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Confusion and Amalgam: The Firm's Productivity and Related Concepts Performance, Effectiveness, Efficiency and Production

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ABSTRACT: Productivity has always been important and universally recognized for the prosperity of any country. In both developed and developing countries, both in the marked based and centrally planned economies, the main driver of economic growth is increased productivity. One of the fundamental characteristics that distinguish developed from developing countries is the abundance of labour and the scarcity of capital. It was the combination of these factors of production whose efficiency is measured by productivity that enables enterprises to become more competitive and dynamic. The productivity concept has now become a common word, used not only by technicians, engineers, business leaders, labor unionists, but also by politicians, economists and sociologists.

This research paper is an opportunity to study a crucial notion in the world of business, and on which we have an excess of definitions in international research but which remains unrecognizable or misunderstood by a large part of our economy players. Indeed, the latter make more use of concepts such as performance, effectiveness or efficiency rather than talking about productivity, even better than the few who use this concept confuse it few who use this concept confuse it with production.

KEYWORDS: Productivity, performance, effectiveness, efficiency production.

INTRODUCTION

The concept of productivity becomes a leitmotif in economic publications, speeches and seminars. Whether you're a high-ranking administrator, an accountant in a small company, or even more a simple employee, everyone agrees that pushing productivity to its highest level is essential. Some go so far as to make the theory of productivity the key to all political economy (schaller, 1966). The mass media makes it their favorite object. For this reason, all countries, whether developed or developing, are obliged to mobilize and exploit, with more skills and efficiency, capital resources and human resources, which need to be constant, because they are the surest way to achieve the desired level of productivity. Furthermore, the question of business productivity is not relevant, but we each time need to debate and discuss it. It is the matter of all actors, technicians, engineers, managers companies, trade unionists, not just politicians, economists and sociologists.

It would therefore seem necessary, before examining and discussing the levers and instruments necessary to improve productivity, to shed some light on the concept of productivity. Often, this term, have a bad reputation, and it is confused with the concepts of effectiveness, efficiency, profitability and even performance or production. However, it is an essential concept; it has become crucial for any evaluation of the labor productivity and any other activity within the company.

We will try, in this research paper to give an exhaustive review of the concept of productivity. It will includes the concepts and trends of productivity and its importance for competitiveness companies and for countries socio-economic development , and we will also try to focus on the distinctions that exist between the concept of productivity and other related concepts, such as effectiveness, efficiency, performance and production.

THE MEANING OF THE TERM PRODUCTIVITY

According to the Larousse etymological dictionary, the term productivity appeared for the first time in one of Quesnay's article, a pioneer of the Physiocratic school, in 1766. For a long time, the meaning of the word remained rather vague (Center Studies and Measures of Productivity, 1954).

According to the science of etymology, *« the origin of the concept of productivity comes from the Latin "productio", prolongation (of time), constructed from "pro", forward and "ducere" to say drive[1]»*.

Productivity sometimes refers to a state of mind, or a moral state, or even other psychological phenomena. In the public mind, the term productivity means *« intelligence, youth, progress, a high rate of economic growth, dynamism, rising incomes for everyone, the age of abundance assured in the*

[1]Available at the following link : http://www.toupie.org/Dictionnaire/Productivite.htm

future and monetary stability restored in the present » (Schaller, 1966).

Furthermore, the meaning of this word had evolved and has been clarified over time. The Littré dictionary (1883) gives the definition *« faculty of producing »*. In contemporary economic literature, the term productivity is loaded with the various meanings. The most common notion of productivity is *« human labor because when we speak about productivity without any other qualification or precision, it is labor productivity that is questioned »* (Fourastié, 1997). The term productivity measures *« the aptitude of human labor providing services according to the capital placed at the disposal of man, but There was obviously that with equal professional and intensity in the work, the importance of the services rendered, that is to say the value of the production will vary depending to the invested capital »* (Dayre & Grimanelli, 1952).

However, at the beginning of the 20th century, *« economists already attached to the word productivity a more precise meaning, which is (measurable) relationship between product and factors »*. This is the meaning, in particular, that Albert Aftalion explicitly attributed to it in his article *"The three notions of productivity and income"* published in the Review Political Economy in 1911. Productivity is the ratio between a given production and one of the factors of that production. From this perspective, we talk about the productivity of capital, of raw materials, depending on the relationship we have with each of them. The Larousse dictionary (1852) qualifies the notion of productivity as being: "The relationship between the result of a productive activity (goods and services) and the factors of production that has been used to achieve this production". In economics, productivity is the ratio between the production of goods or services and the means that were necessary for its realization (humans, energy, machines, raw materials, capital, etc.).

I. PRODUCTIVITY: A COMPLEX CONCEPT WITH MULTIPLE SIDES

In general, productivity is the quotient of the production of a good or service on the elements and products that were used to achieve **THAT** production. In other words, the relationship is made between the quantity produced and the means used to produce, which means the factors of consumed production (Burlaud, & al., 2004). In fact, it is *« a measure of the efficiency with what an economy uses the means (resources) to produce goods or provide services »* (Economic and Social Council, 2018).

While this definition is seemingly simple and clear, productivity appears to be a complex concept, and its effects and determinants are difficult to identify.

Productivity is a concept with a wealth of tones. *« It is underlying most economic phenomena, from wage growth to international specialization. We find it, in various modes, both at the level of industry and company, of the nation or even of the world. It sheds light short-term and long-term relationships. It contributes to the explanation of past events, and it is one of the essential keys of economic forecasting »* (Vincent, 1959).

This multifaceted nature undoubtedly explains the complexities of the definition of productivity.

In a book published in (1969), The International Labour Office (ILO) underlined this difficulty by citing the proposals of the economist John T. Dunlop, specifying that productivity is somehow *« the end result of a complex social process including: science, research and development, education, technology, management, production facilities, workers and labour organizations »*.

It is therefore natural that productivity plays a major role in economic analyses and projections.

Moreover, productivity is *« a tool of comparison for business leaders, organizational specialists, economists and politicians »* (Prokopenko J, 1990). It relates production to the different levels of the economic system (the individual, the workshop, the production unit, the sector, the national economy) to the resources expended.

The concept has expanded and now covers not only a habit of producing, but a result, that is, the quotient between production and the total expenditure (resources) that was used to obtain it. Therefore, *« the notion of productivity, which was originally a notion of quality, was transformed into a notion of quantity, which is, a measurable relationship »* (International Labour Office, 1969)

The term productivity refers to the ratio between what is withdrawn at the output from a system and what was provided to him as an input. It is also defined as *« the efficient use of innovation and resources to increase the added value of goods and services »* (International Labour Organization, 2016), in other words, the efficient use of resources, such as work, capital, land, materials, energy and information for the production of goods or services.

In an industrial context, productivity refers to *« the ratio between a quantity produced and the means used to obtain it. It is a fundamental parameter for analysis, management and decision-making »* (Hohmann, 2009).

Saying that productivity is increasing means that we are realizing more with the same resources as we obtain higher output in volume or quality by implementing the same factors.

According to economists, this relationship is generally expressed as follows: Productivity = Production / Means used.

At company level and more generally, productivity can be represented by the ratio (Coulaud, & al., 1986): Total of the company’s valued outputs / Total of the means entered into the company.

This concept is often addressed as the relationship between the value of inputs used and outputs obtained. Size varies by economic sector, but productivity is broadly *« the resources available to a company and the qualitative and quantitative results obtained through the process of value creation when offering a good or service »* (Ray, & al., 2009).

Productivity is then the ratio of output units to the ratio of inputs in a system. An organization producing more output units with fewer input units is considered to be more productive than an enterprise with a smaller ratio of output volumes to input, but this definition of productivity does not cover the profitability dimension or the quality level of the outputs. Therefore, a company that is considered more productive will not necessarily be more profitable than another that is considered less productive (Ray, & al., 2009).

The productivity requirement therefore requires *« an optimal and structured way of managing the company’s production factors such as manpower, capital goods, technical facilities, infrastructure and work organization to reduce costs and thus prices »* (Meier, 2009).

From a more technical perspective, productivity will be defined as *« productivity per factor unit »*. However, this condensed definition can be understood in two different ways, depending on whether production is related to a single factor or to all factors of production.

The contemporary term productivity was mobilized by Jean Fourastié in 1945 as a synonym for *« the performance of human labour, which he defines as the volume of products obtained, in the unit of time and per worker’s head, in a given branch of the national economy »*. (Florence, 2012).

In his book, *« Productivity and wealth of nations »*, Jean Fourastié economist known for having been at the origin of the expression *the Thirty Glorious* because this expression is the title of his book *« The Glorious Thirty »*, or the Invisible Revolution from 1946 to 1975 published in 1979. This author considers that productivity is the key to economic development, because it allows creating and producing more wealth, but the weakness of productivity leads to the traditional economic non-development.

This European and international expert on productivity notes in his book *« Productivity »*, published in 1952, that this notion of productivity is the only concept admitted both by Marxist and liberal economical theories.

II. CONFUSION AND AMALGAM: PRODUCTIVITY AND RELATED CONCEPTS

A. Performance, effectiveness and efficiency

Talking about productivity is evoking at the same time the notions of performance, effectiveness and efficiency that relate to it in an inseparable way (Djellal & Gallouj, 2012).

Performance has a broader meaning. It enables the organization in a safe manner all the general objectives it has set itself to ensure its development and sustainability, whatever their nature (economic, social, ethical, ecological, etc.). It also encompasses the other two concepts of effectiveness and efficiency, which are sometimes referred to as “external performance” and “internal performance” respectively.

Effectiveness is the degree of achievement of economic, social, ethical, or ecological purposes, etc. Under these conditions, it is out of question to take into account the costs incurred or the quantity of products created. The effectiveness of the organization is thus estimated by the achievement of the objectives set, such as the improvement of sales, reception, social integration and the reduction of pollution. This external efficiency or performance is strongly linked to the notion of “mediated output (indirect) or outcome”.

Productivity is not foreign to efficiency; they are two concepts of the same family, even if they are not identical, at the level of form (Sharpe, 1995).

Productivity is, in general, specified as the quantity of production or the relationship between the results obtained and the cost of the means used to obtain it (Schreyer & Pilat, 2001). In other words, it is the possibility of one person, a group of people or a system to achieve the objectives they were originally set. This is a question of performance measure (Béïque N, 2010).

In the analysis of productivity growth from one country to another, the difference between these two concepts makes it possible to distinguish three different processes:

The first case is that productivity growth may result from an innovation that shifts to the right of the frontier of production potential.

Case two: Firms can strengthen their productivity by adopting manufacturing processes and products designed elsewhere (imitation). At the conceptual level, dissemination differs from progress in efficiency because it refers to improvements in the use of a given technology even when that technology is outdated by international standards.

Third case: Productivity growth may also result from lower (technical) inefficiency. An inefficient enterprise or branch uses more resources and production factors than necessary. As a result, resources are allocated to low-productivity activities, reducing the overall efficiency of the economy. This is why it is important to understand the reasons for productivity growth before attributing such changes to a particular determinant.

As for efficiency, it indicates the degree to which the objectives have been achieved, taking into account the economy of resources. It is envisaged under two different but complementary visions: a financial vision and a technical vision. The financial vision is very much about profitability ratios. The technical vision is about productivity. In this way, the productivity which evaluates the technical efficiency (ratio between an output volume and an input volume), is the means of evaluating the technical efficiency.

This means that technical or operational efficiency, that is, productivity, is the business of the engineer who has little or

no interest in costs or customer satisfaction, but what interests him the most is physical or real performance.
On the other hand, monetary efficiency is the business of the economist who is more interested in reducing costs and increasing profits. Finally, efficiency is the concern of the policy which is concerned with the welfare and satisfaction of consumers to ensure its re-election. However, whether it is the engineer, or the economist, or even politics, there is no bulkhead wall between them. They are all concerned by a common interest that of ensuring the smooth running of the institution that brings them together.
So productivity is one side of efficiency, profitability is another. The relationship between the two is easily demonstrable if one considers that the main purpose of a firm's productivity improvement processes is to increase its profitability, which is calculated by the difference between revenues and production costs.
The two concepts of effectiveness and efficiency seem to be linked by a simple, mechanical and coherent link that makes them mutually reinforcing. This is because the strategies and efficiency ratios provide the strategies and efficiency ratios with the guidance needed to achieve the objectives set out in the best economic conditions possible.
This relationship is in reality much more complex and problematic (Schwartz, 1992; Du Tertre & Blandin, 1998). The complexity of the problem stems from the fact that these two concepts face the problem of "sizing".
Moving from general principles (for example, improving health, justice, education, crime reduction) to concrete and operational ratios is certainly necessary, but difficult. While this is obvious for effectiveness, it is also obvious for efficiency. As a result, it is not surprising that, at times, strategies and efficiency ratios are detached from, or even independent of, each other's effectiveness objectives.

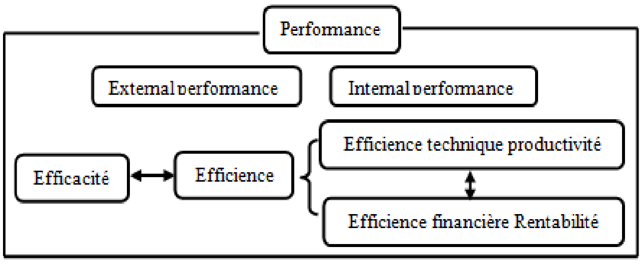

Figure 1: Performance, Effectiveness and Efficiency
Source: (Djellal & Gallouj, 2012)

B. Productivity and production

The production is the process of creating, growing, manufacturing or improving goods and services.
This concept encompasses activities associated with processing into finished products such as assembly, packaging, and maintenance of equipment (Tatondeau & Huttin, 2006). It is the set of goods and services, performed by an economic agent after having associated factors of production, such as labour and capital. Production in the national accounts is an activity carried out by an establishment which uses the factors of production, that is to say labour, capital and raw materials, to make goods and produce services. Production can also refer to the outcome of this activity (Beitone, & al., 2013).
Regarding the meaning, productivity is difficult to clarify. Being linked to production, it indicates a particular yield conditioned by factors of production (quantity and quality) and by the tools of the producer. Sometimes work can be done without producing the desired output or results. To talk about productivity, there has to be a significant return.
Productivity consists in achieving the maximum number of goods or services characterized by a better quality, but all this with reduced costs and in a limited time. This means making better use of production factors and improving working conditions. In economics, productivity is used to measure efficiency or speed of production.

III. DISCUSSIONS AND RECOMMENDATIONS

Today, the importance of productivity to the prosperity of nations is universally recognized. There is no human activity that does not benefit from the acceleration of productivity and it is obvious that when productivity increases, the national product rises faster than the consumption of the factors of production (Prokopenko, 1990).
Therefore the development of productivity leads to a direct increase in the standard of living when the fruits are distributed according to the contributions made. Productivity is the only fundamental universal source of economic growth, social progress and the evolution of living standards, as it is recognized that productivity has a strong influence on several numbers of socio-economic phenomena, such as fluctuations in growth, rising balance of payments, changes in standard of living, control of inflation, improvement in total quality, level of remuneration, cost/price ratios, investment needs, employment and business competitiveness.
Moreover, the objective of any entrepreneurial activity is the creation of added value allowing the realization of profit in the short and long term. Productivity is paramount in all sectors of activity, but particularly in firms with strong competition in the market, to ensure survival or benefit from a competitive advantage that enhances their competitiveness (Hohmann, 2009).
The evolution of productivity is also essential to justify the implementation of development plans and programs in the company, because otherwise we risk not making means and spending with the profits made.
Productivity also largely determines the international competitiveness of firms. If it drops in one country compared to other countries that produce the same goods, it creates an imbalance competition. At the national level,

increased productivity is synonymous with optimum use of resources and also contributes to improving the balance of economic, social and political structures, , but the social objectives and the policies of the State determine, to a large extent, the distribution and use of national income; these affect social, political, cultural data, educational and motivational work that in turn affect individual and collective productivity (society).

We are in time of constant change and competition. It is a universe where mutations are difficult to identify. However, to be competitive, it is necessary to know how to transform environmental constraints into opportunities, increase entrepreneurial opportunities and finally overcome the difficulties that prevent the development of productivity. It concerns not only material resources, but also and especially human resources. In turn, it is one of the determinants of business efficiency and the competitiveness of economies.

Productivity plays a very decisive role in determining how human actions contribute to economic progress, development and growth.

Historically, the strongest productivity gains have coincide with periods of very strong economic growth. It is the progression of productivity that allows the achievement of enrichment throughout history (Pillet, 2013).

CONCLUSION

« *Productivity* » is a noun for the verb “produce”, but over time the term expands from ability to outcome. Or rather, it encompasses both senses. The result is the relationship between the production and the expenditure of the resources that were used to obtain it. The word productivity has therefore gone from one notion of quality to another of quantity, or even a measurable ratio.

In short, productivity is the equivalent of the ratio between the result of a productive activity (goods and services) and the factors of production which have been adopted to achieve this production. Labour productivity is the quotient of the quantity produced by the number of hours required to achieve it. The productivity of capital is the ratio between the quantity produced and the fixed capital used to achieve it. Multifactor productivity is the ratio between the quantity produced and the sum of the factors of production used, namely hours worked, capital and the efficiency relationship between labour and capital.

Today, it become insufficient to use the traditional approach of gains, where productivity is limited to traditional business management techniques. It is rather the implementation of all the elements of production that is necessary to engage. The identification of improvement factors is one of the priorities of this strategy, without forgetting the fact of having a high performance system that can meet all requirements and adapt to all environmental changes. There are many practical ways and means of improving productivity. But the most cost-effective management remains human resources, because it is the safest way to exploit productivity factors in all sectors. So we need to invest more in human resources as well as in the workplace.

In addition, productivity must be the key of any business development project.

It is defined as “the ratio between the volume of production and the volume of the means employed to obtain this production”, hence the fact that productivity is a measure of the efficiency of any development process that cannot be ignored.

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