

Production Factors-Productive Factor & Income Distribution

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Abstract

The definitions of concepts like capital, labor, human capital, productive factors, and production factors are dubious and, require reevaluation and elaboration. Accordingly, widely used analyses of economic relations are also dubious and, require re-examination and new explanation.

Widely accepted and used definitions in the textbooks and among scholars are of Neoclassical heritage, which seem to present "**a playground for academic economics**" rather than a realistic approach assisting to better understanding of "actual" economic facts and relations. Therefore, regarding the present global economic (dis-)order, there seems to be a need for new as well as more realistic approaches from alternative angles with "new" definitions of "old" concepts, if and when necessary.

The aims of this work are partly to reconsider and when necessary, to redefine, the "conventional" key concepts such as labor, capital, interest, rent, and accordingly analyze the distribution of functional income. Thus, the questions to be analyzed in the following sections are:

- What are the factors of production?
- Is the term **production factor** identical with the term **productive factor**? What is the difference between them?
- Which factors "**earn**" a share of the income generated? And which factors receive an "**unearned**" share?
- Which forces influence the functional distribution and redistribution of income among labor and capital; the ability to generate value or the ownership rights?

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The composition of this book has been for the author a long struggle of escape... -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...

J.M. Keynes, 1973, *General Theory...* Preface

Introduction

Every introductory textbook on economics refers to some key and fundamental concepts like "factors of production (**FoP**), and income distribution", among others. The orthodox theories inform us that there are two factors of production; **labor (L)**, and **capital (K)**, but often fail to specify what they really are or imply. But, once upon a time, in the texts of Classical economics, there used to be a third factor of production, the **nature (N)** alias land. And some contemporary textbooks claim that there is even a fourth factor, the **entrepreneur (E)**. In the post-1950 era, the number of the factors of production seems to have increased. There is nowadays a rather influential factor of production "**re-discovered**" by Solow; **technology (Te)**. In addition, since 1960s, there is another influential factor of production; the "**human capital (H)**".

The definitions of concepts like capital, labor, human capital, productive factors, and production factors are dubious and, require revaluation and re-examination. Accordingly, widely used analyses of economic relations are also dubious and, require reassessment and candid explanation.

Widely accepted and used definitions in the textbooks and among scholars are of Neoclassical heritage, which seem to present "**a playground for academic economics**" rather than a realistic approach assisting to better understanding of "actual" economic facts and relations. Therefore, regarding the present global economic (dis-)order, there seems to be a need for new as well as more realistic approaches from alternative angles with "new" definitions of "old" concepts, if and when necessary.

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Related to the above questions addressed in the discussion are:

What are wages? Why wages are they paid for? And what is capital? Is it simply a certain quantity of "hoarded" money? Or does the term refer to the "capital goods" (**KG**) of production, or both? Why does "capital" get "profit"? Is capital a "productive" factor of production like the nature or services of labor(-er)? What is indeed Human Capital? Is it labor or capital? Which factor makes the greatest contribution to productivity growth¹ and thus to income generation? What is the nature of incomes such as interest and rent, accruing from money holdings without any labor effort to produce?

A distinctive feature of the analysis will be the distinction between **"productive"** factors and **"production"** factors. This distinction will enable us to better grasp the production relations and the distribution of functional income. Such a distinction is necessary in order to understand the contributions and ensuing rewards of the factors employed in the production process. To be able to say whether the income is distributed "rationally" and "justly", we have to know the specific contribution of each factor to the value-added (**VA** = π + **LWC**).

The central hypothesis in this paper is that mental labor assisted by physical labor² is the source of **"all value-created/added"** given the nature as the indispensable and irreplaceable supplier of **"all initial use-value"**.³ The nature's

1 For the definitions of terms like "productivity", "productivity growth", "productivity increase", "technology" see Gürak 2006.

2 Physical labor is the simple eye-hand coordination of laborer requiring no mental labor.

3 For a discussion/evaluation of the terms see Gürak, 2000-a; 2000-b; 2004-a; 2004-b.

supplies as the raw use-values⁴ (utilities) are transformed⁵ into exchange-values⁶ by the efforts of mental and physical labor services⁷.

In fact, this work is a succession of some previous works (see Gürak-1999, Gürak-2000-a and Gürak-2004-a).

Basic assumptions, unless otherwise stated, are:

- No inflation.
- No government intervention.
- Prices reflect market values of products⁸.

Production factors (FoP)-productive factors (PF)

In general, there is no such distinction in the standard textbooks between these two similar yet "rather" distinctive terms. But, as will be seen below, the proper distinction is not only necessary but also a prerequisite for a sound analysis in economics.

Production factors (FoP)

According to the common economic textbooks, there are only two **FoP**, **K** and **L**, used in the production function (**Q**) as indicated below:

$$Q = f(K, L)$$

The standard textbooks, unfortunately, provide us with no globally acknowledged definition of capital. They hardly ever specify what it implies but almost never question the nature of capital as to what it actually is or how it has emerged in the first place. "Capital is a factor of production" and that is the end of it. Apparently, a holly concept beyond any doubts and criticism to be taken as it is. At least, it is so for the Neoclassical doctrine and its proponents.

The discussion of labor, too, is far from satisfactory, though less cumbersome than capital. In economic models, labor sometimes refers to "uneducated and unskilled" laborers and sometimes to laborers with average skills and education. Whenever the human capital concept is used, it refers to the former, the

4 Use-value: utility enjoyed by the end-user from a product.

5 Transformation implies the change in original formation/position by some labor effort.

6 Exchange-value: value created by labor for trade (exchange); or the relative worth (price).

7 Labor service is the mental/physical capabilities of laborer in the generation of value.

8 Product: tangible commodities as well as intangible services.

unqualified laborers without any education. Yet, the concept of labor also refers to the work done by laborers⁹.

In reality, there are more inputs of production than the two above suggested. **Production factors** are all the prerequisite inputs of production to produce anything with exchange-value. In analogy, they are like the ingredients of a soup. Without the necessary inputs (ingredients) you cannot make the soup. The **FoP** (ingredients) comprises inputs ranging from raw materials to energy, semi-finished inputs, plant site, etc., as well as labor services. For instance, thousands of inputs of varying qualities are required for the production of airplanes or computers. On the other side, a teacher or a consultant in the service sector seems to perform their tasks with much less physical inputs. Accordingly, a house painter or a shoeshine boy requires considerably less inputs of production than the producers of computers or car producers. Given the mental and physical labor services, the most frequently required inputs of production are:

- Production site (factory, retail shop, hair dresser, etc.).
- Raw materials.
- Energy.
- Semi-finished inputs.
- Management services.
- Marketing services.

Regarding the aim of this work, there are two critical and vital questions that need to be answered:

- 1- Can a **factor of production** be a "productive" factor at the same time, capable of generating/adding value?
- 2- Is capital a productive factor?¹⁰

Productive factors (PFs)

The answer to the first question above regarding the productivity of a factor, the Neoclassical doctrine would claim, without hesitation, that capital is a productive factor. They would argue that the marginal productivity analysis of capital displays this feature clearly.

⁹ We will discuss the concept labor in detail in coming parts.

¹⁰ This is one of the well-known "Cambridge controversies".

It is true that some inputs of production display a distinct feature by being “**productive**”, i.e., capable of generating/adding value even in the absence of other inputs. But capital is definitely not one of them. Nor are other inputs such as energy, tools, intermediary inputs, except for labor services, are “productive” in any sense.

There are only two kinds of “productive” forces fitting the definition:

- 1- Nature (**N**)¹¹, i.e., the supplier of all use-values (utilities) in the shape of raw (unprocessed) inputs of production; and
- 2- Labor effort (**L**), i.e., is the “only” factor capable of adding value to nature’s supplies.

The fundamental difference between the **FoP** and **PF** is the ability of the latter to produce value. Every **PF** is, at the same time, a **FoP**, but every **FoP** is not a **PF**.

The nature: a “production” and “productive” factor

It is a commonly acknowledged fact that nature is capable of providing its output, i.e., the raw materials, of any production even in the absence of external assistance, including labor efforts. That feature makes the nature, beyond any doubt, a “productive”, synonymously, “fertile” factor. There are thousands of kinds of life arising and surviving due to the fertility of nature. All kinds of species on earth, even the human beings, the most advanced specie of all creatures, take their nourishment from the gifts (products) of nature. There would be no form of life without the productivity (fertility) of nature. Thus, the nature is a “productive” factor beyond any doubt in the sense that it provides the things with use-values (utilities) such as water, plants, fruits, vegetables, etc., for the mankind.

The end-users, in our case the human beings, consume the products of nature, which possess use-value (utility), to survive. As long as the products of nature are used for personal or family consumption, they contain “use-value” only for the end-users. For instance, apples on a tree in no-mans’ land indicate **use-value (utility)** if used for personal consumption. But, if they are brought to the market by labor effort of collecting and transporting, they contain exchange value.

To set an example, say that Deniz, the father of family, collects some fruits, the “free gifts of nature”, to feed his family in some ancient period. The fruits contain “use-value” (utility) for his family. Assume that Deniz possesses more

¹¹ Also, and frequently, referred to as “land”.

apples than required and exchanges the surplus with oranges. The apples they consumed had "use-value" for his family but the surplus apples exchanged for oranges had "exchange-value". These are the concepts and relations often cited in the works of Classical economists, which show us that "exchange-values" arise only when some labor-time is expended on the product. Concisely, the nature provides things with use-values, which are either consumed directly by end-users or used as exchange-values involving labor time.

In addition to being a productive factor, the nature also provides all kinds of inputs required for output of all kind in the form of raw materials. Therefore, the nature is not only a productive factor, but her products are the indispensable products (inputs) of production in the form of raw materials. In the absence of raw materials as (inputs) factors of production, there would be no physical items re-shaped by labor for consumption, such as computers, cars, houses, TV-sets, etc.

Ever increasing number of advanced commodities offered to the end-users has their origins in the nature in the form of raw materials. But, unfortunately, the generosity of the nature is not unlimited. A polluted and eventually dying nature would imply an end of all civilizations and technological advancement, regardless of the development level. For the sake of sustainability and further advancement of societies, very good care has to be taken of the nature mother.

Labor(-er): a "production" and "productive" factor

Let us recall that in orthodox economic books, there were only two factors of production.

$$Q = f(K, L)$$

where L denoted labor, e.g. "i" quantity of laborers¹² ($i=1,2,\dots,n$). The textbooks normally do not specify the features of the L whether it is trained or educated, if so, in what capacity, the degree of talents and experience. But whenever H (human capital) is introduced in the analysis, the ensuing and logical conclusion would be labor is untrained/uneducated, endowed with the basic eye-hand coordination only. That means L does not possess any abilities or experience, except for simple eye-hand coordination, only.

Regardless of the degree of abilities/capabilities of the laborers, labor is normally regarded, by the orthodox Neoclassical doctrine, as a "productive" factor of production receiving a share of income in accordance with its marginal

¹² Laborer is used as synonymous to worker or employee.

productivity. The role played by the marginal productivity according to Neoclassical doctrine is subject to discussion. But, the fact that labor is productive, i.e., capable of producing value, is a fact beyond any doubt. Labor services can **"generate/add value"** to the supplies of nature by transforming (reshaping) them, either for personal use or for trade. Among all inputs of production, only the labor services are capable of "adding value", given the nature's supplies (Gürak, 2000-a; 2004-a; 2006).

At this stage, it would be useful to discuss some related concepts, such as labor (mental and physical), labor-services, laborer, and labor -force, before proceeding further with the analysis.

Some related definitions

Labor¹³ (**L**): according to some economic textbooks and models, given **H**, **L** refers to "i" number of laborers endowed with eye-hand coordination only. Although many analysts are well aware of the fact that **H** and **L** are actually two sides of the same medallion and that no laborer, especially in our time, is without some degree of formal or informal training/education, they continue to treat **H** and **L** as if two distinct factors of production. This "ideological" ignorance does not only confuse the minds but also lead to incomplete and unsatisfactory economic analysis.

By the way, the word "labor" literally means **"the execution of work by laborer"**. Labor is the result of mental-physical efforts of laborer (worker). Alternatively, labor is the exertion of mental-physical abilities of laborer to execute a task, i.e., to produce use/exchange values. In other words, "labor" and "laborer" (worker) are not identical.

Laborer is the able-bodied individual, who possesses some **mental as well as physical capabilities** to labor. He/she is the person who carries out the work or task by mental/physical faculties to generate use- and/or exchange values. To put it differently, laborer is the human being who hires his/her services in the market and **"earns"** wages in return. Wages are not paid for hiring the laborer for his/her personality or body as such, but for the services to be obtained in order to realize the production.

13 The word labor literally implies the execution of work by laborer. It is the result of the mental/physical efforts of laborer with given "inputs". In other words, labor is the exertion of mental/physical capabilities of laborer to execute a task, i.e., to produce use-/exchange- values.

The other meaning of the word labor refers a political-economical concept, which implies "workers-employees" as in Labor Party.

Mental labor (L^m) refers to the faculties (abilities and skills) of human mind developed through formal/informal training/education as well as experience, given the natural skills. Creative mental labor is the source of all present and future technologies. As we have discussed elsewhere (Gürak, 2000-a; 2000-b; 2004-a; 2006), given the nature's supplies, the mental labor-services is **the genesis and incessant source** of all value generated and thus of economic growth and prosperity.

Physical labor (L^p) is the simple eye and hand coordination of able-bodied man. The execution of physical labor requires, by definition, no special training and/or education nor any mental capabilities. In reality, there is no such thing as "purely" physical labor; it exists in theory, only. Every laborer possesses, more or less, some degree of mental capabilities. Even choosing the right electric button between two, say red or white, requires some degree of mental capability.

Emek: In Turkish language, the word is translated as "emek", which literally implies the **labor efforts consumed at the execution of work**, not the laborers employed. Naturally, one can always argue that since the laborers are the owners of labor services, the word "emek" actually refers to the laborers themselves, in a somewhat dubious way. The question is; why such roundabout ness? Would it not cause confusion when the word is used in the proper sense of meaning? After all, "laborer" and "labor services" are not the same thing and there is another Turkish word for laborer, "**emekçi**".

Labor force (**LF**) implies the total quantity of the laborers (able-bodied men) willing to hire their labor services in return of wages. Economic models normally use **L** in the same sense as **LF** without making a distinction.

The concept of labor(-er) (L) - reconsidered

A proper definition of labor (**L**) is necessary for sound analysis. In this work, **L** shall refer to laborers willing to work at the going market wage rate. **L** does not comprise able-bodied men with eye-hand coordination, only, for there is no such thing in reality. Each **L** embodies, in addition to physical abilities, some degree of mental faculties acquired and developed through formal/informal training/education enriched by experience.

L is "not" a commodity like a TV-set or radio bought and/or sold in the markets. It is **the only source of any value added** and **the ultimate consumer** of value produced, along with other income obtaining groups, of course. And these features make **L** a rather unique factor of production. Commodities belong to their owners, but **L** is only hired for the labor services for a given period in

return of wages. The ultimate control of the labor services belongs to the laborer. Otherwise, it would be slavery.

Since the laborers are endowed with different skills, abilities and experience, the wages paid by end-users in return of the labor services are not, and cannot, is the same for all. In other words, the qualities of labor services are heterogeneous, and so are the wages. Being analytical concepts like quality, faculty, education, ability, skill, experience, a sound measurement and eventually cross-firm or cross-country comparisons of labor services is rather cumbersome, if not impossible.

To summarize; with regard to the related discussions elsewhere (Gürak, 2000-a; 2000-b; 2004-a; 2006);

- L is one of the indispensable and irreplaceable FoP; and,
- L is also an indispensable and irreplaceable PF.

Capital: a "productive" factor?

The first and major problem with the concept capital arises with its definition. There seems to be no "globally" agreed definition of **capital**. For some, it refers to the "**capital goods**" implying machinery and perhaps tools. For some others, it refers to all inputs of production, ranging from buildings and energy to semi-finished inputs, except for labor services. For some, capital is the total value of assets used in production process, including labor services.

Historical perspective

Capital has always been a vague and controversial subject of economic theory. On this matter, Hausman had, quite rightly, asserted that: "**Economists possess no good theory of capital and interest.**" (Hausman, 1981, Ch.10) The theories possess elegant models and theorems but they, he said; "... **do not enable one to explain real phenomena of capital and interest**" (Hausman, 1981, Ch.10) for they fail to understand the substance of phenomenon.

For some Classical economists, the concept capital referred not only to capital goods (**KG**) but also to the wages of labor force and other inputs of production. For instance, Ricardo defined it as:

"... that part of the wealth of a country which is employed in production, and consists of food, clothing, tools, raw materials,

machinery, etc. necessary to give effect to labour."

(Ricardo, 1990: 95)

Following Ricardo's line of reasoning, Marx defined capital as "a sum of money" with some special characteristics in the hands of capitalists. According to Marx:

"... 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, 1976:976)

Accordingly, the owner of this specific sum of money was referred to as "capitalist". However, self-employed entrepreneurs were excluded from this definition as capitalist though they were driven by the same motive, i.e., making profits or "increasing the sum of money".

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

"What capital does for production is to afford the shelter, protection, tools and materials which the work requires, and to feed and otherwise maintain the laborers during the process... Whatever things are destined for this use... are Capital."

(in Schumpeter, 1954: 634)

With the Marginalist revolution, the scholars tended to define capital as a **scarce** "physical" input of production, i.e., capital goods (**KG**). It was treated as one of the original productive factors along with land and labor(-er), thus qualified to obtain income, e.g., profit. 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 "productive" factors of production. But the Marginalist school survived the challenge.

For Marshall, capital itself was the product of **labor and waiting**. He dismissed the labor-biased propositions that capital was the "product of labor alone" which would compel us; **"... by inexorable logic to admit that there is no justification for interest"** (Marshall, 1961: 687). Instead, 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, 1961:787) implying the "capital-goods" employed in production, which are actually products of nature produced by **"human efforts"**, i.e., employee's services, and ought to be rewarded for **"sacrifices"**, i.e., waiting for future benefits.

In modern theories, it is customary to treat "capital" as a **productive factor** of production like labor services, which entitle the owner of capital to an income; e.g., profits. This approach regards "capital" as being capable of producing and/or adding value, more than the one transmitted. Thus, as a "productive" factor, it **earns** (receives) income in accordance with its marginal productivity.

Is capital indeed "productive", capable of generating value?

In order to provide a reply to this critical question, three alternative definitions of capital will be reconsidered below.

1- Capital á la Classical School: Classical economists had defined capital as the financial funds to initiate production, i.e., to bring together the **FoP**, with the purpose to produce commodities with exchange-values. This definition does cover "all" the inputs of production ranging from raw materials to plant site, semi-finished inputs, machinery, tools, energy, as well as the labor services. Capital can also be defined as:

$$K = FC + VC + LWC$$

FC denotes all prearranged and invariable inputs of production like plant site, machinery, etc., **VC** denotes all the tangible and intangible inputs ranging from raw materials, to semi-finished goods, energy, etc., varying along with the quantity of output, and **LWC** denotes the total wage cost of employees ($LWC = w * L$)¹⁴.

Capital á la Classical School brings together the necessary inputs production, including the services of employee, with the specific purpose to make profit. By doing this, the capitalist takes the risk of loosing the whole or some of the capital outlaid. But all the inputs can only transmit value, which equals to the sum of all values of inputs exhausted. For instance, assume $FC = 40$ TL, $VC = 30$ TL and $LWC = 20$ TL, the value the output contains is 90 TL. There is no additional value produced by the capital, meaning that the capital defined á la Classical School is **NOT PRODUCTIVE**.

2- Capital goods (KG): **KG**, or synonymously, the physical implements of production ranging from tools to advanced machinery are, in fact, nature's supplies transformed by labor services to increase the "value-adding ability of labor(er). Since the value of the **KGs** is given (known) in advance, they produce/add no value at all but only transmit the value already embodied in

¹⁴ w = wage of employee and L = the number of employees.

All incomes-expenditures are gross values, i.e., no taxes, unless otherwise stated.

them. Their price embraces values transmitted during their production process plus profits. The sole purpose of the employment of **KGs** is to increase the productivity of laborer. Thus, **KGs** deserve compensation only to the extent of the value transmitted to final product. For example, if the value of a capital good is 100 TL and totally exhausted after one use, the contribution is worth just 100 TL. No more, no less. Anything exceeding the compensation for transmitted value is neither economically rational nor justifiable. Therefore, **KGs** are a **FoP** but not **PF**. In other words, **KGs** are **NOT PRODUCTIVE**.

The "capital-intensity" or rather the "technology-intensity" of production is another controversial concept, which refers to the degree of exploitation of technology embodied in the "capital-goods". The more advanced the technology, the more qualified employee is likely to be required to realize (to effect) production. In contrast, the less advanced technologies are likely to require relatively more number of employees with relatively less qualification. Therefore, it would be more appropriate to distinguish the production methods as "technology-intensive" and "employee-intensive" instead of "capital-intensive" versus "labor-intensive" as customary. The degree of technological progress does not, in any way, alter the position of **KG**; they still cannot transmit any more value to the final product than the value they possess (or depreciate). In other words, the variations in the degree of technological advancement embodied in the **KG** do not make them productive.

3- Hoarded money or monetary capital: A clear distinction exists between the "hoarded money" and "invested money" (Capital á la Classical School). A person can possess large sums of monetary funds, e.g., savings, but that does not make him an entrepreneur (a producer of goods/services) but just a money-holder. Such savings do not produce any value although they might grow by the amount of interest. Savings can be associated with value-generation only as "invested money" (Capital á la Classical School), that is if and when employed in production of exchange-values by combining the employee services and other inputs of production. In other words, although invested money (Capital á la Classical School) is an essential **FoP**, it is **NOT** a **PF**. In other words, the money capital is **NOT PRODUCTIVE**.

To sum up, the foregoing analysis indicates that, in spite of the claims of Neoclassical doctrine and its marginal productivity analysis, capital is not, and cannot be a **productive factor**. Capital-good(s) is (are) employed to increase the "**productivity**" of labor services. Thus, they can, at best, be described as "**productively employed**" in the process of production.

Capital reconsidered

For the supply of goods and services with exchange values, the entrepreneur¹⁵ has to combine certain inputs of production such as worker(s), production plant, energy, raw materials, semi-finished inputs, tools and machinery. In order to combine these inputs, the entrepreneur has to have access to **assets for investment** which is "a prerequisite" of production. Throughout this work, all assets required to enable the output of goods/services shall be called "**production capital**", or simply "**capital**", unless otherwise stated elsewhere. In other words, with employment of capital the entrepreneur creates a "**productive capacity**", which is not money, but is expressible in money. Capital gives effect to employee with the purpose to increase the value of original amount disposed, and will be denoted by the letter "K". In the absence of capital, a combination of physical inputs with the services of employee could not take place. In other words, production cannot be realized.

To put it differently, **K** represents the stored-up values of inputs of production including labor services. As J.B. Clark pointed out, it is "expressible in money, but not embodied in money". When employed, it places the **factors of production** at the service of labor(-er), **the only value-adding productive factor**. According to this definition, neither "hoarded" money (savings) nor the "idle" **KG** /buildings/land fit our definition of **K**, which designates "**values**", not quantities. Given technology, **K**, consists of the following:

$$K = FC + VC + W$$

$$FC = \text{plant} + \text{machinery} + \text{tools}$$

$$VC = \text{raw materials} + \text{semi-finished inputs} + \text{energy} + \text{etc.}$$

$$LWC = \text{labor wage costs} (\text{wages} * \text{quantity of laborers})$$

Origin of capital-goods

As shown elsewhere (Gürak, 2000-a, 2004-a, and 2006), given the output of nature, the labor services are the generation of all value-added with its mental and physical faculties. The major role is played by the former, the mental labor services, which contribute to the growth of wealth¹⁶ by improving the productivity of present labor(-er) assisted by past-labor(-er) embodied in the implements of production, i.e., transformed natural produce. Assume a barter-

¹⁵ Entrepreneur: person(s) who undertake risks of losing some/all of investment capital in a competitive environment in the pursuit of making profits.

¹⁶ Wealth: the sum of consumable physical and financial assets.

exchange economy consisting of two persons with no implements of production (no tools). And further assume that the mental labor produces a new technology, which introduces a primitive tool to increase the productivity of employee. That tool is a **capital-good**, a transformed (re-shaped) natural produce. Accordingly, all inputs of production, except for raw materials, are by labor(-er) transformed natural produce. The past labor services, which transform the original natural outputs into physical inputs, are stored in the "**means of production**", i.e., "**capital goods and tools**", to assist the productivity level of "present" services of labor(-er).

Let us attempt to find out the genesis of capital-goods in a simple production relation:

$$Q_t = f(K_t, L_t)$$

L , denotes labor, K , capital-goods and t , time. Let us take any capital-good, say drill-machine, any analyze its composition. The drill-machine is made of various physical components mounted by the services of labor. So, the capital-good K_t embodies both K_{t-1} and L_{t-1} . Taking a closer look at K_{t-1} will show that it is not a pure physical input either for it embodies labor services, as well.

$$K_t = f(K_{t-1}, L_{t-1})$$

As the backward composition analysis continues, the labor services will appear at every stage of production.

$$K_{t-1} = f(K_{t-2}, L_{t-2})$$

$$K_{t-2} = f(K_{t-3}, L_{t-3})$$

At the end of backward process, there will be only two inputs left; natural input and labor-services. Adding new factors such as technological change (**A**) or human capital (**H**) to the above production function would not affect the argument on capital. In short, the creative mental labor services are the source of all **KGs**, given the natural produce.

Is capital a scarce factor of production?

Given the amount of globally available financial resources, it would be hardly logical to argue in favor of the scarcity of capital in terms of financial assets. Financial assets can only be described as abundant rather than scarce.

On the other hand, one can argue that the developing countries do not possess sufficient amount of **KGs** and that is why **KGs** are a scarce input of production.

But, with given amount of globally available financial assets, there should not be any problem to obtain the **KG** required, *cet. par.* There is no information that a firm failed to obtain the **KGs** required on account of the shortages of the amounts produced. In other words, there is no evidence indicating that **KGs** are a scarce of input.

Scarcity of human resources with necessary qualifications to make the best use of **KGs** seems to be a greater problem, in fact, the major impediment to economic growth. Imperfect global technology markets and the transactions taking place there seem to be another major problem area with global and serious implications. "Scarcity of technology", or rather global restrictions to access technologies, especially in developing countries, seem to be a major impediment.

Other factors of production

So far we have studied three factors only, **N**, **L** and **K**. Yet, as mentioned before, there are many more factors (inputs) of production, especially in products with advanced technology such as airplanes and computers. The critical question is: are there other factors of production, which are, **productive** just like **N** and **L** capable of producing/adding value?

The answer is a very short, clear and definitive **NO**.

There are "no" other **productive factors** other than **N** and **L** capable of producing or adding value. All "other" inputs are the products of nature transformed (re-shaped) by the human labor services. They all **transmit value** to the product to the extent of exhausted value during the process of production and that is all. If, say, 10 TL worth of steel is used, then the value transmitted to the new product is just 10 TL, nothing more and nothing less.

Human capital: labor(er) or capital?

According to the jargon used by many economists, like T. Schultz, G. Becker, R. Solow, R. Lucas, P. Romer, G. Mankiw and many others, there is, in addition to the factor capital in conventional sense, another capital concept vital and fundamental for production; "**the human capital**", designated by the letter **H**.

Lucas (1988), assigns **H** the role of "**the sole source of all economic growth**". For Romer (1990), it is the source of all technological innovations, thus of increasing returns and incessant long-run growth. The so-called **K-models** refer to both, the "orthodox" meaning of the term "capital" as well as the "human capital".

What is human-capital? What is the difference between conventional meaning of capital and human capital?

Human capital simply refers to the mental abilities and capabilities of labor(-er) acquired through education and experience. It comprises the skills, abilities and learning-by-doing experience of the labor(-er). In other words, it designates the mental qualities of the services of labor(-er), excluding simple eye-hand coordination. It does not make reference to the labor(-er) itself but to the quality of faculties executed by the labor(-er). It is: "**The skills, capacities, abilities possessed by an individual, which facilitate him/her to earn income.**"¹⁷

The factors influencing the magnitude of **H** are:

- 1- Official school years attended; or
- 2- Learning-by-doing; or
- 3- Both.

However, there are two additional and extremely important factors influencing the emergence of human capital; these are:

- 1- Experience; and
- 2- Unofficial schooling (learning) from socio-economic environment.

H is, normally, acquired and advanced through formal/informal education and flavored by experience, given the natural skills.

Human capital and labor(er) without mental faculties

The concept human capital refers to the "mental faculties" of the labor(-er), or, alternatively, to the **skills of labor(-er)**. It does **not** refer to the "**skilled labor(-er)**" itself. The critical question is: is there any labor(-er) at all without some degree of human capital? To put it differently, is there any part or whole of the labor force, which comprise physical labor(-ers) capable of eye and hand coordination, only?

The answer to this question was given above in the part on labor. The same answer is valid; NO. There is no labor(-er) in any part of the world with eye and hand coordination ability, only. By the way, even this simple coordination requires

¹⁷ The Penguin Dictionary of Economics

some degree of human capital, for each movement of muscles receive the order directly from brain, the command center of all mental activities.

If human capital is the skill capacity of employee to labor, why, then, is the term associated with capital, not with employee, such as **mental labor**? Is the choice of second word, capital, instead of labor(-er), merely a coincidence?

The reason seems to be ideological rather than scientific. Any association with labor could jeopardize the century long struggle since the rise of Marginalism to survive Marxist revolutionary ideological attacks on the capitalist system. Changing the expression from "Human capital is the major determinant of economic growth." to "Mental labor is the major determinant of economic growth." could produce different implications. As a result, the virtual world of Neoclassical parable might encounter serious questions shaking its fundamentals.

Types of incomes¹⁸: "earned-uneared"

According to the analysis in previous parts, there are only "two" **PFs** capable of producing/adding value on their own and thousands of **FoP** used in the supply of useful goods and services as mere inputs. **FoP** adds to the value of products only as much as they transmit. For instance, if 10 TL worth energy is used, the amount of value transmitted by energy to the final value of product is 10 TL, no less, no more. The same applies for all **FoP** including the **KG**. Assume that the following values apply for one unit production of good **X**:

$$\mathbf{LWC} = 150 \text{ TL } (\mathbf{L} \cdot \mathbf{w})$$

$$\mathbf{KG} = 100 \text{ TL}; \text{ depreciate totally after one use only.}$$

$$\mathbf{VC} = 200 \text{ TL (energy, semi-finished goods, etc.)}$$

$$\mathbf{TC} = 450 \text{ TL.}$$

$$\mathbf{P^x} = 500 \text{ TL (=TR)}$$

$$\mathbf{\pi} = 50 \text{ TL (TR - TC)}$$

The amount of value transmitted by the inputs of production is 450 TL, but the product is sold for 500 TL. The value-added or the income generated, with the supply of product **X** is 200 TL.

$$\mathbf{VA} = \mathbf{LWC} + \mathbf{\pi} = 150 + 50 = 200 \text{ TL}$$

¹⁸ Income and wealth distribution before and after production takes place has always been one of the most vividly discussed subjects of economics. Both are, in practice, unequally distributed in all market- or capitalist economies. We will assume that initial income distribution is exogenously given.

How is this income to be distributed?

In our sample, the distribution is self-evident; 75 percent (150 TL) goes to the labor(er) as wages and 25 percent (50 TL) goes to the entrepreneur (the capitalist) as profit. But in reality, there are more than two income-receiving groups. Although it is not mentioned in the sample above, some share of the **VA** (income generated) accrues to other groups in economy as **interest** and **rent**.

Below, before going into income distribution analysis, an attempt will be made to describe four types of incomes and their nature. Incomes will be categorized as **"earned"**, as reward on **productive economic activities** generating value, and **"unearned"**, as return on **unproductive economic activities**. The analysis will help us to see whether the income obtained is economically rational.

A brief reminder on "productive" factors

There were only two "productive" factors of production, nature (**N**) and labor (**L**). **N** is, beyond any doubt, the genesis, the spring of all commodities and the "other" productive factor. But as such, the nature herself does not receive any part of the income (**VA**) generated in return of her generous supplies used as inputs, for she is not an entity with economic interests like the other productive factor, the human beings. In the sense of economic transactions, she provides **"use-values"**, only. All she requires is adequate care and feedback in order to continue her sustained fertility (productivity).

1- Wages - "earned income"

The owners of labor services, e.g., labor(-ers), **earn** wages for the contribution, as a **"productive"** factor of production. The verb "earn" implies that the factor makes a distinctive contribution to the generation of value as a productive factor. To put it differently, the laborer embodies certain abilities and skills enriched by training/education, which shapes the capacity to labor. As a result of setting this capacity to perform a specific task, some value is generated. In return, the laborer earns a living by renting out his/her labor-time for a price commonly referred to as wage. The value generated by labor(-er) is either used for personal use (designating use-value) or exchanged for other products (designating exchange-value).

Since the issue of how wages of labor services are affected by improvements in technology in the long run was discussed elsewhere (Gürak; 2006), it will suffice to indicate that the nominal wage rate is determined after individual or aggregate negotiations with employer(s).

2- Profit: - "earned" or "unearned" income?

Profit motive is the long-run driving force inducing the entrepreneurs to engage in the supply of products ranging from basic items to conveniences of life to high-tech commodities and services. Therefore, the rational objective of any enterprise is to generate the maximum possible profits. In case of declining profits, survival of the enterprise would be jeopardized. In the short run, the enterprise may pursue other temporary objectives than profit maximization such as acquiring a targeted market share, keeping the shareholders satisfied, maintaining the status quo or reaching a sale target. But, there is always only one motive in the longer-run, profit maximization.

In the pursuit of the profit maximization, the enterprise makes some direct and indirect contributions to the community such as generating funds for taxation, new jobs, promoting economic growth and improving the living standards. But, all these useful contributions of an enterprise are the byproducts of profit maximization motive. An entrepreneur does not set up an enterprise with the purpose to generate employment or to pay taxes or to develop a region / community, but to make profits. Without the profit motive, the enterprise would lose its jugular and cease to exist.

In spite of its crucial importance for the system, there seems to be no consensus on the nature and origin of profit, just as it was the case in the definition of "capital". During the early stages of capitalism, the Classical economists were unable to draw a distinct line between the profits and interest. According to Schumpeter, Adam Smith might be credited with two different theories and Ricardo with three or even four; 1- abstinence, 2- residual, 3- entrepreneurship and 4- unpaid-labor. But, he said; **"it is more realistic to say that they had no definite theory at all."** (Schumpeter, 1954: p.648).

More than a century ago, James Mill (1821) and McCulloch (1825) had treated profits as **the wages of accumulated labor**. Capital goods were treated as "accumulated or hoarded labor", thus going on "earning" wages, e.g., profit. Analogously, the maturing wine in the cellar was pointed out as earning wages (profits) for the owner as the time goes on. According to this approach; **"... capital goods are the result of saving"** and; **"any net yield of these capital goods is in the nature of a payment for the service rendered by saving"** (Schumpeter, 1954: p.659). For Cassel, profit was the price of capital disposed.

For Marx, profit meant simply the surplus value, e.g., the unpaid labor. According to the unpaid labor version, the labor services were employed; say for 10 hours per day, but received wages for only 8 hours. The difference worth two hours'

wages was unpaid labor time accruing to capitalists as profits. That difference also indicated the exploitation of laborers by the capitalist, according to Marx.

The abstinence theory treated profit as the return on the service rendered by saving, e.g., the price of saving. Abstaining, i.e., postponing present consumption implies some **risk** that the postponed consumption may never be realized in future. If there is indeed a postponement of present pleasure in expectation of more future pleasure, as in the case of "atomized" and "unsaturated" small investors, the argument might be justified. But, in case of the "saturated" entrepreneurs in terms of consumption, the abstinence argument would lose whole ground. It would be hardly reasonable to argue that Rockefeller, DuPont or Sabanci family members are actually postponing their present pleasure when they invest. Why should there be a profit reward if there is, in fact, no sacrifice or postponement of present consumption? After all, abstinence does not generate or transmit any value to products.

According to Schumpeter, profit 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. For a businessman, profit is the difference between total revenue and total costs, including the payments for employees, R&D costs, capital goods, raw materials, etc.

The dominating Neoclassical doctrine does not offer a satisfactory theory, either. It tells us that profit is the return of marginal productivity of capital but there is no globally acceptable definition of capital even among its proponents.

Profit and the risk factor

Given the costs of production, the price paid by end-users for products normally exceeds the total value transmitted by the inputs of production. The difference between total revenue and total costs is the "**profit**" (π) paid to entrepreneur for the "**risk**" assumed. Risk can be defined as the probability of obtaining less than the value of capital employed in production. It involves the partial or total loss of the savings employed for the output of commercial products. There can be several reasons for the appearance of risk:

- 1- Miscalculation of market response (insufficient demand).
- 2- Unanticipated economic obstacles (customs duties, tax rates, crises).
- 3- Unanticipated non-economic obstacles (political instability, war, etc.).
- 5- Competitors' behavior (price-battle, new products, etc.).
- 6- Management errors (wrong decisions).

The risk factor does not transmit any value to the product itself, i.e., it does not generate any value itself. But the profit as return on risk for employed savings is a necessary prerequisite for the efficient operation of the system. In other words, profit is the return on total investment capital to undertake production process, subject to risks. Thus, profit arises as a result of the economic activity to supply useful products.

Assume an economy consisting of two individuals; X and Y. In time, individual-X saves some of his/her weekly income, say 20 TL, instead of consuming it immediately. After a time-span of, say five weeks, he/she would accumulate savings worth 100 TL. Assume that individual-X uses the savings to combine hired labor services with other inputs of production (invests) to supply a commodity. Given demand, the new investment by individual-X would increase the total output, thus the total wealth while, probably, generating employment for additional manpower. The individual-X makes a clear contribution by taking the **risk** of losing some or all of her accumulated savings and thus **"earns"** an income, i.e., profit. It would be not only economically rational and justified but also necessary for the promotion of further investments. In the absence of profit as reward, there would be no incentives to invest. In short, **the profit is paid for the risks assumed.**

A distinctive feature of profit

There is a rather distinctive and controversial feature of profit.

Profit is not some value generated by the entrepreneur. It is a value transfer from end-users to capital owners in excess of the total value transmitted by inputs of production. In other words, it is a transfer of purchasing power from the buyer to seller in excess of the cost of production, which is given by the pre-determined values of inputs, including wages. The amount of purchasing power transferred is shaped by the supply-demand conditions and competition.

3- Interest - "unearned" or "unearned" income

Throughout history, interest, e.g., income as return on money loaned, has always been a frequently discussed and controversial subject of economic transactions. There was time when interest was forbidden by religion as well as by civil law, even in developed countries. Today, interest is still outlawed and considered as a great sin in countries ruled by Islamic principals. Yet, in spite of all unfavorable, and not infrequently hostile, attitudes interest has been able to survive all challenges. Nowadays, billions of dollars circulate in global and domestic financial markets to make the best use of financial opportunities, to breed money by money transactions.

The fact that enormous amounts of hoarded money obtain income in the form of interest does not make it immune from criticism and questioning the role of interest in the proper functioning of economic system. As shall be seen below, the interest mechanism as it functions today, is to large extent, to the detriment of rational and efficient allocation of financial resources and against the general interests of global economies in terms of increased output and employment.

The discussion of interest will be taken up from two different angles:

- 1- Interest as return on **unproductive employment** of savings.
- 2- Interest as return on the services supplied by financial institutions (**FIs**) using labor efforts and subject to competitive risks.

Interest-1: Income as return on unproductive investment

Monetary savings can:

- i- **Earn** income (profits) if **productively employed** (invested) to produce goods and services, which is called **capital**.
- ii- **Receive** income (interest) if employed on "**unproductive**" assets, such as banking deposits, bonds, obligations.
- iii- **Remain idle (unproductive)**, under the pillow or in safe box.
- iv- **Promote output**, if spent for consumption.

We have already discussed the first item capital and its revenue profit above. What we are interested in, now, is, the second, **interest** on savings not employed **productively** as capital, e.g., income on **unproductive** economic activity. Before proceeding further, a distinct line between **productively employed** savings and **unproductively employed** savings will be drawn, below.

Productive and unproductive employment of savings

In contemporary economies, savings (financial assets) not employed as capital, i.e., savings not productively employed to produce goods and/or services, often appear in the form of financial assets like bank deposits, obligations or bonds. As distinct from capital, such assets do not make any direct contribution to output or income generation, at least not directly. Interest on unproductive savings seems to be arising from the mere ownership of hoarded money. Such funds, not directly involved in the supply of products, abstain from assuming the related risks of supplying products. Yet, nevertheless, they provide an income to the owner by increasing the original amount of hoarded savings.

The general distinguishing characteristics of interest on unproductive savings are:

- a- It is a "predetermined" rate, independent of production.
- b- It has no relation to supply of products, at least not directly.
- c- Money produces more money.

It is said that savings such as bank deposits, bonds, etc., do contribute to output "indirectly" by supplying funds for producers. It is true that there is such an "indirect" association with investment and output. But, nevertheless, it is not the holders of savings who assume the risks of production, but the intermediary financial institutions. The money holders make a deal with the financial intermediary only on the rate of interest, regardless of the outcome of investment. In case of bankruptcy of the producing firm, which is not an infrequent event, the money holders, are not directly affected.

Since hoarded savings are not directly related to the supply of goods or services, a line separating it from the productive employment of savings is not only proper, but also a necessity. That is why such savings are referred to as unproductively engaged savings and the return on it called "**unearned**" income. The risk the owner of unproductive savings takes is of a speculative kind common to financial markets like high inflation reducing the real rate of interest obtained or bankruptcy of the financial institute.

Since money holdings as such are not capable of adding/generating any value, the critical question is:

Is interest on hoarded money economically rational, with regard to contribution to increased output, employment and prosperity?

Utilizing unproductive savings: A hypothetical case

Assume an economic system where all kinds of interest on **hoarded money** is forbidden by law, *cet. par.* What would be the likely economic implications? Would this new situation lead to diminished amount of investments caused by the shortage of assets for investment? Would the future economic progress and prosperity be at stake?

The answer is negative. On the contrary, quite opposite would be true.

As rational economic agents, normally, show a tendency to increase and maximize the personal gain by seeking economically most profitable areas for their savings, there would be four options for money holders, in the absence of interest on hoarded money:

- 1- **Invest** in productive economic transactions, i.e., supplying goods and services.
- 2- **Invest** in already established firms by purchasing shares.
- 3- **Keep the savings idle**, thus receiving no income.
- 4- **Spent** on consumption.

In the first two cases, the money holder(s) would be subject to competitive risks, employ labor(er) and probably abstain or postpone the enjoyment of present consumption. As a result, not only the individuals but also the aggregate economy would benefit. If the third option is preferred, say for precaution or to avoid risks, then the money holder would be not only be abstaining/postponing the enjoyment of present consumption but also assume the risk of diminishing purchasing value of savings in case of inflation or currency devaluation. The fourth option, spending on consumption, would contribute to increased output and employment.

In short, a rational economic behavior of money-holder hoping to increase the savings would be the preference of one of the first two options. If the hoarded money is encouraged to be placed at the disposal of productive investment, the accruing returns would be both, economically rational and qualified as **earned**. The principle task of an efficient and rational financial system ought to be channeling the savings into **productive** employment.

Interest-2: Income as return on financial services

With regard to interest obtained by financial institutions (**FIs**) one has to look at the type of service provided before categorizing the income as **earned** or **unearned**. If the financial resources placed in **FIs** are used in promotion of supply of goods or services, then they are **employed productively**, then the income can be regarded as "**earned**". Could we say the same for return on services such as loans for consumer credits or revenues obtained on bonds or bills?

Before lending money to customers, financial institutions often demand, as a prerequisite, either collateral or a guarantor in order to secure the return of loan with interest. The idea behind is to minimize or rather to eliminate the likely risks of default. However, although quite rational from the point of view of lender, such prerequisites are against the very spirit and nature of market transactions, where the firms earn income in form of profit in return of the risks assumed. All attempts to minimize or eliminate such risks can be classified as both, unethical and unfair. Therefore, it would be rather difficult to justify such incomes as **earned**.

In following analysis, we shall assume that financial institutions do not demand any collateral and assume full risks of default.

i- Interest on loans for investment

Investment is a necessary and crucial activity for the prosperity of any economy. It can be an output increasing investment with given technology, thus increasing employment and total output, thus total wealth. Or, it can be in new product/process technologies, thus sustaining long-run economic and prosperity growth. Some investments require relatively low amount of capital to initiate production. But some, especially the high technology using output requires large, even huge sums of capital, i.e., savings productively employed.

Regardless of the scale of production, the entrepreneur may be in need of "external" financial funds to finance the new investment. In other words, the capital of the investor may be insufficient to initiate or expand production. The lacking part of capital may come from other people with savings and willingness to share the risks, which make them co-partners. But it is not always easy to find such capital. Not infrequently, there are entrepreneurs in need of capital, on one side, and financial savings accumulated, on the other side. Financial institutions (**FIs**) may fill in the gap, and may loan money for investment to entrepreneurs. The action of the **FI** is a service transferring the "unproductive" savings to investors for "**productive**" employment. By doing this, the **FIs** employ labor(-er) as well as assume risks of loan default. The outcome of such services supplied is the return normally called interest. What the **FI** does is economically rational and morally justified, as the **FI's** transaction contributes to prosperity. Thus, the income obtained on services supplied is in fact an entrepreneurial profit and it is "**earned**" income.

ii- Interest on loan for consumption

Providing consumer credits is one of the widespread transactions of financial systems. Such loans, if rationally used, often make a positive impact on the output of goods and services by increasing the current level of effective demand, which implies not only growth and increased wealth, but also more employment. There may be several reasons for seeking loans ranging from meeting urgent basic demands to satisfaction of personal desires. Borrowing for the present enjoyment of desires, which can be postponed to a future date, constitute the major part of consumer loans. Purchasing a "new" car or a "new" house seem to give more satisfaction now, than in the future, for many consumers. And in return of this satisfaction, the credit user is prepared to pay some interest on loan.

If both sides, the credit supplier and the credit user, are satisfied with the transaction, than the credit system and the ensuing interest within the justifiable limits would seem to be both rational and justifiable. In fact, it would promote economic prosperity. The consumer enjoys the early satisfaction of a desire and pays interest, which is a personal choice. The **FI** employs labor effort and assume risk of default on re-payment. Therefore, the interest obtained by the **FI** seems to be **earned** income, or rather entrepreneurial profit.

iii- Interest on loan to meet basic needs

If the person or family lacks sufficient income or assets to meet urgent and/or "basic" needs for decent living and seek for loans, then we have a totally different situation at hand. There can be no economic or moral justification for demanding interest from people in such situations. In fact, no civilized society should leave their co-inhabitants in such distress and ignore their problems. If any money is loaned to such persons, technically, the interest may be regarded as entrepreneurial earning, but it would not be morally justifiable.

iv- Interest on state/company debt assets

iv:a) State bonds/securities: It is a well-known global fact that practically all countries, developed or developing, have public debts of various sizes sometimes exceeding the GDP debtor nations. This situation is, in some cases, due to internal factors, such as mismanagement of the economy caused by excessive and extravagant spending of public resources, and sometimes due to external events such as reduced demand for exports, which inevitably distorts macroeconomic balances. As a result, the state budget requires additional financial resources to keep up with the programmed performance and to sustain macroeconomic stability. Governments normally face with two options, under the circumstances;

a- printing money;

b- borrowing.

According to the dominant doctrine, printing money is an obsolete method not advised by financial experts and institutions such as IMF. Borrowing has become the globally resorted measure to overcome financial shortages, which is not free of various shortcomings and imperfections. The extent and nature of the borrowing can, often does, become a burden to the detriment of fiscal performance and further development of economy. For instance, the rate of interest on borrowed money still exerts a heavy burden on Turkish economy and the budget.

The rate of interest on loans varies from country to country depending on the economic credibility of nations. But it is generally higher for developing countries (**LDCs**) on account of so called "higher risks". Borrowing can be a relief of immediate burdens but on the medium and long-run, repayment of loan and the interest rate often seem to be a rather heavy burden for a long period retarding development efforts in **LDCs**. It is an established fact that the incomes in forms of interest not infrequently exceed the profits (earned income) on investments.

The first best policy for the governments seems to be maintaining a "balanced budget" free of fiscal deficits, thus avoiding public debts. Though highly desirable, balancing state revenues and expenditures cannot always be attained and unanticipated deficits may arise. As a result, countries may end up in a situation, which inevitably compels the governments to borrow to finance the deficit.

The first-best remedy seems to be taking some precautionary measures to overcome unanticipated fiscal deficits, such as setting aside some funds to be used in need. Such precautionary reserves would provide not only funds for readjustment process to new situation with fiscal problems but also provide time for decision-makers to take the necessary precautions. However, the global data indicates that the countries are far away from keeping and maintaining such reserves.

The second-best policy, according to the prevailing dominant doctrine, in case of unanticipated fiscal problems without reserves, seems to be borrowing. As mentioned above, probably all countries around the world have public debts, which inevitably leads to accompanying fiscal and other constraints, as we observe almost in every corner around the world. The constraints arising from debt burden are, in most cases, to the detriment of development efforts, especially in **LDCs**. Even the interest rate on loans of international organizations like IMF is often quite above the international market rates, although the officially declared aim is to help the nations.

In theory, the loans to states (governments) to finance budget deficits are subject to risks of deference and bankruptcy. Bankruptcy is, in case of nations, out of the question. A nation does not go bankrupt. However deference on repayment of loans and/or interest is not a rare case. The lenders would naturally expect some reward, e.g., interest. Because of the risk assumed and the labor efforts employed in supplying the debt service, the income of the financial institution can be regarded as entrepreneurial "profit", and therefore can be classified as **earned** income.

iv-c) Company bonds/bills: To set up a new plant, to expand production, or to develop a new technology, an enterprise might be in need of some financial funds (capital). One of the options of producing firm is to borrow from **FI**s. The second option is to export debt assets in form of short-term obligations (bills) or long-term bonds. In both cases the enterprise has to pay interest on loan. And in both cases, the interest obtained by money lenders is **earned** income, as they assume some risks related to output.

Instead of borrowing money and paying interest, enterprise could prefer to sell some shares. Since the new share-holders are directly assuming risks with supply of goods or services, their income will be classified as entrepreneurial profit, i.e., **earned** income.

Inflation and interest

In the above analysis regarding interest, we implicitly assumed an inflation-free environment that is zero inflation. Now we shall see how inflation affects interest, or rather, how inflation rate should affect interest rate?

Case-1: Assume that a finance company lends 100 TL to a producer or a consumer with zero rate of interest for a year. Further assume that the inflation rate after a year is 10 percent. Inevitably, the finance company would suffer a loss of 10 percent in the real value of money in terms of purchasing-power.

Case-2: Assume that the finance company charges 10 percent interest rate on loan, which is exactly equal to the inflation rate at the end of period. The company will make no loss, but no profits, either.

The lesson to be drawn from the two cases with inflation is that compensation payment for inflation on borrowed money is not only economically rational but also ethical. Therefore, it is an economically rational behavior for a profit driven financial company to charge interest rate above the expected inflation rate on loaned money.

Final remarks on interest:

There would arise two major negative economic impacts when interest is paid on hoarded money. First of all, the risk-taking entrepreneurs will have to pay a relatively higher rate of interest on loans, whenever the financial intermediaries have to pay interest hoarded money savings. For instance, if the interest on deposits is 10 percent, the risk-taking entrepreneurs will have to pay a higher rate in order to compensate the costs of deposits plus to allow for profit. If the interest rate on deposits was, say zero percent, the interest rate on loans would

be lower, accordingly. Accordingly, the production costs and the sale price would be lower, *cet. par.*

Secondly, rewarding the deposits (hoarded money) by interest would highly likely reduce the potential effective demand, as, at least some, of the money holders would be inclined to make money by money, thus increase the original amount of hoarded money. Each unit of money not spent implies reduced demand for goods and services, thus less output and employment.

It is said that the interest is the price of using the money (deposits). It is true if it refers to an economic transaction between the risk-taking money lender and the risk-taking entrepreneur, as both sides take risks. But, it is a rather different story in case of rewarding the deposits. The money holders normally assume no risk of default on loan, but the financial intermediary does. In other words, the financial intermediary would suffer a loss if the borrower cannot pay back the loan, not the deposit holder. What could be the economic rationality of interest, if there are no risks and no output of any kind?

In the present financial system, the money-savings make more money without making any contribution to the supply of goods or services. This situation cannot be defended as economically rational or ethically just or fair. An economically rational financial system in favor of the individuals as well as of the whole society should encourage and promote **productive employment** of hoarded money towards supplying goods and services. Policies promoting/encouraging **productive employment** of savings and discouraging income generation from **unproductive employment** would be at the benefit of rational allocation of financial resources and increased output as well as employment.

4- Rent: "unearned income"

Rent is another kind of income subject to everlasting moral as well as economic arguments. It is an income "**not obtained by labor efforts but by appropriation**", only. How the property came into possession of the owner in the first place is a rather important matter from the point of income distribution, but beyond the scope of this work. Three kinds of rent will be analyzed below.

1- One kind of rent is related to the "excessive" profits above the market average arising from **market imperfections** such as macro-economic policies, black-markets, cartels, oligopoly, monopoly. End-users have to pay higher than normal prices, which increases the profits above the normal profit-level without any additional costs or efforts. Since this type income does not involve any labor effort or competitive risks, it can be categorized as "**unearned**" income.

2- Another type of income categorized as rent is related to the ownership of property, such as land, building, flats, etc. For instance, the owner of a piece of land may obtain income, as a result of efforts by some who actually toil the land. Income accruing may be in the form of money or in kind, like crop-sharing. Or, in a similar fashion, the owner of a building or a flat may let out the owned property for a pre-determined amount of money for a period and receive income called rent. Such types of incomes can also be categorized as **earned** income, provided that the property is, in the first place, acquired through appropriate means.

Assume that the rental price of hired land or building or flat is 100 TL and for some reason other than inflation the rent increases to 150 TL, say due to unexpected rise in demand. Is the 50 TL increase in income received by the property owner **earned** or **unearned**? The answer depends on how one subjectively evaluates the income.

3- A third kind of rent arises as a result of Ricardian style differences in land productivities of different natural qualities. Assume that there two equal size pieces of land with different qualities. The same quality and amount of inputs are used to grow tomatoes in both lands. But the first land is assumed to be 20 percent more fertile (productive) per unit land, which implies a higher level income and profit rate for the owner. Since the difference in income is not due to market imperfections, the income can be categorized as **earned**.

The differences in income from rented buildings or flats with equal size but in different locations can be treated similarly. For instances, the rental price of a flat in suburb is normally lower than a flat of equal size in town-center. There seems to be no economic or logical ground to classify such rental income differences as **unearned**.

Functional income distribution

Unequal distribution of income has always been one of the major problem areas and often a cause of embarrassment for both economic science and economists. The Classical economic analysis used to emphasize functional income distribution among three classes, workers, capitalists and landowners. "Modern" economic textbooks of Neoclassical heritage analyze functional income distribution in terms of "payments to two factors of production", e.g. capital and labor, in accordance with their "marginal productivities". The contemporary researchers on income distribution seem to place more emphasis on individual, group and/or cross-country income distribution analysis, rather than functional distribution.

As we have seen, the income to be distributed is generated by the **productive employment** of resources to meet the needs and desires of end-users. There were quite a number of **production factors** but only two **productive factors**, nature and labor. The types of incomes and the income receiving factors, on the other hand, were more than two:

- 1- Labor **earning** wage;
- 2- Capital (savings productively employed) **earning** profit, including interest rate on loans employed in production;
- 3- **Return** on unproductive savings; and
- 4- All kind of rent.

The focus on this study is the functional income distribution among two classes, capitalists and labor(-ers). There are two reasons for considering the incomes of the first two groups only. First of all, the income or value-added is generated by the first two, labor services and productively employed capital. The second reason is that the costs of interest on loans productively employed and rent are, normally, included in the production costs met by the capital. As profit, interest and rent have a common characteristic as "ownership" of "other" resources than the labor services, which is the "only" factor with value-adding ability, income analysis among two groups seemed rather rational and logical.

- i- Return on value-adding labor services: and
- ii- Return on capital.

In the following part, functional income distribution will be studied under two subcategories:

1. With given technology.
2. With technological progress.

1- Income distribution with "given" technology

Assume that the following hypothetical figures represent the initial production relations in a closed economy with "given" technology and no government interference. **w** denotes wages, **TC** cost of production, **TR** total revenue, π profits, **r** rate of profit and **LWC** total wage cost:

$$w = 100 \text{ TL}$$

$$L = 500$$

$$p = 18 \text{ TL}$$

$$q = 10,000 \text{ pieces}$$

$$LWC = w * L = 100 * 500 = 50,000 \text{ TL}$$

$$OC = FC + VC = 80,000 \text{ TL}$$

$$TC = LWC + OC = 130,000 \text{ TL}$$

$$TR = 18 * 10,000 = 180,000 \text{ TL}$$

$$\pi = TR_t - TC_t = 50,000 \text{ TL}$$

$$r = \pi / TC = \sim 38 \text{ percent}$$

$$VA = \pi + LWC = 50,000 + 50,000 = 100,000 \text{ TL}$$

Distribution of hypothetical income:

$$\pi / VA = 50 \text{ percent} \quad \text{share of profits}$$

$$LWC / VA = 50 \text{ percent} \quad \text{share of labor}$$

In fact, the distribution of income has never been equal. But, for the sake of argument, we assume it is.

Wage rise and income distribution

Equal distribution of income can change in two ways:

a-) by changing price level, thus profit rate; or

b-) by changing the wage rate.

A wage rise would reduce profit's share while increasing that of labor, which demonstrates that the interests of the income sharing groups are in the opposite direction. To the extent the labor succeeds in raising wage rate with given income, there will be an improvement in labor's share at the expense of capital-owners.

Assume that there is a wage rise by 20 percent, *cet. par.*

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

And the new wage would be;

$$w_{t+1} = 120 \text{ TL}$$

As a result, both the labor wage costs as well as total costs will increase.

$$LWC_{t+1} = w_{t+1} * L_{t+1} = 120 * 500 = 60,000 \text{ TL}$$

$$TC_{t+1} = LWC_{t+1} + OC_{t+1} = 140,000 \text{ TL}$$

The change in costs would change all other outcomes.

$$\pi_{t+1} = TR_{t+1} - TC_{t+1} = 40,000 \text{ TL}$$

$$r_{t+1} = \pi_{t+1} / TC_{t+1} = \sim 28 \text{ percent}$$

$$VA_{t+1} = \pi_{t+1} + LWC_{t+1} = 40,000 + 60,000 = 100,000 \text{ TL}$$

New distribution of income would clearly improve labor's share:

$$\pi_{t+1} / VA_{t+1} = 40 \text{ percent} \quad \text{share of profits}$$

$$LWC_{t+1} / VA_{t+1} = 60 \text{ percent} \quad \text{share of labor}$$

Although the total income (**VA**) has not changed (100,000 TL), the share of profits fell from 50 percent to about 40 percent, while that of wages increased from 50 percent to about 60 percent. An increase in the profit rate would make the opposite impact on income distribution.

2- Income distribution with "technological progress"

An important aspect related to mental labor services would be the concept of technological progress, the incessant source of additional income generation. Technology can be defined, in a narrow sense of meaning, as the "knowledge" materialized in commodities, which is in fact a product of the mental labor services, e.g. human capital (Gürak, 2006).

There are two major reasons for investing in "new" technology:

- 1- Not to lag behind competitors, in fact, go ahead if possible; and
- 2- To maximize the long-run profits.

And there are two types of technological change to serve the purpose:

- 1-New production method for given product.
- 2- New products / new production methods.

Let us analyze how these technological changes affect income distribution.

2-a: New production method for given product: In order to survive in the long run in a competitive environment, the firms have no choice but search for "new production methods" of "given" products, to reduce per unit production costs. Assume that among the initial economic figures only the quantity has changed as

a result of new technology increasing from 10,000 to 12,000 pieces, a rise by 20 percent.

$$w = 100 \text{ TL}$$

$$L = 500$$

$$p = 18 \text{ TL}$$

$$q = 12,000 \text{ pieces} \quad \Delta q = 2,000 \text{ pieces}$$

$$LWC = w * L = 100 * 500 = 50,000 \text{ TL}$$

$$OC = FC + VC = 80,000 \text{ TL}$$

$$TC = LWC + OC = 130,000 \text{ TL}$$

$$TR = 18 * 12,000 = 216,000 \text{ TL}$$

$$\pi = TR - TC = 216,000 - 130,000 = 86,000 \text{ TL}$$

$$r = \pi / TC = \sim 64 \text{ percent}$$

$$VA = \pi + LWC = 86,000 + 50,000 = 136,000 \text{ TL}$$

As a result of technological change, the total income generated increased by 36,000 TL to 216,000 and the distribution of income changed in favor of the capital-owner, even though the real wage and total labor income has not changed:

$$\pi / VA = \sim 63 \text{ percent} \quad \text{share of profits}$$

$$LWC / VA = \sim 37 \text{ percent} \quad \text{share of labor}$$

2-b: New products / new production methods: Introducing "new" technologies to produce "new" products usually accompanied by "new" production methods imply new and higher profit opportunities than the average; at least this is the expectation behind introducing new technologies. If the "expected" profit rate was not higher than the average or there is shortage in competition, there would be insufficient incentives to introduce "new products".

In general, new products imply a larger income with new and higher profit opportunities and probably large share for capital owners from the total income, until the next round of wage rise negotiations, of course. What the rate of profit or income distribution would be is uncertain. For, there are no previous quantities to compare with.

Should all income benefits of "new" technology accrue to profits, only? Who are entitled to the accruing benefits of the productive knowledge (technologies) originating from the mental labor services based on thousands of years of accumulation and improvements?

The inventor(s)? The enterprise? The mankind? Or, all together?

To the extent an enterprise finances the invention and/or innovation of a new technology, thus assuming related risks; it is economically rational and morally justified to reap, at least, some of the accruing benefits as profits. But, some of the benefits should belong to the inventor(s), who produce the new technology, some to the community in which the inputs like education, infrastructure, etc., are provided as well as to the mankind, which provided the common "infrastructure and environment" shaped by thousands of years. Restructuring the "ownership rights on intellectual property" facilitating easier access to productive knowledge by less developed country firms and eliminating technology market imperfections can make the world a better place to live in.

Long-run wage increase and income distribution

As seen above, given the wage rate in short-run, technological innovations, normally, tend to increase the rate of profits and the share of profits, in total income. Therefore, all rational firms constantly aspire to employ more productive technologies partly to survive competition and partly to realize maximum possible profits in the long run. Assuming optimum micro-productivity (efficient employment of all resources including labor services) every cost reducing productivity growth resulting from "new" production method¹⁹ would deteriorate the allocation of income for labor with "given" wages, just like in the short run. Technological innovation would affect the incomes of factors as flows:

$$w_{t+1} = w_t$$

but;

$$VA_{t+1} > VA_t$$

$$r_{t+1} > r_t$$

$$\pi_{t+1} > \pi_t$$

$$\pi_{t+1} / VA_{t+1} > \pi_t / VA_t$$

change in capital's share of income

$$w_{t+1} / VA_{t+1} < w_t / VA_t$$

change in labor's share of income

The "new" technology generates more income but also shifts relative shares of income, which deteriorates for employees and improves for capital-owners. It is important to note that there is no change in the real wages. To put it differently, the "new" technology makes the capital-owners richer while the position of employees' remains unchanged with "given" wages.

¹⁹ The type of new technology assumed refers to a "new" production method of a "given" product.

The labor responds to this new situation by demanding wage rise in the next round of negotiations with capital owners, just like their response with "given" technology in the short-run, as demonstrated above. The outcome depends partly on the economic conditions prevailing and partly on the abilities and strength of negotiating parties.

Concluding remarks

As demonstrated in this study, production factors and productive factors are not the same thing. There are only two productive factors but many more production factors.

Income is generated and/or increased by the productive employment of savings combining the inputs of production, including labor services, to meet the wants and needs of end-users in return of profits. Labor(er), the only value-adding factor, earned wages in return of their labor services supplied. Without the supply of productive knowledge of labor services, the mankind would still be living for the survival in a jungle-like environment.

The income generated ought to be distributed among two economic groups: wage-earners and risk assuming capital-owners. But more than two economic agents are receiving parts of the income generated in the forms of interest and rent without actually making any direct contribution to income generation.

Interest on loans (savings) for investment and satisfaction of "desires" may be considered rational and justifiable. But interest on loans to meet "basic needs" of living cannot be defended as economically rational in a modern society. Nor would it be morally justifiable.

Regarding the income distribution, the study demonstrated that:

- 1- As the productivity grows, the real wages remain the same while their relative share in income declines, in the short-run.
- 2- Meanwhile the relative share of profit increases.
- 3- As a result, productivity growth due to "new" technology deteriorates the income distribution for the labor, in the short-run. The long-run position of the labor is up to their bargaining strength at wage rise negotiations with the firms, as well as the prevailing conditions in markets.

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