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## Productivity surplus, traditional performance indicators and Corporate Social Responsibility

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**Summary** – Objectives of the study – 1. The production of value in firms and VBM – 2. Methods of measuring shareholder value in for-profit organizations – 3. The mechanisms of managerial transformation – 4. The mechanisms of business transformation – 5. The performance evaluation of business non-profit organizations – 6. Types of business organizations and different meanings of value – 7. The distribution of value – 8. The game of value distribution in business for-profit organizations – 9. Traditional objectives and CSR – 10. The surplus method – 11. Advantages of the surplus method – 12. Limits of the surplus method – 13. Conclusions.

### Objectives of the study

The objective of maximizing the economic results of companies has always been viewed as an interpretative paradigm – profit maximization – in management and economic studies, as well as in economic sciences in general.

This paradigm derives from the postulate that the economic agents – in particular the holders of risk capital, who are the fundamental economic agents – try, through their rational behaviour, to maintain their invested capital intact and to gain the maximum profit.

This fact has been recognized by Gino Zappa – who views the firm as a means for achieving the goals of the economic agents who own the firm: “*In our economic system [...], business production is carried out mainly to satisfy the needs of its economic agents.*” (1956: 217, my own translation) – as well as by Pietro Onida, who sees profit as the main goal of economic business organizations: “*The search for profit is natural and cannot be questioned as long as we desire market production to be carried out by firms we have been examining [private companies]. The economic-social function of production is performed by these firms only because they can provide an appropriate profit.*” (1956: 310, author’s translation).

With the introduction of Value Based Management in the 1980s the profit objective became refined and was operationally translated into the search for maximum shareholder value: “[value

based management] is a formal, or systematic, approach to managing companies to achieve the governing objective of maximizing wealth creation and shareholder value over time” (Mc Taggart, Kontes and Mankins, 1994: 345).

This change in the management paradigm and in the firm's vision goes back to behavioural theory (Cyert & March, 1955; Simon, 1961), which emphasized the need for the firm to consider, and satisfy in a balanced way, the needs and interests of all its *stakeholders*: clients, materials/services and labor suppliers, financial backers, holders of risk capital, and the economic and political community the firm operates in.

The presence of opposing interests both inside and outside the firm can lead to situations of conflict regarding how to produce and distribute profits.

The internal conflicts tend in particular to involve the way revenue – or, better yet, value added – is distributed among the various groups tied directly to the firm: workers, holders of debt capital, and shareholders.

The manner in which solutions are found for these conflicts notably influences the economic results and the production of value, since the solution of every conflict can be viewed in terms of costs and revenues for the *stakeholders* concerned. A reduction in prices, with demand and competition conditions being equal, favors the clients (outside interest), though it leads to a reduction in revenues, and thus profit, as a result penalizing the return on capital (internal interest). Similarly an increase in salaries, though reducing profits and probably being passed on to selling prices, creates advantages for workers.

The view of the firm as aiming solely at an increase in shareholder value – to the advantage of risk capital – has gradually been replaced by the wider view considering that the firm must try to produce value for a range of entities that, directly and indirectly, contribute to its results.

Thus, today there is increasing consensus regarding the approach that sees the firm as an organization that pursues a corporate social responsibility (CSR). The acceptance of this new “role” for the firm leads to a redefinition of the decision-making, management and administrative criteria for each fundamental economic unit, with the objective of measuring performance from less of an earnings-oriented and more of a redistributive-social perspective.

This approach is above all linked to an external vision of the firm as a “*human means for operating in the economic field*” (Ferrero, 1968: 4, author’s translation); but this approach has continued to gain consensus from an internal view as well, one that is typically managerial and that considers the satisfaction of stakeholder needs as an important strategic factor.

In this context I propose to go back and examine, in light of the theory of the value creation, the surplus concept (Bernard- Massè, 1969; Vincent, 1969, 1979), since I feel that this allows us to present a more rational relationship between the classical view of performance in terms of profitability (Alchian, 1950; Baumol, 1953; Galbraith, 1967; Marshall. 1920; Penrose, 1955, 1959; Williamson, 1964) and the more recent one of the creation of social value (Simon, 1959; Rusconi, 1988; Maticena, 1982; Gray, Owen & Adams, 1995).

The notion of surplus – separating the two basic components: price advantage and the increase in production volume – allows us to develop a method to evaluate an organization not only in

relation to the value added produced but also for its ability to identify the various *stakeholders* to whom this value added is to be distributed.

## 1 – The production of value in firms and VBM

Firms are long-lasting systems (Zappa, 1956; Masini, 1970) that tend to have an infinite life, continuously regenerating the products and processes that characterize their business; thus, they can be viewed as autopoietic systems (Vicari, 1991) that tend to continuously reorganize their activity for the purpose of regenerating their network of economic and financial processes in order to increase their chances of survival.

As autopoietic systems they operate in a relational context with various other organizations, to whose “disturbances” – in the form of economic and social stimuli – they must react with a behaviour that tends to re-equilibrate the disturbances in the internal relations (Mella, 2003).

To attain this condition of existence it is of fundamental importance to produce consensus and trust (Nooteboom, 2002) in the economic agents that have relations, of varying types and intensity, with the firm, and that therefore influence the firm's chances of continuing on indefinitely in its vital economic activities.

The creation of consensus and trust represents the condition for regenerating both the “financial” capital as well as the “social and human” capital, without which no organization can have a permanent existence.

The social consensus (Borgonovi, 1996) depends on the organization's ability to perceive and satisfy the needs of the economic agents they deal with and to nourish their aspirations, by means of the design of goods and services with an appropriate functionality of the good and services that maximizes their design, functional and environmental quality and, as a result, consumer trust and loyalty (Mella 2005).

This broad view of the firm's activity has also given rise to the concept of the value of the goods/services that it produces.

If we define *value* as the capacity of goods/services to be “desired” by someone in terms of the perceived relationship between purchase price and the obtainable (Mella, 2004), then we can identify how the *focus* has shifted from an initial emphasis on the *utility* of the good – and thus from objective features related to the needs the good can satisfy in relation to the price of purchasing that utility – to the importance attributed to the good as a means of satisfying aspirations or arousing emotions, characteristics which are typically subjective and that depend ever more intensively on the symbolic meaning of the good and its consumption.

These operational features are common to all firms, but they are more relevant the larger their scope and the more intensely they interact with the social environment.

In order to grow, firms need to acquire the necessary flows of equity capital, for which they must guarantee a return – in the form of *roe* – that is at least equal to that which is considered just or satisfactory to shareholders.

Given these assumptions, there is a strongly felt need to maintain financially intact the capital invested in the firm, both debt and equity capital; of particular relevance to the need to regenerate the reinvestment of capital at the end of the business activity it has financed is the management approach that identifies management's operational objective in the creation of shareholder value and the maximization of shareholder value.

As a result, the Value Based Management theory, which translated that approach into a coherent structure of value drivers and value metrics, is particularly significant.

The historical development of Value Based Management is closely tied to the growing complexity of firms: beginning in 1980, when there was an *implicit* VBM, there has been a shift in the last ten years to a *holistic*, or *systemic*, VBM where all the agents in the organization are involved in the creation of value.

In light of the negative events set off by the speculative bubble in 2001 and by the large corporate scandals such as Enron in the U.S., and Cirio and Parmalat in Italy, VBM has become increasingly associated with, in addition to economic efficiency and profitability, practices based on ethical principles as well.

According to Copeland, Koller and Murrin (1996: 53-54), the principles of value creation can be summarized as follows:

1. the firm creates value when the return on the invested capital is higher than the opportunity cost of capital (measured by the return on an investment of equal risk).
2. The more a firm invests at a return higher than the cost of capital, the more value it creates (the longer the return exceeds the cost, the more value growth creates).
3. A firm must choose strategies that maximize the expected discounted cash flow (discounted by the opportunity cost of capital).
4. The value of a firm's shares in the stock market is equal to the market's expectations regarding future results; but these expectations are not necessarily a reliable measure of results.
5. The return on the capital provided by shareholders depends more on variations in expectations regarding the future than on the current results of the firm.

Value Based Management is made up of three interconnected phases:

1. *measuring* value; that is, implementing a system of value drivers and value metrics to quantify the results of the actions of Value Based Management at all levels of the organization;
2. *creating* value; that is, planning medium and long-range strategies to maximize future value;
3. *managing* for value, which implies directing governance, change management, organizational culture, communication, and leadership to increase shareholder value.

That part of the Value Based Management approach that concerns the metrics of value indicated in point 1 considers various instruments for evaluating the creation of value by organizations.

Among the most common of these are indicators such as EVA, DCF, the *balanced scorecard* (Kaplan & Norton, 1996), and the Activity Based Costing (Cooper, 1988, 1989; Roztocki & Needy, 1998) and Activity Based Management approaches.

This study proposes analysing the measurement methods for value proposed by Value Based Management, in order to compare these with Vincent's method (1969, 1971a, 1971b), known as the *méthode des surplus*.

## 2 – Measurement methods of shareholder value in for-profit organizations

I will start my analysis by considering the methods used to determine value in the context of business for-profit organizations; subsequently I will compare these methods with the performance evaluation of non-profit organizations (Mella, 2003).

Both for-profit and non-profit organizations need to create and increase the value produced over time; however, they differ regarding the distribution of value and the group of beneficiaries of that value.

It is useful to use the model that represents the operational logic of *business for-profit organizations* – or firms – using five typical transformations that can be briefly described as follows (Mella, 2005):

1. the technical-productive transformation, which produces chains of productive cycles in which the input flows of productive factors acquired from the environment (materials, labor, services, facilities) at time  $t_0$  are transformed through processes of combination or through physical-technical transformations into output flows of production sold in some market at time  $t_1$ , in order to satisfy the needs of the economic agents;
2. the *economic transformation*, or the transformation of *values*, which characterizes the productive cycles not only regarding the physical need for factors and products to sell but also the

prices (economic values) of these products and factors; the ratio of the sum of the costs of factors used in production and the production volumes gives the (average) cost of production –  $cP$  – which must be compensated by the price (average selling price),  $pP$ ; we obtain an operating result equal to  $OR = (pP - cP) * QP$ , where  $QP$  represents the volumes produced and sold (the stocks are irrelevant at this level of analysis);

3. the *financial transformation* needed to raise capital – *equity* and *debt* – to invest ( $IC =$  invested capital), which is required to acquire the durable production factors (and the factors that are part of net current assets); the firm must pay the holders of capital and, in particular, the shareholders, a profit,  $P$ , and interest,  $I$ , which derive from the  $OR$  obtained from the economic transformation. The rates of return can be quantified as  $roe = \frac{P}{E}$  and  $rod = \frac{I}{D}$ . We can immediately show that if the effective  $roe$  is higher than  $roe^*$ , which would satisfy shareholders, then the firm produces shareholder value, since the economic value of the capital ( $EVF =$  Economic Value of the Firm) is greater than its accounting value, and is equal to  $EVF = E \frac{roe}{roe^*}$ ;

we also can immediately demonstrate that if  $roi = \frac{P+I}{E+D}$  is higher than  $wacc = \frac{rod(1-t)D + roe^*E}{IC}$  then, likewise, there is the production of economic value in the form of EVA (Economic Value Added), which can be expressed in a simplified way as follows:  $EVA = (roi - wacc)IC$  (Mella, 2005); the financial transformation is thus intrinsically connected – both from a logical and operational point of view – to the two previous transformations: only by raising equity or debt capital, and placing these at risk in a portfolio of productive, or business investments can the firm finance the start-up of economic transformation processes and obtain an operating result that is sufficient to provide the suppliers of capital under any form with a proper return;

4. the *managerial transformation*, which represents the set of cognitive activities that precede the transformation of information (from outside and inside the organization) into decisions regarding the planning and control of activities that must be undertaken by the organization to achieve the medium and long-term objectives of top management in the form of strategies for the production of value;

5. The *business transformation* is made up of the innovation processes initiated by the top management of the organization based on the results obtained from the managerial transformation, in order to devise a strategy that will allow, as a minimum requirement for survival, an adequate return for shareholders and provide satisfaction to the relevant stakeholders.



### 3 – The mechanisms of the managerial transformation

The first three transformations are technical and instrumental; in fact the *business for-profit organizations* cannot survive without an appropriate managerial transformation, whose role is to guarantee the maximum efficiency in carrying out the preceding transformations by processing information of various kinds (structural, contingent, regarding economic tendencies) obtained from the environment (macroeconomic, market, sector analyses, etc.) together with internal operational information (general and management accounting, management control), which enables the organization to develop a system of planning and control regarding the three instrumental transformations. The activities that precede the managerial transformation are not limited to the simple drawing up of plans and programs, but are completed with an *ex ante* control activity – aimed at verifying the compatibility of the plans with the objectives and with the organizational constraints (internal and external) – and with the *ex post* activities that compare the actual activities and behaviour to the planned ones.

The latter control requires setting up a system of feedback regarding the results obtained by each *centre of responsibility*.

The information, planning and control processes that represent the “heart” of the managerial transformation are of crucial importance for the production of value; in large firms the managerial transformation becomes a true Value Based Management that acts in the interests of shareholders, while also taking into consideration the interests of the wider group of stakeholders (Pellicelli, 2005).

### 4 – The mechanisms of the business transformation

*Business organizations* seek to *create value* from the point of view of satisfying the needs and aspirations of their stakeholders, who justify their existence in the market; however, the means for attaining this goal have changed due to the evolution in the concept of organizational strategy.

An analysis of the history of strategic thought allows us to understand how we have reached the more innovative paradigms of today.

Michael Porter's model (1990) is seen as a pilaster of strategic thinking.

Porter identified a set of presumed causal relationships that determine competitive advantage for firms in a particular sector by studying the connections between the *structure* of the sector the firm operates in, the *behaviour* the firm can and must undertake, and its resulting *performance*.

The strictly *exogenous* perspective of Porter's model is not sufficient to explain how organizations can be successful, and for this reason the *focus* of strategic studies has been to go

inside the logic of the business transformation, analyzing the role of distinctive resources in this transformation. The *resource based view* holds that the competitive advantage in organizations with the best performance is determined by the presence of distinctive resources that are not easily duplicating (Learned et al., 1969)<sup>1</sup>, which, accumulating over time, form a true intangible capital; when the organization consciously seeks distinctive resources it creates the conditions for a new distinctive resource: the capacity to create structures of distinctive resources, which are not easily duplicated and are capable of dealing with changes in the environment of reference. This evolution in the preceding paradigm is thus called the *dynamic capabilities approach*<sup>2</sup>, and one of its most effective operational applications is found in Peter Senge's (1990) concept of learning organizations.

The key feature of the business transformation is the continual *innovation* that aims at acquiring and maintaining over a long period of time a competitive advantage for the various businesses as a condition for a stable production of value that guarantees the maintenance of the conditions of autopoiesis and growth in size. In this regard it differs from the managerial transformation, which instead must guarantee the maximum efficiency in carrying out the management operations that achieve the strategy.

## 5 – The evaluation of the performance of business non-profit organizations

*Business non-profit organizations* share with the *for-profit* ones the primary objectives of survival and the creation of value for those individuals and groups in whose interests the organization operates in order to maintain, or increase, the organization's chances of survival over time.

Since for non-profit organizations raising capital from shareholders is not essential, in that they do not require equity, their priority is not the creation of shareholder value but rather providing satisfaction to the numerous external stakeholders and customers.

A fundamental differentiating element such as this impacts the structure of the “pyramid of objectives” (Mella, 1992) of non-profit organizations, placing at the top level the satisfaction of customers, staff and institutional stakeholders, without the need to make a profit but, at most, to carry out a minimal economic efficiency in the form of an economic balance; in particular, the organizational transformations have the following characteristics:

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<sup>1</sup> The concept of *distinctive resources* was introduced by Learned et al. in Learned E., Christensen C., Andrews K. and Guth W. (1969), *Business Policy: Text and Cases*, Irvin, Homewood, IL.

<sup>2</sup> Penrose E. (1959), *The theory of the growth of the firm*, Basil Blackwell, London; Williamson O.E. (1975), *Market and hierarchies*, Free Press, New York; Barney J.B. (1986), Strategic factors markets: expectations, luck, and business strategy, *Management Science*, 32:10, [1231-1241]; Teece D.J., Pisano G. and Shuen A. (1997), Dynamic capabilities and strategic management, *Strategic Management Journal*, 18:7, [509-533].

- a) the productive transformation must take place under conditions of efficiency, and focus on the internal personnel rather than the outside customers; that is, efficiency must guarantee a satisfactory salary and professional growth for workers;
- b) the economic transformation must aim for the maximum reduction in prices that is compatible with the maintenance of satisfactory quality standards; for this reason a continual reduction in the unitary cost of production is absolutely necessary for the organization's survival. The organization can achieve this by aiming at conditions of external economic efficiency<sup>3</sup> with regard to the supply of production factors, in order to set a unitary value for the sale of products that is favorable to customers;
- c) in a non-profit organization the search for low purchase prices for production factors is often accompanied by the supply of such factors from organizations that share the sub-objectives of the non-profit organization; thus the pay of labor will be such that the labor force is not exploited in any way and is adequately compensated; this condition implies that external economic efficiency with regard to the supply of factors is relative, not absolute;
- d) the physical environment in which the organization is created and grows must be safeguarded and improved;
- e) the establishment of the organization must generate positive conditions for the establishment of other organizations similar in nature.

Obviously the objective of account balance does not take away the need for the managerial and business transformation to control the results of the economic transformation; just the opposite: the activities of the two transformations are fundamental in order to avoid operating losses that, if not covered, can constrain the organization to seek economic hedging in outside organizations in order to remain in operation.

## **6 – Types of business organizations and various meanings of value**

From the above discussion it is clear that the teleonomic objective of the creation of value in organizations can take on very different meanings within the various categories of business organization. In light of what we have said in parts 2 and 5, the value flowing from the activities of organizations can be important for those who have a stake in the organization, but can have little or no importance for parties outside this group.

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<sup>3</sup> By *economic efficiency* we mean the ability to negotiate favorable market prices for the purchase of production factors (the lowest among those available to the firm), and high selling prices, in line with the market's ability to absorb the products and the demand elasticity of the product/service.

The concept of *value* is thus a relative one in space and time. What gives meaning to the term value are those individuals or groups involved in the creation and distribution of output generated by the entire firm.

In for-profit organizations the creation of value means the maximization of economic results; it is different for non-profit organizations, where the value is included in the social, associative, cooperative and solidarity characteristics that make up the basis for the organization's existence.

The *means* used to *create* and *distribute* value take on strategic importance not only in *business-for-profit organizations* but in *non-profit* ones as well.

In recent decades instruments typical to *non-profit* organizations have been applied as well in the management of *for-profit* organizations: in particular, we find growing interest in a social information (report) alongside the traditional administrative-accounting schema centered around economic and financial values; codes of ethical conduct have been issued for all members of the organization involved in the management and control of all the firm's activities; reports on the environmental impact of operations undertaken by the industrial plants and on ways to lessen the negative environmental effects have only in the last few years become crucial for the search for a stable competitive advantage.

The decision of firms to operate according to ethical and social principles derives from a cost-benefit evaluation (Kreps, 1997), according to which the present cost of adhering to social regulations turns into a greater future economic benefit that results from the consensus of the community in which the firm is located.

I define this broader concept of value as *global systemic value*, which is understood as the set of positive external effects, direct or indirect, that the corporate organization provides to the subset of social groups that, directly or indirectly, benefit from its activities.

The value we have just defined can be viewed as an output produced by the firm understood as a system of interactions, as if this output were a particular product/service; this allows us to more thoroughly identify the *determinants* of value.

In theoretical terms, if we think of the firm as a system made up of a set of relations (Onida, 1963; Mella, 1992), in which all the system's components cooperate towards achieving a *result*, such as the continued growth in value – according to how the various identifiable groups define this – then we can determine a *supply* and a *demand* for value.

From the point of view of supply, value is created in the organization, considered in a systemic sense, by the business transformation brought about by the organization's own endogenous strategic actions, which represent a complex process in which it is difficult to identify the promoting group.

The positive value differentials can be linked to the increase in efficiency which derives from non-codified internal organizational relations and from the entire organization's capacity to learn, which transcends the learning capacity of its individual components (Senge 1990).

Part 7 will consider the means by which the value produced is distributed.

From the point of view of demand, we can identify individuals, groups or bodies that lead organizations to act in order to create value, thereby providing an exogenous motivation for the creation of value.

According to the *theories of motivation*<sup>4</sup> the exogenous motivation for value – understood as the set of opportunities or threats that move people to act in relation to various objectives and interests, guided by cognitive and emotive processes (Pilati 1995a) – is of limited effectiveness in time and space, since organizations will be moved to create value only and to the extent they are provided incentives (or threats). If and when this exogenous motivation is lacking – because there are no incentives or threats to behaviour – the organizations lose the capacity to create value that the motivating factors had led them to pursue.

Similar to the general equilibrium model for the prices of goods, in principle the volume of the good-*value* produced by the single firm will be determined by the interaction of supply and demand. Demand must reflect the price of the good-*value* viewed as the return to the organization in material, immaterial or financial terms. The supply side must provide, according to the equilibrium quantities and qualities, value understood as any form of benefit that derives from the organization's existence in the market.

## 7 – The distribution of value

After determining the equilibrium volume of the good-*value*, it is fundamental to analyse how this is distributed in relation to the type of *business organization*.

The ways in which value is distributed in for-profit organizations have traditionally been linked to the ownership of the organization and to the contractual strength of the groups involved in business relations. Thus the ownership ratios determine the requisites for the distribution of results and of the added value produced by the organization. This system undoubtedly has its advantages, such as the certainty of the legal status governing the owner-firm relation and the

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<sup>4</sup> The theories of motivation (Maslow, 1964; Aldefefer, 1972; Herzberg, 1959, 1966; McClelland, 1965) are usually applied to agents that provide their services within an organization, and not to organizations as autonomous entities; in this context such theories are applicable just the same, since we can identify organizational behaviour as deriving from the actions of individuals that belong to the business system, and thus deduce that the behaviour of individuals determines the organizational behaviour, understood as the behaviour emerging from the entire system, as underlined by the *holonic theory of organizations* (Mella, 2005).

immediate identification of the beneficiaries of any positive results according to well-defined ratios.

The distribution of the value created by the firm through ownership shares also has disadvantages, given the increasingly sharper division between ownership and management typical to medium and large-sized organizations, as pointed out in the literature over the last few decades (Berle & Means, 1932; Superti Furga, 1975).

When ownership is separated from control managers have no incentives to base their performance on a teleonomic perspective of the firm; instead they are led to seek exceptional short-term performances for which they are compensated; however the effects of these performances are destined to disappear over time because the actions behind them have no future orientation. Instead of being based on the principle of maximum efficiency for the organization the managerial transformation is based on the principle of maximum efficiency for management.

The above is a typical case of the problem of agency (Coase, 1937; Jenson & Meckling, 1976; Fama & Jensen, 1980) in which the agent – that is, the manager – behaves opportunistically towards the principal – the owners – since his behaviour cannot be unambiguously correlated to the output of the process, due to the informational asymmetries the principal is subject to.

The latter is in a situation where it has to decide for the *second best*; that is, with an limited economic rationality, limited to the information that is available.

Normally the solution to this problem involves setting up control organs for management by the “owner”, whose task is to verify the coherence of managers' actions in terms of the objectives set by ownership.

The effectiveness of the control organs depends on their ethics and on the professional correctness of those undertaking the control activities; in fact, the work of the controllers is not monitored by any individual/structure apart from the ownership. However, this control occurs in a manner subsequent to and not concomitant to the actions undertaken, and situations may occur that give rise to collusive behaviour and conflicts of interest.

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<sup>5</sup> Williamson (1986: 175) provides the following idea of *opportunistic behaviour*: «*opportunism [...is] self-interest seeking with guile. This includes but is scarcely limited to more blatant forms – such as lying, stealing, and cheating. Opportunism more often involves subtle forms of deceit. Both active and passive forms and both ex ante and ex post types are included.*»

This is the problem of accountability<sup>6</sup> (Matacena, 2005), which for-profit organizations have yet to solve, even if there has been no lack of attempts at redefining the roles of management and of the *controllers*<sup>7</sup>.

The distribution of value is thus defined as the exercise of contractual power by the various groups involved. On the one hand, for example, a positive differential of value can be distributed *several times a year* to labor in the form of salary increases or greater fringe benefits, as a way of responding to union pressure; on the other hand, an unjustified increase in factor prices shifts part of the value created by the organization in favor of resource providers; consider an increase in the price of oil, raw materials or gold, to name but a few examples.

The common element in all the above examples is the possibility of shifting value, within or outside the organization, based on the logic of the exercise of power. The consequence of this shift in value has a determining effect on the end-of-period economic results: whenever ownership does not have sufficient contractual power – direct or indirect – to retain value within its group, then this value will shift in favor of another group.

In *non-profit organizations* the value differential created by management activity is not distributed according to the ownership principle but is instead based on mutualistic aims having a social character established by the organization. In this context ideological stimuli induce people to create value; thus management's effectiveness will be guaranteed as long as its members are motivated from within to participate in a *non-profit* organization. Thus the destination of the value created does not constitute a moment in a “power game” among groups of different agents, since in principle the groups directly linked to the organization share the same ideals and interests that are embodied in the drawing up of plans that indicate where the value differential is to be directed.

## 8 – The value distribution game in business for-profit organizations

The logic regarding the distribution of value created within *business for-profit organizations* can be expressed using a game model – following Cabral's conception (2000: 49): «A *game* is a stylized model that depicts situations of strategic behaviour, where the payoff for one agent depends on its own actions as well as on the action of other agents. [...] payoff interdependence introduces a host of possibilities for strategic behaviour – the object of game theory.» – that

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<sup>6</sup> Matacena proposes the following definition of *accountability*: «it expresses the informational responsibility of the firm and substantiates that system of communication, external and internal, which finds its complete form in its transparency and its control of outcomes; accountability is to be understood in brief as the need to take account of the achieved results when resources are used that are not one's own” (2005: 191-192, author's translation).

<sup>7</sup> We can find some examples in the recent publication of the corporate and environmental communications IAS/IFRS. All these instruments seek to guarantee greater clarity for corporate information.



describes the payoff functions assigned to the strategic combinations of those involved in the division (appropriation) of value.

In Figure 1 I assume that the set of agents with economic interests in the distribution of value of an organization can be divided into two categories:

- (a) *internal stakeholders* (IS); for example the “owners” of the organization and its employees;
- (b) *external stakeholders* (ES); for example the suppliers of debt capital, or of the resources needed for production activity, the clients, the social institutions, and the agents who in an intermediate capacity have an interest in the organization's output and in the way the value is distributed among the social groups.

We can make the following assumptions about the strategies the two players will adopt:

- a) the *internal stakeholders* can decide to *retain the value* within the organization or to *distribute it* to *external stakeholders*. The actions this category of *stakeholder* can take are determined by the assumption that the *internal stakeholders* can decide on the firm's policies regarding the distribution of value;
- b) the *external stakeholders* can decide whether to *contribute resources* to the organization, thereby favoring the value creation process (this can be done in different ways: by contributing material, immaterial or financial resources), or *withholding resources*.

Figure 1 – The payoff matrix of internal stakeholders – external stakeholders

EXTERNAL STAKEHOLDERS	INTERNAL STAKEHOLDERS	
	Contribute resources	Withhold resources
Distribute value	[ I ] ( $\Pi_{IS}=10, \Pi_{ES}=10$ )	[ II ] ( $\Pi_{IS}= -40, \Pi_{ES}= 20$ )
Retain value	[ III ] ( $\Pi_{IS}=-20, \Pi_{ES}=-40$ )	[ IV ] ( $\Pi_{IS}= 0, \Pi_{ES}= 0$ )

The payoff ( $\Pi$ ) associated with the strategic combinations have been attributed based on the assumptions of economic rationality and the maximization of the utility functions of the agents involved.



In cell [I], the external stakeholder player profits ( $\pi_{IS [I]} = 10$ ) from the *contributing resources* strategy, given the *distribute value* behaviour of the adversary; the same is true for the internal stakeholder player ( $\pi_{ES [I]} = 10$ ): in fact, thanks to the contribution of resources by the external stakeholders the organization acquires factors instrumental for the production processes. The ability of the organization to attract external resources depends on the remuneration, in terms of value, that it can provide – through the decisions of the internal stakeholders regarding the distribution of the value created – to the holders of the resources (the external stakeholders).

When the strategic combination is that described in cell [II], the external stakeholder player will have a greater advantage ( $\pi_{ES [II]} = 20$ ) by deciding to *withhold resources* than would be the case with the strategy of cell [I]; but the internal stakeholder player will suffer a notable loss in terms of *payoff* ( $\pi_{IS [II]} = -40$ ), since the cooperative strategy *distribute value* does not have associated with it a behaviour by the adversary (who chooses not to supply resources) that is equally cooperative. This situation occurs when the class of external stakeholder decides not to supply resources to the organization, but still receives a benefit in terms of value from the internal stakeholders, who distribute part of the value to the outside, not taking into consideration the decisions of the external actors. The results achieved by those with internal interests is highly negative since, on the one hand, they must find resources to carry out the network of organizational processes that characterize the organization, while on the other they must distribute a part of the value obtained to the outside. The external stakeholders will enjoy, as we have already pointed out, a more advantageous position than that in cell [I] since, compared to the case where they participate in the distribution of value, they do not sustain the costs associated with the initial supply of resources. In this situation the external stakeholder player employs a *free rider*<sup>8</sup> strategy, disregarding the adversary's expectations of cooperation.

Similarly, but opposite to the preceding case, cell [III] shows a situation where the external stakeholder player suffers a loss in terms of *payoff* ( $\pi_{ES [III]} = -40$ ) by employing a cooperative strategy (*supply resources*); there is instead an advantage for the internal stakeholder adversary ( $\pi_{IS [III]} = 20$ ) who decides to exploit a *free rider* behaviour (*retain value*). Intuitively this situation occurs when resources are supplied by their holders (external stakeholders) without compensation by the organization (internal stakeholder), which decides instead to retain the value created – thanks in part to the supply of resources by the external stakeholders – by the transformation processes.

The strategic combination associated with cell [IV] represents a case where both players adopt non-cooperative strategies (the external stakeholder player *withholds resources* while the

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<sup>8</sup> By *free rider* we mean an economic agent that behaves opportunistically, thanks to market imperfections deriving from the lack of perfect information, in order to obtain the benefits from a public good or a positive externality, without bearing the burden of paying a price for its production (Begg, Fischer & Dornbusch, 1994: 51).

internal stakeholder player *retains value*), thereby determining a null result in terms of payoff ( $\pi_{IS [IV]} = 0$ ,  $\pi_{ES [IV]} = 0$ ). From the point of view of the external stakeholders this assumption of strategic combination occurs because, on the one hand, the holders of resources do not see a reduction in their wealth, since they do not supply resources; on the other hand, the stock of resources available to them does not increase since they do not participate in the distribution of value. From the internal stakeholder point of view the initial supply of resources must be sought internally by reducing the stock of resources previously accumulated – the value generated by the preceding transformation processes that is not distributed – by the other player; the amount of new wealth produced by the network of processes substantially compensates the initial impoverishment.

Given the strategies of the two groups and the payoffs associated with the different strategic combinations, we can make two alternative assumptions regarding the decision-making methods of the players. An analysis of the different scenarios that would occur under the two assumptions enables us to understand and evaluate the behaviour of the economic groups concerned, given the payoff incentives.

Assumption 1 – The game between the *internal* and *external stakeholders* can be considered a *one shot* game in which the decisions made by both sides regarding the actions to undertake are simultaneous.

Under this assumption the solution to the game is determined by seeking *Nash equilibriums*<sup>9</sup>, if they exist. As Figure 1 shows, the optimal strategy for the internal stakeholder player is to *retain value* since, regardless of the choice of the external stakeholder player, there are higher payoffs associated with this strategy for the internal stakeholder; thus the *retain value* strategy is a *dominant strategy*<sup>10</sup> for him.

In the same way, seeking the optimal strategy for the external stakeholder player means determining the most advantageous choice in terms of *payoff*, under the assumption that there is a lack of information about the other player's choice. The dominant strategy for the external stakeholder player is *withhold resources*, since for the external stakeholder player as well the payoffs for the alternative strategies reveal the economic advantage of the *retain value* strategy. Through a process of elimination of the dominated strategies we get the Nash equilibrium in the

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<sup>9</sup> For a definition of Nash equilibrium see Cabral (2000: 54) «A pair of strategies constitute a Nash equilibrium if no player can unilaterally change its strategy in a way that improves its payoff.».

<sup>10</sup> Cabral provides us with a definition of *dominant strategy*: «Whenever a player has a strategy that is strictly better than any other strategy regardless of the other players' strategy choices, we say that the first player has a dominant strategy. If a player has a dominant strategy and if the player is rational, we should expect the player to choose the dominant strategy. Notice that all we need to assume is that the player is rational. In particular, we do not need to assume that the other players are rational. In fact, we do not even need to assume that the first player knows the other players' payoff. The concept of dominant strategy is very robust.» (Cabral, 2000: 51).

pair of actions *retain value-withhold resources*, to which the payoff ( $\pi_{IS [IV]} = 0, \pi_{ES [IV]} = 0$ ) is associated.

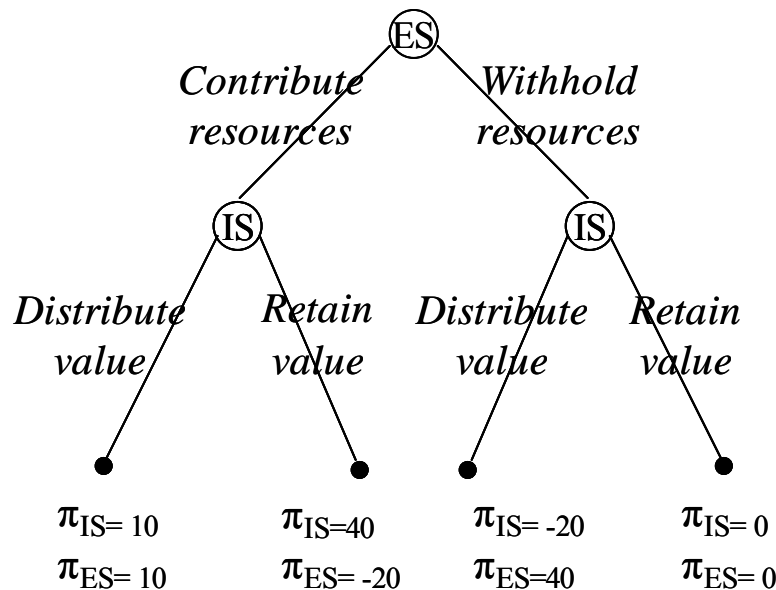
The resulting equilibrium is not Pareto efficient, since the *coordination* of the strategies towards cooperation would lead to an improved situation for both players: by adopting the strategic combination *collaborate – distribute value-supply resources* both the internal and external stakeholders would receive a payoff equal to ( $\pi_{IS [I]} = \pi_{ES [I]} = 0$ ), which is more advantageous.

Assumption 2 – The game between the *internal* and *external stakeholders* can be considered one in which the decisions made by both sides are sequential.

Assumption 2 is a more realistic scenario than the first one since, according to the model of the five productive transformers, the business activities of organizations are sequential in nature: the financial transformation is necessary for the productive transformation, and thus it will precede the latter.

From this perspective it is logical to assume that the decisions of the *internal stakeholders* regarding their behaviour are chronologically subsequent to those of the *external stakeholders* concerning the opportuness of supplying or not supplying resources to the organization. We can graphically present the game in an *extended form* (Figure 2) in order to resolve it through the *backward induction* method.

Figur 2 – Extended form of the value distribution game

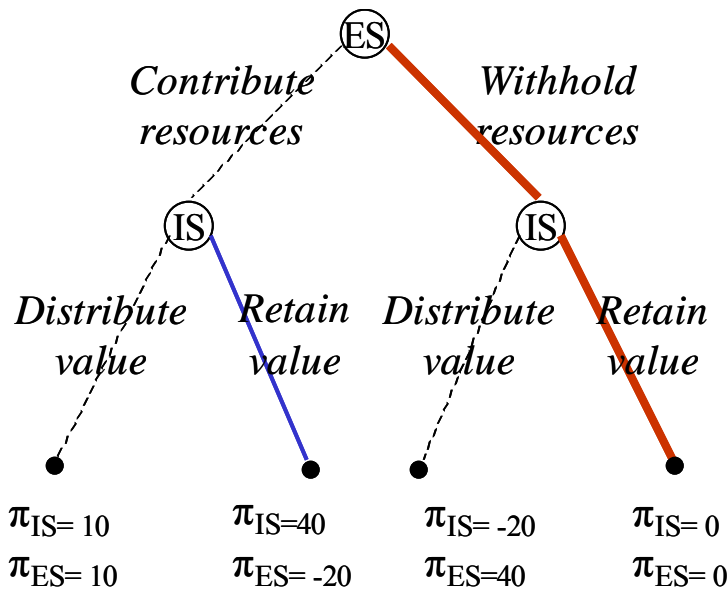


The *payoffs* associated with the strategic combinations are the same compared with the *normal form*; however, under the second assumption the external stakeholder player chooses its strategy having information about the decisions the internal stakeholder player will make, given the assumptions of rationality and intelligence regarding the internal stakeholder player.

The choice of the internal stakeholder player (among the four possible alternatives) maximizes the results obtainable through the *retain value* behaviour irrespective of the behaviour of the external stakeholder, since in both *subgames* the *payoffs* for this strategy are greater than those associated with the *distribute value* choice. The external stakeholder player assumes the other player is rational; thus he knows the other will choose the *retain value* strategy.

Therefore the external stakeholder will choose the *withhold resources* behaviour, as shown in Figure 3, since the *withhold resources-retain value* combination has a more favourable payoff for him – ( $\pi_{IS [IV]} = 0, \pi_{ES [IV]} = 0$ ) – compared to the *supply resources-retain value* combination – where the *payoffs* are ( $\pi_{IS [III]} = 40, \pi_{ES [III]} = -20$ ) – in fact:  $\pi_{ES [IV]} = 0 > \pi_{ES [III]} = -20$ .

Figure 3 – Solution of the value distribution game through backward induction



The construction of the game could be based on different assumptions, with regard to both the strategic actions available to the players and the utility associated with these alternatives, thus producing different solutions.

The relevant result for this paper is related to the assumption of opportunistic behaviour as the optimum strategy for the agents in the context of the distribution of value that *business for-profit organizations* generate.

The prevalent strategy for *internal stakeholders* is to retain value within the group; at the same time the *external stakeholders* are motivated to withhold the production of value for the organization by supplying resources.

*This result is coherent with the assumptions behind the theory of shareholder value and with the traditional management theory of the firm* (Berle & Means 1937, Marris 1964, Baumol 1967).

## 9 – Traditional objectives and CSR

The translation of the survival objective into the maximization of profits for for-profit organizations has been rethought in business economics research. The maximum profit for holders of the capital invested in the organization has in fact led to situations of social disparities so great they can no longer justify the theory of equilibrium by means of the *invisible hand* (Smith 1776).

One of the emerging problems in the present economic context is the lack of solidarity and economic ethics, attitudes which are necessary to attempt to solve the problem of disequilibriums among the various economic groups. This approach, which seeks economic objectives that conform to principles of social ethics, has remained an unfulfilled hope of non-governmental organizations and the Catholic world (Pius XI<sup>11</sup>, 1931, John XXIII<sup>12</sup>, 1961, John Paul II<sup>13</sup>, 1979). In fact, the *Charter of Fundamental Rights of the European Union* was only ratified in 2000<sup>14</sup>.

In 2001, with the ratification the European Community Green Paper, the social responsibility of firms toward those who, directly or indirectly, have a concern in them and toward the environment was granted legal status.<sup>15</sup>

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11 The encyclical *Quadragesimo anno* (1931) introduces principles for overcoming the division of society into classes.

12 Chapters such as *Worker Salaries* and the *Process of Adjustment Regarding Economic Development and Social Progress* reflect the need for a business ethics in the business-Catholic context of Pope John XXIII's encyclical, *Mater et Magistra* (1961).

13 In his encyclical *Redemptor Hominis* (1979), John Paul II asks if we can speak of «*Progress or Threat?*», emphasizing the contingent nature of the problem of economic solidarity.

14 On December 10, 1948, the member nations of the U.N. signed the *Universal Declaration of Human Rights*, which reaffirmed the economic, cultural and economic freedoms spelled out in articles 22-27. In reality this declaration was not widely applied, as no organs were set up to monitor the observance of the articles therein contained.

15 The concept of social responsibility is present in the Green Paper: «*Most of the definitions of the social responsibility of firms describe this concept as the voluntary incorporation of the social and ecological concerns of firms in their business operations and their relations with interested parties.*», GREEN PAPER. Promoting a European context for the social responsibility of firms, at [http://www.welfare.gov.it/csr\\_cd/html/doc/greenpaperit.pdf](http://www.welfare.gov.it/csr_cd/html/doc/greenpaperit.pdf): 7.

Thus, the social responsibility of firms is no longer a concept that is only applied to *non-profit organizations*; even capitalist firms are now engaged in a new type of competition based also on the social aspects that characterize them. The adoption of instruments for social actions has become an *escalation* of proposals/offers that accompanies the exchange of goods/services on the market and that is in conformity with a dual orientation, which consumers view as indispensable in the social-economic context of reference. In this sense a sort of *strategy of social differentiation* occurs, understood as the firm's capacity to anticipate and fully satisfy a vast category of stakeholders who express needs based on an ethical-social orientation, through the implementation of a *business model* (Osterwalder, Pigneur & Tucci, 2005; Malone et al., 2006) that conforms to ethical principles.

In this context, an often substantial part of the value created by organizations in advanced capitalist systems goes to economic agents who are not directly involved in the organization's business activities, in order to achieve objectives which are often very different from those achieved by the *core* activities the organization normally undertakes.

Thus the distribution of value does not follow traditional “ownership” principles but rather the ethical goals with which the organization is identified.

## 10 – The surplus methods

In order to take account of both the internal economic agent's need to maximize shareholder value and the needs of the external stakeholders, while also considering the emerging need for social solidarity, it may be useful to examine the theory of surplus. By breaking up the values from the external management of the firm into differential contributions, this theory shows us how the value is produced and distributed among wide classes of agents.

It is useful to first observe that global economic productivity, or economic efficiency, is an indicator that seeks to measure the efficiency of the organization's technical-productive and economic transformations; as such it represents a good approximation of the organization's capacity to create value.

Analyzing how this indicator is constructed leads us to some considerations about productivity drivers and the firm's policies for distributing value.

Profitability, which, unlike economic productivity, also views capital as a factor necessary for the production of value, is an indicator that is typically directed at shareholders.

A different way to measure the efficiency of the economic-productive transformation is provided by the *surplus productivity method*. This method was introduced by Vincent (1969, 1971a,

1971b) as the *Méthode de surplus*<sup>16</sup>, a methodology capable of measuring global productivity in differential terms – in terms of surplus – in opposition to the traditional indices expressed in relative terms: «*Les surplus représente l'excès de la variation en volume de la production sur celle des facteurs et mesure, de façon globale, l'effet de l'amélioration des conditions de production: il mesure le gain de productivité globale*», (Vincent, 1971a: 18).

This method is characterized by its division of global productivity by means of two drivers:

- (a) increase in volumes
- (b) price advantage

comparing the values for the particular year under analysis – the current year – with those for a base year chosen as a standard.

The analysis of the global productivity of an organization's activities is obtained by an analysis of several values related to the profit and loss account, in which cost items are linked to production factors defined by their *quantity* and *prices*, and earnings come from the sale of products of a given level of quality – assumed constant – at a given volume, determined by plans and programmes drawn up by the organization, and at a price which conforms to the structure of the market in which the organization operates.

Here the financial elements are not considered.

The notation used is explained in Table 1.

*Table 1 – The surplus method notation*

		Base Year $N_0$	Current Year $N_1$
Products	Quantity	$q_0$	$q_1$
	Price	$p_0$	$p_1$
Production Factors	Quantity	$f_0$	$f_1$
	Price	$s_0$	$s_1$

Applying the surplus method yields the following algebraic equations:

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<sup>16</sup> The introduction of the concept of surplus – according to Lunghini's summary account (1996) – goes back to economists such as François Quesnay (1773), who spoke of *surplus*, defining this as the *net product* (that is, that which is left over from the output of an economy once the means of consumption needed for survival and the reproduction of productive workers and the means of production have been taken out) of the agricultural sector; Adam Smith (1804), who applied the concept of surplus to all sectors of the economy; David Ricardo (1876), who wrote about the distribution of the *surplus*; but above all Karl Marx (1893), who defined surplus as the origin of profits. Vincent's meaning of *surplus* has slightly different connotations than those of classical economic theory, even though important applications can derive from this, since it identifies productivity surplus as the difference between the increase in production volume and the price advantage of factors.



a) from the production side, productivity surplus is explained by [1], which represents the increase in sales volume with respect to the base year.

$$\sum p_1 q_1 - \sum p_0 q_0 = \left[ \sum p_0 q_1 - \sum p_0 q_0 \right] + \left[ \sum p_1 q_1 - \sum p_0 q_1 \right] \quad [1].$$

b) from the production factors side, the cost advantage is determined as specified in [2], which expresses the price advantage with respect to the base year..

$$\sum s_1 f_1 - \sum s_0 f_0 = \left[ \sum s_0 f_1 - \sum s_0 f_0 \right] + \left[ \sum s_1 f_1 - \sum s_0 f_1 \right] \quad [2].$$

Equation [3] expresses the total global productivity surplus.

$$S = \left[ \sum p_0 q_1 - \sum p_0 q_0 \right] - \left[ \sum s_0 f_1 - \sum s_0 f_0 \right] \quad [3].$$

[3] gives the surplus value as the difference between the increase in volume, from the production side, and the volume differential from the production factors side.

The value of the productivity surplus can also be expressed as the difference between the base year prices and those in the year under consideration, as shown in [4].

$$S = \left[ \sum p_0 q_1 - \sum p_0 q_0 \right] - \left[ \sum s_0 f_1 - \sum s_0 f_0 \right] \quad [4].$$

As an example, we can determine the productivity surplus by assuming the values in Table 2.<sup>17</sup>

Table 2 – Numerical example of the surplus method

		Base Year N <sub>0</sub>	Current Year N
Products	Quantity	q <sub>0</sub> = 10	q <sub>1</sub> = 11
	Price	p <sub>0</sub> = 120	p <sub>1</sub> = 130
Production Factors	Quantity	f <sub>0</sub> = 100	f <sub>1</sub> = 90
	Price	s <sub>0</sub> = -10	s <sub>1</sub> = -9

By analyzing [1] and [2] we can evaluate the *determinants* of surplus, and thus how it is distributed. From the production side there are advantages deriving from the following *sources of productivity surplus*:

<sup>17</sup> For the sake of simplicity and ease of calculation, we assume the firm has a *monoproduct* business that requires only a single input as production factor; the prices of the production factor and the product, obtained as the output of the technical-productive transformation processes, are determined by taking an average of prices in the period under consideration (that is, the average price in period N and the average price in period N<sub>0</sub>). This simplification in the calculations does not compromise the validity of the analysis in the event of different assumptions about production and the market.



a. an increase in the internal efficiency from the combination of production factors – a better productive mix, less waste, use of higher-quality factors – which allows the firm to obtain a quantity equal to that of the base year with fewer production factors; or, conversely, it can obtain a larger quantity of product, given the quantity of base year factors; in our example (pink rectangle in Figure 4 (a)) the increased efficiency in the combination of factors can be quantified as:

$$\left[ \sum p_0 q_1 - \sum p_0 q_0 \right] = (120 * 11) - (120 * 10) = 120 \text{ monetary units (m.u.) of revenue [1.a];}$$

b. an increase in the organization's external negotiating efficiency; the organization succeeds in applying selling prices higher than those in the base year – we can quantify the increase in external efficiency on the production side (in our example, the yellow rectangle in Figure 4 (a)) as:

$$\left[ \sum p_1 q_1 - \sum p_0 q_1 \right] = (130 * 11) - (120 * 11) = 110 \text{ m.u. of revenue. [1.b].}$$

Components [1.a] and [1.b] give us the advantage on the production side:

$$\left[ \sum p_0 q_1 - \sum p_0 q_0 \right] + \left[ \sum p_1 q_1 - \sum p_0 q_1 \right] = 230.$$

From the production factors side the determinants of surplus are found from the following components:

a. an increase in internal efficiency due to the reduction in production factor requirements to produce the planned quantity; in our example (green rectangle in Figure 4 (b)) this can be quantified as:

$$\left[ \sum s_0 f_1 - \sum s_0 f_0 \right] = (10 * 90) - (10 * 100) = -100 \text{ m.u. of cost; [2.a];}$$

b. an increase in external efficiency thanks to an increase in the organization's contractual power with regard to the holder of the production factors; in the present example (orange rectangle in Figure 4(b)) this amounts to:

$$\left[ \sum s_1 f_1 - \sum s_0 f_1 \right] = (9 * 90) - (10 * 90) = -90 \text{ m.u. of cost; [2.b].}$$

From components [2.a] and [2.b] we obtain the advantage from the production factors side:

$$\left[ \sum s_0 f_1 - \sum s_0 f_0 \right] + \left[ \sum s_1 f_1 - \sum s_0 f_1 \right] = -190$$

which corresponds to a reduction in the supply cost of the production factors.

Figure 4 is a graphical representation of the determinants of global productivity surplus, and it derives from an application of equations [1] and [2] to the value produced at time  $t_0$ . In Figure 4(a) the areas of efficiency should be interpreted as an increase in revenues; the areas of

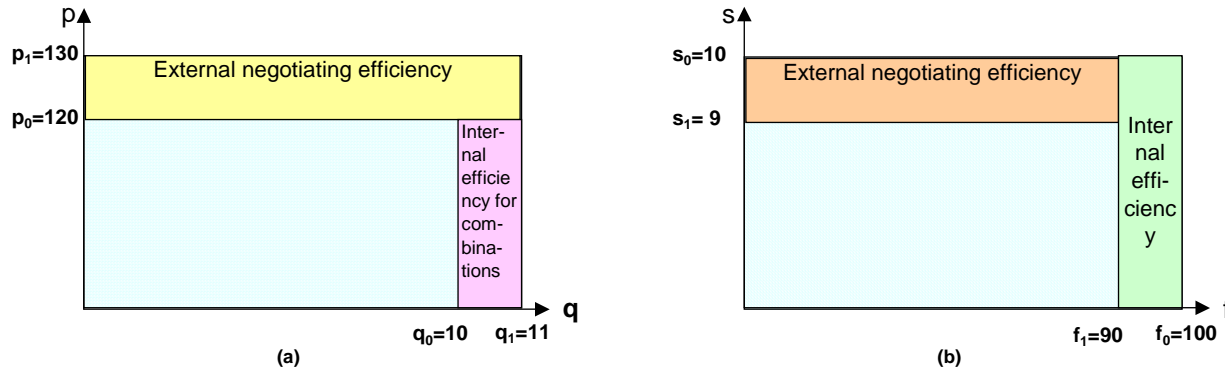
efficiency in Figure 4(b) represent instead reductions in waste regarding the production factors, and thus cost reductions.

Thus the value for the global productivity surplus is the difference between the increase in production volumes [1] and the price advantage of the production factors [2]:

$$S = \left[ \sum p_0 q_1 - \sum p_0 q_0 \right] - \left[ \sum s_0 f_1 - \sum s_0 f_0 \right] = 420 .$$

By drawing up the profit and loss statement for the periods  $t_0$  and  $t_1$  we can then produce those for the updated volumes at period  $t_1$  ( $q_1, f_1$ ), with prices unchanged from the preceding period ( $p_0, s_0$ ), as shown in Figure 5.

Figure 4 – The determinants of productivity surplus from the production side (a) and the production factors side (b)



The statement showing the distribution of the global productivity surplus (Figure 5) presents two sections that *generate* and *distribute* the surplus, respectively: Sources and Uses of Surplus. We can divide the economic agents that are found in the Sources section into three macro categories:

- the clients that are faced with an increase in the selling price and/or decide to absorb a larger quantity of the product/service with respect to the base year; the surplus generated by the *sources of productivity surplus* on the production side derive from the application of [1] (the value in [1] must be included in that section if the balance among the components [1.a] and [1.b] is positive);
- the holders of the factors who receive a lower payment than the factors used in the base period calculations, and/or for which there is a reduction in the overall factor share used in the production of the final goods/services; the surplus that the *sources of productivity surplus* on the production factors side is able to produce is derived from the application of [2] (the value of [2] must be included in this section if the balance of components [2.a] and [2.b] is negative);

- the firms that supply resources from surplus reserves from years previous to the year in question.

Figure 5 – Statement showing the distribution of the global productivity surplus

Income statement at time $t_0$				Income statement at time $t_1$			
$f_0$	100	10	$q_0$	$f_1$	90	11	$q_1$
$s_0$	10	120	$p_0$	$s_1$	9	130	$p_1$
$f_0 * s_0$	1.000	1.200	$q_0 * p_0$	$f_1 * s_1$	810	1.430	$q_1 * p_1$
$r_0$	200			$r_1$	620		

Income statement at time $t_1$ (with prices from period $t=0$ )			
$f_1$	90	11	$q_1$
$s_0$	10	120	$p_0$
$f_1 * s_0$	900	1.320	$q_1 * p_0$
$r_1$	420		

Statement for Global Productivity Surplus			
SOURCES		USES	
Contribution of surplus:		Distribution of surplus:	
- From clients	230	- To clients	0
- From holders of factors	190	-To holders of factors	0
- From the firm	0	- To the firm	420
<b>Surplus to distribute</b>	<b>420</b>	<b>Surplus distributed</b>	<b>420</b>

This list does not consider contributions from other classes of agents, such as the government (or public authorities) or external financial backers, since we can include such agents within the class “holders of factors”. In fact, the contributions or financing can be considered as production factors by extending this concept to cover the financial resources which the entire production activity requires.

We can place the economic agents that are in the Uses of the Surplus Account section into three macro categories:

- the clients that benefit from a reduction in the selling price and/or decide to absorb a lesser quantity of product/service compared to the base year; the surplus produced by the *uses of the productivity surplus* from the *production* side derive from the application of [1] (the value of [1] must be included in this section if the balance is negative);
- the holders of factors that are paid more than those employed during the base year and/or for whom there is a larger share of factors used in the production of final goods/services; the amount of surplus which the *uses of productivity surplus* on the *production factors* side is able to produce

can be determined from the application of [2] (the value of [2] must be included in this section if the balance is positive);

- the firm that benefits from the resources generated during the year in question; in our case the surplus produced by the Sources section is not distributed but remains inside the firm, as we see in Figure 5.

This classification does not include certain categories, such as the government (or other public authorities) and external financial backers, since these can be considered as belonging to the class 'holders of factors'; thus, taxes and passive interest are considered in the same way as payments for factors held by the above-mentioned classes.

The importance of [3] comes from the possibility of collecting and quantifying the benefits received by both the internal stakeholders and those outside the organization<sup>18</sup>; thus it facilitates the analysis to determine which economic agents gain utility from being a part of the overall activity carried out *within* the organization and those who benefit from the economic advantages thanks to the firm's relations with the *external environment*.

The formation and subsequent distribution of the global productivity surplus is presented in the Global Productivity Surplus Statement in Figure 5.

This shows the agents that participate in the *formation* of the surplus – in the example, clients and suppliers, identifiable as external stakeholders – and those that benefit from its apportionment – in our example those agents identified with the firm, and thus the internal stakeholders.

By summing up the advantages from the Surplus Distribution section we obtain the overall measure of the benefits distributed to the class of agents included in the Distribution section; on the other hand, the sum of the disadvantages in the Contribution to the Surplus section represents the overall amount of the disutility for those included in the same section.

Different assumptions regarding variations in the volumes and prices of production and production factors lead to different ways of forming and distributing the surplus.

We can be more detailed about the agents involved in the Surplus Account depending on the requirements of our analysis, while maintaining our operational methodology.

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<sup>18</sup> «C'est en comparant la somme des variations de volume des facteur à celle du volume de la production que l'on peut dire si la productivité globale des facteurs a augmenté ou diminué, comme on dit que la productivité du travail augmente ou diminue selon que le volume de la production s'accroît plus ou moins vite que le volume (nombre d'heures travaillées par exemple) du travail», Templé P. (1971), La méthode des surplus, *Economie et statistique*, [34].

## 11 – Advantages of the surplus method

From the example in Section 10 we can indicate the way the surplus is *distributed* among the different groups concerned, as we can see in Figure 5.

This possibility surely represents the greatest merit of the method we are examining. According to Vincent (1969), global productivity, when analyzed using the surplus method, leads to a study of the distribution of value among the various groups of interest. We can identify these groups through two configurations:

1. an *algebraic* configuration, that breaks down the formula for global productivity surplus into its various determinants;
2. a *schematic* configuration, using the *Distribution Account for Global Productivity Surplus* (Vincent 1971).

The choice of one or the other of these instruments does not compromise the validity of the results, since both cases refer to variations in the **same items** (production factor volumes, volumes of negative financial components, relative factor prices, and characteristic rates of the financial components).

An analysis of the determinants of productivity surplus allows us to identify the group of economic agents to which it is distributed:

- a. the holders of production factors (suppliers);
- b. the suppliers of labor (employees);
- c. the consumers who purchase the product/service (customers);
- d. the government;
- e. the suppliers of debt capital (financial backers);
- f. those who receive the net results of the period  $N-N_0$  (shareholders/owners)

An analysis of the *Variance Statement*<sup>19</sup> allows us to identify the organization's constraints and distribution policies.<sup>20</sup>

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19 For a numerical example of the Variance Statement for distribution, see Matacena, A. (1982), *Impresa e ambiente. Il bilancio sociale*, CLUEB, Bologna.

20 «*Le surplus qui apparaissant dans des comptes établis aux prix de l'année précédente disparaît du fait de la modification des prix. On peut ainsi interpréter les augmentations des couts des facteurs comme la distribution à ceux qui le ont apportés (les travailleurs par exemple) des surplus de productivité obtenus; une baisse du prix de vente joue le meme role: elle consiste à faire profiter les clients des gains de productivité globale réalisés, donc à leur attribuer un partie du surplus. A' l'inverse, une hausse des prix des vente revient à demander aux clients de fournir à l'entreprise un surplus supplémentaire qu'elle pourra distribuer. La baisse du prix d'un facteur a un effet identique.*», Cerc Surplus de productivité globale et compte de surplus, I trim, n. 1 1969.

We can immediately understand that the advantages regarding the range of internal stakeholders can be opportunely manipulated by the organization by means of a more or less favorable distribution to these stakeholders (given the value the organization retains internally).

The changes in the distribution of the productive surplus for the external stakeholders is more complicated, since the relations between the organization and the environment in which it operates are often regulated by contracts (Williamson 1975); thus the organization's margin of discretionary actions is reduced.

In any event the organization can earmark part of the utility it retains to the external stakeholders. This choice is conditioned by the organization's initial aims.

In short, Vincent's method allows us to observe the relative position of the various groups regarding the *scoring* of the percentages of value they receive. Thus the productivity surplus method is an instrument that permits the control and management of *business organizations*, both *profit* and *non-profit*.

## 12 – Limits of the surplus method

The use of the surplus method is justified by the advantages described in the previous section; these allow us to better understand the determinants of improvements in a firm's productivity and how these improvements are distributed. Nevertheless there are limits to this model.

The most important limits of the surplus method concern its application (Maitre, 1976):

- determining productivity in differential terms requires choosing a reference year, or *base* year, whose values must be compared with the year being examined; this introduces an arbitrary element into the analysis: the base year can have distortions at the macroeconomic level (the reference year may be characterized by an anomalous expansion or recession due to exogenous shocks, and this can change the comparison). We must remember that business logic tends for the most part to consider the previous period when making decisions for the current year;
- the need to shift from *nominal* values to those expressed in *real* terms implies the need to choose one or more price indices to adjust the nominal values by applying the increase due to inflation;

- in the model in which we analyze the *exhaustive*<sup>21</sup> formula of productivity surplus, the integration of profits, interest and taxes requires determining reference volumes in order to separate these variables into volumes and prices;
- the application of the model is difficult for multi-product firms.

### 13 - Conclusions

The study of the different ways we can assess the value created *in* and *by* organizations has always been considered a micro and macroeconomic problem (Quesnay, 1972; Smith, 1904; Ricardo, 1976; Marx, 1974; Zappa, 1956). The valuation of the surplus created can not disregard the founding goals of the organization and the principles regarding the allocation of its results. We must consider different evaluative methodologies in relation to the different structures analyzed.

In a strictly *for-profit* framework the most advanced tools of analysis are contained in the Value Based Management approach; this analysis aims at the maximum profit for the owners of the organization according to the principles of traditional management theory (Berle & Means, 1937; Marris, 1964; Baumol, 1967). The advent of new management approaches more in line with solidarity principles, such as Corporate Social Responsibility (CSR) introduces the need for an alternative evaluation to explain how wealth inside the organization and in the network in which it is embedded is accumulated and distributed. This management model is characterized by new forms for communicating results and an ethical approach to the latter's distribution.

Moreover, the value created by business *non-profit organizations* cannot be evaluated in the same way as *for-profit* organizations, since this business model does not have the objective of maximizing earnings. In addition, the importance of evaluating results cannot be underestimated, since a control of internal efficiency (the economic efficiency of the processes) is indispensable in order to avoid the loss of value that characterizes the transformation processes undertaken by the organization. In this context a qualitative analysis of the output should be added to a mere quantitative one.

An analysis of the *productivity surplus* method (Vincent, 1969, 1971a, 1971b) enters into this context as a methodology that can measure the amount of surplus created by the management activities of the organization in question as well as by the agents with whom it has economic relations. The model's uniqueness concerns its subdivision of the productivity surplus into *sources* of surplus by identifying the factors that, on the one hand, combine to create value for the

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21 Vincent, A.L.A. (1971), *Indices et surplus de productivité globale: étude méthodologique comparative*, Revue économique, (1), pp. 31-33.



organization and, on the other, deprive it of a share of this same value due to the exchange relations between the various parties.

In this way we can determine the *global productivity surplus*, which is given by the algebraic sum of the benefits and disadvantages that each stakeholder receives.

Further studies on the relation between the creation, measurement and distribution of value would be welcome, since the analysis we have undertaken does not consider the empirical validity of the model. A joint analysis of obligatory financial statements and social balances from a sample of organizations could lead to additional considerations regarding Vincent's proposed instrument for evaluating organizational performance.

## References

- Aldefer C.P. (1972), *Human Needs in Organizational Settings*, Free Press, New York.
- Alchian A. (1950), Uncertainty, Evolution and Economic Theory, *Journal of Political Economics*, No. 68, [211-222].
- Alchian A. and Demsetz H. (1972), Production, Information Cost, and Economic organization, *American Economic Review*, No. 62.
- Amendola A.D. and Troisi R. (2004), Strumenti d'incentivo e modelli di gestione del personale volontario nelle organizzazioni non profit, *DISES Working Paper*, No. 3.154, Salerno.
- Ashby W.R. (1971), *Introduzione alla cibernetica*, Einaudi, Torino; ed. or. *An introduction to cybernetics*, Chapman & Hall Ltd, London (1956).
- Banco de Bilbao (1982), *El balance social de la empresa y las instituciones financieras*, Bilbao, Madrid.
- Barney J.B. (1986), Strategic factors markets: expectations, luck, and business strategy, *Management Science*, Vol. 32, No. 10, [1231-1241].
- Baumol W.J. (1953), *Firms with limited money capital*, *Kyklos*.
- Baumol W.J. (1967), *Business Behavior: Value and Growth*, Harcourt Brace, New York.
- Begg D., Fischer S. and Dornbusch R. (1994), *Economics*, McGraw-Hill, London, 4<sup>th</sup> ed..
- Berle A. and Means G. (1932), *The Modern Corporation and Private Property*, Macmillan, New York.
- Borzaga C., Fiorentini G. and Maticena A. (a cura di) (1996), *Non profit e sistemi di welfare. Il contributo dell'analisi economica*, La Nuova Italia Scientifica, Roma.
- Cabral L.M.B. (2000), *Introduction to Industrial Organization*, MIT Press, Massachusetts, MA.
- Carta Europea dei diritti fondamentali
- Coase R. (1937), The Nature of the Firm, *Economica*, Vol. 4, No. 16, [386-405].
- Commission of The European Communities (2001). *Promoting a European Framework for Corporate Social Responsibility. Green Paper*, July.
- Cooper R. (1988), The Rise of Activity-Based Costing - Part One: What is an Activity-Based Cost System?, *Journal of Cost Management*, Vol. 2, No. 2, [45-54].



- Cooper R. (1989), The Rise of Activity-Based Costing - Part Three: How Many Cost Drivers Do You Need, and How Do You Select Them?, *Journal of Cost Management*, [34-46].
- Copeland T., Koller T. and Murrin J. (1996), *Valuation Measuring and Managing the Value of Companies*, John Wiley & Sons Inc., New York, NY.
- Cyert R.M. and March J. (1955), *A Behavioral Theory of the Firm*, Prentice-Hall, Englewood.
- Dichiarazione fondamentale dei diritti dell'uomo.
- Ecchia G. and Zarri L. (2005), *Capitale sociale e accountability: il ruolo del bilancio di missione nella governance delle organizzazioni non profit*, in Fazzi L. and Giorgetti G. (2005), *Il bilancio sociale per le organizzazioni non profit. Teoria e pratica*, Guerini e Associati, Milano.
- Fama E. and Jensen M. (1980), Separation of ownership and control, *Journal of Political Economy*, No 88, [288-309].
- Ferrero G. (1968), *Istituzioni di economia d'azienda*, Giuffrè, Milano.
- Galbraith J.K (1967), *The new industrial state*, Macmillan, Boston, 3<sup>rd</sup> ed.
- Giovanni XXIII (1961), *Mater et Magistra*.
- Giovanni Paolo II (1979), *Redemptor Hominis*.
- Gray R.H., Owen D. and Adams R. (1995), *Standards, stakeholders and sustainability*, Certified Accountant March 1995, [20-24].
- Herzberg F. (1959), *The motivation to work*, 2d ed., Wiley, New York.
- Herzberg F. (1966), *Work and the nature of man*, World Pub. Co., Cleveland.
- Kaplan R.S. and Norton D.P. (1996), *Balanced Scorecard*, Harvard Business School Press, Boston, Massachusetts.
- Kreps D.M. (1997), The interactions between norms and economic incentives. Intrinsic motivation and extrinsic incentives, *American Economic Review*, AEA Papers and Proceedings, Vol. 87, No. 2, [359-364].
- Jensen M.C. and Meckling W.H. (1976), Theory of the firm: managerial behaviour, agency costs and ownership structure, *Journal of Financial Economics*, No. 3, [305-360], revised Ed. (1979) in K. Brunner (a cura di), *Economics and Social Institutions*, Nejhoff, Boston.
- Larsimont A. (1979), Bilan social, diagnostic et chagement social, *Annales de sciences économiques appliquées*, in Note di economia aziendale.
- Learned E., Christensen C., Andrews K. and Guth W. (1969), *Business Policy: Text and Cases*, Irvin, Homewood, IL.
- Maitre P. (1976), Application du modèle des surplus dans les entreprises: surplus des productivité technologique et surplus d'expansion, *Révue Economique*, Vol. 27, No. 1, [122-141].
- Malone T.W., Weill P., Lai R.K., D'Urso V.T., Herman G., Appel T.G. and Woerner S. (2006), Do some business models perform better than others?, *MIT Sloan Research Paper*, 4615-06.
- Marris R. (1964), *The Economic Theory of Managerial Capitalism*, Macmillan, London.
- Marshall A. (1920), *Principles of economics*, Macmillan, London, 8<sup>th</sup> ed.
- Marx K. (1974), *Il capitale*, UTET, Torino, ed. or. *Das Kapital*, Meissner, Hamburg (1890).

- Masini C. (1964), *La struttura dell'impresa*, Giuffrè, Milano.
- Masini C. (1970), *Lavoro e risparmio: economia d'azienda*, UTET, Torino.
- Maslow A. (1964). *Religions, values and peak experiences*, Ohio State University Press, Columbus.
- Matacena A. (1982), *Impresa e ambiente. Il bilancio sociale*, CLUEB, Bologna.
- Matacena A. (2005), L'accountability nelle imprese lucrative e sociali. Verso una possibile convergenza?, *Economia Aziendale 2000 Web*, at: <http://www.ea2000.it/file%20per%20numero4-2005/4-05matacena.pdf>: 171-206.
- McClelland D. C. (1965), Need achievement and entrepreneurship, A longitudinal study, *Journal of Personality and Social Psychology*, No. 1, [389-392].
- Mc Taggart J.M., Kontes P.W., Mankins M.C. (1994), *The Value Imperative, Managing for superior shareholder returns*, The Free Press.
- Mella P. (1997), *Dai sistemi al pensiero sistemico*, FrancoAngeli, Milano.
- Mella P. (2003), Business and non-business value creating organizations in the 'Information and Internet age', *Economia Aziendale 2000 web*, 1/2003, at: [www.ea2000.it](http://www.ea2000.it): 3-24.
- Mella P. (2005), Performance Indicators in Business Value-Creating Organizations, *Economia Aziendale 2000 Web*, 2/2005, [www.ea2000.it](http://www.ea2000.it): 25-52.
- Nooteboom B. (2002). *Forms of trust. Trust: Forms, Foundations, Functions, Failures and Figures*, Edward Elgar Publishing, Cheltenham, Northampton.
- Onida P. (1956), *L'azienda. Primi principi di gestione e di organizzazione*, Giuffrè, Milano.
- Onida P. (1962), *Economia d'azienda*, UTET, Torino.
- Osterwalder A., Pigneur Y. and Tucci C.L. (2005), Clarifying business models: origins, present, and future of the concept, *Communication of the association for Information Systems*, 15, [1-43].
- Pellicelli M. (2005), Value Based Management: The Managerial Approach that Changes the Organization's Culture, *International Journal of Knowledge, Culture and Change Management*, Vol. 5, No. 5, [49-58].
- Penrose E. (1955), Limits to the growth and size of firms, *American Economic Review*, 45, [531-543].
- Penrose E. (1959), *The theory of the growth of the firm*, Basil Blackwell, London.
- Pilati M. (1995a), *I processi decisionali relativi al lavoro: la motivazione*, in A. Grandori (1995), *L'organizzazione delle attività economiche*, Il Mulino, Bologna.
- Pio XI (1931), *Quadragesimo anno*.
- Porter M.E. (1990), *The Competitive Advantage of Nations*, Free Press, New York.
- Pratt J.W. and Zeckhauser R.J. (1985), *Principals and agents: the structure of business*, Harvard Business School Press, Boston.
- Quesnay F. (1758), *Tableau Oeconomique*, 1 ed., riprodotta e trad. nell'Appendice A di Kuczynski and Meek (1972).
- Ricardo D. (1817), *On the principles of political economy and taxation*, 1 ed., tr. it. *Sui principi dell'economia politica e della tassazione*, ISEDI, Milano (1976).

- Roztocki, N. and Needy, K.L. (1998), An Integrated Activity-Based Costing And Economic Value Added System As An Engineering Management Tool For Manufacturers, *1998 ASEM National Conference Proceedings*, Virginia Beach, October 1-3, 1998, [77-84].
- Rusconi G. (1988), *Il bilancio sociale d'impresa: problemi e prospettive*, Giuffrè, Milano.
- Schumpeter J.A. (1911), *Theorie der Wirtschaftlichen Entwicklung*, Duncker & Humblot, Berlin, tr. it.: *Teoria dello sviluppo economico*, Firenze (1977).
- Senge P.M. (1990), *The Fifth Discipline*, Currency Doubleday, New York.
- Simon H.A. (1959) Theories of Decision-making in Economics and Behavioral Science, *American Economic Review*, 49, [223-283].
- Simon H.A. (1961), *Administrative Behaviour*, Free Press, New York.
- Smith A. (1904), *An Inquiry into the Nature and Causes of the Wealth of Nations*, Edwin Cannan, London, 5<sup>th</sup> ed.
- Superti Furga F. (1975), *Proposizioni per una teoria positiva del sistema d'impresa: teleologia e logica operativa*, Giuffrè, Milano.
- Templé P. (1971), La méthode des surplus, *Economie et statistique*, dicembre 1971.
- Vicari S. (1991), *L'impresa vivente*, Etas Libri, Milano.
- Vincént A.L.A. (1971), Le traitement des interets et des profits dans les comptes de surplus, *Revue économique*, Vol. 22, No. 5, [843-850].
- Vincént A.L.A. (1971), Indices et surplus de productivité globale, *Revue économique*, Vol. 22, No. 1, [1-42].
- Vincént A.L.A. (1969), La productivité globale clé de l'étude de la répartition, *Revue économique*, Vol. 20, No. 5, [783-829].
- Vincént A.L.A. (1965), De la mesure de la productivité aux problèmes généraux de gestion économique, *Revue économique*, Vol. 16, No. 6, [879-924].
- von Neumann J. and Morgenstern O. (1947), *The Theory of Games and Economic Behavior*, Princeton University Press, Princeton, 2nd edition.
- Williamson O.E. (1964), *The economics of discretionary behaviour: managerial objectives in a theory of the firm*, Prentice-Hall, Englewood Cliffs: NY.
- Williamson O.E. (1975), *Market and hierarchies: Analysis and anti-trust implication*, Free Press, New York.
- Williamson O.E. (1976), *The Economics of Governance: Framework and Implications*, in *Economics as a Process. Essays in the New Institutional Economics*, Langlois R.N. (1976). Cambridge University Press, [171-202].
- Young D.S. and O'Byrne S.F (2000), *Eva and Value-Based Management: A Practical Guide to Implementation*, McGraw-Hill, New York.
- Zappa G. (1956), *Le produzioni nell'economia delle imprese*, Giuffrè, Milano.