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Towards a theory of the small firm: theoretical aspects and some policy implications

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Abstract

There is a need to shed light on the growing role played by the small firm in local, national and global dynamic competition in order to challenge this deeply rooted lack of interest. The fact that firms have been organized successfully in ways that differ from the fordist paradigm has put the certainties, on which generations of economists have constructed their own analytical and interpretative grids and influenced industrial policy, in crisis. Thus, in the face of empirical evidence, it must be admitted that the case of the small firm can no longer be considered as a transitory phenomenon unsuitable for the attention of economic theory.

Within this framework, the intention of this study is to provide the reader with points of particular interest in the light of recent developments in the theory of the firm, in industrial organisation and industrial economics and policy. One of these, worth mentioning even now, is the definition of the small firm which appears to be far from homogeneous in structure, conduct and performance. Thus, this paper will attempt to single out the patterns that emerge from a descriptive and empirical body of literature which still needs to be rearranged and elaborated by means of an ad hoc theoretical structure dedicated to small firms.

The paper is arranged as follows. In the first part the main theories of the firm are summarized and their limitations are discussed. In the second part the relationship between efficiency and firm size is analyzed. The third part attempts to define the concepts and the analytical tools needed for the construction of a theory of the small firm. Thus, the limitations mentioned in the previous section are

discussed in relation to small firms, giving emphasis to the importance of external economies and collective efficiency. The discussion will also examine the technical and productive as well as the social and organisational aspects of the firm which, while being frequently neglected in traditional theories, are in fact extremely useful when examining the case of small firms. Thus, in a certain sense, the organisational theory of Simon and the evolutionary theory of Nelson and Winter provide points of reference for a theory of small and medium firms. The paper ends with some policy thought.

I. Introduction

1. The need for a theory of the small firms

Up until now there has been no specific treatment of small firms in economic theory. In fact, neither the representative firm of microeconomic theory, nor the big firm of the theory of industrial organisation, seem to offer sufficient tools to reconstruct a coherent theoretical and analytical picture.

It is easy to agree with Zoltan Acs when he claims that the small firm has for a long time remained “a riddle wrapped in a mystery inside an enigma” (Acs-Carlsson-Thurik, 1996, p.8). Indeed, this gap is well-rooted in the history of economic thought because economists have never shown much interest in studying the case of the small firm. Ways of organizing production that differed from the dominant (fordist/taylorist) paradigm were thought to be, by definition, inefficient, thus they were traditionally excluded from analysis. The study of the plurality of institutions in which production can be organized has not been undertaken for the reason that they were not considered to be capable of guaranteeing the level of efficiency possible with large firms.

However, when we come up against the evidence of the real world we find that a plethora of small firms exist. Their presence was interpreted as one of the most characteristic factors of under-development. In fact, the existence of small firms was seen as a transitory phenomenon that was destined to disappear so that, with time, the natural course of industrialization, growth and development

would have pushed the small firm out of production, leaving room for the larger firms. From this point of view, then, it is not surprising to find such lack of interest in studying the small firm for it was considered to be an anomalous case that, sooner or later, would have been corrected by the *natural* process of the growth of the economy.

There is a need to shed light on the growing role played by the small firm in local, national and global dynamic competition in order to challenge this deeply rooted lack of interest. The fact that firms have been organized successfully in ways that differ from the fordist paradigm has put the certainties, on which generations of economists have constructed their own analytical and interpretative grids and influenced industrial policy, in crisis. Thus, in the face of empirical evidence, it must be admitted that the case of the small firm can no longer be considered as a transitory phenomenon unsuitable for the attention of economic theory.

Thus, there is a need to fill a gap in the literature and to start to lay new foundations on which can be built an analytical apparatus capable of offering explanations on (...) “why firms come different in size, how and why firm behavior varies with sizes, what determines the formation, growth, and dissolution of small firms in the introduction of new products and the evolution of new industries, and the dynamic relationships among small firms and macroeconomic variables such as output and employment” (Brock-Evans, 1989, pag.7).

2. The structure of this paper

Of course, the aim of this paper cannot be to fill this gap in the literature. On the contrary, the intention is to provide the reader with points of particular interest in the light of recent developments in the theory of the firm, in industrial organisation and industrial economics and policy. One of these, worth mentioning even now, is the definition of the small firm which appears to be far from homogeneous in structure, conduct and performance. Thus, this paper will attempt to single out the patterns that emerge from a descriptive and empirical body of literature which still needs to be rearranged and elaborated by means of an ad hoc theoretical structure dedicated to small firms.

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II. Small firm and economic theory

1. The state of the art

Let us begin by examining the way in which economic theory treats the case of the small firm. There are four main approaches that explain the size of the firm.

- The technical efficiency approach founded on the concepts of technical and allocative efficiency.
- The institutional efficiency approach where the crucial aspect is the relationship between efficiency and transaction costs.
- The imperfect competition approach which is based on market power.
- The dynamic approach consisting of dynamic models of the life-cycle of the firm.

If we look more closely at these four approaches we will find various characteristics that are relevant to this study.

- This approach refers to the traditional analysis of firm size which is conducted in the context of a competitive equilibrium. In this approach economies of scale, which are predominantly of a technical nature, determine the optimal size of the firm. (Viner, 1932; Baumol, 1982) However the organisation of the firm also has an influence on its size. In fact, these organisational factors, like the entrepreneurial

and managerial ones (Knight, 1965; Lucas, 1978) intervene, creating diseconomies of scale and thus changing the optimal size of the firm. Sources of organisational diseconomy are, for example, control and communication. Once a firm starts to increase in size both the degree of control and the immediacy of communication will decrease, rendering the function of coordination unnecessary in smaller firms. Thus, it can be deduced that the optimal size of a firm is the result of a trade-off between the advantages of coordination and the costs of communication (Genakopolus-Milgrom, 1985).

According to this position, then, the optimal size of firms will be defined by the combined effects of technical economies of scale and diseconomies produced by organisation technology. The existence of small and medium firms would thus be explained by a predominance of organisation diseconomies. This technical approach can be classified as one of size efficiency where the size of the firm is explained in terms of an efficient allocation of given resources, which include the bearing of the firm's risk, managerial capacity, knowledge and information.

Since size is explained in terms of economies of scale derived from the adopted production technology, this approach gives a good account of the size distribution between different sectors and countries but does not explain the differences among firms in the same sector so well.

- The second approach consists of the theory of transaction costs. According to this the efficient size of the firm rises in the presence of organisational innovations which reduce bureaucratic costs (which explains the passage of the single firm, U-form, to the multidivisional firm, M-form). Thus the fundamental explanation for the size and distribution of firms offered by this approach is the minimization of transaction costs.

This transactional approach also works for cases of cooperation between big firms and small and medium firms in as much as cooperation is seen as an alternative to integration in the presence of particular conditions. More precisely, independent firms which choose to cooperate, rather than merge, will benefit from the advantages of integration while avoiding running into the relative costs dictated by the rigidity and bureaucratization of the structure. Such conditions are the growth in specificity of assets and the frequency of transactions (Williamson, 1985). Of course, cooperation presupposes high levels of trust within the system and between the cooperating parties.

As a result, this theory reduces the size of firms to a motivation for efficiency. For example, in countries whose market transaction costs are lower because of cooperative relationships between firms the size distribution of firms will reveal a large number of small and medium firms. Thus, it offers an explanation of size distribution within the same sector. In fact, one level of efficiency can be expressed by the governing institutions of transactions of different sizes operating in contexts characterized by different amounts of transaction costs.

- The third approach is based on the market power of firms. In other words, size distribution is derived from conditions of imperfect competition in which all participants in the economic system must act. Unlike the previous approaches it is neither labeled as an efficiency hypothesis nor as one of adjustment versus equilibrium. Instead, size distribution reflects market power and its competitive structure. By introducing differentiation of costs, tastes and product, a firm's market quota no longer depends on price strategies but on the segment of the market which it serves. These cost differentials between big and small firms thus explain the number of small firms on the market while keeping in mind that the costs differ both for technical reasons (according to the size of

firms, different techniques can be used) and for the advantage of flexibility experienced by small firms.

The coexistence of firms of different sizes is thus explained in terms of a differentiated demand (in terms of consumer taste) which is the source of profitable niches for firms with high levels of flexibility. Small firms, generally, do not have, the same level of flexibility, then small firms of particular sectors only will exist on the market of imperfect competition. In addition, the technology is not a given exogenous factor, but it allows the existence of different technologies which can be used to different degrees by the firms.

- The fourth approach consists of the theories that analyze processes of dynamic competition like the life-cycle of the firm (Marshall, 1948) and those of the Schumpeter school of thought like evolutionary theory (Nelson-Winter, 1978, 1982). According to this, the primary source of innovation is the activity of research and development: in pursuing this activity the larger and more established firms will have an advantage over those which are smaller and newer.

These models of the firm's life-cycle put the size of the firm down to its age and growth. In other words, firms generally enter the market as small organisations and only begin to grow through learning. The fact that a small, young firm must face greater risks than a big firm means that it will face greater turbulence (such as the probability of face and variations in the rate of growth).

However, in the evolutionary models¹ the dynamism of small, young firms is seen to depend on the nature of the technological regime. Smaller and younger firms, for example, have less possibility of survival where regimes of technological routine, typical of mature industries, prevail. This is because, in general, innovation comes from the accumulation of non-transferable experience, which, of course, favours the big firms that have been on the market for longer. On the other hand, young firms have the advantage when innovation is generated from information that is not the exclusive property of the firm on the market.

Thus, in these approaches size distribution is strongly correlated with the age of the firm, or, in other words, with the point that the firm has reached in its evolutionary life-cycle.

2. Interpretative limitations

The four approaches described above help to explain size distribution of firms in the economic system. However, first, a single interpretative picture which can explain the very existence of the small firm and can, in addition, describe its behavior, does not emerge. Second, the representative firm of the theory is far from that of the real world and such distance, as we shall see in the following sections, is increasingly relevant in the case of the small firm.

More generally, there are the following criticisms.

- The lack of attention given to technical-productive elements in all but the case of evolutionary theory.
- The motivation of efficiency as the basis of the theoretical explanation. The technical approach and, to a certain degree, the institutional approach show the effects of a technological-determinist vision for which the structure of efficient government ruling ends up being determined by the given technology.

¹ Furtherly (6.3) we will see how much these approaches contribute to the development of a new conceptualization of the firm.

- The lack of attention dedicated to the social and cultural dimension of the firm and to the firm's organisation of human resources as a depository of technical and scientific know-how.
- According to the classical analysis deriving from the study of the division of labour by Smith², production is the central pivot of the growth and development mechanisms in an economic system. However, in later studies the attention has been focussed on the combination of productive factors³. In neoclassical studies, for example, the production process is represented purely as the coordination of inputs and outputs to the exclusion of organisational aspects and operative and technical characteristics of the machinery, through the production function. The economic analysis is no longer concentrated on the process of physical and technical transformation, that is, on the function of productivity, but it concentrates on the allocation exercised by the firm. Thus exchange, as opposed to production, is now considered to be central. In other words the productive cycle, which in the classical analysis is comprised of the production or accumulation of technical knowledge and the reproduction of social relationships, 'disappears' in the atomistic conception of the firm which is now identified as an elementary unit of production in an abstract space.

In this theory in which the firm resembles a container ('black box') of a transformation process, neither an organisational nor a social dimension of the firm is considered. Therefore, the firm, as a neutral and passive agent in respect to the market, makes choices which, in addition to those concerning the quantities to produce, fall into the mechanism determined by maximizing behavior.

The institutional theories (Williamson, Alchian-Demsetz) in reality reinstate the organisational aspect of the firm and, in any case, cannot reconcile the technical and productive and economical aspects with the idea of economic efficiency of traditional theory in a single analytical vision. In other words, the technical aspect of the firm is not thought of in order to achieve efficiency. Thus, in Williamson's⁴ analysis (1985, 1987) the technical elements of production are marginal because the firm, whose existence is linked to a saving of costs in relation to market transactions, continues to be identified with the 'black box' whose function is to allocate resources for different uses. Therefore, the economic efficiency on which Williamson constructs his firm does not arise from the technological factors but from the advantages of neutralizing, through the structure of the hierarchical coordination of production, eventual (and probable) opportunistic behavior of the workers⁵. The firm's economic efficiency is reduced to the

² For contributions to the classical argument see Rae (1834), Babbage (1835) and Marx (1867).

³ The transition from the study of the structure of production and organisational processes to the study of the analysis of combined factors can be dated back to the appearance of the writings of Wicksteed (1894) and Barone (1896).

⁴ Transaction cost theory originated in the studies of Coase. In fact, it is thanks to his contribution (1937) that the organisational size of the firm is given a place in the theory, opening up the field to a series of reflections on the nature of the firm. Coase defines the firm as a system of relationships that comes into existence when the way in which resources are used depends on an entrepreneur, who subtracts from the market mechanism the transactions that are connected to it, organizing them according to a directive principle. The organisational costs of the entrepreneur and the facts that influence them (prices, factors organized by the entrepreneur, risk, some organized transactions, technical and organisational progress) define the size of the firm. One detail to clarify is concerned with referring to the firm as an organisation when it is considered that, according to Coase, the borders between the market and the organisation depend in any given moment on the structure of costs, so that one cannot exclude the relationship between the firm and the market in the technological definition of the firm. 'One can attempt to define the notion of productive unit as a unit that can be defined technologically and assimilated to an elementary production function, but it is incoherent to assimilate this notion with that of the firm which increasingly represents an organisational firm within which the activities of different productive units are coordinated' (See Stigler 1951). This problem of the relationship between production and organisation is reformulated in the context of evolutionary theory (Egidi 1989) where it is assumed that the borders between market and organisation are variable and thus that the technological and organisational form of a firm is itself the object of decision.

⁵ The fact that the firm described by the transaction cost theory is a hierarchical and centralized organisation (i.e. as a particular way of coordinating activities) characterizes the productive organisation in a functionalist, rather than systemic, way, because the parties

legal dimension of contracts which simplifies the organisation of firms into a symmetrical exchange between agents without reference to the techno-productive internal organisation of the business. In contractual theory⁶, then, almost every type of social organisation can be reduced to a set of transactions by means of the contract, negating an interpretation of the firm which is different from ‘ a variant of exchange and of its science’ (Romagnoli 1993, p. 32). Thus the allocative mechanism of resources (based on prices) is always framed in a neo-classical paradigm.

These approaches are united in their assumption that a good dose of opportunism is at the base of the economic behavior of individual agents, opportunism that is properly ‘resolved’ in the contractual relationship. The idea that contracts reinforce long-term relationships, allocating resources between holders of specific resources and provide the incentives to create new resources in response to changes in the economic environment do not manage to stop the theories from falling into the trap of symmetrical exchange, i.e. the illusion that the contract is stipulated between the parties under the economic and social and institutional conditions of parity.

In this way then, neither the theory of transaction costs nor that of contracts take into account the constraints and technical interdependence. As a result the choice of technology is justified on the basis of an assumption of economic efficiency which is, in turn, legitimized by maximizing behavior of the entrepreneur. In other words, it is assumed that the choice of the production technique is kept efficient and the hierarchical authority that governs transactions, and thus the internal relationships, respond to mutual interests in a ‘vertical’ organisation of work. In this world the contract that links the worker to the firm is considered a true contract of exchange and the control that is exercised on the productive organisation responds to the need for efficiency.

As we will see, this modeling of the firm greatly distances itself from the small firm in which the relationships are imprinted on a strong authority on the part of the entrepreneur united to an ample informality.

- The motivations of ‘economic efficiency’ unite the technological approach with the institutional (Coase, 1937; Williamson, 1975) and the contractual (Alchian-Demsetz, 1972) explanations of the firm so that the incorporation of these and other approaches⁷ under the title of a ‘efficient institutions paradigm’ is justified (Marginson, 1993). On the basis of these considerations Bowles (1985) defines them as Neo-Hobbesian paradigms because they legitimize the voluntary acceptance of entrepreneurial authority by the workers in a similar way to the voluntary acceptance of the authority of the state by the citizen.

The common characteristic of the theories that make up the efficient institutions paradigm is the traditional justification of the nature and existence of the firm as the basis of a superior economic efficiency in respect to other organisational forms.

appear to be coordinated and organized according to a superior interest, and borders of the firm are not deliberately modifiable from within the firm.

⁶ Contractual theory (Hart-Holmstrom, 1987), incentive theory and Principal Agent models are theoretical approaches, arriving in the wake of Coase, that represent a development of the organisational concept. Also Arrow’s information theory (1974) bases the foundations of his theory of the organisation on the hypothesis of rationality and of constrained maximization already consolidated by economic theory.

⁷ This refers to the theories that view the firm as a collection of contracts between the owner of the firm (or principal) and the proprietors of the inputs (among whom are the workers). These contracts include those that have the same nature as contracts stipulated to make exchanges on the market, including the theories of property rights (Coase, Alchian-Demsetz (1972) and of agency costs (Jensen-Meckling, 1976).

According to this position the specificity of the firm and its evolution would result from a process of research into ever more efficient ways of organizing work.

With reference to big firms one comes to say that the organisational hierarchy becomes a function of the mutual interests of workers and entrepreneurs. In particular the “contractual” and ‘transactional’ reasons for efficiency are used to justify the hierarchical and centralized nature of the firm, of which they also explain the wide diffusion within the system in respect to the limited presence of small firms and of organisations such as cooperatives, partnerships or consortiums between firms. In this approach, then, not only the space left to the small firms, but also everything that does not come within the definition of big and vertical firms, is not judged as an efficient organisation.

One of the presuppositions at the base of this motivation towards efficiency on which the hierarchical organisation of the firm is constructed is the consideration of a work contract that is ‘symmetrical’ between the parties. The work relationship is identified as a voluntary exchange in which workers cede to their counterpart the limitation of authority over the conditions of their working services (direction management and specification of the effort level) against the receipt of guarantees concerning the salary and conditions (as well as to the security) of the employment (Williamson, 1975). In the presence of uncertainty, opportunism and bounded rationality, therefore, the work contract is considered to be a variant on the normal contractual relationship⁸. This consideration, apart from transferring the attention onto the allocative mechanisms of the firm to the detriment of the technological and productive aspects⁹ renders the theoretical model not very applicable to small and medium firms, in which the assumption of a symmetrical relationship between worker and entrepreneur, already far from realistic for a firm in general, becomes even more evident.

In reality the content of the relationship of exchange between the worker and the entrepreneur cannot be assimilated to any relationship of provision because of the difference between the work capacity declared while drawing up the contract and that effectively developed.¹⁰ In other words, an asymmetry of power in the contractual relationship exists in favour of the entrepreneur who is actually allowed to extend his own authority even over elements that have not been explicitly mentioned in the

⁸ Nothing specific to the work contract is recognized, thus it is not differentiated from any other contractual relationship. The only peculiarity recognized by the efficient institutions paradigm (which nevertheless does not exclude it from the category of ‘normal contractual relationship’) resides in the difficulty in measuring the agreed work effort in advance. This is the basis of possible opportunistic behaviour by one of the parties (Williamson, 1975; Goldberg, 1980).

⁹ The economic behaviour of the firm as described by Williamson could be redefined, putting the technology (and not the transaction costs) at the centre of the analysis and specifying that the relationship between capital and labour is not immune from elements of power. The analysis of Leijonhufvud (1986), in particular, recognizes the efficiency of the organisation of the factory both in the saving of capital and in the guarantee of coordinated production factors (inputs). This coordination becomes gradually indispensable as the division of work proceeds (see also Baldone 1989, p. 97) making this interpretation closer to the hierarchical coordination of Alchian and Demsetz (1972). Leijonhufvud, however, is in line with the radical position when he emphasizes the lack of symmetry in the contractual relationship between capital and labour, characterized instead by an asymmetrical power relationship (Leijonhufvud, 1986).

¹⁰ The fact that it is not possible to specify and define such an entity from the very beginning in fact implies the stipulation of an incomplete contract in which part of the object of exchange remains unspecified. As far as this is concerned, the interests of the two parties are necessarily in conflict: the workers aim to maintain a certain level of control of the conditions and hours of their work while the firm aims to obtain those standards from the workforce which will ensure profitable levels of production. (Marginson, 1993; H. Simon, 1951; Leijonhufvud, 1986). Thus the work contract is differentiated from every other type of contract by the possibility that the value of the work effectively realized can exceed the contracted work capacity and that, not so much because of opportunistic behaviour of one of the parties, but rather because of the fact that the authority of the entrepreneur, contractually set, includes the allocation of tasks and the specification of levels of effort.

contract¹¹. As we shall see, citing the specificity of small firms, this aspect is much truer when referred to the small firms.

The radical approach (Marginson) also criticizes the claim that the historical evolution of the firm responds to criteria of efficiency and emphasizes that the historical and economical analysis demonstrates the limitations of deterministic types of conclusion when the social and economical processes are analyzed. In fact, when explaining the birth of the capitalist organisation of the firm¹², the social and cultural factors are at least as relevant as technological and economical factors, the division of labour, transaction costs and the relationship of power and control. All of these aspects should be considered in an analysis¹³.

The last observation concerns the relationship between technological determinism and the appearance of innovative forms of firm. Marglin (1974), incidentally, claims that the evolution of an organisational form (such as the capitalist firm) in a given moment in time, must be mainly connected to the political and social interests of the classes in power within the society of that period. In this way Marglin's conclusions coincide with those of microeconomists on technological change. This microeconomic approach claims that it is impossible to explain the success of a technique by the mechanism of the invisible hand alone because, notwithstanding the presence of increasing returns by adoption¹⁴, there remain, in any case, notable degrees of freedom to develop innovation, although possibly not along optimal paths. According to Marglin it would be the very existence of discretionary fields in the process of the affirmation of a technology to impede the coincidence of private interests and requirements of technological and economic efficiency so that it is not realistic to claim that the technical change is realized under the ineluctable thrust of a deterministic principle. These considerations report on the first stage of the social and institutional dimension of the firm that is analyzed in the following point.

The final point is concerned with the lack of consideration given to the social and evolutionary aspects of the firm in most traditional economic theories. Production, still first to present itself as a connection between elements, is characterized as a social form, derived from human relationships. In fact, at the level of microproduction the process of production acquires a social dimension by virtue of the presence of men (workers) in

¹¹ To demonstrate this it should be observed that if the entrepreneur does not pay the established sum as compensation for the work in the contract, he would default on one clause of the contract and would be sanctioned. On the other hand, every time the entrepreneur can obtain a greater effort from the worker only by organizing the work differently, since the work capacity does not fall back to the area of contractually specified conditions, the difference would not bring with it any sanction (Marginson, 1993, p. 258).

¹² See, for example, the historical interpretations of the birth of the first capitalist organisation of the firm (factory) in England, at the end of the eighteenth century. These interpretations root the logic of the reorganisational productive process in the physical and technical characteristics of the new source of energy (steam-powered machinery), coming up against the social and economical interpretation of the industrial revolution (Marglin, 1974; Braverman, 1974; Putterman, 1986). In fact, the first of these interpretations understands the origin of the factory system (in a deterministic way) in terms of 'constraints' or technical factors, which would dictate the necessity to concentrate more workers in the same place (e.g. the use of a unique source of energy). However, the other type of interpretation emphasizes the relevance of social and political factors, such as the presence of an economically powerful social class (capitalists) who attempt to maintain rigid control of the workers, in the founding of the factory. The hierarchical organisation of the firm would thus be constructed for the ends of social order and control more than for the ends of an efficient technology. Even if, in addition, the new way of organizing labour was also linked to the technological changes determined by the revolutionary source of energy, the use of authority would permit entrepreneurs to select the forms of technology and of labour organisation that were best suited to their own class interests.

¹³ In particular, Williamson (1980), by looking at alternative ways of organizing the productive activity on the basis of efficiency, demonstrates the superiority of the hierarchical organisation of labour. The radical response to this is that his demonstration says nothing about the causal process that takes this form in affirming itself (Hodgson, 1988).

¹⁴ Increasing returns by adoption' is used to mean the economies generated by different factors during development and diffusion of a technology such as the economies of learning, the external economies of networking, the economies of scale associated with the phenomena of *learning by doing*, the notoriety started with the self-multiplying diffusion of information on innovation and the self-started or exogenous technological complementarities.

relation each other (according to a sequential organisation established by technology) and in relation with the entrepreneur (through a work contract). These relationships, if framed by the point of view of reciprocal exchange between agents (i.e. fixing, objectively, services and payments) would highlight the social sphere of the firm (characterized by social conflict, antagonism and the form and mechanism of micropower) which pervades, conditioning (modeling) production and the firm in its complexity. Thus we share the opinion of those who, without running back to the conceptual categories that properly belong to the social and economic analysis of Marx or to Marglinian radicalism, keep some elements that derive from organisational and systematic theory, such as power, should be included in an economic definition of the firm (Leijonhufvud, 1986).

Naturally, the social dimension of the firm makes reference also to its own institutional nature. In fact, the firm assumes the role of a social mechanism with the objective of coordinating the behavior of more subjects through a delimitation of spheres of action in which every subject can freely exercise its own choices. Thus, a structure of rights and obligations is generated from these limitations of the sphere of action, that is dependent upon the firm's organisation.

As for the historical and economic theory, so also the evolutionary and technological and organisational theories take account of the historical and evolutionary dimension of the nature of the firm (Amendola-Gaffard, 1988). These approaches, characterized by a systematic conception of the firm and by the recovery of the technical and productive dimension at the core of the analysis, establish an ideal link between the classical theories and the behavioral theory of Simon. In the technical and organisational approach, for example, the emphasis is placed on the systematic nature of the firm, that is in a continuous and direct relationship with the circumstantial environment. Thus, these theoretical approaches detach themselves from deterministic theory: the behavioral approach which substitutes the 'marginalistic' mechanism of allocation with the action of an organisational principle theorizes a firm which, instead of putting itself on the technological frontier as in the efficiency hypothesis, constructs its own technology combining parts of exogenous knowledge with endogenous knowledge (that is the result of organisational learning). In the evolutionary approach the choice of a technique is the fruit of a process of selection in which the social and institutional context is important in determining the final result. The technique rather than being a premise of the process of change is its final result (Amendola-Gaffard, 1988).

III. Firm efficiency and size: an in-depth analysis

Theoretical analysis, notwithstanding the undoubted diversity of the approaches described, seems however reluctant to move away from the conviction that there is a relationship between the size of a firm and its efficiency. On the contrary, observation of the competitive dynamics of the real world seems to suggest that the relationships between these two variables are far more complex than what economic theory has so far realized. This complexity justifies an in-depth study which shall attempt to clarify the strength of the supposed causal relationship between size and efficiency. In this context the analysis is developed on two levels: the micro and the meso level¹⁵.

- **Micro level:** this approach concentrates on economies within the enterprise. We are dealing with considerations which throw light on factors offering competitive advantages (and disadvantages) to large and small firms respectively. Back to this level of analysis lead: economies and diseconomies of size, diseconomies of internationalisation and considerations on efficiency which lead to flexible specialisation.
- **Meso level:** at this level we face the question of the advantages of collective efficiency which could emerge from special types of industrial organisation characterized

¹⁵ On the meaning of **Meso level** see: Esser, K., et.al, *Systemic Competitiveness. Concept and Key Policy Issues*, GDI, Berlin, 1993.

by a plurality of small and large firms. This approach concentrates on economies external to the firm.

1. The micro level

1.1 The “economies of size”

Economic theory has long maintained that in a market the size of an emerging firm is what ensures efficiency: that is to say, a size which minimizes the average long run costs¹⁶. We are in a world in which, comparing the extension of the demand in question with the minimum point of a *U-shaped* average costs curve, the optimal size of a firm is determined univocally; in the market will operate “n” efficient enterprises of the same size and there is no way to explain the cohabitation of firms of differing sizes¹⁷.

In this context the first element which has been traditionally pointed out in favour of large enterprises (and which would penalize small firms) is the possibility of exploiting economies of scale and scope which a given technology might offer (see the technical-efficiency approach described in par. 2).

The traditional way of interpreting the advantages of large scale is that which, following Smithian lines, concentrates on specialisation economies. The increase in production volume permits the development of an organisational base increasingly able to exploit the advantages which emerge from specialisation of labour. In this context economies of scale trace their origins to the growth in work productivity, the fruit of an increasingly more specific progressive division of labour so that each phase and level of the production process wholly employs available resources¹⁸.

A wider category of the specialisation economies, which are a basic type thereof, is that of learning economies: here we are dealing with a dynamic effect which determines in time the fall of costs with the growth of production volumes. This structure of the costs function depends on learning new know how and abilities, a direct or indirect result of production activity itself. On the one hand we are dealing with user-learning which concerns the workers’ ability in a specific production process activity, and on the other hand with a more complex learning process (requiring reflection on the part of production managers) which determines a progressive improvement not only in work but also in the use of machinery and materials¹⁹.

In a logical structure of this type small firms seem indubitably penalized. Specialisation economies do not appear where it is not possible to emphasize the division of labour among those taking part in the production process. As for learning economies, it is reasonable to say that small firms are penalized by the greater time it tends to take for the hoped—for fall in average costs to come.

Another thing pushing the search for efficiency in size is linked to the possible emergence of economies of scope justified by the presence of indivisible inputs or complementary productions which bring about cost advantages through the joint production of goods²⁰. This type of economy

16 See: Viner, J., “Cost Curves and Supply Curves”, in *Zeitschrift für National-ökonomie*, Vol.3, 1932, pp.23-46; Panzar, J., “Determinants of firm and industry structure”, in Schmalensee, Willig, R., (eds) *Handbook of Industrial Organization*, Vol.1, Amsterdam, North-Holland, 1989; Baumol, W. *et al.*, *Contestable Markets and the Theory of Industry Structure*, New York, Harcourt Brace Jovanovich, 1982.

17 Brock, W.A., Evans, D. S., “Small Business Economics”, in *Small Business Economics*, N. 1, pp. 7-20, 1989.

18 See: Bianchi, P., *Produzione e potere di mercato*, Ediesse, 1991.

19 See: Malerba, F., “La dinamica di lungo periodo della ricerca e sviluppo dell’industria italiana”, in *Rivista di Politica Economica*, 1988, pp.1-30.

20 See: Bayley, E., Friedlander, A., “Market Structures and Multiproduct Industries”, in *Journal of Economic Literature*, pp.1024-48, 1982.

explains certain determinants of firm size in those cases in which efficiency is sought through horizontal or conglomerate integration. It goes without saying that by definition the possibilities for a small firm to exploit such economies are pretty limited.

Leaving the confines of a substantially technological approach, another factor reinforcing the positive relationship between size and efficiency is linked to the existence of transaction costs. In fact the definition of the efficient size of a firm also depends on the choice of the type of governance capable of minimizing the costs emerging in interactions among elements, precisely, transaction costs (see the institutional- efficiency approach described in para. 2).

In particular, following Coase's insights²¹ and above all the debate which subsequently arose²², a firm may be seen as an institution alternative to the market in carrying out the function of resource allocation and that one of transactions governance. The central aspect of this approach consists in maintaining that all transactions involve costs and that, with view to minimizing such costs, different types of institutions of governance of transactions may emerge which will be translated into different optimal firm sizes.

As is well known, we are dealing with costs sustained for carrying out exchanges: there are, especially, costs to be paid before the exchange to define the contract regulating the transaction (gathering information on the nature of the traded object and the other party, drawing up the contract) as well as costs paid after the exchange for checking and for any forced implementation thereof (checking execution of the transaction, damages resulting from failure to implement the transaction, charges for imposing execution of the transaction where one party fails to respect obligations).

The crucial factor of this type of consideration is that individuals have bounded rationality and that this characteristic may favour the emergence of opportunistic action.

(Williamson 1980, p. 553) Individuals are substantially incapable of gathering, storing and processing the full information which would guarantee efficiency of transactions. This is because transactions can be highly complex or because markets are characterized by a high degree of uncertainty which limits agents' choices and makes the latter vulnerable to possible opportunistic actions. (Alchian-Demsetz, 1972).

Thus when transactions prosecuted through the market institution turn out to be particularly expensive, the firm institution emerges which, internalizing, will minimize the costs associated with these transactions. So in this context the existence of transaction costs may be read as a further push towards seeking efficiency in greater size through exploitation of what we could call "internalisation economies". On a micro level, which is to say limiting ourselves to considering economies internal to the firm, and of course *ceteribus paribus*, the emergence of transaction costs could offer advantages in terms of efficiency to an integrated enterprise in comparison with a disintegrated production system consisting of a number of small independent firms.

21 Coase, R.H., The Nature of the Firm, in *Economica*, n.4, 1937; Coase, R.H., *The Firm, the market and the law*, The University of Chicago Press, 1988.

22 See: Williamson, O., "Transaction cost economics", in Schmalensee, R., Willig, R., (eds) *Handbook of Industrial Organization*, Vol.1, Amsterdam, North-Holland, 1989; Williamson, O., *The economic Institutions of Capitalism: Firms, Markets, Relational Contracting*, New York, The Free Press, 1985; Williamson, O., "Hierarchical control and optimum firm size", in *Journal of Political Economy*, Vol.75, 1967, pp.123-138; Alchian, A., Demsetz, H., "Production, information costs, and economic organisation", in *American Economic Review*, Vol.62, 1972, pp.777-795; North, D., *Institutions, Institutional change and Economic Performance*, Cambridge University Press, 1990.

1.2 “Diseconomies of size” and of “internalisation”

Up to now we have rapidly looked at a series of factors backing up the theory in accordance with which efficiency should be sought in large size. Yet the reality of present competitive mechanisms seems to suggest a more complex situation with regard to the relationship between size and efficiency. Evidently the above considerations require further specifications which weaken the causal relationship between size and efficiency. In particular, these considerations do not seem to give due space to, on the one hand, the complex and social nature of a firm²³ and on the other to the needs expressed by demand.

The advantages of size, of whatever nature they may be, must however be compared with the disadvantages involved in size itself: we are dealing first of all with co-ordination costs deriving from the difficulty of controlling the complexity of internal company organisation relationships and, as we shall see, with costs connected with the difficulties of responding to the complexity of requirements expressed by the demand.

1.3 “Diseconomies of internalisation”

The relationship of causality between the existence of transaction costs and internalisation economies should be somehow examined closely, differentiated and classified. In fact a firm is not a “black box”: a multiplicity of power centres cohabit within it, each one characterized by its own objective functions, its own behavior, codes and procedures and thus requiring heavy supplementary functions of co-ordination and control²⁴.

Introducing into the analysis on the one hand the costs of transaction and on the other the costs of co-ordination, the key choice between the possible types of governance of the productive activity consists in integrating the inputs within a hierarchical structure (the firm) or in acquiring the inputs on the market. The advantages of the first option are linked to the possibility of minimizing transaction costs, the disadvantages to the emergence of co-ordination and management costs; the advantages of the second option must be sought in specialisation economies, the disadvantages in the emergence of transaction costs.

Thus the economies of size linked to transaction costs are somehow balanced by internalisation costs. Abandoning the firm/market dichotomy it seems reasonable to say that efficient size should be sought along an institutional *continuum* of governance of transactions which finds its extremes in the market and in large enterprises. In fact, as we shall see in depth later, when we are dealing with “complex systems of firms” internalisation is not the only mechanism of governance for minimizing transaction costs.

Furthermore, still with regard to the presumed causal relationship between transaction costs and internalisation economies, it should be said that the strength of this relationship does not only vary from sector to sector but also in accordance with the general context of reference. If each context in fact expresses different costs associated with transactions, analogously, internalisation costs cannot be considered as given; *ceteribus paribus*, different

²³ See: Alchian, A., “Uncertainty, Evolution and Economic Theory”, in *Journal of Political Economy*, Vol. 58, 1950; Alchian, A., *Economic Forces at Work*, Liberty Press, Indianapolis, 1977.

²⁴ Georgescu Roegen, N., “The analytical representation of process and economics of production”, in *Entropy Law and the Economic Process*, Cambridge (Mass.), Harvard University Press, 1971; Chandler, A.D., *The visible hand: the managerial revolution in american business*, Harvard University Press, Cambridge (Mass.), 1972.

organisations may express different internalisation costs since these costs are the result of complex relationships between different individuals.

So, as regards the relationship between size and efficiency, the most interesting and little explored element emerges which contributes to explaining the coexistence on the market of efficient firms of different sizes: the existence of transaction costs weakens the causal relationship between size and efficiency inasmuch as, *ceteribus paribus*, the reference context in which the firm operates becomes crucial in determining the efficiency quotient of a company. The general reference context determines on the one hand the emergence or non-emergence of a certain amount of transaction costs, determining internalisation and therefore size economies, and on the other hand, by modeling the individual behavior that guides interaction among individuals within the company, it defines the diseconomies of internalisation. In other words, and by way of example, if a given level of efficiency permits two companies from two different countries to be competitive, this efficiency may be expressed by firms of different sizes inasmuch as these firms operate in contexts characterized by different transaction and internalisation costs.

1.4 “Old” and “new” demand requirements

What we have considered up to here on the determinants of the size of a firm would be incomplete if we did not also look at the demand side.

In the first place it must be said that even if it were technologically possible to take advantage of the economies of size, if demand is not sufficiently vast it is not possible to produce at the minimum efficient level. In brief, small markets require small firms: there are no large scale advantages if markets are dimensionally fragmented.

Another effect to be taken into consideration is the effect linked to transport costs. In fact there is no sense in trying to concentrate supply in large enterprises if prohibitive transport costs have then to be added to production costs. Geographical dispersion of demand reasonably implies dispersion of supply. The advantages of size are reduced when markets are geographically dispersed.

Then there is the question of adjustment costs. In general, in many sectors (but not in all) even if a large enterprise can produce at lower unitary costs than a small one, the latter can adjust production level to minor costs in comparison with large enterprises because small firms tend to be characterized by greater intensity of work or because they use different machinery and plant which can be better adapted to a demand that is unstable and fragmented in time²⁵. The flexibility of the small firm is substantiated in the ability to react to changes in general, changes in terms of quantity produced but also changes in terms of quality and changes in technology. In particular the factor determining flexibility should be sought in the capacity for reaction to change of those taking part in the production process which arises from (...) “hands-on management, efficient information flow and quick decision making, the being close to the customer that can give small firms distinctive advantages” (You 1995, p. 453).

²⁵ See: Mills, D., “Demand Fluctuations and Endogenous Firm Flexibility”, in *Journal of Industrial Economics*, September, pp.55-71, 1984; Acs, Z., Audretsch, D., Carlsson, B., “Flexible Technology and Firm Size”, in *RPIE Working Paper*, Case Western Reserve University, 1988.

In other words, to enjoy competitive advantages big firms must be able to count on full utilization of plant. Nonetheless in many cases this possibility is limited by a growing instability in demand both in quantitative and qualitative terms²⁶.

In the case of quantitative instability big firms tend not to follow the peaks of demand and dimension their plant to a level that is able to satisfy a normal expected demand. This implies that in order to satisfy demand levels that exceed normal demand, big firms will prefer to purchase the product from other, smaller firms. So in markets with a fluctuating demand big and small firms can coexist.

In the case of qualitative instability, the attempts of big firms to capture the specialised demand are limited by the organisational nature of the company which will be concentrated on a wider and more standardized demand. So a multiplicity of small firms will work side by side with big firms in order to meet the specialised demand. In this case too, small firms coexist with big ones.

In general, over and above the question of the instability of demand, we should consider the question of market niches. It is clear that there are types of goods that encounter a specific demand which it would be difficult for big firms to satisfy. Small firms tend to be advantaged in serving markets for goods and services that respond to special client needs. In industries characterized by high product differentiation the competitive advantages of the small firm depend on the ability to carve out its own market niche. In this context flexibility takes the shape of the ability to meet special client requirements both in terms of product and after sales service.

The process of progressive segmentation of supply is certainly one of the central questions explaining the dynamism of smaller firms. It is a process stimulated on the one hand by the phenomenon of globalization and on the other by the constant increase in income of the wealthy countries (Acs-Carlsson-Thurik., 1996).

In the first place the extreme differentiation of the product is made possible by the extension of international demand to which a company may turn its attention. The growing competitive pressure in internal and foreign markets urges firms to specialize, and this type of dynamic offers greater space than in the past to the small firm which, in those cases where it manages to get into the channels of international competition, bases its own competitive ability precisely on its capacity to specialize, offering a product that is sophisticated and highly customized. Moreover, for large enterprises the necessity to specialize has imposed complex phenomena of reorganization which in many cases has led to decentralization, sub-supplying and outsourcing, phenomena which have opened new spaces to small firms.

To this we must add the fact that, in parallel, the increase in the standard of living enjoyed in the more or less recent history of the wealthy countries has had a distinct impact on collective and individual tastes and spending habits: consumer demand has gradually moved from traditional standardized goods to increasingly sophisticated products which, because they are extremely differentiated, are of high added value. Also in this case the ability to aim at a multiplicity of increasingly demanding segments of the market seems to offer substantial advantages to productive systems characterized by the presence of a plurality of small firms.

²⁶ See: Audretsch, D., "New-firm survival and technological regime", in *Review of Economic Studies*, Vol. 58, 1991, pp.441-450; Diwan, R., "Small business and the economics of flexible manufacturing", in *Small Business Economics*, Vol. 1, 1989, pp.101-109; Piore, M., Sabel, C., *The Second Industrial Divide: Prospect for Prosperity*, New York, Basic Books, 1984.

2. Meso level

From the last few lines it seems clear that the considerations on the advantages of small firms take on growing importance if understood with regard to the dynamics that seem to characterize present competitive mechanisms. In fact the factors favouring types of industrial organisation featuring the presence of small firms seem to carry far more weight as time goes by.

In particular the analysis of the structural dynamics which characterized the 70's and 80's leads us to affirm that the crisis of that period (...) "results from the limits of the model of industrial development that is founded on mass production" (Piore-Sabel 1984, p.4).

The question of stability versus instability of markets seems to explain the crisis of that type of industrial organisation which turned on big firms and, at the same time, helps us to understand the growing success of alternative organisational types.

Up to the 70's market stability had permitted exploitation of size economies: the growth of the industrialized nations had been possible because of the prevalence of (...) "social and political forces working to provide the market stability required for successful mass production. The post-war model of economic development was dominated by large corporations using mass-production technologies in an environment of stable prices. At the turn of the century the large corporation, through vertical and horizontal integration, had been able to fix input and output prices; in the 1930's collective bargaining ensured that wages were fixed, balancing production and consumption; a decade later public policy stabilized the level of aggregate demand, the price level, interest rates, and the exchange rate. Stable markets were necessary to accommodate the mass production technologies characteristic of big firm. The specialized machinery needed by this technology was expensive and had to be amortized over a long period of time. This fixed-price environment made the existence of mass production possible in an otherwise unstable world" (Acs-Carlsson-Thurik 1996, p 6-7).

Following the same reasoning, the instability which began to be a feature of markets from the 70's threw the mass production model into crisis: precisely in those years came the crack-up of that equally artificial grouping of balances that had allowed the development of mass production by guaranteeing stability. At the same time a similarly non-homogeneous grouping of industrial experiences began to show how in various countries small firms seemed to guarantee better performance than big ones. So from the 80's, as a more or less aware response to instability, a plurality of industrial realities was consolidated, sharing the possibility of exploiting the advantages of "flexible specialisation": this meant substantially (...) "moving away from rigid mass production lines and armies of disinterested semi-skilled workers used to producing standardized goods toward a more innovative and flexible system of multi-purpose machines and skilled workers better able to respond to continuous change" (Schmitz 1990, p.259)²⁷.

²⁷ The conceptualisation of "flexible specialisation" came substantially from the (*ex-post*) observation of problems encountered by "mass production economies" (mainly in the USA but also in France and Great Britain) and the success of "flexible specialisation economies" in Italy, Germany and Japan. The salient features of the paradigm of flexible specialisation (Hillebrand, W., 1996, p. 78) can be summarised as follows:
 the manufacture of differentiated products to meet rapidly changing demand in differentiated, highly competitive markets on the basis of flexible automation techniques;
 a high rate of product and process innovation with which enterprises will be able to cope only by adopting a holistic or "systemic" approach;
 the emergence of a complex and close-knit inter-company division of labour, leading to the establishment of flexible, adaptive technological networks capable of learning;
 synergistic interaction between enterprises, the research community and government with the primary objective of exploring promising areas of technology at an early stage and being able to use technological leads purposefully as parameters in international competition.

As is well known, flexible specialisation is not a synonym for small-scale industry. Yet we may speak of a “small firm variant of flexible specialisation” (Schmitz 1990) intending by this specification that flexible specialisation seems to find an especially favourable environment in the context of a particular type of industrial organisation featuring a plurality of small firms.

The following paragraphs are dedicated to an in-depth look at this variant.

At this point analysis abandons the “microlevel” and passes on to the “mesolevel”. We shall concentrate particularly on the nature of economies external to the enterprise which emerge in what we shall call, using an intentionally generic definition, “complex systems of firms” usually characterized by the presence of a plurality of small and medium sized firms.

2.1 Collective efficiency

In the following paragraphs efficiency will remain the variable point of reference. What changes is the unit of observation: no longer the individual firm but a (complex) system of firms. So we leave behind considerations of the efficiency which a firm is individually capable of expressing and turn our attention to what the literature defines as “collective efficiency” (Schmitz 1992, 1995, 1997; Nadvi 1997).

Setting out from Marshall’s insights we shall analyze the different dimensions which constitute the complexity of the concept of collective efficiency. First of all we shall refer to the two components into which collective efficiency may be broken down analytically: the external economies of the Marshallian tradition, which take on an involuntary character, and those which are strategically, explicitly sought through joint action among firms.

2.2 External Economies: “Marshallian economies”

In this paragraph we shall look at that collective efficiency whose origins can be traced to the existence of those external economies which we define “Marshallian”.

As is in fact well known, the concept of external economies was introduced by Marshall to describe the advantages originating from the concentrations of (...) “many small businesses of a similar character in particular localities” (Marshall 1920, p.221).

Very simply, Marshall explains that external economies are distinguished from internal ones inasmuch as they develop not within but outside the firm: “We may divide the economies arising from an increase in the scale of production of any kind of goods, into two classes – firstly, those dependent on the general development of industry; and secondly, those dependent on the resources of individual houses of business engaged in it, on their organisations and the efficiency of their management. We may call the former external economies, and the latter internal economies” (Marshall 1890, p.266).

We are dealing substantially with economies at the level of industry which, however, have a positive effect on the cost structure of the individual firms belonging to that industry.

See: Piore, M., Sabel, C., *The Second Industrial Divide: Possibilities for Prosperity*, Basic Books, New York, 1984; see also: Brusco, S., Sabel, C., “Artisan Production and Economic Growth”, in Wilkinson, F., (eds) *The Dynamics of Labour Market Segmentation*, Academic Press, London & New York, 1981; Brusco, S., “The Emilian Model: productive decentralization and social integration”, in *Cambridge Journal of Economics*, Vol. 6, No.2, 1982; Piore, M., Sabel, C., “Italian Business Development: Lesson for US Industrial Policy” in Zysman, J., Tyson, L., (eds) *American Industry in International Competition*, Cornell University Press, Ithaca, 1983.

In Marshall's view external economies (of production) are in practice externalities where this term is intended to describe a situation in which the activity of one agent involves spill-over effects which, not intentionally, have an impact on the activity of another agent. Each individual firm's production depends on a vector of controllable factors and a series of other factors, externalities, which cannot be controlled by the individual firm and are the not explicitly desired product of the coexistence of a plurality of firms which interact in a determined context.

We could say that external economies take on the nature of a "public good" inasmuch as they tend to be characterized by non-rivalry and non-excludability.

In this case market prices do not reflect the totality of the benefits that the spatially concentrated productive activity seems to guarantee. In practice we find a situation of "market failure". This situation should translate into a latent tendency towards positive underproduction of the externality inasmuch as the individual produces an output for which it is not compensated by the market. In reality, while in this context the presence of externalities is seen as a bearer of inefficiency, in Marshall's theoretical structure the same externalities are seen as a crucial element capable of offering economies that can be translated into substantial competitive advantages (Schmitz, 1997).

The factors which, according to Marshall, explain the emergence of external economies that can be obtained by the spatial concentration of a plurality of small firms of a similar nature, may be summarized as follows:

- The existence of a specialized local labour market which reduces the cost of finding office staff and labour: (...) "a localized industry gains a great advantage from the fact that it offers a constant market for skill. Employers are apt to resort to any place where they are likely to find a good choice of workers with the special skill which they require; while men seeking employment naturally go to places where there are many employers who need such skill as theirs and where therefore it is likely to find a good market" (Marshall 1920, p.273).
- The presence of a spatially concentrated plurality of firms produces an externality not explicitly sought by the individual firm, which can take advantage of a reduction in costs of finding staff.
- In general the presence of a plurality of activities of a similar type and relating to the same industry guarantees a local supply of raw materials, machinery and specialized services, relatively less costly and above all readily available. Spatial concentration therefore produces an externality which takes the form of a reduction in cost structure for individual firms, determined by the local supply of raw materials, machinery and specialized skills. Further, the use of highly specialized machinery permits firms access to collective use of otherwise prohibitive technologies: the firms find themselves in the condition of collectively exploiting any scale or scope economies (...) the economic use of expensive machinery can sometimes be attained in a very high degree in a district in which there is a large aggregate production of the same kind, even though no individual capital employed in the trade be very large. For subsidiary industries devoting themselves each to one small branch of the process of production, and working it for a great many of their neighbors, are able to keep in constant use machinery of the most highly specialized character, and to make it pay its expenses, though its original cost may have been high, and its rate of depreciation very rapid. (Marshall 1920, p.273). Once more, therefore, spatial concentration of firms produces an externality which reduces costs for the individual firms.

- Access to a flow of technical and market know-how which localized industries tend to produce. As is well known, in districts of the Marshallian tradition knowledge, understood in its broadest sense, is in the air. Localization of production activity promotes and educates ability and taste, and spreads technical know-how. Where large masses of people work at the same type of activity they educate one another in turn. Each one moreover draws advantages from his neighbors' ideas, finding stimulus in contact with those who are as interested as he is in making new experiments; every successful invention, be it a new machine, procedure or way of organising the activity, is likely, once launched, to spread and be perfected (Marshall 1975, 73-74). The flow of knowledge generates an externality to the advantage of firms in the district. In this case too we have external economies which have an effect on the factor prices vector.

Actually the concept of external economies, in the original conception elaborated by Marshall, should be somehow examined closely and differentiated, classifying these economies on the basis of a series of other criteria.

First of all it may be useful to underline the fact that the external economies in question may assume a pecuniary or technological nature. (Viner 1931; Scitovsky 1954; Nadvi 1996) In the first case the action of one element has an effect on the price vector of another: collective efficiency takes the form of cost and productivity advantages for a given technology. This is the case for example of the presence in a specific district of a specialized labour market or, more simply, the in-place existence of specialized machinery. The individual firm saves on labour seeking or specialized machinery costs: here we have an externality produced by the simple spatial coexistence of a plurality of firms and without the mediation of market transactions.

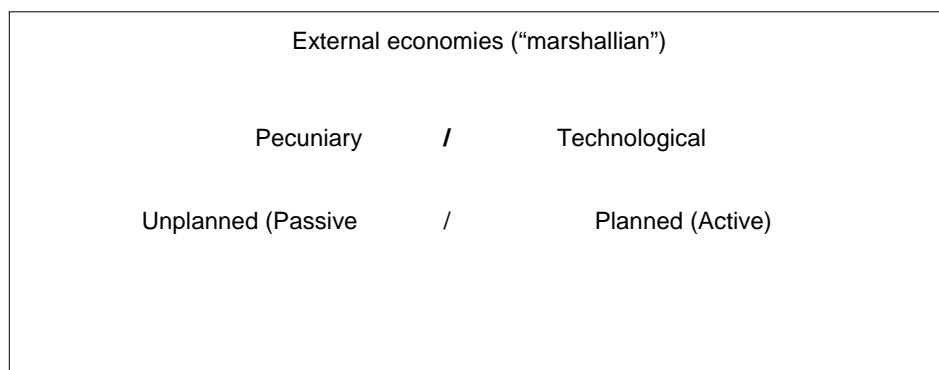
In the second case we have external economies of a technological nature when it is a firm's production function that is influenced (or revolutionized) by the activities of other firms. Think for example of the transfer of a specialized workforce from one company to another and in general of the interaction between producers and users in a vertical production chain. These are economies functional to the firms not only in terms of costs with regard to a given technology but also in relation to a more complex strategy of growth, innovation and technological progress. Also in this case we have an externality without the mediation of market transactions.

Then, as has been suggested, a distinction should be made between unplanned (or passive) external economies and planned (or active) ones (Schmitz, 1992, 1995; Nadvi 1992, 1997).

We may speak of externalities in the sense that district advantages are not deliberately sought but represent a somehow involuntary product. But in other circumstances the existence of external economies is explained by the establishment of explicit agreements between firms: the external economies take on a voluntary character, the result of planned action inasmuch as they are actively promoted and pursued by the plurality of firms.

For example, in the case of the flow of know how and information that characterizes the spatial concentration of firms, this flow may be passively absorbed by the individual firms or actively developed through actions planned by the individual "protagonists".

Diagram 1

EXTERNAL ECONOMIES (“MARSHALLIAN”)

2.3 Joint Actions

Introduction of the concept of planned (or active) external economies is a slightly forced interpretation of Marshallian thought but at the same time offers a more complete picture of what collective efficiency is.

More precisely, it must be said that Marshall-derived external economies constitute only one of the dimensions of collective efficiency. When the plurality of agents taking part in productive activity decides explicitly and voluntarily to take joint action of a co-operative nature, effects are generated which go beyond those passively acquired through Marshallian external economies.

Joint action is not involuntary and therefore loses the characteristic of externality.

Interaction and co-operation are planned, becoming an integrating part of the individual firm’s strategies. Co-operation economies may be characterized by excludability and by compensation mechanisms (from exchange of a monetary nature to the exchange of information, technology, know-how and human capital).

The different types of joint action may be set down as follows:

- Vertical actions: actions between producers and agents with whom the producer is vertically linked by means of upstream links (e.g. with sub-suppliers) and downstream links (e.g. with dealers or clients).

The forms of co-operation may concern:

- organisation of production;
- production flow;
- management of stock;
- quality control;
- training of workforce;
- process development;
- product development;
- marketing.

- Horizontal actions: these are joint actions between producers.

The forms of co-operation may concern:

- product marketing;
 - input acquisition;
 - common use of special machinery;
 - product development;
 - shared know-how.
- Multilateral actions: these are joint actions between agents who organize themselves in local institutions of a collective nature (e.g. business associations etc.) which can offer an interesting variety of services including, for example, joint lobbying activities, legal consultancy, market research, technical consultancy, training, managerial and financial support, credit assistance, marketing assistance, monitoring of quality, organisation of trade fairs and the creation of export consortiums.

2.4 The externalities of joint action

Joint action determines advantages explicitly sought by interacting agents and constitutes the active dimension of collective efficiency. However, over and above the explicitly desired and planned effects, joint action produces externalities from which other agents not actively participating in the co-operative action may passively benefit (Nadvi 1997). For example, think of vertical type joint actions. The voluntary exchange of information and interactive dialogue involved in joint actions between producers and sub-suppliers which can lead for example to improvements in process or product (static or dynamic) may in some cases bring advantages to other elements who have not taken an active part in planning the co-operative actions.

Another example can be taken from multilateral joint actions in which a business association, through its lobbying activities, may bring about a general improvement in infrastructures and therefore an externality from which it is impossible to exclude those who have not taken part in the planning of the joint action.

In other words, over and above the effects explicitly desired and planned by its originators, joint action can produce external economies which we may call indirect due to the non-excludable nature of some of the effects generated.

2.5 The dimension of collective efficiency

In the preceding paragraphs the concept of collective efficiency was studied in depth. The central element of this analysis is that over and above determining the “internal” efficiency of a firm we must take into consideration aspects whose origins may be traced to “outside” the firm. In this sense analysis passes on from concentrating on the micro to the meso level.

We set out from the Marshallian matrix intuitions and then refined and specified the nature of efficiency, which the interaction between collectives of firms can express. The point of arrival of this analysis is that collective efficiency is distinguished in two components: that which originates in external economies and that which originates in joint action.

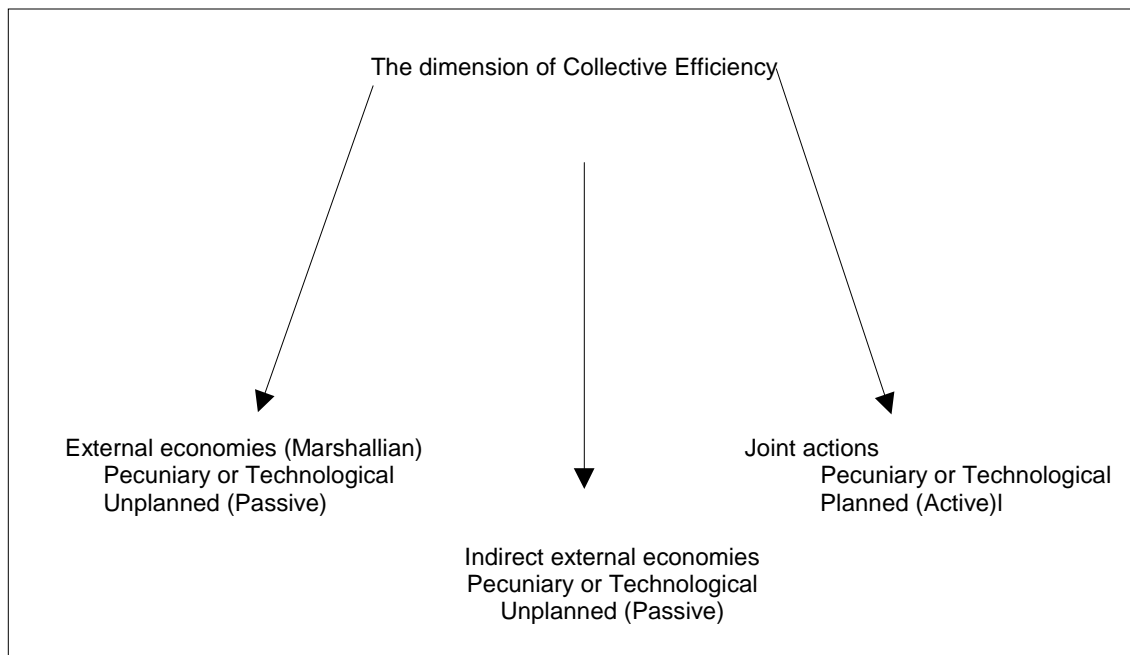
We further said that joint action may generate externalities and therefore indirect external economies because of the non-excludability of certain of its effects.

We also specified that collective efficiency can be translated into pecuniary and technological effects and in general offers non-planned (passive) economies or planned (active) economies depending on the degree of intention to exploit the advantages generated by the interaction and spatial concentration of the agents involved.

The following diagram may help to schematize the complexity of the dimensions characterizing the possibility of a plurality of firms exploiting what we might call **collective economies**.

Diagram 2

THE DIMENSION OF COLLECTIVE EFFICIENCY



In analytical terms collective economies may take the simple form of unplanned and pecuniary external economies while in their more complex (and more interesting) form they may result from joint action capable of offering planned and technological economies.

It should also be said that if external economies, as we have seen, contribute to defining collective efficiency, at the same time they generate opposing forces which limit it: this generally depends on the fact that external economies constitute a market failure which, unless compensatory non-market mechanisms emerge, leads to their under-production. This question has a twofold value in relation to collective efficiency inasmuch as if on the one hand it may tend to limit its component of direct external economies, on the other hand it could lead to de-incentivising of joint actions due to the presence of what we have called externalities of the joint action.

The interaction mechanisms between joint actions and production of externalities is rather complex and not always able to express the right path that are capable of producing collective economies. In certain circumstances the existence of external economies of a Marshallian nature may give incentive to firms to undertake joint actions in cases where these firms understand the potentiality of external economies. But in other circumstances the market failure nature of the externality produced may lead firms to assume different attitudes leading to underproduction of the external economies. This may occur due to the emergence of free rider behaviors or because

the individual firms realize that they are not being sufficiently remunerated for their contribution to the production of externalities. This holds true also at the level of indirect external economies where the firms that have undertaken the joint action may be de-incentivised to continue co-operation precisely because of the impossibility of excluding certain agents who have not participated in the joint activity.

The following scheme may aid understanding of the complexity of the interactions between external economies and joint actions which, in some circumstances, may translate into the right paths capable of self-fuelling while in other circumstances may get blocked, canceling out the possibility of exploiting collective economies.

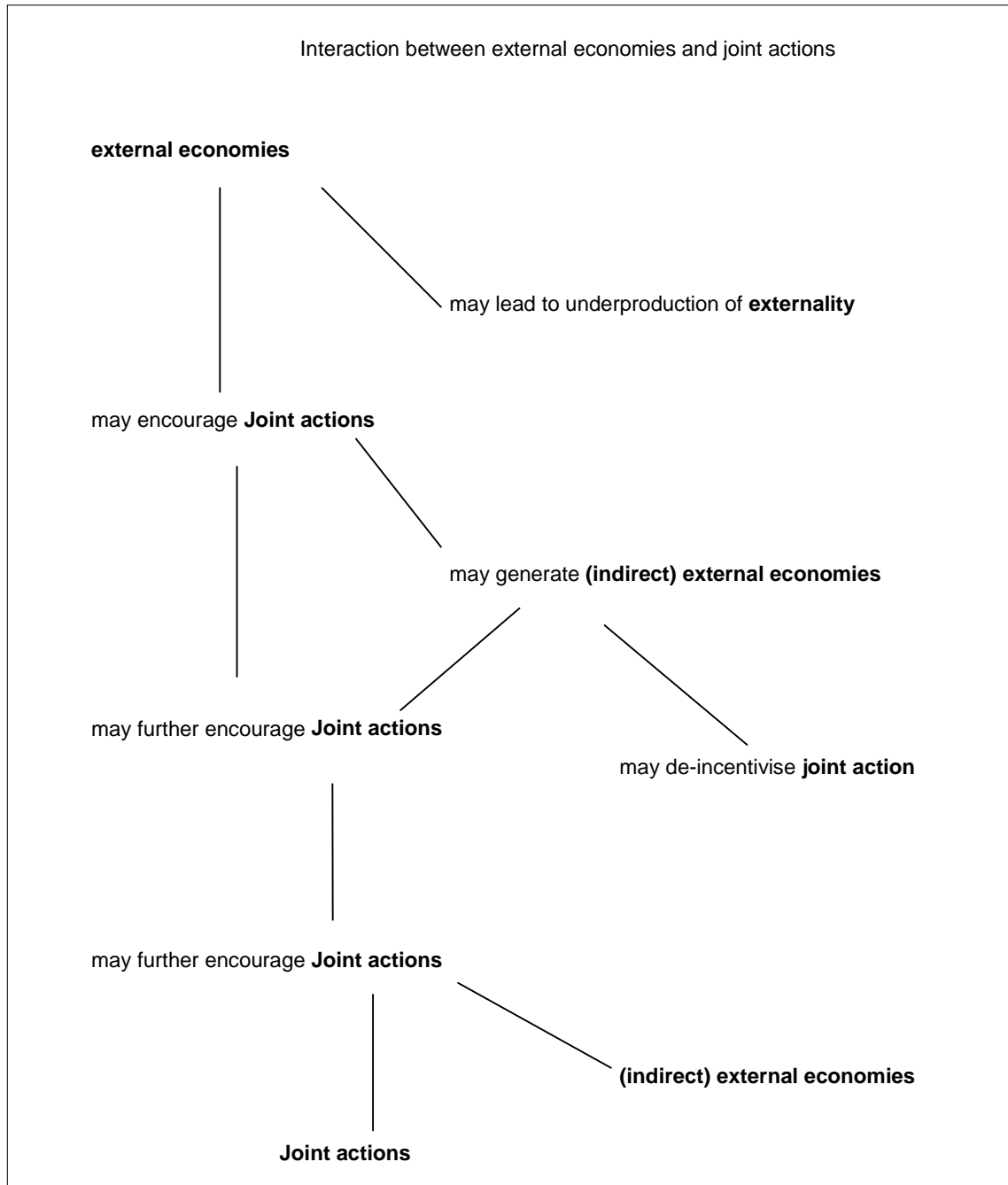
In conclusion, this interpretation of collective efficiency leads us to affirm that the possibility of exploiting what we have called “collective economies” is linked to a plurality of interacting factors.

We may say that there seem to be two points to reflect on:

- Firstly, the possibilities of developing the different components that define collective efficiency appear to be intimately connected with the context in question. In particular we refer to the weight carried by different dimensions in different contexts. What we intend to say is that the possibility of developing collective economies depends on the product and the sector in question, and more generally on the socio-economic and institutional context in which firms are operating..
- The nature of the relationships between agents changes in time and, if in certain circumstances this may generate the right dynamics, the same dynamics may in turn generate mechanisms which tend to limit or cancel out the initially consolidated collective efficiency. The right paths which have drawn the interest of scholars and policy-makers seem in some contexts to offer great potentialities while in others they appear somewhat problematic and not easy to implement, sustain and promote.

Diagram 3

INTERACTION BETWEEN EXTERNAL ECONOMIES AND JOINT ACTIONS



2.6 Transaction costs, “collective economies” and “trust”

In the above paragraphs when we studied in depth the nature of collective efficiency we concentrated on the possible economies that may emerge at a level of system of firms. But in this context we still have not confronted the existence of transaction costs which operate in a direction opposite to the forces which would give incentive to the dispersion of productive

activity into a plurality of agents which are distinct though highly interdependent and therefore able to produce collective efficiency.

In fact, although we have demonstrated that in certain circumstances productive disintegration may offer advantages in terms of efficiency in comparison with the traditional Coasian choice which explains why firms exist, the question of transaction costs is still to be faced.

The very existence of transaction costs can explain the nature of *complex systems of firms* just as it explained the “nature of the Firm” in the traditional Coasian analysis: in this context systems of firms are seen as an alternative to what seemed to be the natural response to the emergence of transaction costs and which was translated into an impulse towards the internalization of transactions.

The central question we need to consider now is identification of the characteristics which permit “complex systems of firms” to minimize transaction costs. In fact the presence of a plurality of distinct agents that interact but are not formally organized on a hierarchical basis constitutes an environment potentially favourable to the emergence of transaction costs. Asymmetries of information and the fear of opportunistic behavior are a continual source of transaction costs whose emergence counters the potentialities offered by collective efficiency.

In this context there are two factors capable of minimizing transaction costs and therefore of offering the possibility of exploiting the potentialities offered by collective efficiency to the plurality of elements interacting in a complex firm system: “trust” and “social links”.

Hodgson, quoting Marx, reminds us that every transaction is always a death-defying leap, a leap into the unknown and for (...) “such a dangerous act to become commonplace it must be enforced to a large degree of routine and guided by a good measure of trust.” (Hodgson 1988, p.167).

We may say very simply that to trust another means (...) “believing that when offered the chance, he or she is not likely to behave in a way that is damaging to us” (Gambetta 1988, p.219). In other words, trust exists when an agent, exposed to the risk of opportunistic behavior by others, has reason to believe that the latter will not exploit the opportunity. (Schmitz 1996, p.4)

The trust in question may be read as indifference to the possibility that the other agent involved in the transaction may have the chance to operate opportunistically: indifference of course not to any costs that might come about but indifference in the sense that one is convinced that such events will not occur. (Luhmann 1979, p.88)

Such conviction may be of different origin:

- process-based, where trust is tied to past or expected exchange, such as reputation or gift-exchange;
- character-based where trust is tied to a person, depending on characteristics such as family background or ethnicity; and
- institutional-based where trust is tied to formal societal structures, depending on individual or firm specific attributes (Zucker 1986, p.53).

In the first case (process-based trust) we have a trust that minimizes the costs of interaction between elements on the basis of a history of past relationships of exchange. This is especially important in the case of transactions repeated in time.

In the second case (characteristic-based trust) we have a trust that finds its origins in a social type of link, like those that distinguish family, community or ethnic group relationships.

In the third case (institutional-based trust) we have a trust that is somehow institutionally certified and which, at reduced costs, allows two elements to interact and to remain indifferent with regard to the eventuality of having to face opportunistic behaviors. This is the case of quality certification.

With regard to these three types, the case of links of a social nature appears highly interesting. We are actually dealing with social institutions that guide the behavior of the elements involved through the establishing of informal rules which, in a crucial manner, determine the dynamics involved. Social embeddedness influences behavior through three channels:

- (...) “the sedimentation of specific and interrelated historical, social and cultural factors in local areas which generate significantly different processes of development directly due to local specifications” (Garofoli 1992, p.3).
- (...) “social provisioning of market related information, and generates an implicit code of behavior, incorporating rules and sanctions, that regulate both social and production relations within the cluster” (Nadvi 1996, p.50).
- (...) “technology is endogenised, or related directly to the social fabric in which it is located. This has two important implications. First, clusters of small firms carry with them an element of “tacit knowledge” regarding technology, skills, products and process that is often specific to that community and usually accumulates over an extended historical period. Second, innovation and technical progress is an incremental and “systemic” process which builds upon tacit knowledge gleaned through interactions between users and producers” (Nadvi 1996, p.50).

Thus emerges the crucial factor of the social nature of economic transactions. In particular, social institutions can guide the behavior of the agents and therefore, in the case of “complex systems of firms”, permit exploitation of collective economies that are not cancelled out by the emergence of transaction costs. Specific social ties may explain why a particular structure governing transactions can minimize the costs of interaction between elements inasmuch as those belonging to a specific community are indifferent with regard to the chance of behaving opportunistically. The key question lies in the fact that the individual, at least in these contexts, models his behavior not only following market impulses but also on the basis of those of the social context in which he is inserted. Social embeddedness consolidates trust and therefore permits exploitation of collective efficiency, minimizing transaction costs. Individual behavior is conditioned by meta-economic variables such as social or ethnic belonging, but also by other more complex types of social ties. Think for example of the sense of belonging to a collective group of producers who offer a product of high quality or of international fame: in this case it is the reputation earned by the group which fixes socially acceptable behavior.

This last observation leads us to see trust as a dynamic phenomenon. The trust that emerges in a “complex systems of firms” may be the expression of family or ethnic ties, but it may also be the result of explicit investments in the relationships between firms. In this second case the trust that limits opportunistic behavior is not a given factor but a strategic factor which may in time be promoted, consolidated and developed.

IV. Towards a theory of the small firm: some reflections

1. What is lacking for a theory of the small firm?

In the light of what has been covered in the foregoing there are two problems to face when contemplating the hypothesis of working towards the development of a corpus of theory dedicated to the small firm: comparison with traditional Theory and the heterogeneity of the subject under analysis.

In reality the following questions say it all: how much does firm size constitute the critical observation variable that would justify treating the different size situations by means of theoretical corpuses alternative to the traditional one? And then, how much would classification by size guarantee identification of homogeneous analytical categories?

With reference to the small firm, does this category have structure, organisation and behavior a) far from those stylized by traditional economic theory and b) internally homogenous such as to justify the construction of a “New Representative Firm ” summarizing its distinctive features at a theoretical level?

It is therefore clear that attention must be focused on two points:

- the gap between the firm of traditional theory and the small firm in the real world;
- the heterogeneity of the subject under analysis.

In the firm of traditional economic theory, as we have said, represented abstractly and a-historically by the function of production, we do not find the features that a substantially descriptive/empirical literature appears to attribute to the small firm. In fact in a small firm the technical-productive aspect (marginal in the neo-classical approach) is from one viewpoint fundamental and primary with regard to the organisational aspect; from another viewpoint the highly pervasive role of the entrepreneur in small firm distances them from the reality of managerial firm models.

Yet we should note that, to the purpose of this paper, the problem is not so much the question that the (neo-classical) firm of the textbooks cannot represent the real world. This is not a specific problem of small firms. As Machlup lucidly reminds us, the firm model of neo-classical theory (...) “is not constructed, as many authors believe, to explain or forecast the behavior of concrete businesses: it is constructed rather to explain and forecast changes in observed prices (...). In this causal link the business is only a theoretical link, a mental construction that helps to explain how to go from cause to effect” (Machlup 1967, p.9).

We take this passage as a given and is moreover very clear about the theoretical corpus to which it intended to refer. In fact we are not looking for further mental constructions. When we refer to the possibility of developing an independent theoretical corpus, what is hoped for is the perfecting of a “kit” of analytical instruments capable of representing the peculiarities of the small firm. This kit may serve as a guide for the scholar and the businessman but above all it is for policy makers

- Now it has been clarified that it is not the “distance” from traditional Theory that in itself would justify the birth of a new theoretical corpus, what remains to be faced is the question of how much the homogeneity of the subject under consideration might permit the establishment of a new, independent analytical structure.

In fact we must be very careful in reaching a conclusion of this sort. It must be clear that the too general category of small firm conceals wholly different realities. From what emerges from an extremely fragmented literature we may, to quote only a few, identify a plurality of firm types:

- rural firms operating in a context of maintaining the family economy;
- urban firms straddling the formal and informal sectors;
- small independent producers operating in isolation to serve local markets;
- sub-suppliers operating under the indirect control of big firm;
- highly specialized firms operating within networks of complementary operators;
- firms operating directly on international markets offering niche products.

Faced thus with a type spectrum so lacking in homogeneity one cannot stop and accept facile determinisms with regard to size, behavior and performance. On the contrary, the aim of a theory of small firm must be to attempt to identify, within a complex taxonomy of elements, the regularities which empirical observation is capable of bringing to light.

2. Empirical regularities and specificity of small firms

We may, then, identify a series of specificities and empirical regularities, anticipating that a theory of small firm should be aimed at connecting them in a unitary interpretative framework.

- One of the first empirical regularities concerns the relationship between age, size and growth of the firm. Certain studies maintain (Jovanovic, 1982) that the growth rate and variability of firms diminishes with the age of the business and the probability of its

going bankrupt diminishes with an increase in size. This evidence is questioned with reference to the organisation's degree of learning which, according to different studies (Brock-Evans 1989), would vary in accordance with the life cycle of the firm itself and therefore independently of a size factor. In this case learning becomes a key-element which leads behavior analysis of the business back to the role and characteristics of the human resources present in the firm organisation.

- Among human resources the personal figure of the entrepreneur is pre-eminent in small firm activities: this person often has multi-purpose abilities and a practical, manual culture while organisation appears informal and characterized by the absence of management and middle management for key roles.
- Another specificity is the family aspect which characterises small firms with positive (family members' work economies) and problematic (generational handing-on) consequences.
- The relationship between salaries and work stability and the size of the firm is also an empirical regularity: generally in small firms earnings, qualifications being equal, are less than in big firms (see the work of Brown-Medoff, 1985; Evans-Leighton 1988). Certain studies state that big firms are willing to pay higher salaries for the best workers available on the market (in line with "efficiency wage theory") but others maintain that in reality this regularity is not explained by any economic theory (hence the necessity for a theory of the small firm). Empirical research also highlights a higher worker turnover in small firms compared with others, and the presence of a greater number of workers belonging to the "discriminated against" labour market categories (women, immigrants, young people). As regards the first point, this regularity refers to the greater ease with which workers in small firms leave the job or are fired. Actually this is explained by the fact that in the small firms internal marketing appeal is reduced, including the possibility of defining career paths for human resources, so the small firm has a lower attractiveness with regard to resources. This is one of the main reasons why it is difficult to keep young resources for long in a small firm. At the same time the small firm often benefits from a certain elasticity in the application of work law which permits it to employ a greater organisational flexibility.
- In connection with the fact of using, to a greater extent than other companies, the categories which are contractually "weaker" (young people, immigrants, women) it should be observed that precisely this regularity observed makes the small firm interesting with view to economic policy and would explain the attention paid by governments and international organisations to its creation and development, above all in less economically developed areas, as we shall see in the considerations on economic policy below.
- In the small firm organisational flexibility unites with a certain technical flexibility which permits offering lower prices than big firms for simple and small series processes. This is another regularity observed in a special type of small firm, the type defined "traditional" because they belong to sectors that are not advanced from a technological viewpoint.
- Another series of regularities and specificities regard the relationship between small firms and innovation: The enquiries that contradict Schumpeter's hypothesis, according to which innovation is effected only by big firm, highlight the vivacity of small firms in introducing innovations in sectors with a high number of qualified workers. (Scherer 1980; Acs-Audretsch-Carlsson 1988).
- Among regularities observed on the financial side the small firm usually has difficulty in obtaining credit (Evans-Jovanovic 1988) and is more sensitive to recession from a liquidity point of view. Under-capitalisation is also typical of the small firm.

- As emerges from a vast empirical/descriptive literature referring to a wide range of countries (industrialized and not), small firms seem to be privileged for exploitation of the potentialities of collective efficiency in complex systems of firms (clusters, districts and networks).

In the light of these “regularities” the interpretative limitations of traditional economic theory (see para. 2) appear much more evident if applied to a small firm.

The specificities listed, for example, highlight a strong socio-cultural connotation in the small firm which cannot be in any way traced to the stereotype of a market in which social relationships are transformed into purely mercantile relationships of indifference or social hostility. Not only this but the figure of the entrepreneur and his involvement give special importance to the firm function and decisional aspects, differentiating this type of firm from managerial firm models which are closer to the description of a big firm. The features of the small firm which refer to the subjective qualities of the entrepreneur (often the founder of the firm or a second generation entrepreneur) and his family are therefore hard to stylize in a single firm model.

Further, in reality it can be seen that more or less informal rules are valid for the small firm, and social and cultural conventions originating from the specific environment: these cannot be stylized in a general model. This is why the perplexities formerly encountered in the non-consideration in economic theory of the firm’s social, technical-productive and evolutionary aspects are seen to be fundamental to a theory of small firm.

The efficiency motivation in particular proves to be little applicable to small firm behavior to the extent that rational and maximizing behavior is invalidated by atypical conditions (conditions valid for small firm but not for firms on the market in general) such as for example the relationship between risking in firm and being an employee (much stronger in small than in big firms); or the asymmetry in the employee relationship, more highlighted in the small than in the big firm, also due to the lesser observance of rules and norms safeguarding work); or the small firm’s greater difficulty in access to credit which causes an investment cost often greater than market cost.

So, in summary, with reference to small firms, the interpretative limitations of traditional Theory as dealt with in paragraph 2 (points a, b and c) are evident: in the small firm the technical-productive dimension is closely identified with the figure of the entrepreneur, behavior and decisions are influenced by multiple factors, chiefly social-cultural, which distance the small firm from technologically and economically efficient paths and, finally, the relationships and dealings between persons constitute a fundamental element of company policy and strategy.

3. The contributions of organisational theory and the evolutionist approach to a theory of the small firm

Without retracting what has just been said on the interpretative limitations of traditional theory it should also be said that, unlike the technical approach and those based on efficiency, the evolutionist and behaviorist approaches, drawn together by a systemic vision of the firm, seem to be the most promising field of enquiry for those who intend to work towards the establishment of a theoretical corpus explicitly aimed at the study of small firms.

Simon’s analysis (1962) which considers the firm as an organisation, meaning a complex of individuals and power centres whose interaction triggers decisions and which brings entrepreneurial organisational action to the centre of analysis, is suitable for grasping some of the salient features of the small firm. On the basis of the above mentioned specificities of the small firm it appears clearly that each direct reference to the entrepreneur’s organisational action is

coherent with the small firm management structure in which the entrepreneur is at once technician, owner and manager of the firm and the main organizer of resources.

In the definition of “functional organisation”²⁸ the production dimension of the firm is also recovered. In particular the systemic approach, as well as identifying the firm in a grouping of interdependent activities, underlines the autonomy of the organisation in delimiting its frontiers: the firm therefore appears as a system to be organized and which is susceptible to being regulated by different forms of organisation.

Among the approaches mentioned, perhaps the most complete is the evolutionist one because it integrates the various approaches, incorporating the role of technology and organisation, transactional features and the institutional environment, market power and the segmentation of the market. The firm, through a mechanism of response to solicitations and feedback from the environment, then modifies itself following a sequential process of evolutionary stages that cannot be predetermined, and its actions, in line with the behaviorist approach, are characterized by a procedural rationality which fixes, in the determination of a given technology, the co-ordination of the participants in the production process. In this way the economic-productive dimension is recovered at the centre of the analysis, which takes us back to the classical line and the systemic interpretation of firm, which takes us back to the analysis begun by Simon.

Then the fact that in the technical-organisational and evolutionist approaches there is an emphasizing of the relationship between firm and surrounding environment takes on so much more importance for a small firm whose activity often has a localized character, both because its final production market is local and because it is equipped with (human) resources of emphatically local characteristics.

Another element which makes evolutionist theory interesting for our aims is the consideration that organisational learning lies in the people working in the firm (workers, entrepreneur). In fact, looking at the small firm situation, one of the most critical problems is the strategic role played by human resources within the organisation: the small firm often features figures who have grown up within the firm and carry a specific non-formalized know-how. When these figures leave the firm it is therefore a very problematical event for the firm itself. This is all the more true when the person who leaves is the only repository of that specific type of knowledge and therefore not replaceable in the short term. So in the small firm, far more than in the large, human resources and a repository of know how are fundamental to a firm where there is little routine or procedure.

In the evolutionist approach, then, the firm is an active decisional element which, on the basis of a programmed behavior (pre-established routines), selects almost automatically from the various possibilities and options offered by the market. Selection comes about in conditions of imperfect knowledge since the firms do not possess information regarding all the techniques present or available in the system, and the decisional rules (routines) found at individual firm levels are the result of research and the learning capacity of the organisation as a whole inasmuch as they are results of a sedimentation of experience and knowledge accumulated by all members of the organisation (including the capital physically involved in production). What results is that, faced with changes in the surrounding environment, the firm's chances of survival are linked to its ability to learn how to change precisely these internal decisional rules (Saviotti-Metcalf, 1991). On this subject, many empirical works carried out on small firms highlight among their results the greater reactivity of small firms to modifications of the surrounding environment and the flexibility, not only technical but also and above all organisational, of the people.

²⁸ Simon defines the firm as a group of decisional processes based on information: his systemic approach takes the function as a fundamental unit of analysis, which comprises technical element. Coordination extends to the production process whose core is represented by technical aspects.

V. Some policy considerations

1. Small firms: theory and policy

The first consideration on economic policy that may intuitively be made at the end of the analytical path taken up to now is the following: notwithstanding the growing popularity of policy interventions in favour of small firms, at the time of writing these interventions cannot count on the guidance of a coherent body of theory. In other words, there is a dangerous space between the evident spreading of policies aimed at small firms and the lack of a unitary theoretical structure capable of verifying (both *ex ante* and *ex post*) the feasibility, sustainability and coherence of these policies.

Naturally, stating the lack of a unitary theoretical reference capable of recomposing some of the economic policy indications which emerge in fragmentary manner from the literature, certain suggestions offered by traditional approaches cannot be ignored.

Among these suggestions we cite for example the fact that in a small firm productive activity represents the heart of the organisation. This leads us to focus training interventions on this area and, especially, on the firm's technical-productive capacity and ability.

Further, having defined the small firm on systemic bases, meaning as a grouping of interacting elements that constitute relationships, implies that the social-cultural dimension of those belonging to the organisation must be put in the foreground; the human element and the environmental characteristics in which the firm operates become a prime object of analysis for any policy intervention.

The role of learning and “tacit” know how transmitted within the company informally and uncodified should be considered crucial. The fact that people within the company are repositories of lived experience (in big firm, far more often, each activity is generally codified and written down) makes them a strategic resource, often in the short term irreplaceable (key-roles) to which policy must be applied with priority.

Lastly, it appears clear that the problem of replaceability of the entrepreneur is vital for the small firm: we refer to the critical moment of the passage from generation to generation. Most small firms are family owned and the succession to management of the father’s activity (often the founder of the firm) by the children is often a traumatic “leap” for internal organisation, a leap which certainly cannot be ignored when dealing with policy.

2. Towards a taxonomy of the small firm

Policy interventions in favour of small firms suffer from the reluctance with which policy makers recognize the generality of the label small firm, a label which hides a complex firm taxonomy. Today it seems clear that the building of this taxonomy is one of the priorities to which scholars and policy makers must dedicate themselves synergically.

The empirical/descriptive literature heretofore produced may be the starting point for the construction of the firm taxonomy in question but there is still much to be done inasmuch as we are dealing with an analytical corpus which is still too fragmentary to offer a coherent guide to policy. Moreover, the empirical contributions discount the specificity of the cases treated: in fact for obvious reasons most of these analyses refer to the industrialised world and great care must be taken in transposing what emerges from this literature to policy interventions destined for less economically developed situations.

In defining policy it must be clear that size in itself is not a variable sufficient to identify the competitive capacity of a firm. We must rather concentrate on analysis of the production and market relationships in which the firm operates. As for production relationships, small firms can operate exploiting a network of wholly local or national relationships or be part of an international network. Analogously, as regards market relationships, small firms can serve exclusively the local market, the national one or the international one. It is the combination of the two dimensions, production relationships and market relationships, which defines the matrix of the type of firm to which policy interventions must refer. Only recognition of this complex taxonomy will permit proper definition of the aims and instruments of a new way of making policy in favour of the small firm.

VI. Conclusions

We set out from the statement that in traditional economic theory the small firm is not treated specifically and that no interpretative picture of this situation emerges that is sufficiently coherent and unitary.

We further maintained that in general the “Firm stylized” in the consolidated approaches remains far from that of the real world and that this “distance” appears even more important when we are dealing with the small firm.

We then said that in the face of such lacunae the growing role of small firms in local, national and global competitive dynamics push economists to develop a new theoretical, analytical and interpretative approach.

Summarised to the extreme, this approach should:

- Try to reduce the distance between the firm of theory and the one operating in the real world.
- Face the heterogeneity of the subject under analysis, the small firm category, avoiding the pitfall of facile determinism regarding size, behaviors and performance.
- Construct a unitary interpretative framework on the basis of the regularities highlighted by empirical observation.
- Define the small firm on systemic bases, as a grouping of interacting elements that construct relationships. So we cannot set aside consideration of the human element, not to

be represented as a simple neutral agent motivated by the logic of contractual trade. In this context the behaviorist and evolutionist approaches offer promising developments for an analysis capable of interpreting the behaviors and strategies of small firms.

- Consider that productive activity is the heart of the organisation, and its management, in the face of real market situations, becomes a determinant of the company structure.
- Concentrate attention on a level of analysis, the meso level, which does not neglect economies external to the firm and which therefore exploits the potentialities of collective efficiency.
- Accept contributions from disciplines other than economics (organisation theory, historical analysis etc.). We do not mean hybridizing concepts from theories that are distinct in principles and analysis methodologies but rather opening the study of firm reality to contributions that might increase the interpretative potentialities of traditional instruments.

Finally, as regards the economic policy implications, there is a dangerous space between the evident spreading of policies aimed at small firms and the lack of a unitary theoretical structure capable of verifying (both *ex ante* and *ex post*) the feasibility, sustainability and coherence of these policies.

Still on the subject of policy, we reaffirm the necessity of drawing up a taxonomy of small firms on the basis of which it would be possible to define and implement coherent economic policies. In this context we must concentrate on the analysis of the production and market relationships in which the firm operates. It is the combination of the two dimensions, production relationships and market relationships, which defines the matrix of the type of firm to which policy intervention must refer. Only recognition of this complex taxonomy will permit proper definition of the aims and instruments of a new way of making policy in favour of the small firm.

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