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On the Object and Method of Analysis: the General X-Efficiency Theory¹

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1) Harvey Leibenstein is one of those authors who elaborate a particular original "vision"² and then remain fondly and persistently attached to it. Thus, since the publication of his famous article *Allocative Efficiency vs "X-Efficiency"* in 1966,³ in which he introduced the fundamental problem and coined the term "X-efficiency", Leibenstein has devoted his work to the development of the implications of the concept and to the formulation and extension of its applications.

Leibenstein's book *General X-Efficiency Theory and Economic Development*⁴ plays an extremely special role in this context. In this book, the concept of *X-efficiency* is associated with an ambitious theoretical program, especially in its significantly theoretical and abstract first part.⁵ Leibenstein's intention is to use it as a basis not only for a reconstruction of microeconomics as a whole (a program he has already systematically dealt with in his earlier book *Beyond Economic Man*,⁶ the subtitle of which is precisely *A New Foundation For Microeconomics*), but also for a new equilibrium theory of markets and of the whole economic system. He in fact states: "What I have referred to as general X-efficiency theory attempts to provide a more realistic framework within which the neoclassical idealized state is a special case".⁷

¹ This text is the author's contribution to N. ACOCELLA, G. REY and M. TIBERI (eds.), *Saggi in onore di F. Caffè*, Milano, C. Angeli, forthcoming.

² The fact that in Leibenstein's case it is unnecessary to mention that his "vision" is related to the X-efficiency concept is an undisputed sign of the Author's (or the formula's?) success.

³ HARVEY LEIBENSTEIN, "Allocative Efficiency VS 'X-Efficiency'", *American Economic Review*, June, 1966.

⁴ H. LEIBENSTEIN, *General X-Efficiency Theory and Economic Development*, New York, OUP, 1978.

⁵ The second part is a collection of relatively self-contained essays on themes concerning the theory of economic development which may almost seem like *applications* of various aspects of the general X-efficiency theory.

⁶ H. LEIBENSTEIN, *Beyond Economic Man*, Cambridge Mass., Harvard University Press, 1976.

⁷ H. LEIBENSTEIN, *General X-Efficiency etc.*, *op. cit.*, p. VII.

Whilst from 1966 onwards, Leibenstein initially concentrated on problems of production and on the internal life of the firm, he later turned to phenomena relating to demand, and *Beyond Economic Man* deals with the topic in a systematic fashion. *General X-Efficiency Theory and Economic Development* is an attempt to connect the two fields that Leibenstein had until this point treated separately, by proposing a “closing” of the whole model. However — to anticipate one of my conclusions — it remains no more than an attempt.

His attack on neoclassical construction focuses on *modes of decision-making* and on the inadequate perception of the complex relationship between *decision-making* and consequent *behaviour*:

“A summary way of stating some of the issues raised in this chapter, and developed in detail in the rest of this book, is to say that we plan to look into the “black box” of microtheory to see if it is adequate for the analysis of economic development problems”.

He then continues:

“The black box is a decision-making entity which follows maximization or optimisation rules... The black box notion is, in fact, a felicitous metaphor for a critical aspect of neoclassical theory. It represents the complete mechanization of the decision-making process”.⁸

Leibenstein’s critical analysis develops on different levels, beginning with the most general. Not only does he consider the hypothesis of perfect information within which decision-making takes place and its optimizing nature unrealistic, but he also rejects traditional units such as the family and the firm, which should make the decisions. The further step is his criticism of total identification of decision-making and behaviour, almost as if a decision, which is by hypothesis instantaneous and costless, must necessarily be followed by completely consistent behaviour without the mediation of any additional interventions or adjustments.

Leibenstein sees *individuals*, considered in the specificity and complexity of their interpersonal relations — in particular within what are traditionally known as basic units — as being the decision-makers. They have imperfect information obtained in a costly fashion from an environment in which the market structures are not universally present (and when they are, they are rarely perfect). The decisions individuals make are guided by rationality (as elementary units, individuals are expected to follow rational behaviour) which is nevertheless not the rationality of optimization, but rather that of *selective rationality*, in the definition of which the role of the individual psychological structure is decisive.

Leibenstein’s reconstruction departs from this base and, using the definition of the equilibrium positions of the individual and the complex of interpersonal relations, it determines the equilibrium of the organization.

⁸ H. LEIBENSTEIN, *ibid.*, p. 10.

It also attacks the image of the market structure and the role the entrepreneur plays in it. Instead of "the unimpeded and 'well lit' net" of the perfect competition model, Leibenstein suggests a more realistic image of the market structures as being "an impeded, incomplete and 'dark' net".⁹ It is therefore an image that highlights the *imperfections* of the real markets and the incomplete manner in which the market structures cover the realities of production and exchange.

In markets defined in this way, the role of the entrepreneur is also altered. No longer does he limit himself to making foreseeable decisions regarding quantities in reply to non-equivocal and complete price signals, but he must also become a "gap filler" and "input completer",¹⁰ roles that are in fact essential for the functioning of the market mechanisms and for their continuous improvement.

It is thus evident that Leibenstein's sphere of criticism and reconstruction is indeed vast. It nevertheless particularly concerns *production theory* and *theory of the firm*. This means that Leibenstein's analysis does not go so far as to indicate how markets adjust, but merely shows how the individual (or at most, the complex organization he belongs to) reaches an equilibrium position.

The central undertaking of Leibenstein's attempt at theoretical reconstruction is his consideration of *individual effort* as a discretionary variable, albeit within a series of constraints, whilst traditional theory has considered it an exogenously-determined fact. The degree of "effective return" of the various inputs of a firm depends on the degree of effort chosen by each individual (according to selective rationality and within a situation determined by his personal psychology and by interpersonal relations) and on how the various different individual choices combine at the level of the firm. When compared with the maximum return obtainable, the effective return determines the *degree of X-efficiency*, or alternatively X-inefficiency, the firm reaches. It follows from all this that the availability of a universally-recognized technique, according to the traditional hypothesis, does not imply that the various different firms produce according to the same production function. Each firm will have at its disposal a certain function that is associated with the degree of X-inefficiency it reaches.

The concept of X-efficiency defined in relation to the use of an input and to the overall *performance* of a firm is then used with reference to the overall results attained on a market and also to the functioning of the whole economic system, including its dynamic patterns. This extension, which is made approximately and merely on the basis of analogy,¹¹ is an explicit recognition of a widening of vision that had already appeared in *Beyond*

⁹ H. LEIBENSTEIN, *ibid.*, p. 45.

¹⁰ H. LEIBENSTEIN, *ibid.*, p. 46.

¹¹ The basic aim is to allow comparison with competitive equilibria.

Economic Man, in which many of Leibenstein's new ideas concerning individual equilibrium and overall performances of organizations were already set out, often already at the stage of definitive elaboration. It is therefore an extension which reaches to the limits of the economic field and on which the scientific program of "general reconstruction" of microtheory that Leibenstein explicitly pursues is founded.

Nevertheless, in my opinion, the program does not manage to reach its objective, for a variety of reasons. Firstly, the new elements revealed by Leibenstein's critical observations do not achieve a status — in terms of a precise definition, of measurability, of experimented theoretical classification — comparable to that enjoyed by the traditional variables of *quantities* and *prices*. Therefore the traditional variables continue to be perceived as transparently underlying the new elements, which nevertheless undoubtedly enrich the psychological observations and the organizational analysis. The traditional variables are still the fundamental references for an interpretation of the functioning of the economic system.

Moreover, as we have already observed, Leibenstein's criticism and his consequent reconstruction only affect certain parts of the whole theoretical structure: precisely, the production theory and the theory of the firm. The range of the various different arguments is therefore limited to the behaviour of a single individual or to the overall result a firm derives from the interaction between various different individuals; hence only the situations of *partial equilibrium* are defined.

The positions of partial equilibrium are by their very nature based on equilibrium patterns for the whole system. These patterns define the general framework in which the individual partial equilibria are placed, and, as a consequence, extend the profound "vision" of the economic process which they contain to the partial equilibria. In this case, as I will show later, as the critical observations cannot lead to the construction of a more comprehensive general mechanism, we must turn once more to the neoclassical model of competition for an overall view of the economic process.

The mere fact of considering only some parts of a whole theoretical structure does not allow Leibenstein to subject his ideas to a test of overall consistency. Thus, if we consider a single firm, for example, we are able to stress the kind of *discretionable variable* that individual effort displays. We may conclude that the effort of each individual will be determined by his particular psychological structure and by an equilibrium between the horizontal and the vertical constraints; that is, between constraints arising from his peers and from of his superiors.

Nevertheless, if we wish to define an equilibrium both for the firm and for the market, we must go further and specify which stimuli the psychological structures and the horizontal and the vertical constraints respond to, and what structural relations exist between them. Only in the

last essay in the collection is the field of analysis widened to include “the extent to which the environment puts pressure on the firm, which in turn puts pressure on the individual”.¹² All the elements that show how competitive pressure forces the firm to move towards generally recognized standards of efficiency¹³ by means of a control of the “effort” variable are thus specified. However, the significance of these considerations is not assessed here, as it should be, and, although the theoretical consequences of the tightness of competition are perceived, they are not developed further.¹⁴ The sphere in which the elements underlying the phenomenon of X-inefficiency take on a systematic relevance is thus not clarified.

2) Noting the failure of a theoretical program may not necessarily be the last word on the subject. What is really interesting is to single out the *reasons* for the failure, which may also help in understanding the deeper significance of a line of research.

With this in mind, let us turn once more to the concept that is central to Leibenstein’s reflections: *X-efficiency*. The concept is presented here as a *general principle*¹⁵ — indeed the whole development of Leibenstein’s thought has moved in this direction — and it is considered sufficient to form the basis for a reconstruction of the whole theoretical structure.

We have already seen that the value of X-inefficiency is measured by the *deviation* of a real position with respect to a position that can be abstractly defined on the basis of the functioning of a perfectly competitive market. In certain passages, Leibenstein refers to a list of some of the sources of X-inefficiency. However, if we examine them more closely, we see that the characteristic of the category to which all the various sources belong is that it is *negatively-defined*: it is the *residual category*, which includes any element that cannot depend on the efficient allocation of resources in reply to price signals.¹⁶ Any phenomenon which cannot be traced back to the

¹² H. LEIBENSTEIN, *ibid.*, p. 167.

¹³ “There is a variety of means in which the tightness of cost control can manifest itself... Degree of competition probably represents the simplest example of an environmental cost-containing force” (H. LEIBENSTEIN, *ibid.*, p. 169).

¹⁴ The necessary conclusion would have been that the elements that are the cause of X-inefficiency only become significant if the firm is *sheltered* from competitive pressures. Leibenstein later explicitly supports this thesis (see H. LEIBENSTEIN, “Microeconomics and X-Efficiency Theory”, in D. BELL, I. KRISTOL (eds.), *The crisis in Economic Theory*, New York, Basic Books, 1981 and by the same Author, *Inside the Firm*, Cambridge Mass., Harvard University Press, 1987. However, this would have necessitated a thorough consideration of the role of competition in economic theory — in all its different meanings, including that of “dynamic competition” — and an assessment of its importance in real economic systems.

¹⁵ “The main emphasis... is that the same ideas that helped to explain why inputs are not used as effectively as they might be can also explain why less than full utilization of economic opportunities takes place on the part of individuals, firms and the economy at large” (H. LEIBENSTEIN, *General X-Efficiency etc.*, *op. cit.*, p. 38).

¹⁶ “In this context X-efficiency is to be contrasted with allocative efficiency, the latter being the form of efficiency commonly considered in neoclassical economics” (H. LEIBENSTEIN, *General X-Efficiency etc.*, *op. cit.*, p. 17).

action of the basic mechanism of the traditional model and which as a consequence takes the individual or the firm or the whole economy outside theoretically definable positions of equilibrium, and therefore outside the associated conditions of optimality, is a source of X-inefficiency.

In its interpretation as a “general theory”, X-efficiency is therefore a *residual container concept*.¹⁷ As such, it cannot sustain an overall scientific program which must be generated by an autonomous *unitary principle*. It may, however, in my opinion, play an operative role in structuring any research which, in exploring important aspects of reality, refuses to limit the interpretation of real economic systems to a neoclassical model of perfect competition. It may therefore act as a *repertory* and an *open repertory*¹⁸ for all the sectors of study — which may not necessarily be closely connected — in which important results in the criticism of traditional neoclassical theory have been, or are in the process of being, obtained.

Indeed, if we briefly review the items Leibenstein himself includes in the repertory, we find themes like, for example, the important meanings of rationality, disequilibrium situations, the relationships between motivation and behaviour, which belong to fields of research in which considerable new elaboration is currently taking place.

This interpretation of X-efficiency is confirmed by its ability to select over time the range of phenomena to be gradually considered and to include themes that have emerged and prevailed in scientific debate. Further confirmation comes from checking the list of the most important sources of X-inefficiency Leibenstein sets out in *General X-Efficiency Theory*: “Since individuals are interested in the utility of their effort positions and not necessarily in their productive contributions, we can readily see that the choice of effort positions based on utility would not in general yield maximum productivity from given inputs. In addition, since the average firm will contain agents as well as principals, and since we have already argued that agents will not necessarily perform in their agent’s interests, but that they will have interest of their own, we can readily see that the use of agents could be a source of inefficiency... Finally, the theory of inert areas suggests the possibility of the persistence of inferior effort positions even in the face of known superior alternatives... In addition to the points mentioned above, some aspects of the interpersonal interactions mechanism within the firm may also be sources of X-inefficiency”.¹⁹

It is obvious that, with respect to Leibenstein’s earlier formulations,²⁰

¹⁷ We must recall that in his article of 1966, Leibenstein suggested there might be a direct link between his research and that of others (SOLOW, ANKRUST, DENISON at al.) on the *residual increase* of the product which cannot be attributed to purely quantitative increases in inputs.

¹⁸ The author himself calls his theory an *open theory*, which could also be developed in fields other than the ones he had considered (see. H. LEIBENSTEIN, *Beyond Economic Man*, *op. cit.*).

¹⁹ H. LEIBENSTEIN, *General X-Efficiency etc.*, *op. cit.*, p. 37.

²⁰ See H. LEIBENSTEIN, “Allocative Efficiency etc.”, *op. cit.* The analysis of Leibenstein’s earlier formulations is taken up further on.

here the questions concerning production activities in the proper sense are ignored and the emphasis is placed on the firm's *internal organization*, given the different motivations of *principal* and *agents*.²¹ In the Preface to his most recent book — *Inside The Firm* — Leibenstein then states that: "The theory presented can also be seen as a contribution to the new institutional economics. Institutional economics depends to a considerable extent on the formalized concepts of conventions (inside the firm) and institutions (conventions outside the firm). These concepts are critical to the theory of the firm underlying this book".

At this point, we must ask ourselves whether the results of the theoretical program were not in some way predictable. In other words, whether the results were not already implicit in the way in which the problem of X-efficiency was developed right from the beginning.

Let us return to Leibenstein's fundamental article of 1966²² in which the question was put: "The essence of the argument is that microeconomic theory focuses on allocative efficiency to the exclusion of other types of efficiency that are, in fact, much more significant in many instances".²³

As far as *allocative efficiency* is concerned, Leibenstein considers one of its static meanings which refers to net aggregated surplus.²⁴ The other kinds of efficiency, which are given the general term "X-efficiency",²⁵ are merely *implicitly* defined by Leibenstein, who indicates the different areas in which, in certain cases,²⁶ it has been possible to obtain even considerable productivity increases using neither additional capital nor technical progress:

²¹ In a recent work, the origin of X-inefficiency is exclusively linked to the contrast between "employees on the one side and *management* on the other". Each group controls certain basic variables, but the outcome depends on all the variables jointly. The situation is interpreted as a special case of the Prisoner's Dilemma, the solution to which is found in *conventions (social norms)* (see H. LEIBENSTEIN, "X-Efficiency Theory" in J. EATWELL, M. MILGATE, P. NEWMAN (eds.), *The New Palgrave. A Dictionary of Economics*, London, Macmillan, 1987).

²² We can find evidence of the source of some of the X-efficiency concepts in earlier works by Leibenstein (see H. LEIBENSTEIN, *A Theory of Economic-Demographic Development*, Princeton, N. Y., Princeton University Press, 1954 and *Economic Backwardness and Economic Growth*, N. Y., J. WILEY and Sons, 1957). In these works he often repeats his belief in the importance of exploring the "micro" level thoroughly and stresses the need to find a definitive explanation in individual behaviour. However, his article of 1966 marks the actual beginning of the question. In relation to this, Leibenstein's *Economic Theory and Organizational Analysis* (N. Y., Harper and Bros, 1960) takes an important step towards outlining the field.

²³ H. LEIBENSTEIN, "Allocative Efficiency etc.", *op. cit.*, p. 392.

²⁴ The appropriateness of Leibenstein's choice of concept to be used will not be discussed here.

²⁵ "Although a major element of "X-efficiency" is motivation, it is not the only element and hence the terms "motivation efficiency" or "incentive efficiency" have not been employed". (H. LEIBENSTEIN, "Allocative Efficiency etc.", *op. cit.*, p. 392).

"At the time of the original article (Leibenstein, 1966), it seemed that no available concept, such as organizational inefficiency or motivational inefficiency, implied all the elements that could be involved in non-allocative inefficiencies. Hence, the comprehensive term, "X-inefficiency", was used" (H. LEIBENSTEIN, "X-Efficiency Theory", *op. cit.*).

²⁶ Leibenstein refers specifically to the results of a series of ILO Productivity Missions in different countries: Israel and certain (underdeveloped) countries (India, Indonesia, Thailand, Pakistan etc.).

“reorganization of the plant layout, machine utilization and flow, simple technical alternations, materials handling, waste control, work method, payment by results and worker training and supervision”.²⁷

It is therefore evident that each type of efficiency refers to a *radically different class of phenomena*: “allocative efficiency” concerns the functioning of the competitive market mechanism; “X-efficiency” refers to “the simple reorganization of productive processes” (in the absence of technological innovations) and also to the motivational aspects inside firms seen as organizations.

The diversity of the phenomena is also confirmed by how the “degree of inefficiency” is measured in each case. That is, by the norm by which a real situation is compared. In the case of allocative efficiency, the norm is given by the corresponding pattern of competitive equilibrium; in that of “X-efficiency”, it is given simply by the level of productivity registered after the intervention.

Despite the difference, Leibenstein sought a *common field* where the effects of the two classes of phenomena could be directly compared, as his use of the term “efficiency” for the second class as well reveals. However, the term “efficiency” is by its very nature associated with a *norm that is definable in objective terms* and therefore contrasts with the *fortuitousness* of the term of reference when dealing with the measurement of productivity increases.

Leibenstein’s search for a solution to this contrast by means of the definition of a less fortuitous norm reveals the original reasons that led him to extend the interpretative range of the basic concepts of X-efficiency to include the adjustment of the single markets and the equilibrium of the whole system. This permitted him to consider the (abstract) patterns of a neoclassical-type competitive equilibrium as the term of reference for the (real) X-inefficient situations.²⁸

His attitude towards the neoclassical model is thus a rather singular one. At the basis of all his reasoning, the neoclassical model is rejected because of the scarce realism of its premises, which do not allow him to give an adequate interpretation of what happens in reality. However, the neoclassical model is then used to define the norm that is compared with real situations.

It is this crucial choice that greatly limits the range of critical developments which could have departed from the recognition of the little importance of allocative efficiency. Examining them more closely, the critical observations Leibenstein makes always depart from within the questions to which the neoclassical model responds, and are therefore included in

²⁷ H. LEIBENSTEIN, “Allocative Efficiency etc.”, *op. cit.*, p. 399.

²⁸ “The view taken behind this work is that traditional microtheory represents an idealized case under which the economy works in an optimally efficient manner. Thus it represents a standard against which economic behaviour can be judged...” (H. LEIBENSTEIN, *General X-Efficiency Theory etc.*, *op. cit.*, Preface, p. VII).

the sphere of his general vision. He limits himself to indicating *why the reactions of quantities to prices are not exactly those we would expect from the neoclassical model*. However, this is the model that is used to define “right” prices²⁹ to which individuals, and the organizations within which the individuals act, react optimally. In this fashion, the new elements introduced may be defined as *inertia, deviations, imperfections* — terms that often recur in Leibenstein’s work — with respect to the perfectly definable patterns that continue to play a central role in Leibenstein’s theory.

3) It would seem that a different line might have been more fruitful; it could have proposed a freer exploration of the new realities without being limited *a priori* to patterns and methods elaborated for different questions, whose interpretative range is restricted within widely — recognized limits.

A suitable starting point for this argument might be a reconsideration of the initial and decisive points from which Leibenstein’s criticism of the neoclassical model departs. These are methods of decision-making and the inadequate perception of the complex relationship between decisions and consequent behaviour:

“The *black box* is a decision-making entity which follows maximization or optimization rules. Once the correct decision is made it is presumed that to whatever degree performance is required, that performance of the type that the decision requires in fact takes place... In cases of trade between individuals where the price is fixed by means of some sort of an auctioning procedure and individuals choose only the quantities they wish to buy and sell, we have a situation in which the black box metaphor may be very close to reality”.³⁰ This is basically because “*for the most part the nature of the example assumes away the question of performance. In the case in which the goods have to be produced, performance no longer necessarily follows choice automatically*”.³¹

“It is true that we may visualize the transformation of inputs into outputs as involving the choice of a technique of production, but something much more important is involved. There is not only the initial decision involved, but also an extremely significant area of performance... The process we call performance not only involves doing things, but it allows for new choices to be made every step of the way”.³²

These observations point out yet again how the complete construction of the neoclassical model of general equilibrium³³ has occurred as an

²⁹ “Subsidies, taxes, or other controls that result in deviations from free market equilibrium prices must result in decisions that misallocate resources... Our view is that even if prices are “right”, so to speak, the inputs may still be used ineffectively” (H. LEIBENSTEIN, *ibid.*, pp. 158-9.

³⁰ H. LEIBENSTEIN, *ibid.*, p. 10.

³¹ H. LEIBENSTEIN, *ibid.*, p. 10 (my italics).

³² H. LEIBENSTEIN, *ibid.*, p. 11.

³³ Here we refer in particular to the Walrasian version of general equilibrium.

extension of the model of pure exchange. They also stress how, as a consequence, the logic of the simultaneous determination of the equilibrium levels of the variables, which necessarily belong to the only two acceptable classes — quantities and prices³⁴ — has been enforced at each of the stages that successively widen the original model, progressively concerning the production of consumer and capital goods, and monetary phenomena.

However, production cannot easily be reduced to the logic of exchange, for several reasons: it takes place over time and requires a constant adjusting process by means of flexible co-ordination, problems must be dealt with as they arise and there are problems that cannot be foreseen at the beginning. To obtain the final result, *instantaneous* decisions certainly do not suffice just as — symmetrically — prices are no longer the only relevant sources of information for correct behaviour. The object to be studied should therefore no longer be seen as a traditional equilibrium pattern, but as a *process* that takes place in real time.

From this point of view, it is acceptable that the complex interactions between the various forces in play be highlighted by means of the illustration of particular cases, given the impossibility of a formal application.

This is precisely the line chosen by authors such as Hirschman and Rosenberg who, working in the fields of economic development and technological change, are objectively linked to Leibenstein for several reasons.³⁵

It is a line that Leibenstein, on the contrary, refuses to follow. Many of the difficulties his analysis encounters may arise from a basic contrast between the *innovative contents* he manages to focus on and the *analytical methods* he uses to investigate them. His *General X-Efficiency Theory*, which we have dealt with thoroughly here, may be considered his most ambitious and conclusive attempt³⁵ to proceed in a direction that has revealed itself

³⁴ The reduction of all behaviourable variables to decisions (either of demand or of supply) logically requires a technique that is both *instantaneous* and perfectly known, and also a firm that merely mechanically “transforms” inputs into outputs.

³⁵ Mention must be made here of Hirschman’s famous definition of economic development as “the record of how one thing leads to another”.

In his *Introduction* to Hirschman, A. Ginzburg writes: “The attempt to construct a ‘mental attitude’ open to possibilities often leads Hirschman... to adopt viewpoints that... tend to highlight a vision of social phenomena as *processes*. A similar vision may be set against the instantaneous vision implicit both in the hypothesis of optimizing behaviour of economic subjects and in the conceptions that represent power, instead of being seen as a relationship, as an attribute of he who possesses it” (A. GINZBURG, *Introduction* to A. O. HIRSCHMAN, *Ascesa e declino dell’economia dello sviluppo*, Torino, Rosenberg e Sellier, 1983).

Of the many affirmations made by Rosenberg, we may quote: “Many aspects of technological change, in order to be adequately understood, must be examined in terms of particular historical sequences, for in technological change as in other aspects of human ingenuity, one thing often leads to another — not in a strictly deterministic sense, but in the more modest sense that doing some things successfully creates a capacity for doing other things”. N. ROSENBERG, “Technical Change in the Machine Tool Industry: 1840-1910”, in *Journal of Economic History*, N. 4, 1963.

³⁶ In his later writings, Leibenstein makes no further mention of “general” X-efficiency theory. He replaces the analysis in its own field (the *internal* life of the firm) and explores the

to be fruitless. His acceptance of the method of analysis of equilibrium and his use of competitive patterns as a norm with which to carry out comparisons, basically lead back to the traditional model and necessarily limit his chances of finding elements that are really “new”.

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spheres in which elements of inefficiency are systematically generated: motivations, organization, techniques. See H. LEIBENSTEIN, “Microeconomics and X-Efficiency Theory”, *op. cit.*, “X-Efficiency Theory”, *op. cit.* and *Inside the firm, op. cit.*

In his Preface to *Inside the Firm*, Leibenstein states that he uses the terms X-inefficiency and internal inefficiency of the firm “interchangeably”. In the concluding remarks of the same book (pp. 241-242), we find statements which confirm the main thesis of this paper: “Our focus in this book has been on sources of internal inefficiency. We have not attempted to provide a design for an optimally efficient organization... for purposes of analysis and policy determination it is probably more important to understand sources of inefficiency rather than focus on the characteristics of an ideal organization”.