production capital is not simply "**hoarded money**" as the common man would be inclined to describe it. For it would imply that all persons with access to some savings are capitalists. Besides, it would not be an easy task to account for why some people have or earn more money whereas others do not, or to explain why the mere ownership of money qualifies for increased income.

Nor is capital identical with capital goods, for the entrepreneur must also pay, usually in advance, for the services of labor-power and material inputs with the same capital utilized in production. And capital goods certainly are not productive factors, for they supply nothing on

their own, except indirectly by assisting the productive factors, e.g., nature and labor-power. Without the latter, it would neither come into existence nor be of any use.

Concisely, production **capital is the saved-up mental and manual labor-power, expressible in money, employed to combine the (un-) processed gifts of nature with the services of present labor-power, to supply goods and services, in return for some reward (profits).**

And, as J.B. Clark remarked, it is "**expressible in money, but not embodied in money**".

PROFIT AND ITS ORIGIN

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

For Marx, profit meant surplus-value, e.g., unpaid labor. So, the profit was considered as value already produced but not paid. For some, profit implies the return on the capital-goods invested. For a businessman, profit can simply be defined as the return on the initial capital advanced, after deducting all costs of inputs, including the payments for wages and salaries. 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 production capital subject to risks**. Let us elaborate.

We have seen in previous sections how the "creative" mental faculty of Leyla contributed to productivity increases, and thus to increased personal as well as common wealth. Leyla's production capital was her productive knowledge, which, assisted by manual labor-power, and eventually produced the surplus. When she later employed this surplus to produce more products for personal gain, she assumed the related risks by combining the means of production with labor-power services. In other words, to increase her income, she had to spend it first. The driving motive was obtaining more surpluses (profits) over the total costs of production. It is not only a return on the capital goods advanced but also a return on the other outlays of production that are purchased with the accumulated savings invested, including the payment for the services of labor-power.

The profit motive was introduced as the only driving force inducing 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. The objective of any firm is to generate the maximum possible profits. Without profit motive, firms would not emerge to operate.

In the short or medium run, however, a firm 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 profit maximization, the enterprise makes some direct and indirect contributions to the community, such as generating funds for taxation, creating new jobs, promoting economic growth, and improving living standards. But all these useful contributions of the firms are byproducts of the profit maximization motive. An entrepreneur never sets up an enterprise with the purpose of generating employment, paying taxes, or developing a region or community. Without the profit motive, the enterprise would lose its jugular and cease to exist.

WHAT IS THE PROFIT PAID FOR?

Returning to our two-hunter model, assume that Leyla, the producer of the productive knowledge, whether it be tangible (tools) or non-tangible (organizational), improvement of the hunting method, **saves** her surplus income of, say \$20, instead of consuming it immediately. After a time-span of, say five days, she would accumulate savings worth \$100. Assume that she employs her savings (invests) to hire additional labor-power to increase the supply of rabbits or of something else with exchange-value. Given demand, the new investment would increase the daily total output, thus increasing the total wealth of the community while at the same time generating employment for additional manpower.

Would Leyla be still entitled to a surplus value (profit) even though she no longer directly contributes to the production, as in the previous case? After all, she does not supply any mental or manual labor-power of her own, except perhaps for performing some managerial duties.

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 production capital (investment), to increase the total output of community. By doing this, she pursues, no doubt, her own interests (profit), but also takes the risk of losing her accumulated savings while at the same time abstaining from their present enjoyment (consumption). Therefore, it is natural that she be rewarded with profits for taking **risks** with her consumable funds. Profits, surplus value, reward, or whatever one might name it, is both morally and logically justified as well as economically

rational. Without such a reward, nobody would have the incentive to invest. It is against human nature, or rather, greed, in capitalist economies.

With the observations made above, two interesting questions arise about the actual economic relations. First, it is a common practice for firms to assume production financed partly by **"borrowed capital"** rather than employing only their own funds, even though there might be adequate resources, to take advantage of the loopholes in the tax-system. Therefore, the profit rate on **"total 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 firms. Taxation policies, in practice, seem to redistribute income in favor of the production capital.

Secondly, and perhaps more importantly, from the perspective of income distribution, the lion's share of a new productive knowledge, e.g., new technology, is owned and controlled by firms, in the form of patent rights. To the extent a firm finances and develops the invention and/or innovation of a new technology with its own sources only, it would be justified to reap the accrued benefits.

But, as we have seen, it is the "creative" mental part of labor power that actually accounts for the generation of new productive knowledge (new technology), draining from the pool of accumulated knowledge over thousands of years. Any new formation of "creative" mental labor-power exploiting the **accumulated knowledge of mankind**, could only be a marginal contribution, regardless of its significance. Knowledge is not an isolated property distributed from heaven. Without an accumulated pool of knowledge and its transmission through the educational and training systems to individuals, there would be no mental labor-power to create or to implement "new technologies".

The relevant question is; **who is entitled to the accruing benefits of the productive knowledge** (technologies) produced by labor-power based on thousands of years of accumulation of knowledge;

The firms?

The researcher ?

The entire mankind?

Or, all together?

EARNED VS. UNEARNED PROFITS

Having established the indispensable role of the profit motive in market (capitalist) economy business transactions, it would be appropriate to distinguish between "**earned**" profits and "**unearned**" profits. Otherwise, it would be difficult to separate the reward for production capital from the return on non-production capital.

The concept of "profit" refers only to the excess income (surplus) generated by the employment of production capital on the output of goods and services. It is the "**reward**" of taking risks under uncertainty, i.e., assuming business transactions, subject to risks, that contributes to increased production for the satisfaction of human needs and wants. **Savings directly employed** to produce something is, therefore, called **production capital**.

Non-production capital, on the other hand, in the form of financial assets such as bank deposits, obligations, or bonds, makes **no "direct" contribution** to the supply of products, nor does it assume the related risks, at least not in the same way and to the same extent as production capital does. It merely provides an indirect pool of investible funds for employment, without involving itself in the production or sharing the risks. Such savings are, therefore, classified as non-production capital, and the return on it is considered as "**unearned**" income.

ON INTEREST

Interest, defined as the **money charged for the use of money**, has always been one of the most controversial subjects in economics. According to Aristotle and many other scholars since then, interest has frequently been treated as **unjustified** and **irrational**.

Some economists had failed to draw a distinct line between profits and interest. On the other side, the Neoclassical school has, never, been able to present a 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 of** (Cassel). According to Schumpeter, interest was the **price of potential capital**, while it meant, for Keynes, the **price of not hoarding**, inducing the capitalists not to keep liquid funds, e.g., savings.

Is money just a means of exchange, e.g., payment, or is it capable of producing more money by itself? Is it morally justifiable and economically rational to pay for the use of money?

If there is inflation and someone uses someone else's money savings for some reason, say production, some additional payment to the nominal value just to cover the inflation rate is undoubtedly both just and fair to maintain the actual purchasing power of money. But what if more is charged than the initial outlay?

If the borrowed money is used for consumption, the 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 the future. The consumer would not have to postpone the satisfaction acquired by consumption, assuming the absence of financing basic needs with loans. Therefore, such interest seems both rational and justifiable.

Using the borrowed money for production presents a different matter. If the money is placed at the disposal of a producer who is short of financial funds and the resulting **risks** (profits or losses) are shared proportionately by both sides, the return on the loan would be called profit, not interest anymore. 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 but, nevertheless, demands interest, the issue becomes complicated. As in the case of consumers, one might present an argument advocating the **personal choice** aspect, which does not appear incorrect at first. But, such loans do not directly supply any useful products or share the risks of production, at least not as much as production capital does. A moneylender is often subject to very limited risks because the loans are usually secured by a mortgage or other means. Such loans are like taxes on profits; they are obtained without sweat because money produces more money.

The holder of the money savings might prefer to place the liquid funds to purchase state bonds or obligations with a secure return and the risks are minimized, if not nonexistent. Because though banks sometimes go bankrupt, sovereign states never do.

That the bank 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 people 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 misapplication of resources. Because hoarded money as such is infertile. But, 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 is forbidden by law, *cet. par.* What would be the consequences?

As rational economic agents show a tendency to increase and maximize 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 that might result in profits or losses. And in either case, the total economy would be the winner in comparison to what we have.

Chapter-2

SOME KEY CONCEPTS, DEFINITIONS AND ASSUMPTIONS

In the previous chapter, the focus was on the source of (use-, exchange-) value and the determination of relative prices / values. The fabulous world of relative values might enrich our minds in understanding the transformation phenomenon of values into prices but, unfortunately, falls rather short in explaining it realistically. Therefore, it would be much wiser and more appropriate to approach the “price-formation” issue from a different angle, where products are sold directly to end-users. In this model world, there are abundant end-users and only a few producers aiming to maximize profits. Products are supplied by the firms, and no direct exchange of relative exchange-values among the suppliers takes place. Money is the medium of exchange used in transactions to express the monetary value of products.

Certainly, it is not difficult to identify this model. But before proceeding with the price formation analysis in this model, the meaning of some key concepts should be considered. Therefore, discussion of concepts like the enterprise (synonymously, the firm or company), its objectives, the entrepreneur, end-users, and some other related concepts like "output", "commodity," and "service" will be the subject of this chapter.

THE ENTERPRISE (OR THE FIRM)

The concept of firm or enterprise refers to a social form of organization owned by self-interest- e.g., profit motivated individual(s) to assume business transactions on contractual terms, in market economies. The profit-motivated enterprise procures the necessary material 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 the end-users. The ultimate purpose of this process is to maximize the difference between the total costs of production and the total revenues, or profits (#).

The profit maximization objective of the enterprise can sometimes be pushed down to a lower rank of priority to attain other objectives in the short- and/or medium-run, such as surviving the competition, acquiring a targeted market share, etc. The assumption of a nonprofit maximizing enterprise would be utopian and against the very nature of the free-market or capitalist system of production. Therefore, all nonprofit oriented forms of organization are excluded by this definition, and the state is assumed to be engaged only in the supply of traditional types of services like law and order, defense, and public administration.

In the process of supplying 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 byproducts of the self-motivated interests of individuals. No commercial enterprise is set up to pursue such objectives.

Irrespective 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 fund of purchasing power, whether it be owned or borrowed. 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-power.

COMPETITION

In the short run, the enterprises are assumed to operate in competitive markets characterized by small scaleness of firms and ease of entry, subject, of course, to a “given” technology and uncertainty. "Given technology" implies that the production methods as well as the products are known. All products supplied have competing substitutes. Therefore, there is always competition from the products of other enterprises, although the products are not identical. The total supply is flexible, but the upper limit is given by the optimum plant capacity. As we shall see in Chapter- 3, output is subject to increasing returns.

Demand, on the other hand, is a variable factor shaped by relative prices, purchasing power (income and wealth), tastes, and the rank of preferences. Income and tastes are given in the short-run but not the rank of preferences, which allows the demand to fluctuate, causing fluctuations in the rate and size of profit in accordance with the plant capacity utilization.

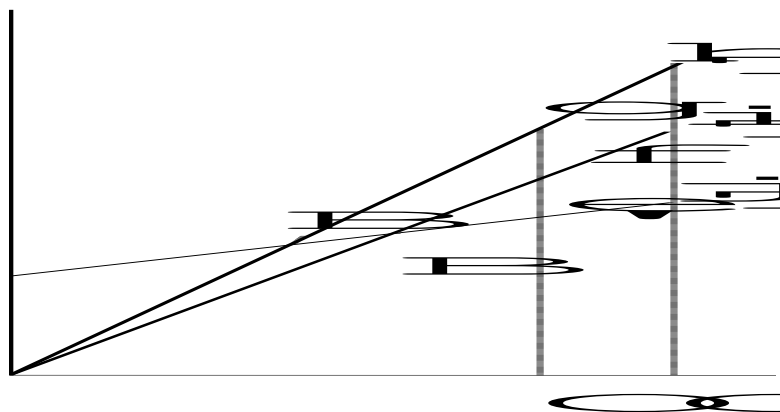
Market distortions such as oligopoly, monopoly, and restrictive practices are ignored because they can be avoided in practice, at least to some extent, by appropriate policy measures that promote competition. The prime reasons leading to market distortions seem to be the present patent **rights** system, mergers, takeovers, trade barriers, domestic economic policies, and restrictive practices of globally operating enterprises, especially in less developed countries.

IMPERFECT COMPETITION AND PATENT RIGHTS

Unfortunately, imperfect competition is a very real fact of life, ranging from constraints on output, export, import, and distribution to price formation for a specific product. Oligopolies and monopolies have a tendency, because of their inherent features, to raise the price above the normal competitive level, or above the average profit rate. The inevitable outcome of this attitude is extraordinary profits for the enterprise, but higher prices for the end-users, resulting in lower output and consumption than the optimum level.

Let "SP" denote the market sale price, "Q" the quantity supplied, "TR" the total revenue, and "B" the break-even point, under normal conditions, while the area "Bij" shows the size of profits, as in Figure-2:1, given the demand. Due to imperfection, the new values of the variables would be "SP'", "Q'" and "B'", and the profit area would increase to "B'ge" which implies that at the increased price of "SP'" causing "TR" to rise to TR'", consumption would be reduced by the quantity of "QQ'".

Figure-2:1



Patent ownership, as a (major) cause of market imperfection, deserves special attention, for it facilitates serious market restrictions, thus restraining competition, at least for a time-span. If a patented product is defined as the productive knowledge 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 distributive injustice within as well as among the nations. Depending on the arguments used, it can even be asserted that the present patent system is economically irrational because it obstructs competition. That is because, the patent holder, usually a commercial enterprise, does not acquire the patented knowledge "manna from heaven" or develop it from scratch to its final stage. Patented knowledge is never a genuine creation but only a marginal addition to the pool of past and present knowledge. Without access to such an accumulated pool of knowledge, no person, enterprise, or country would be able to further develop and obtain "ownership rights" for any technology.

In addition to the supply of the knowledge pool accumulated in thousands of years, the community also supplies the trained labor-power who further develops the productive knowledge to invent or innovate useful products on behalf of the enterprise. The tax system, too, favors the position of the enterprise through subsidies and tax-concessions. But, in the final stage, almost always it is the enterprises, not surprisingly, mainly from developed countries, that acquire the exclusive rights to the new technology.

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

ENTREPRENEUR (INVESTOR)

An entrepreneur's distinguished function is to make decisions on business transactions, employing investible funds by combining the means of production with the services of labor-power. Profits are the driving force. Managers are also driven by the same profit motive in their routine work. The entrepreneurs' decisions concern not only short-run activities but also tomorrow's projects.

To initiate a new business transaction, it is imperative for the entrepreneur to have access to production capital to be able to purchase / hire the required material inputs and to pay for the services of labor power.

As we observed in Chapter-1, 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.*" (Fetter,1977)

Nor is capital treated as identical with 'capital-goods', as Walras did. Production capital, in our study, is a fund actively employed in the supply of goods and services demanded by end-users. The success or failure of business transactions is attributed to the entrepreneur/manager, who bears the ultimate responsibility. The fact that professional entrepreneurs do not risk their own investible funds, but their reputation alone, does not imply that the capital-owners do not exercise any power or control at all. The objective for the enterprise is still the same; maximizing profits. Any professional management ignoring or undermining this fact would, very unlikely, survive the next annual shareholders' meeting. Nevertheless, the interests of the capital-owners and the professionals are not always compatible, and the latter might, sporadically, pursue policies favoring or consolidating the professionals' interests. Especially if the enterprise is owned by numerous shareholders with small voting rights unable to change the course of events, the professional employees may run the enterprise as they see fit.

At the initial stages of capitalism, the owner of the production capital and the entrepreneur were often the same person, owning and managing the investible funds themselves. Still, most small and medium-sized enterprises are owned and run by capital-owner entrepreneurs, both in developed and developing countries.

In larger enterprises, especially Multinational Enterprises (MNEs), ownership and management have usually been separated a long time ago. One of the major reasons for this is the difficulty and impracticality of assuming full-time managerial responsibility for such enterprises with global interests. Therefore, the capital-owners prefer to delegate, at least some of the responsibilities and authority to the "professional entrepreneurs" who, on behalf of the capital-owners, set the target policies and strategies for the enterprises and carry them out, both on routine matters and on new investment decisions.

END-USER

The end-users in our study consist of both, the buyers of inputs for production and the consumers of final products. In contrast to the consumer in the Neoclassical price theory, the end-user has only an indirect role in the formation of exchange relations and individual market prices. This

indirect but, nevertheless, significant role is exercised by demand, subject to relative prices, income, wealth, tastes, and the rank of preferences. The term applies not only to the consumers of consumption articles and services but also to the purchasers of raw materials, semifinished components, and other inputs of production.

Fluctuations in demand by the end-users influence the plant capacity utilization, which, in turn, influences the rate of profit specific to the plant. Given the competitive conditions and supply-demand stability, the sale (market) price (SP) would not be affected, but the profit rate would.

SOME OTHER RELATED CONCEPTS

Concepts like goods, commodities, services, primary products, output, and product will be used frequently throughout this work. To avoid misunderstanding or confusion, it is necessary to explain what is meant by them.

Primary products are the **unprocessed** gifts of nature, produced with or without the assistance of labor power. For instance, minerals are primary products in the form of "pure" gifts of nature without any human interference. Cotton and wheat, on the other hand, though, in principle, still supplied by nature, are, in general, supplied with the assistance of labor-power to increase the productivity of nature.

A **commodity** is a **processed** or **transformed** gift of nature produced with the assistance of labor-power and man-made physical means of production, 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 is a commodity; iron-ore is a primary product, but steel is a commodity. Production of a commodity usually requires several complex stages before reaching the end-user. After each stage, the value-added by past (saved-up) and present labor-power increases the total value of the commodity. To put it differently, the commodities, before reaching the end-users, are produced with the assistance of physical inputs, and the final output itself is a physical unit. If the end-user 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 commodities, a service is often consumed, e.g., exhausted or vanished, during its production, like a haircut or musical entertainment. A distinctive feature is that it cannot be stored. There are, however, exceptions, like education,

where present knowledge can be built upon previously supplied knowledge. But it is not a tangible thing. 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 of production. A modern service is often produced with the assistance of tools or equipment like computers or musical instruments but requires no physical components in the final shape it takes, i.e., inputs of physical components do not enter the final output.

The quality of a service supplied depends partly on the quality of commodities but, mainly, on the quality of labor-power supplying the service.

Regardless of the quality of the manpower, the lower the quality of the commodities assisting the supply of service, i.e., the environment in which the service is supplied, the lower the quality of the service supplied is bound to be. Unlike commodities, the quality of the service, whether in the tourism, banking, hotel, or cleaning sectors, is a reflection of the development level of the environment within which it is supplied.

The term **product** is used to designate the supply of services and/or commodities after a production process assisted by labor power. All industrial goods (raw materials and commodities) and the services supplied to meet the demand of end-users are simply referred to as products.

Goods include all output except services. A car is an industrial good, coffee is an agricultural good, and petrol is an unprocessed industrial good, but a haircut or a music concert are supplies of services.

Other relevant concepts will be defined as we progress.

INCREASING RETURNS

The upper limit in the supply of goods and services in the short-run is determined by the capacities of available physical means of production, e.g., capital-goods, inputs of production, and human-capital. Assuming the absence of scarcity of the human resources and inputs of production, the upper limit of fixed-capital capacity implies "optimum plant capacity," which minimizes the per unit average costs of production. Entrepreneurs make their investment plans regarding fixed capital with the hope and purpose of fully exploiting it. Anything less than optimum capacity utilization implies increased fixed costs 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.

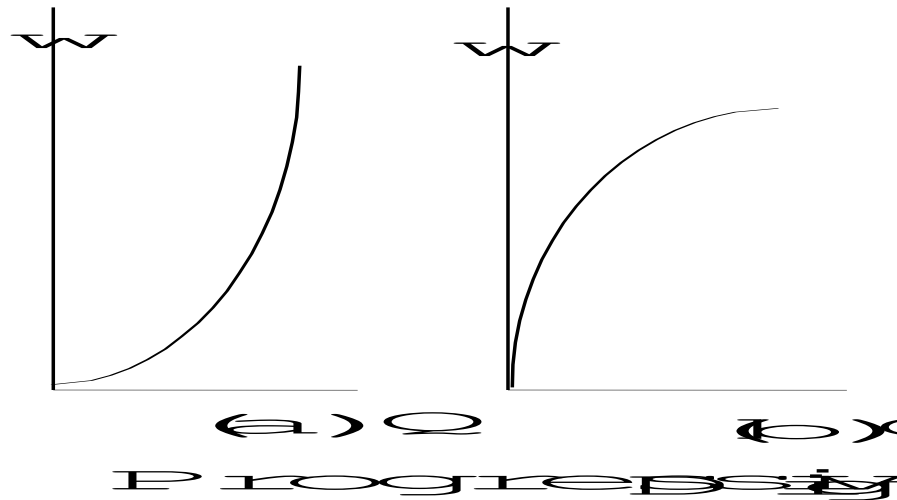
Our standpoint of increasing returns contrasts with, and is in violation of, the Neoclassical law of decreasing returns, which was initiated by Clark, Fetter and Ricardo and eventually adopted by all scholars of Neoclassical heritage. Ricardo had used the concept regarding land (the limited fixed factor) and labor (the variable factor), which resulted in decreasing returns beyond an optimum level of production. But, in "modern" theories, it is treated as a universal fact (!) of production, applicable also to the industry.

The optimal production level is a crucial point regarding profit maximization. But, also, fixed-costs of production are a crucial and quite real aspect of production that influences the profit level, given the 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. However, for argument's sake, assume that the irrational entrepreneur pushes the output beyond the maximum by employing additional manpower. Would the total and marginal output of additional workers start falling, as the law of decreasing returns predicts?

Of course, not! What can happen is a **zero-marginal** product of the additional workers, not a negative one. Accordingly, the addition to the total output would be zero, while the average output per worker would begin to fall with each successive job.

Even without fixed-costs, increasing costs (decreasing returns) is not a certain outcome and depends on how wage-costs vary. If the wage-costs rise progressively, as in Figure-2:2 (a) rising output would be subject to increasing costs. But, if the wage-costs rise digressively, as in Figure-2:2 (b), then the rising output would imply decreasing costs (increasing returns).

Figure-2:2



BASIC ASSUMPTIONS

As the technology, plant capacity, and labor-power faculties are “given”, and the fixed costs (FC) fall (increase) with increasing (decreasing) plant capacity utilization, operating costs, OC are assumed to vary in accordance with the output, change in constant proportion to the marginal output. By assumption, there is no shift-work and no overtime work. Production is realized by small-scale enterprises, facilitating ease of entry. Oligopolistic and monopolistic practices, including patent rights and economies of scale, are absent. Authorities are bystanders, not intervening in the operation of market forces.

Prevailing competitive conditions imply a uniform profit rate, both at under- and full-plant capacity utilization. The basic **short-run** assumptions, unless otherwise stated, can be summarized as follows;

- Rational economic agents
- Single-product enterprise;
- Given wage and price levels, determined in competitive markets;
- Given technology (products and production methods);- no scarcity of human resources (mental and manual);
- Supply-demand stability (given purchasing-power but flexible tastes and ranks of preferences within a reasonable margin);
- A "given" plant capacity but flexible plant capacity utilization;

- Increasing (decreasing) per unit fixed-costs, as output falls (increases);
- Proportionately changing operating costs;
- Flexible profit rate, changing with capacity utilization, subject to changing tastes and ranks of preferences;
- Small-scale and price-taking production units;
- Given costs of trading (distribution, marketing, and advertising);
- No market distortions or restrictive practices;
- No inflation;
- No bank or personal loans;
- No state intervention (no taxes, subsidies, or regulations);
- No shortage of physical inputs;
- No discounts or financial concessions to end-users;
- No machinery or plant breakdown; and
- No strikes.

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. This line of argument is compatible with Kaldor's view that demand does not influence the price, but the quantity produced does by influencing the unit costs of production. If optimum capacity supply exceeds demand due to a change in tastes and/or preferences, enterprises would encounter lower rates of profit than the average because the output would have to be curtailed.

When demand exceeds supply beyond the optimum capacity level, which is assumed to be a temporary case, the enterprise attempts to meet the excess demand by working overtime and maintaining the present price level. If demand is persistently exceeding supply, the price and the profit rate would have to rise above the normal (average) level, to induce new enterprises to enter the market in the medium- and long-run. This is, however, an exceptional situation because, by assumption, the demand would not be so persistent and to such an extent, as to cause price level fluctuations in the short-run. Thus, there might be excess capacity but no chronic excess demand leading to price level change in the short-run, as in Figure-2:3.

Figure-2:3 Persistent Excess Demand And Price Change

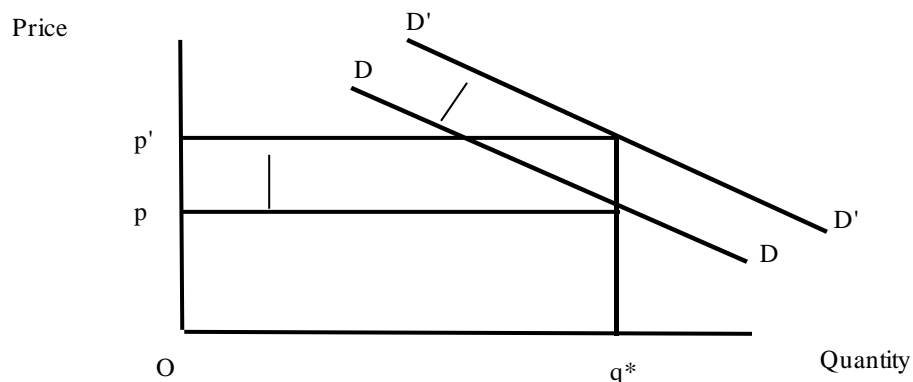
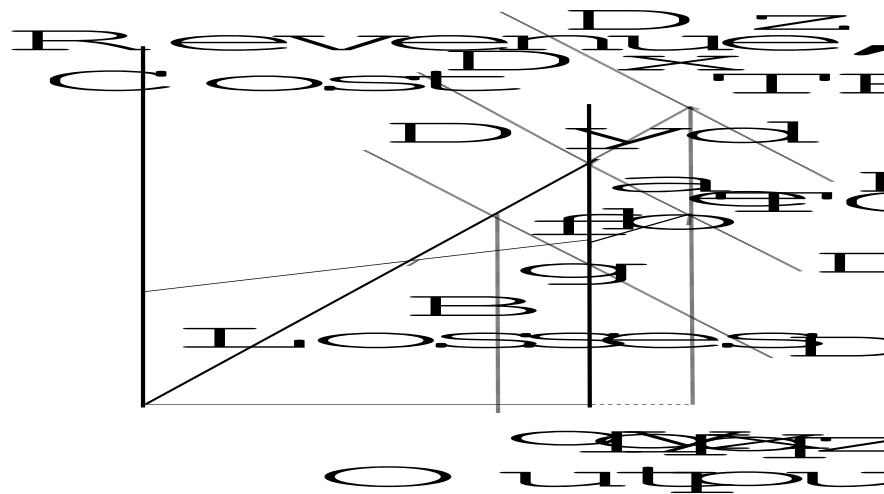


Figure-2:4 displays a hypothetical case of a shift in demand curve from " D_xD_x " to " D_yD_y ", say, due to a change in tastes. Full plant capacity profit is denoted by the shaded area of "Bab". Given the plant production capacity (O_{q_x}) and price level, the fall in demand reduces the output level from the optimum quantity of " q_x " to " q_y " implying a lower rate and size of profits, the area denoted by "Bfg", a drop in profits by "abfg".

If the demand curve shifts to " D_zD_z ", the quantity supplied increases from " q_x " to " q_z " by overtime work at the constant price level. Additional profits realized beyond the full plant utilization are denoted by the area of "abde".

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

Figure-2:4 Shift in Demand Curve And Quantity Adjustment



SHORT-RUN DEMAND

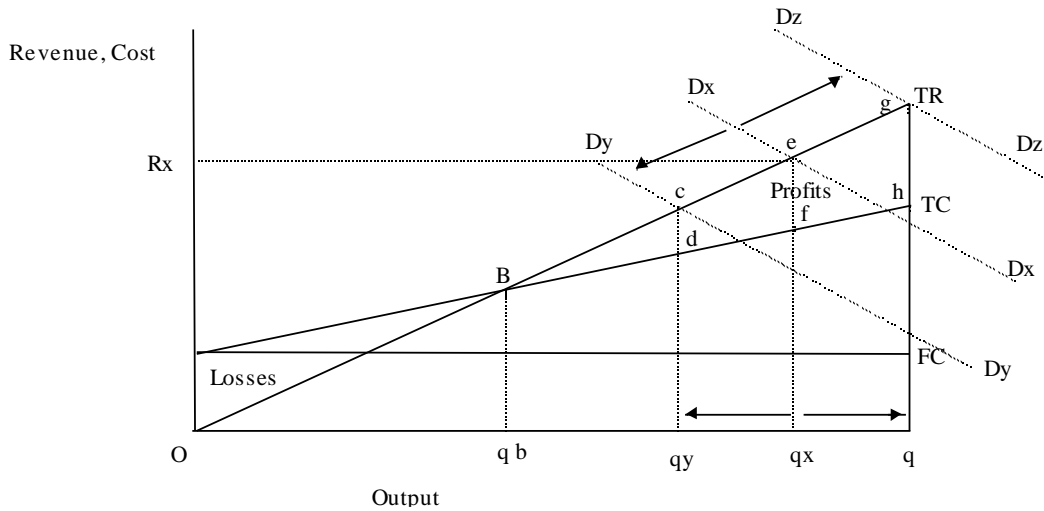
Traditionally, supply-demand relations are assumed to be in equilibrium. This is an unrealistic assumption because demand, reflecting the purchasing power, needs, and rank of preferences of the end-users, is practically always liable to fluctuations, both in the short-run and in the long-run. That is because, consumer preferences are always subject to change, not given, while the other important determinant of demand, purchasing power, can be a constant factor, in the short run. The prime reasons for the fluctuations in demand are the change in tastes and preferences as well as the competitive environment, i.e., the continuous competition from the enterprises producing substitutes and the gradual saturation of the markets. It would be a major analytical error to claim that markets saturate only in the long run. As Ricardo had 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, p.88)

For argument, assume that, as Figure-2:5 displays, $D_x D_x$ represents the present actual 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 represents fixed costs. The present output and total revenue levels of the firm are given by " q_x " and " R_x ", respectively. Total profits are designated by the triangle "Bef" and the unit price by $p=R_x:q_x$.

A shift to the left, " D_yD_y ", in the demand curve 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 in the opposite direction to D_zD_z , on the other hand, would increase the profits to their maximum attainable level, $B-TR-TC$, while optimizing plant capacity utilization at " q_z ", e.g., maximum technical efficiency. " q_b " is the quantity that raises just enough revenue to cover the total costs, without producing any profit. " q_b " is a very critical point because no rational entrepreneur would continue to supply any products below this point.

Figure-2:5 Demand, Profits and Capacity Utilization

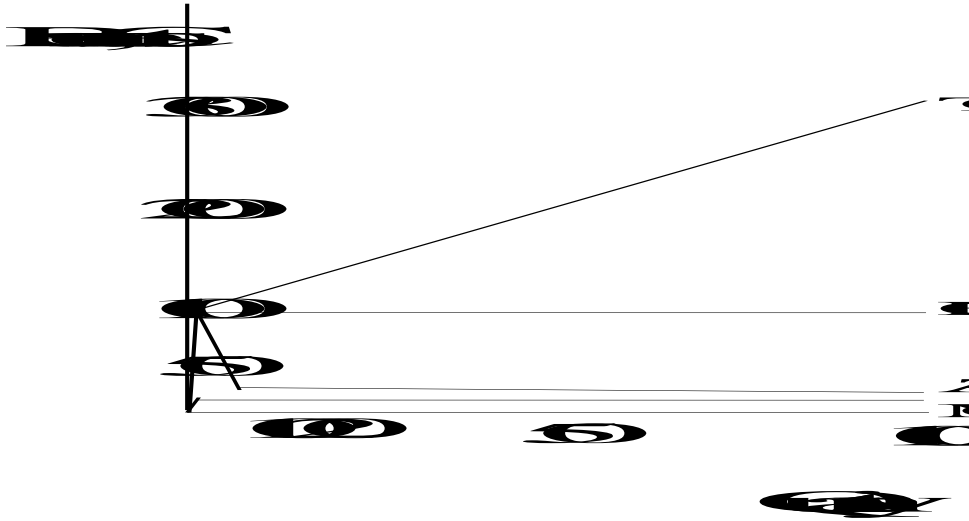


As we observe from the changes in Figure-2:5, short run fluctuations in demand affect short-run economic and technical efficiency levels, which, in turn, influence long-run expectations and strategies, and therefore deserve close and utmost consideration. However, to avoid too many deviations from the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

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 marginal output. Excluding the fixed costs, marginal operating costs (MOC) would be constant at \$20 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 **FC**, the **MOC** of the first unit would be \$100 ($80+20$), while the **MOC** of the rest is only \$20 (Figure-2:6). Average total cost (**ATC**), on the other

hand, displays a continuous decline as marginal output increases, until reaching full capacity at 100 T-shirts.

Figure-2:6 Short-run Cost Curves



What happens when full plant capacity is reached and the entrepreneur wants to increase the output? Assume first that overtime work is introduced to produce an additional 10 units of T-shirts. Due to higher overtime costs, marginal operating costs as well as total costs increased by 30 instead of 20 as before. Despite this, the average cost per unit does not rise because of the falling rate of fixed costs. Assuming that the demand doubles to induce the entrepreneur to introduce double shift-work while operating and marginal costs increase by the same proportions. As a result of falling fixed costs, the average cost per unit is now only 2:50 (see Table-2:1).

Table 2-1: Decreasing costs / increasing returns

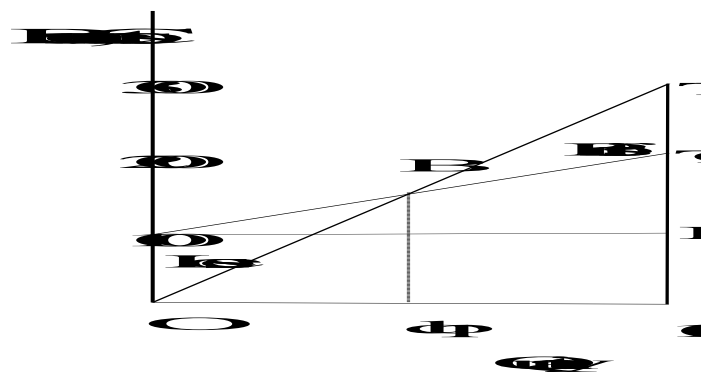
Quantity Q	Fixed Costs	Operating Costs	Marginal Costs	Average Costs	Total Costs	Revenue
0	100	0	0	0	100	0
10	100	20	20	12:00	120	50
20	100	40	20	7:00	140	100
30	100	60	20	5:33	160	450
40	100	80	20	4:50	180	200
50	100	100	20	4:00	200	250
60	100	120	20	3:66	220	300
70	100	140	20	3:42	240	350
80	100	160	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 figure 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 shown 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 it means profits for the enterprise. Only at full plant capacity and an output of 100 units will profits be highest.

Assuming the T-shirt is sold for \$5 per unit, the total revenue, total cost, and fixed cost curves would take the shapes shown in Figure-2:7. At point "B", the break-even point, costs equal revenue at the quantity qb. Any quantity below this point implies a loss, and any quantity above this point means the enterprise profits. Maximum profits are realized only when full plant capacity is utilized, i.e., at 100 units of output.

Figure-2:7 Revenue, Cost and Output

The magnitude of fixed-capital in production is important from the break-even point (B) of view, where costs equal revenue. In a relatively more capital-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 capital-intensive production.

Assume that fixed costs in Figure- 2:8 (a) and (b) are \$5 and \$2 respectively, for a plant with 10 units' production capacity and total costs of \$10. The break-even point for the capital-intensive plant is 6 units and for the labor-intensive plant only 2.5 units, or 60 percent and 25 percent plant capacity, respectively.

So far, the emphasis has been 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 "modern" theories, resembles more closely actual practices. It would be extremely irrational behavior for any entrepreneur to increase the supply beyond the point where the profit rate average starts falling, unless the price rises enough to compensate for the progressively increasing costs.

Figure-2:8 Level of Technology and total cost curve.

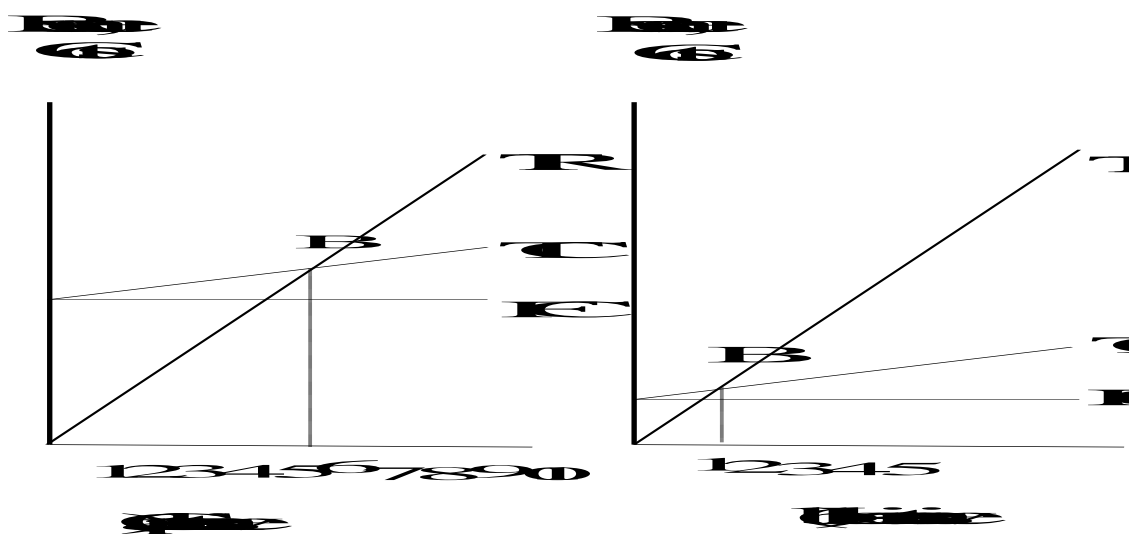
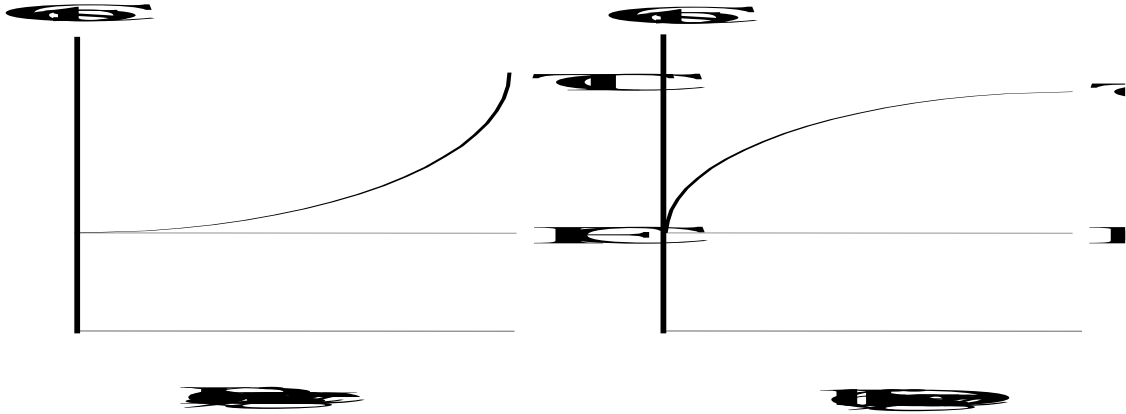


Figure-2:9 Progressively or Digressively Changing Costs



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 exchange ratios among two products, which are not of much practical value. The actual prices are not based on relative exchange values but partly on the objective-value of each specific product subject to the competitive environment on the supply side, and partly on the shape of demand, from the end-users' perspective. On the supply-side, the exchange value of an individual product is expected to be above its objective value, e.g., the cost of production, if sustained supply is expected. The upper limit for the rate of profit, or the market price, is, normally, what the market can bear with due regard to competition, purchasing power, and the rank of preferences.

To get a proper insight into actual economic relations, the emphasis in this chapter will be on the market price formation of the output of a single-product enterprise. As in the previous chapter, we assume supply-demand stability and that the rate of profit is subject to plant capacity-utilization in the short-run. Technology and income are given, but the former, the "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 is well known, the orthodox theory treats profits as 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 include both the foregone wage income of the investor, and the foregone interest on the money-capital invested. Anything above the normal profit rate is extraordinary or excess profit. Such an approach to the matter presents three critical problems;

- 1- Estimation of foregone wage-income;
- 2- Estimation of foregone interest on money-capital; and
- 3- Explanation of extraordinary profits exceeding the market interest rate.

The first can be measured in terms of the average earnings of the managers in the economy. It might be the salary of equivalent alternative employment for a top-level executive, given the employment opportunity. But how do you measure the foregone wage income if there are unemployed executives or no demand for such managers? One argument in favor could be that an investor would employ himself / herself as the executive rather than someone else. But this is a biased decision and not necessarily a rational one, grounded on his privileged position as a money holder. Such wage-incomes could not really represent the actual opportunity cost of an executive. The market for management is "imperfect" and biased.

A second phenomenon arises with the estimation of the interest rate on savings. Having defined the interest as "unearned" income, it seemed rather difficult to advocate the interest income as just and economically rational. Interest on savings simply implies that money produces more money without making any (direct) contribution to mankind's well-being. Therefore, it was asserted that it is neither morally justifiable nor economically rational. Starting from this standpoint, how can one defend arguments concerning foregone interest on money savings and include it in profit analysis? If the money-holder activates his/her financial resources by transforming them into "production capital", the profits are justified because useful products are

supplied despite the risks involved. How can one draw any parallels between the **risk-taking** money capital and the **risk-avoiding** money capital?

As to the third problem; though **passive** money holders are not infrequently well rewarded in contemporary economies without making any (direct) contribution, profits realized tend to exceed the bank interest rates on loans by an acceptable margin. That means, in practice, more profits tend to be generated than interest costs on loans. Otherwise, producers would lack the incentives to assume production. Given the difference between the rate of profit and the rate of interest in favor of the former, how can one make a rational assessment of the alternative employment return on money capital in terms of interest rate?

For the reasons stated above, it seems more rational to separate the cost of production (CP) from the production price (PP) in the analysis, in contrast to the common practice.

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 because, in practice, production and marketing activities are, usually, exercised by separate enterprises, though the owner(s) might be the same individual(s), and partly because marketing-distribution activities are, in fact, service-supplying activities. Wholesale and retail trading enterprises, for instance, though treated as a natural extension of manufacturing enterprises, are in fact **service** suppliers, and often independent organizations trying to maximize profits.

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

As we shall see below, the pricing system in the primary sectors also displays somewhat different features that influence the formation of the **SP**. Using the same price formation arguments for all three sectors, despite the different features in the primary, commodity, and service sectors, would lead to misguided interpretations and conclusions.

That the service sector activities have become the largest sector in both developed and less-developed countries is common knowledge. What is astonishing, however, is the neglect of the separate service sector price-formation analysis. Not even the most advanced and globally acknowledged "up-to-date" price theory of the Neoclassical heritage provides an account of the service sector price formation process. This represents not only a serious shortcoming, but also a major impediment to producing "good theories" with convincing "predictive" values of the real world.

Giant enterprises, also referred to as Multinational Enterprises, 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 agents of our international socioeconomic order. Their **intra-firm pricing practices**, especially restrictive transfer-pricing practices, and global production-distribution policies have always had serious and significant implications for the growth and distribution of income among the nations. Despite their immense importance to the global economic order, the practices of the Multinational Enterprises will be neglected in our analysis. This is a highly unfortunate but a necessary step for a basic argument, e.g., price formation in a competitive environment without market distortions.

A typical enterprise in this study is assumed to be small-scale and subject to competitive conditions, as described in Chapter-2, thus leaving no room for market distortions, irrespective of the size of the enterprise.

PRICE FORMATION IN MANUFACTURING SECTOR

Production Price (PP)

A typical manufacturing enterprise combines the material inputs of production, like raw materials, semifinished components, and capital goods, with the hired services of labor-power to produce commodities containing exchange values. During the process, the enterprise incurs some costs called "costs of production" (**CP**), e.g., payments for labor-power services and other inputs of production, all of which are acquired in advance on contractual terms by the capital. Since entrepreneurs are driven by the profit motive, the market price of the output supplied is, naturally, expected to exceed the initial costs of production to compensate for the **risks** taken,

subject to uncertainty, by the productive employment of **saved-up** labor-power, e.g., savings. The price, including the profit, is referred to as the production price ($\mathbf{PP}=\mathbf{CP}+\pi$).

The production price (\mathbf{PP}) of the supplied commodities consists of the following components;

Operating costs (OC)

$$\mathbf{PP} = \text{Fixed costs} + \text{Variable costs} + \text{Wages} + \text{Profits}$$

(FC) (VC) (W) (#)

and the unit production price (pp) equals;

$$\text{pp} = \mathbf{PP} / \mathbf{Q}$$

Q: total quantity supplied.

And the r , rate of profit, is assumed to correspond to the average, r^* , determined by the markets. Assuming supply-demand balance and optimum plant capacity utilization, the PP per unit is given by the total costs of production plus the average profit rate, divided by the quantity produced, excluding "service" costs like transportation, marketing, and selling. The \mathbf{PP} reflects the **price ex-factory**, i.e., at the sight of the production unit. The services of transportation, marketing, etc. are provided by a separate and independent trading company.

\mathbf{FC} denotes costs like plant construction or rent and machinery depreciation; \mathbf{VC} all costs of inputs ranging from raw-materials, to heating and the purchase of intermediary components, varying with the size of output; \mathbf{W} the earnings of the blue- and white-collar employees; and $\#$ the size of profits of the enterprise. \mathbf{VC} and \mathbf{W} , together, constitute the "**Operating Costs**" (\mathbf{OC}) of the enterprise, which change at a constant proportion to the output. For argument's sake, loan capital, inflation, and taxes are ignored.

We discussed the concept of profit, $\#$, in Chapter-1 and defined it as the surplus-value or additional income exceeding the initial capital advanced for the process of production. The ratio of this surplus ($\#$) to the initial production capital (\mathbf{PC}) advanced gives the rate of profit (\mathbf{r}), i.e.,

$$r = \pi / \mathbf{PC} \text{ (or TC)}$$

Given the optimum utilization of productive capacity and supply-demand stability, excluding the costs of trading activities, what would be the \mathbf{PP} assuming the following hypothetical production figures?

$$\mathbf{FC} = \$ 25,000$$

$$VC = \$ 15,000$$

$$W = \$ 10,000$$

$$Q = 1,000 \text{ pcs (quantity produced)}$$

The cost of production, or the initial production capital required, is \$50,000, to pay for the requisite material inputs and the services of the hired labor-power;

$$TC = FC + VC + W = 25,000 + 15,000 + 10,000 = \$50,000$$

The enterprise's revenues must exceed the initial costs of production 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;

$$PP = TC + \# = 50,000 + (50,000 * 0.20) = \$60,000$$

where the PP per unit is;

$$pp = TC + \# / Q = 60,000 / 1,000 = \$60$$

and,

$$r = \# / TC = 10,000 / 50,000 = 20 \text{ percent}$$

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

Own vs. Loan Capital: A Real World Problem

In the real world, in assessing the rate of profit (r), one does encounter a serious problem; should one consider the "actual" amount of capital advanced by the entrepreneur as the production capital or the "total" capital rose, including the loans? The choice of criteria affects the outcome, r , considerably.

Assume that the Enterprise-X advances \$50,000 in own capital or, alternatively, \$30,000 in own capital complemented with \$20,000 loan capital to produce 1,000 chairs worth \$60,000, including profits, \$10,000.

What would be the rate of profit?

$$\text{Case-1: } r = \# / TK \Rightarrow 10,000 / 50,000 \Rightarrow 20 \text{ percent}$$

or,

$$\text{Case-2: } r = \# / K \Rightarrow 10,000 / 30,000 \Rightarrow 33 \text{ percent}$$

where "**K**" denotes the entrepreneur's own capital advanced, "**TK**" the total capital including the loan, "**r**" the rate of profit, and "**#**", the size of profit.

The former case produces a lower profit rate at the end of the period, while the latter, where owned capital advanced is less than the amount required, gives a higher return. Certainly, there are also interest costs involved, but 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 trading activities from commodity production is a common practice in real-world business practices, though not in economic theories. There are numerous wholesale as well as retail enterprises operating either as independent entities or as extensions of the manufacturing unit, constituting a vital and indispensable intermediary chain of economic relations between the producers and end-users. Their activities range from selling to marketing, insurance and transportation, all of which are, practically, supplies of various kinds of services and, eventually, facilitate the final contact of products with their buyers. Therefore, it would be more appropriate to study the sale price formation in manufacturing under a separate analysis of service sector pricing. However, bearing this important feature in mind, and not disrupting the continuity of analysis, we shall now consider the sale price formation as an extension of the manufacturing pricing system, now.

What a trading enterprise does is to purchase the commodities from the manufacturing enterprise to convey them to the end-users. The supply of the trading activities implies some additional costs, causing the production price to rise. The final market price, or alternatively, the sale price (**SP**) of a commodity consists of the following components;

$$SP = \frac{OC}{PP} + FC + TA + W + \#$$

As distinct from the manufacturing sector, the **SP** covers the **PP**, **FC**, **TA**, e.g., proportionately changing variable costs of trading activities, plus wages, and profits. The quality and quantity of the services supplied depend mainly on the level of skillfulness of labor-power and partly on the

quality of material inputs used in the production of a service. The higher the mental qualities of laborers and physical capital formation of the society, 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 the labor force.

The relevant question arising with the pricing of trading activities is; what are the implications of the intermediary trading practices on the formation of the ultimate sale price to the end-users? We shall assume that the profit margin of the trading firm is predetermined by the manufacturing unit at 20 percent.

Let us begin with the supply of 1,000 chairs at a 20 percent profit rate and \$50,000 production capital and see what the unit production price (PP) and sale (market) price (SP) would be.

Case-1: Ex-factory price

The enterprise supplies the chairs ex-factory, implying there are no trading activities, and related costs. **SP** indicates unit market price without transportation cost but including 20 percent profit..

$$\mathbf{SP}_1 = [\mathbf{PP} * (1+r)] / \mathbf{q} = [(50,000 * 1.2)] / 1,000 = \mathbf{\$60}$$

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

Case-2:

The manufacturer himself undertakes the trading activities at an additional **OC**₁ cost of \$10,000.

$$\mathbf{SP}_2 = (\mathbf{PP} + \mathbf{OC}_1) * (1+r) / \mathbf{Q} = (50,000 + 10,000) * 1.2 / 1,000 \Rightarrow \mathbf{\$72}$$

The sale price, including trading costs and profit, is \$72 per unit of output.

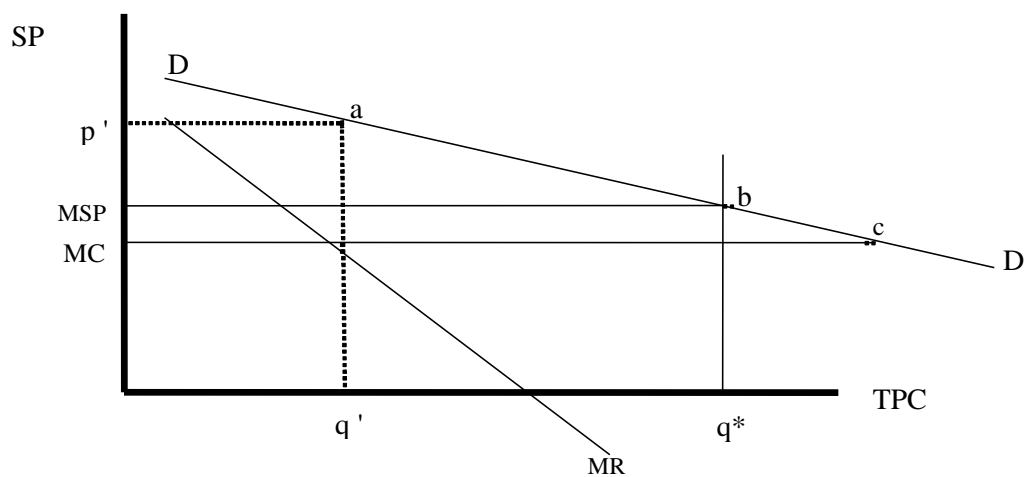
$$\mathbf{SP}_2 > \mathbf{SP}_1$$

As we observe in the above Cases:1 and 2, the assumption of trading activities by an independent enterprise causes the **SP** to rise from \$60 per unit to \$72 per unit at the 20 percent profit rate. As the manufacturing enterprise assumed the trading activities, the PP had already jumped from \$60 to \$72 per unit. The price of trading services causes an increase for the end-user. This is an important aspect of the pricing system and, by itself, a sufficient reason to justify a separate analysis of pricing.

Demand And Market Price

In the analysis above, the focus was on the supply side of production. But, as common-sense and common knowledge point out, there is another and highly important aspect; the demand, which is a variable function even in the short-run. Given the plant production capacity in the short-run, the demand function, subject to the price(s) and preferences of the end-users, determines the rate and size of the profits. In a market, demand (**D**) is a decreasing function of the price, as the textbooks say, and the market sale price (**SP**) for a product in a particular industry is a straight line determined by the competitive conditions (see Figure-3:1)

Figure 3:1



q^* denotes the maximum aggregate production capacity and "D" the aggregate demand function. At point "b", "D" intersects with " q^* " determining the "MSP" that is given for the individual firms within the industry. Under the circumstances, aggregate profits would be **maximized** at q^* . If the enterprise has monopoly power, the price would be set at "a" and the quantity supplied would drop to q^1 , thus maximizing monopoly profits.

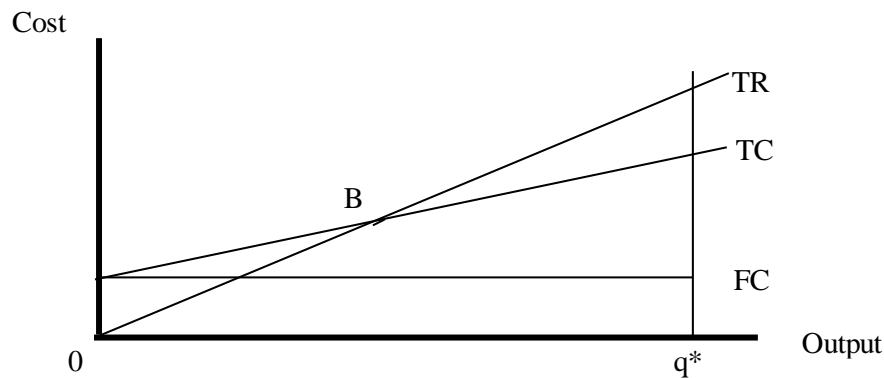
Fluctuating Demand and Profits for Enterprise

Given the price, let us investigate what happens to the profits at the firm level when demand fluctuates. By assumption, variable demand at the firm level does not affect the aggregate demand function, leading to price adjustment.

With a given price and technology, a rational enterprise would set up plant capacity to be exploited at the maximum possible level to **maximize profits**. The enterprise is assumed to be

subject to fixed-costs as well as proportionately rising (diminishing) operating costs as the output supplied increases (decreases). (see Figure-3:2) Output producing maximum profits is denoted by "q*" and "Bcd" represents the profit area.

Figure-3:2



Assume that

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

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

$$MC = \frac{dTC}{dQ} = 10 = \$10 \tag{eq. 2}$$

and the average cost (AC) equals;

$$AC = \frac{TC}{q} = \frac{100 + 10 q}{q} \tag{eq. 3}$$

The demand function (D) is an exogenous given and is a decreasing function of the price. Assume a hypothetical firm with an optimum (maximum) plant capacity of 125 units, given a price of 15. (See Figure-3:3)

$$D = 200 - 5 p \tag{eq. 4}$$

Total revenue (TR) is obtained by;

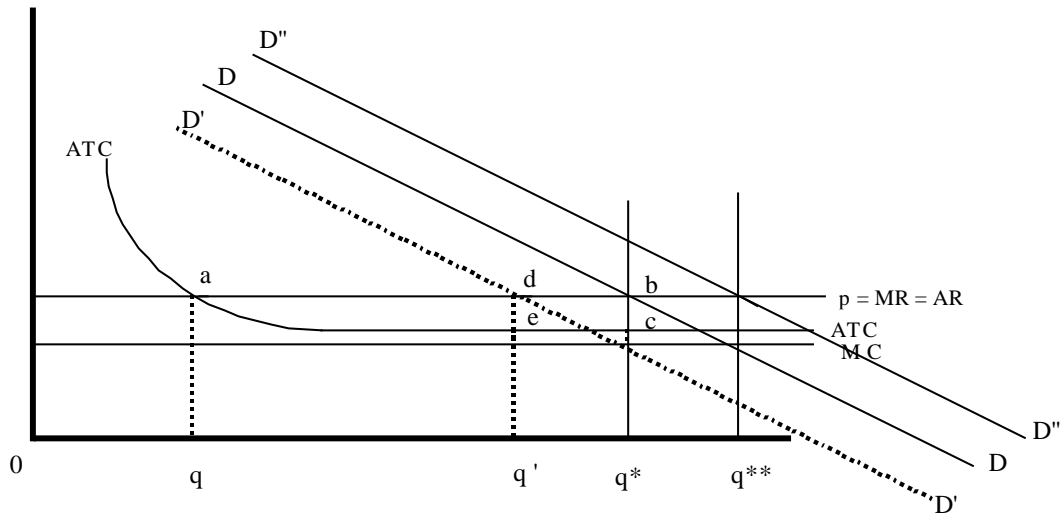
$$TR = p * q \tag{eq. 5}$$

and the marginal revenue;

$$MR = p = 15$$

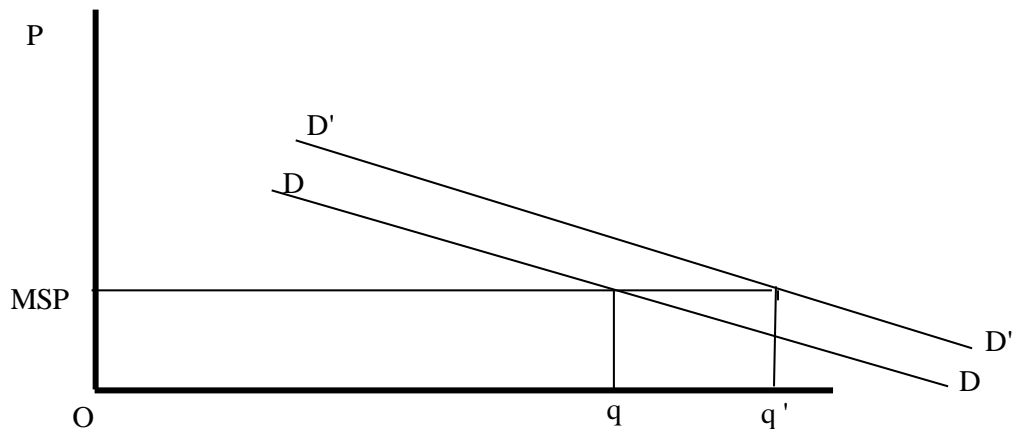
eq. 6

Figure-3:3



If "D" drops to "d'", then the profits would be reduced from the area "abc" to "ade" and the quantity supplied would fall to "q'" from the optimum level of "q*". Intersection point "a" represents the break-even point. If "D" rises to "D'", the enterprise meets the growing demand by doing overtime work at the quantity of q^{**} . But both, the excessive and insufficient demand regarding the optimum plant production capacity are regarded as temporary situations, rapidly readjusting to stable conditions.

In the long-run, the demand curve may shift permanently to the right, pressing the price to rise. In such a case, the response of the market would be to extend the production capacity by additional investment, preferably with more productive technology. Eventually, the market sale price for the industry would be reestablished, say, at the quantity "q'" as in Figure-3:4.

Figure-3:4

PRICE FORMATION IN SERVICE SECTOR

Service sector activities in contemporary economies have an important role and growing significance. Its share of the **GDP** or **GNP**, in terms of employment and output, has already exceeded that of the manufacturing sector in developed as well as in many less developed countries, and it still grows at the expense of other sectors, primary and manufacturing. But, paradoxically, it has usually been the manufacturing sector's activities that have attracted the attention of economic theorists and constituted the genesis of mainstream economic analysis ranging from pricing to employment, growth, etc.

The supply of services ranges from trading activities, as observed above in connection with the manufacturing sector, to consulting, haircuts, education, banking, tourism, health care, marketing, sanitation services, etc., all of which are very familiar activities for us all. In the process of supply, the employment of some equipment or tools may be required, but it is not absolutely necessary every time. A teacher or a tourist guide can be quite fruitful without the assistance of any physical elements in the supply of services. Some services, on the other hand, require the employment of physical inputs to production, like transport companies or repair shops.

The production of services displays some distinguishable features compared to the commodity production sector. One of the distinctive features of the services, with some exceptions, like education, is that they exhaust while being produced. For instance, a haircut service or massage is consumed at the same time as its supply. Cleaning the windows of a skyscraper, on the other

hand, may take days or weeks. To put it differently, in the service sector, there is **no tangible output**. Consequently, as distinct from the industrial sectors, there are **no inventories**, i.e., the output is not storable. Since the output cannot be stored, there cannot be successive stages of production, each adding a marginal exchange value to the total value.

Another interesting feature of the service sector's output is that, not seldom, it is less capital-intensive, productivity increases relatively slower than in the manufacturing sector. As a result, scale economies are not of great significance in the modern manufacturing sector. The sector tends to be more prone to competition and ease of entry because of the relatively high labor intensity of production.

Assessing per capita productivity in service sector is not an easy task. In relatively more labor-intensive supply of services, as in marketing or consulting activities, the "time utilized" or wages / salaries paid, indicates a frequently used benchmark for the evaluation of relative efficiencies in comparison to the competitors. Customers are also, frequently, charged in accordance with the time-employed method. The quality of the service supplied is, on the other hand, determined mainly by the quality of labor-power.

The pricing process 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 as the output approaches the predetermined optimum level. SP consists of the following components;

$$SP = \frac{OC}{FC + VC + W + \#}$$

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

Drawing a straight line distinguishing the supply of services from the supply of commodities is not an easy, if not impossible, task. For instance, is the software of a computer to be considered a service or a commodity? By assumption, a service's output is non-tangible and cannot be stored. The software does not quite fit this description. On the other hand, there is no additional value-added to it once supplied. In contrast, a hairdresser's output fits quite well into the definition of service as it is exhausted as being produced, is non-tangible, and is non-storable.

Education is usually considered a service-sector activity. But, as we all know, the knowledge transferred by the teacher does not exhaust itself and knowledge can be, and is, stored in the brain cells to be utilized later. Yet, it is neither tangible nor measurable.

Another interesting issue arises when, for instance, I rent out my house to Family-X, say, for \$1,000 while paying \$1,000 rent for the apartment I live in. Can we say that the GDP has actually increased by \$2,000? Or, assume that all income-earners pay half of their income to their wives in return for the services supplied at home? It raises the nominal GDP, but does it raise the actual total wealth of the community?

Increasing Returns In Service Sector

Assume a hotel with 100 rooms and an equal number of beds. To reach the break-even point (**B**), where total income just covers the total costs at a zero profit rate, say, 50 rooms must be hired during a given time-span. Further, assume that the hotel requires at least 50 employees to provide the daily standard services, regardless of the number of rooms hired or the idle time of employees below full capacity utilization. (see Table-3:1 and Figure-3:5)

A profit-maximizing rational enterprise would naturally not be content with the performance at break-even point and would make efforts to increase the number of rooms hired above 50 units to reduce the costs per hotel room and to make some profits. The more rooms hired than 50, the greater the total income and profits. The profits would continue to rise as capacity utilization approaches the optimum level of 100 rooms, because of decreasing fixed and average costs per room hired.

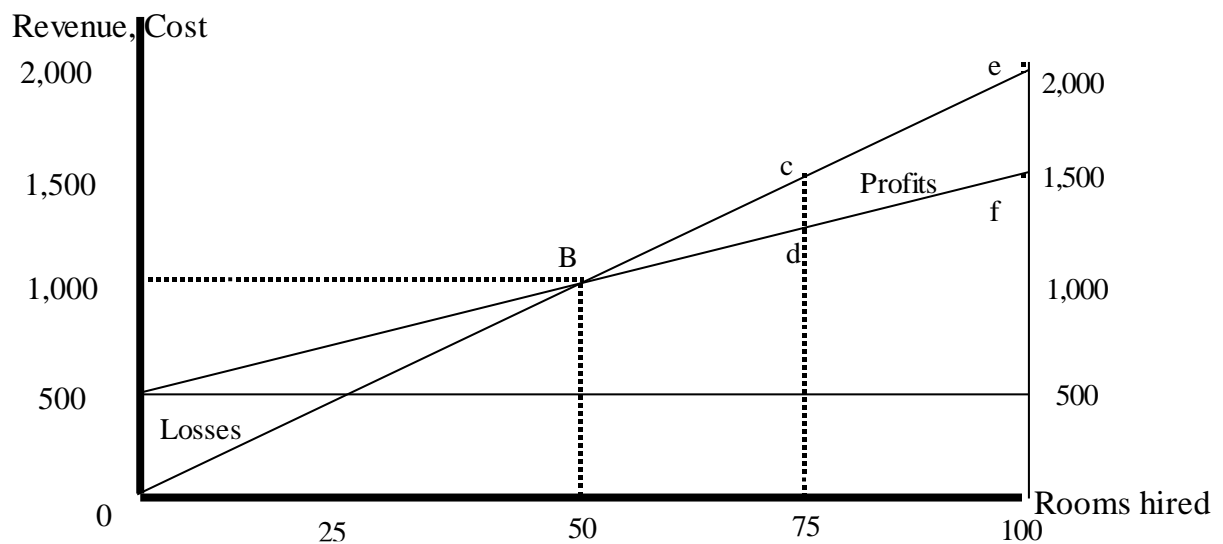
Table-3:1 Capacity Utilization And Costs In Service Sector

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

As we observe once again from Table-3:1 and Figure-3:5, the higher the capacity utilization, the lower the average and marginal costs would be.

Assume that only 75 rooms are rented per day. As a result of diminished capacity utilization, the profits would fall from the maximum attainable level, the area of "Bef", to "Bcd". Thus, demand would appear as a factor influencing the degree of capacity utilization, which, in turn, would affect the size and rate of profits.

Figure-3:5 Capacity Utilization, Costs and Profits In Service Production



PRICE FORMATION IN PRIMARY SECTORS

The term primary sector activities will refer to agriculture, fishing, forestry, and mining, i.e., output depending on the generosity of nature. The share of primary sector activities in the **GDP** tends to decline as countries climb the ladders of development, and increase the supply of commodities and services. But, despite its declining share, its significance has not diminished because every commodity has its origin in nature. Nature still plays a very crucial role in our standard of living. Without the gifts of Mother Nature, it would be impossible to supply the products of need and convenience, and the quality of the services supplied would not be as sophisticated as we enjoy today. Nature is the mother of our material well-being.

The market price consists, as in manufacturing, of the following components;

$$\frac{OC}{PP} = FC + VC + W + \#$$

and

$$\frac{OC}{SP} = PP + FC + TA + W + \#$$

Regarding agricultural output, weather conditions still play a significant role in shaping the sale price, by influencing the quantity supplied. If humankind continues to misuse nature's powers, the latter will continue to have a determining role in the total supply of primary products, thereby affecting their production and market prices..

Decreasing Returns in Primary Sector?

As commonly known, the diminishing returns argument asserts that, given the technology and gifts of nature, additional laborers employed acquire 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)

A distinction between the two cases, however, is necessary; 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, which, after a point, provides successively less output.

As a result, unlike the commodity and service sectors, enterprises in the primary sector are likely to encounter increasing costs or decreasing returns, as the "modern" theory predicts, at least in the short-run, with given technology.

Table-3:2 Decreasing Returns

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

Assume the following values under normal conditions for a hypothetical enterprise in the primary sector.

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

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

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

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

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

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

Say that demand doubles from 1,000 tons to 2,000 tons, and the only way to meet this demand is to assume production is subject to increasing costs. The total cost of the additional 1,000 tons is assumed to be \$4,900, an increase of \$400. Given the price, the size, and the rate of profit on "additional" quantity, it would look like as following:

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

And,

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

If the average rate of interest in the economy exceeds two percent, there will be absolutely no incentive for the primary sector enterprise to increase its output beyond the initial 1,000 tons. Thus, no decreasing returns would appear. To continue production at a 10 percent rate of profit, corresponding to the industry average, the price for the marginal output must rise to \$5.39 per ton and generate a total income of \$5,390 given the total cost of \$4,900 .

But, the new price would apply for the initial output of 1,000 tons as well, increasing the rate of profit to about 20 percent, e.g.

$$r_1 = \$5,390 / \$4,500 = 19.7 \% \text{ for the initial 1,000 tons,}$$

and,

$$r_2 = \$5,390 \$ / \$4,900 = 10 \% \text{ for additional 1,000 tons,}$$

providing an average of about 15 percent, above the market average in economy. Since the assumed market average profit rate is 10 percent, it is more likely that the price might settle down at \$5:17 per ton.

$$p = \$5.17 \text{ per ton}$$

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

$$TR = \$10,340$$

$$TC = \$9,400 \quad (\$4,500 + \$4,900)$$

$$\# = \$900$$

$$r = 10 \% \quad (\$10,340 / \$9,400)$$

To sum up, there would be no incentives at all for the real-world enterprise whatsoever to assume production subject to increasing costs unless the price is increased sufficiently.

TECHNOLOGICAL PROGRESS & THE LONG-RUN

Of the short-run assumptions stated above, it is time to release one; "given technology". Demand continues to adjust itself to the variations in supply, thus maintaining supply-demand stability. The only variable that can cause changes in the total output and/or price level is "changes in the method of production", or a **new process technology**.

A relevant question is: how long should be considered the short- or long-run?

The fluctuations in demand in the short-run affect the short-run profit rate, due to increasing per-unit fixed costs, and induce the entrepreneurs to adjust their short-run policies and long-run projects. These short-run demand signals are crucial, as are expectations, in designing long run policies. Regarding these aspects, one can logically deduce and assert that the short-run conditions are of vital importance, and the analysis of short-run dynamics would provide us with much better insights and tools for remedying the long-run developments.

Since profit was identified as the difference between the total expenses and revenues of the enterprise, every new production method introduced to increase the per capita output with given costs or to reduce costs with given output also increases profits. This implies that every new process technology introduced to increase the profit-rate is, in practice, **production capital-saving**. In other words, what we are accustomed to classifying as "neutral", "labor-saving" and "capital-saving" process technologies, imply reduced unit costs, which, in turn, imply reduced capital outlays per unit output. **The new process technology saves production capital.**

Let us study each case with the assistance of figures. Below, new process 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., **neutral productivity increasing technology**; or,
- 3-b By decreasing **FC**, **OC** and **LWC** in equal proportion, “given” the output, i.e., **neutral productivity increasing technology**.

Initial-case

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

$$K = \$1,000$$

$$w = \$20 \quad \text{per employee.}$$

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

$$W = \$2,000 \quad \text{total wage bill, e.g.}$$

$$Q = 1,000 \quad \text{total quantity produced of Commodity-X.}$$

PP (production price) per unit of output would be;

$$PP = [K + (w * L)] * r / Q \Rightarrow [1,000 + (20 * 100)] * 1.1 / 1,000$$

where,

$$pp = \$3:30 \text{ per unit} \quad ;$$

$$ATC = TC/Q = 3:00$$

$$\# = \$0:30 \quad \text{and,}$$

$$r = 10 \%$$

ATC denotes average per unit costs, "#" the size of profits per unit and "r" the rate of profit.

Case-1

Assume the same conditions as in the initial case, except that this time "K" is saved by 20 percent from 1,000 to 800, after the introduction of a new method of production, implying the introduction of an FC-saving technology. The costs of production will be affected as follows;

$$TC = [800 + (20 * 100)] = \$2,800$$

and,

$$ATC = 2,800 / 1,000 = \$2:80 \text{ per unit}$$

where,

$$\# = 3:30 - 2:80 = \$0:50 \text{ per unit}$$

while,

$$r = 0:50 / 2:80 = \mathbf{18 \text{ percent.}}$$

Case-2

Once again, assume the same initial conditions, but this time the new technology reduces the number of employees from 100 to 80, i.e., an OC-saving technology. The new costs will be;

$$TC = [1,000 + (20 * 80)] = \$2,600$$

and,

$$ATC = 2,600 / 1000 = \$2:60 \text{ per unit}$$

where,

$$\# = 3:30 - 2:60 = \$ 0:70 \text{ per unit}$$

while,

$$r = 0.70 / 2.60 = \mathbf{27 \text{ percent.}}$$

Case-3

Assume that a new method of production is now introduced while keeping the same "total" costs of production but increasing the total output by 20 percent from 1,000 to 1,200 units. The impact of the new technology is neutral regarding unaltered inputs to production. The total cost is still. \$3,000 , but the ATC has fallen considerably.

$$ATC = 3,000 / 1,200 = \$2:50 \text{ per unit.}$$

Given demand and PP;

$$\# = pp - ATC = 3:30 - 2:50 = \{ \{ \% \} \} \text{nbsp;} 0:80 \text{ per unit}$$

and,

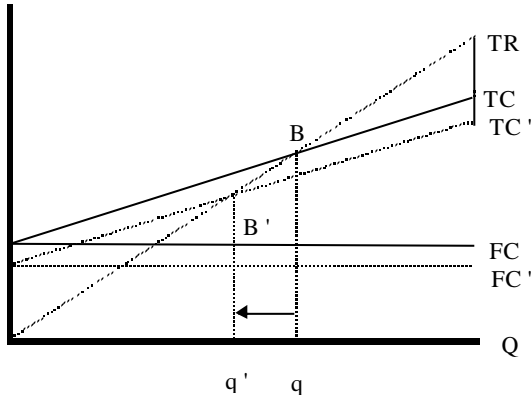
$$r = 0.80 / 2.50 = \mathbf{32 \text{ percent.}}$$

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

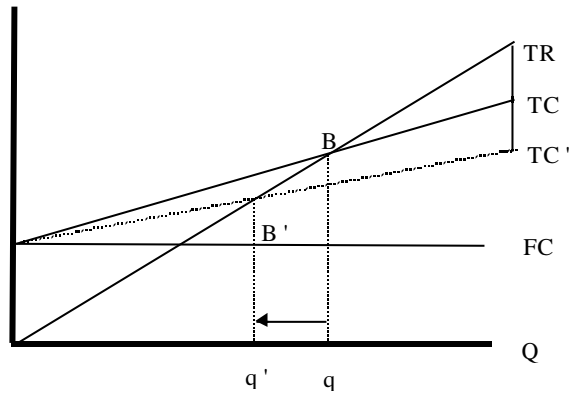
In all three cases, reduced total and per unit costs imply a higher rate of profit. Since demand is assumed to be unchanged. The driving force behind the introduction of new process technology is competition. Cheaper production costs imply not only higher profits but also a competitive edge over competitors. As a result of competition, the price of the output is highly likely to be lower than in the initial case and the profit rate lower than in Cases 1-3 falling until the economy's average profit rate is reached.

In short, given supply-demand stability, advances in process technology, e.g., productive knowledge, determine both the production price level and the rate of profit, assuming full-capacity utilization.

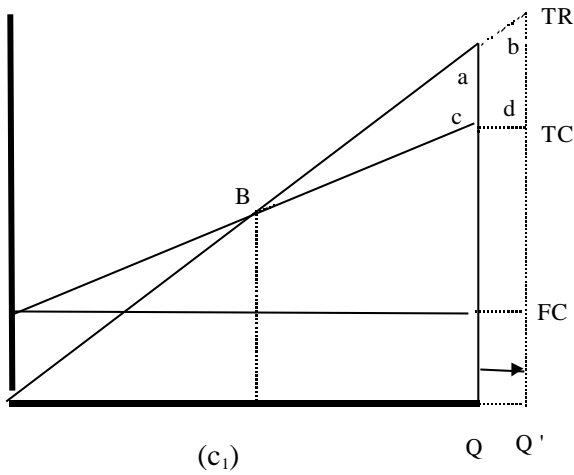
Figure-3:6 Types of Technological Changes



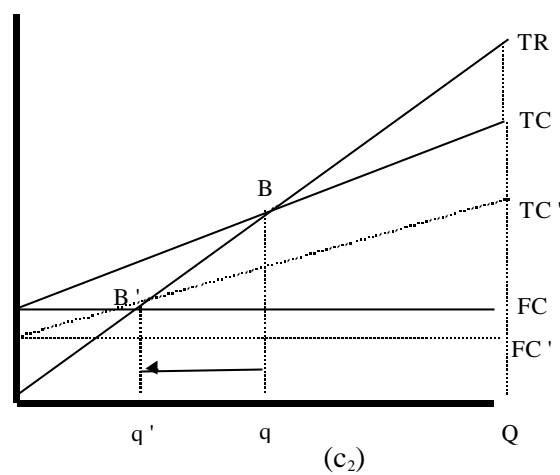
- (a) FC-saving technology
- given output
 - $B \rightarrow B'$
 - profits grow by $BB'TCTC'$



- (b) OC-saving technology
- given output
 - $B \rightarrow B'$
 - profits grow by $BB'TCTC'$



(c₁)



(c₂)

(c) NUETRAL TECHNOLOGY

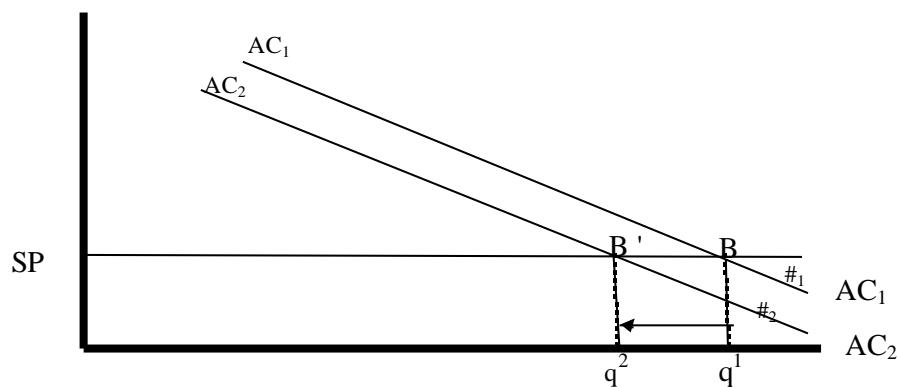
- output grows: $Q \rightarrow Q'$
- B constant
- profits grow by "abcd"

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

Supply-demand stability, which was assumed to continue in the long-run as well, is of vital importance even in the long-run. Rising or falling demand causing deviations from optimum capacity utilization would have serious implications for output and prices. In the long-run, not only markets saturate and tastes change, but also purchasing power changes. In addition, new technology also means the introduction of substitutes or totally new products into the market. Therefore, just as in the short-run, even in the long-run, fluctuations in demand are of utmost importance.

All cases of technological improvement imply that, given the price and demand, average costs (AC) diminish, as in Figure-3:7 below, from AC_1 to AC_2 , reaching the break-even point "B" at the quantity of " q_2 " instead of " q_1 " as before. And the profit area grows from " $\#_1$ " to " $\#_1 + \#_2$ ".

Figure-3:7



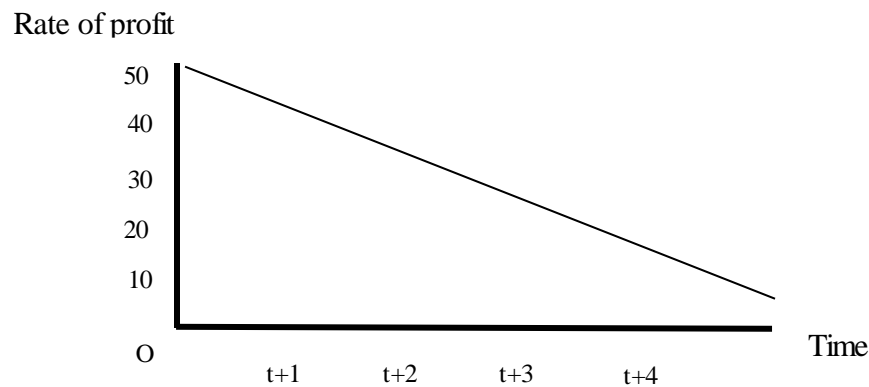
NEW PRODUCTS AND MONOPOLY PRICE

It is not entirely out of the question that a manufacturing enterprise might be subject to decreasing profits as the total supply increases. Assume that Enterprise-X obtains the "only" patent for the production of a scarce commodity, say a medicine against AIDS. There would be a huge demand for that medicine, and Enterprise-X would have monopoly in the market due to patent-ownership. The enterprise can set the sale price at a rate with a greater profit margin than the average; in this particular branch, say, a 50 percent profit rate, while the average profit rate is only 25 percent.

Given time, and human and physical capabilities, other enterprises in the same branch would eventually catch up with Enterprise-X and develop similar products with the same effect. Due to

the growing competition, the Enterprise-X will soon be no longer in a position to dictate the market price as a monopolist on the medicine against AIDS. Assume that as a result of competition, the rate of profit falls from its previous 50 percent to 25 percent, which is the average rate of profit in this branch of industry. Due to the fall in the rate of profit, the revenue curve per unit of output will display a declining slope in time. (see Figure-3:8) Thus, decreasing profits become a reality.

Figure-3:8 Competition and Diminishing Returns



CONCLUDING REMARKS

A man's vision is first shaped by the cultural surroundings around him. If we are told that drinking wine is a bad habit, we will develop a tendency to avoid it. To account for a version of our own as to why wine drinking is a bad habit, one requires information, which, in turn, requires time as well as the ability to reinterpret things. Someday, you may come to the conclusion that others might be wrong in opposing wine consumption. It might even prove that a couple of glasses a day might be quite useful for your health. But what are your chances of convincing people of other faiths that you have a point?

The Marginalist price theory enjoys such a dominant position that criticizing it, or even considering criticism, feels, at first, rather uncomfortable. What is the probability of so many brilliant minds being fundamentally wrong? If there are alternative solutions and/or explanations capable of a better interpretation, how come nobody has discovered them yet? How do you

convince your opponents of your own convictions? And, finally, what is the probability of being (fundamentally) wrong yourself? I believe that an alternative price theory to the Marginalist price theory does not enjoy a better chance of reception than the promotion of pork meat in Jewish or Muslim quarters.

It is the challenge of facts and the supply of anti-thesis for the "accepted" ones that promote the progress of the mind and civilization. Every challenge is not a revolutionary. It may not even be of significant importance. Yet, however minor, it might make some contribution. It is this hope of (even the smallest) contribution to the promotion of economic thinking that gave me the courage to commence this work. Perhaps it is time to reconsider the virtues of the so-called "mainstream" theories and look for alternative or complementary explanations. Perhaps not. How can we find out about new ways of thinking or **visions unless we tolerate them?**

Traditional price theories, in general, commence and end with the study of exchange values and relative prices in the manufacturing sector. There is a lack of clearly defined separate analyses of the service sector's activities. The separation of manufacturing and service sector price setting is one of the major distinctions of the analytical approach in this book.

Another uncommon approach is the separation of the production price (PP) from the final market price (SP). This might, at first, strike you as unnecessary, but it is not. The separation provides a more proper and realistic analytical advantage.

One of the deviations from the traditional way of thinking is the argument in favor of decreasing costs. An open-minded economist with some experience from the business world would probably be more understanding and supportive than the purely academic mind brought up with the virtues of "decreasing or constant returns."

The treatment of (production) capital as the saved-up capital employed to produce various products and of profits as the return (reward) on abstention from present consumption and risk-taking is not an original approach. But the definition of its genesis as "productive knowledge" in relation to the price theory is not so common, perhaps unique. Without the supply of productive knowledge, mankind would still be living for survival in a jungle-like environment, incapable of producing any products with exchange value for the producer or use value for the consumer.

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