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**UNITS OF INVESTIGATION FOR  
LOCAL ECONOMIC DEVELOPMENT POLICIES**

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## Introduction

Since the mid Eighties, we have seen the growth of a copious body of Anglo-American literature on development<sup>1</sup> that bears witness to an increasing interest in Italian industrial districts<sup>2</sup>. This article intends to offer a preliminary outline of the conditions in which an industrial district can become an effective tool for analysis and formulation of development policy.

Let us first explain why it should be the industrial district, and not industry, which provides the most useful unit of analysis in defining development policy. On this point Becattini (1979) is correct in highlighting that the various definitions of industry create an interpretation of development phenomena which doesn't manage to take account of the interrelations of social, economic and institutional factors which come together to produce development. Such interrelations are, however, addressed in the notion of industrial district which – after years of research into the economic development of Tuscany – Becattini suggested adopting as a unit of analysis in industrial economics. The industrial district, a halfway house between the individual economic unit and the national economic system, is a concept which is systemic in origin: the unit under investigation is not the individual firm, but the system of firms located in a given area<sup>3</sup>.

Other commentators have concentrated on the development of industrial districts, even if they have arrived by a variety of different routes. The analysis has thus been enriched by the investigation of social and political relations which typify industrial districts (Bagnasco and Trigilia, 1984, 1985), and of theoretical formulations on relationships between the firms working within the district (Brusco, 1989). The analysis has virtually always had to abandon the tools traditionally used by the economist in order to focus on the interactions not only of an economic nature (those to do with production and the exchange of goods and services), but also of a social, political and institutional nature.

From studies of industrial districts have emerged several elements which are crucial for an understanding of Italy's economic development over the last twenty years. Elements which, as Ginzburg (1989) has pointed out, have contributed in no small measure to dispelling the dichotomy between modern and traditional, between large firm and small firm, between continuity and change.

<sup>1</sup> Cf. Pyke, Becattini and Sengenberger (1988), Sabel (1994), Grabher (1994).

<sup>2</sup> Similar interest is shown by the numerous representatives of American public institutions who visit Italian industrial districts and want to know how to use the industrial district as a model in development policy.

<sup>3</sup> The historical background on which his article is based is recounted in the introduction to the volume *Mercato e forze locali* (1987) which brings together important theoretical and empirical studies on industrial districts in Italy.

It is worth noting that several other economic studies do not take industry as an intermediate unit of analysis between the individual firm and the economic system as a whole. We can summarize them with reference to the three areas of research they derive from.

The first is the input-output analysis of interindustrial relations that Leontief began to work out in the interwar period. During the nineteen-fifties, the theories of location developed by Isard and other regional economists were grafted onto this area. In these theories the industrial complex is not merely a portion of the interindustrial relations as represented by input-output tables, but is also characterized in terms of economic advantages stemming from the particular location. Certain studies on filières can also trace their origin to input-output analysis<sup>4</sup>.

Another area of research was put forward in the nineteen-fifties by François Perroux, whose theory of industrial poles, inspired by the Schumpeterian view of the development process, stems from a critique of Walrasian economic equilibrium. The pole of development is the set of firms able to generate cultural and economic effects that favour development. From its original formulation poles of development theory branched into a wide range of regional growth models. Certain definitions of filière employed by French researchers can also be retraced to Perroux' studies.

Lastly, several studies by Scandinavian economists – and especially the work of Danish economists using the notion of production system<sup>5</sup> – show the influence of an important work published in 1934 by the Swedish economist Erik Dahmén. In a model of “Schumpeterian dynamics”<sup>6</sup> he defines the concept of the “development block” as the set of interdependences that cannot be fully explained by interindustrial transactions alone. Within these development blocks – which comprise a set of interrelated and interdependent factors inside and outside the firm – structural tensions and complementarities can be found, which can create either difficulties or advantages for firms: the responses of the firms to complete the development block may produce opportunities for growth. In Dahmén's explanation, the structural tensions and complementarities closely resemble the notions put forward by Hirschman in analyzing development strategies and employed by Rosenberg to explain the origin and spread of new techniques.

The studies that adopt the idea of industrial district do not descend directly from any of the above areas of research. In the formulation proposed by Becattini (1979), the notion of indus-

<sup>4</sup> Arena *et al.* (1985).

<sup>5</sup> Andersen *et al.* (1981).

<sup>6</sup> Dahmén (1989).

trial district can be traced back to Marshall's analysis of this concept<sup>7</sup> and, in more recent studies, Becattini (1991) has also suggested a systemic interpretation to clarify the relationship between the production system of the industrial district and the social and natural environment in which it is immersed. Strong influence also comes from Hirschman, as evidenced by those studies of development of local productive systems that investigate linkage effects<sup>8</sup>.

Essentially, though it can trace its origins in different areas of research, the idea that industry is not an adequate research unit in the analysis and formulation of development policy could already be found in the tradition of regional economists developing the concept of industrial complex, in Perroux' theory of poles of development, in Dahmén's definition of development blocks, and in the view of development put forward by Hirschman.

Nevertheless, even if they have typified the development policies of many countries in the Sixties and Seventies, the notions of industrial complex, pole of development, but also a synchronic reading of the linkage effects in terms of input-output relationships, now seem to be less effective than the notion of industrial district.

In this article I shall outline briefly the ideas that characterize the model of the industrial complex (Section I), the Perroux development pole theory (Section II), and the analysis of the industrial district as defined by Becattini and Brusco (Section III). The decision to compare the industrial district with the industrial complex and the pole of development was prompted by the observation that in all three cases explicit reference is made to a local development policy<sup>9</sup>, even if the idea of local development, as will become apparent, varies among the three units of inquiry. In this comparison a clear picture will emerge of the theoretical hypotheses and the measures adopted in various policies. Though it is difficult to identify the model which underpins a given development policy, the industrial complex model and the theory of the poles of development have suggested policy measures which are clearly identifiable: in the industrial complex model the policies are rooted in a mechanistic vision of the relationships which determine development, whereas in the theory of poles we have a wide

<sup>7</sup> Bellandi (1982) presents a rich review of three aspects of Marshall's analysis on high localization of industries: exchange on information, accumulation of professional skills and innovation. From a different analytical perspective, these aspects are also discussed by Krugman (1991) whose intention is to update and formalize, in a simplified model, Marshall's considerations on the advantages of localized industries.

<sup>8</sup> Brusco and Paba (1992).

<sup>9</sup> The interpretation of economic development in terms of local rather than national developments is taking root in contemporary economic thought, both at theoretical level and in the definition of industrial policy measures: the whole history of industrialization in Europe from 1760 to 1970 has been reappraised in terms of local development (Pollard, 1989), and the importance of local development is borne out further in the reform of the structural funding of the European Community.

range of policies which differ in varying degrees from the formulation of development theory put forward by Perroux in the Fifties and reposed by him thirty years later.

If development policy is that field of applied economics which is “exposed to strong pressure for a lead in defining economic policy measures”<sup>10</sup>, then, for the industrial district to become a key concept in defining a development model, the latter must contain a normative element. As instanced by poles of development, the formulation of such a model must recognize that the transition from theoretical analysis to the definition of the measures to adopt is a critical stage during which radical changes might occur in the way we draw up our theoretical framework. In the case of the industrial district, we must evaluate how it is possible to maintain a normative plan when the characteristics of the model include historical analysis, the impact of chance events, and the presence of environmental factors which cannot simply be quantified in terms of exchange. These elements, by definition, give rise to unpredictable outcomes not susceptible to normative measures. On this point, theoretical research is still undecided but there appear to be some signs as to the most fruitful avenues of approach. An examination of such signs is undertaken in Section III. In Section IV I propose to offer some concluding remarks to elucidate further the industrial district debate.

## **I. The industrial complex**

The concept of industrial complex derives from the realization that industrial production exhibits technological and commercial interrelations among the individual productive processes. According to the definition adopted by regional economists in the nineteen-sixties<sup>11</sup>, the industrial complex is, first and foremost, the set of combinations of productive activity, situated in a given location and featuring significant interrelations. Development studies, carried out by researchers who adopt this concept of industrial complex, aim at assessing whether a developing region can participate in the growth of a given industrial activity.

The markets for products of the industrial complex, the geographical sites of sources of each of the raw materials (there may be more than one site), the reasonable internal structures of the industrial complex, are all taken as given. Using these data, an input-output analysis (where linear relations obtain) is employed to calculate total input requirements and output yields. There then follows calculation of the point of minimum cost of transport and evaluation of alternative locations on the basis of different input costs (labour, fuel, etc.).

Besides the socio-economic population-related data, the analysis also employs other data such as the degree of skill of the workforce.

<sup>10</sup> Eckaus (1990), p. 46.

<sup>11</sup> See e.g. Isard and Schooler (1959) and Isard and Smolenski (1963).

It should be noted that not only the location, but also the internal structure of the industrial complex vary according to differences in input costs: allowance is made for switching from one productive process to another. This is why the input-output matrix is identical with the activity matrix of linear programming<sup>12</sup>.

Lastly, economies of spatial integration are considered, i.e. the set of economies of scale, of agglomeration and of urbanization-regionalization<sup>13</sup>. Here we are dealing not merely with economies of a strictly technical kind<sup>14</sup>; it is evident that the economies of spatial integration may entail increase in social welfare since high incomes may favour entrepreneurial attitudes for work and favour a higher labour productivity. Although the presence of spatial economies is felt to be important for an industrial complex to function, analysis of them is omitted because they are difficult to evaluate. This omission may be overlooked since, in all events, the theory maintains that, if there are strong interrelations providing substantial economies of spatial juxtaposition, such economies “are approximately equal in magnitude at all feasible locations. Thus it is sufficient for the analyst to pursue locational comparison of the full complex, using only the relatively objective data on regional differences in production and transport cost; such data are more easily obtainable”<sup>15</sup>.

The various regional development models which adopt the notion of industrial complex have three elements in common.

(1) The places in which industry is located are part of an undifferentiated and uniform space which could in theory welcome any industrial complex. For Isard, space is characterized by cultural, social and institutional differences but at any given time it is the difference in the availability of resources that offers the various areas different potential productivity<sup>16</sup> and it is these differences that come together to determine the choice of a particular industrial complex. That is, the analysis of economies of spatial integration is put aside and the analysis concentrates only on the costs of production and transport. Costs of production refer to the production processes carried out by production units whose specifications do not concern the

<sup>12</sup>Cf. Isard and Schooler (1959), p. 27.

<sup>13</sup> Economies of agglomeration occur when similar factories are spatially close to one another, while economies of urbanization-regionalization occur when non-similar factories are close. The latter economies are generally difficult to evaluate, save in certain cases, normally quoted, such as the transfer of molten pig iron to open hearth furnaces. See Isard and Schooler (1959, p. 28).

<sup>14</sup> Technical economies of spatial integration derive, for instance, from economies in administration and other savings in the indirect costs of production, from better organization of production among the various stages in the production process, and from a better effective quality control.

<sup>15</sup> *Ibid.*, p. 32.

<sup>16</sup> This theme is discussed by Isard (1955, p. 569) in his comment on the essay by A. P. Usher «Technical progress and investment».

analysis: as in the neoclassic tradition, the action of individual agents (producers) is fully described by the objective function and by the technology (which in this case requires the spatial specification of the input and the output), given input and output prices.

(2) The view of technology implicit in the analysis of the industrial complex concentrates on the choice between given alternative techniques. There is no learning or creation of new techniques: if anything, there is the need to attract the work force with specialized skills and this need is reflected in the factor prices.

(3) The agents are not active vis-à-vis their environment. Indeed, the interrelations that the literature of industrial complexes has dealt with are on the one hand the transactions between productive activities (the exchange of goods and services) recorded on input-output tables, on the other hand they are the strictly technical interactions which give rise to those particular economies of spatial integration in cases such as the transfer of molten pig iron to the furnace. Other interrelations are difficult to evaluate and are not included in the analysis.

What are the normative implications of the model for the industrial complex?

Let us first examine the importance of the idea of taking the environment as given. On the basis of an analysis of development projects, Hirschman (1967) concludes that there are side effects in the various projects that bring about benefits which are difficult to evaluate, but whose absence causes damage which is anything other than nebulous. It is worth pointing out that the input-output analysis which is used in the industrial complex models refers to the flow of goods and services as envisaged as a result of constructing the complex; while in the analysis of linkage effects, which also highlight the interrelation between industries, the linkages are generated by investments which can give rise to side effects not entirely quantified in terms of the flow of goods and services. Hirschman points out that the overall impact of side effects differs from project to project and should be identified case by case by engineers and social scientists, but all projects entail unpredictable changes in respect of the production objectives assigned to them. Moreover, as Hirschman observes, the best side effects of new economic activities are the effects of inducement and the acquisition of professional skills<sup>17</sup>. These effects change the economic environment in which the firms in the industrial complex operate. It is thus necessary to take account of all these factors in order to take full advantage of the effects of the industrial complex.

A second normative implication has to do with the notion of balanced growth. We know that any local development policy based on such a model must have at its disposal the technical and economic data which are necessary to make informed choices for a particular industrial complex. Once these data are known, the time perspective of the development process would seem to be reducible to a technical assessment of the depreciation periods of the vari-

<sup>17</sup> Hirschman (1967), p. 171.

ous plants in the industrial complex, and the outcome of the location mechanism should be predictable in terms of the increased output and income of the area. But such an assessment has implications which are by no means simply quantifiable in technical and engineering terms. This is because the policy measure should in theory set its output target in relation to a balanced development of productive capacities in various parts of the industrial complex. Yet the productive capacity of each plant increases in the course of time as a result of learning processes in setting up the plant. Eckaus (1983) reminds us that the latter is a temporal process broken down into various phases (management, maturation, learning by doing, maintenance and depreciation) and some of these involve learning processes which will increase the maximum quantity produceable by each plant. It follows that such productive capacities might change at different rates for various parts of the complex, so that the outcome would no longer be a balanced one. However, balanced growth is precisely the theoretical benchmark common to models which adopt the notion of industrial complex.

Is this benchmark therefore misleading, and if so, what might the implications of this theoretical benchmark be for development policy and planning? As Hirschman (1967) points out, what we have here is a case in which so called experts are supposed to have found the answer to every problem, and all that remains to be done is to put their recommendations faithfully into practice. Thus equal weight is given to the various policy measures because it is thought they are interrelated, but this is often used as a let-out because if results are not achieved it can be claimed that the reason for the failure was the fact that the plan was not completely carried out. On this point Hirschman's criticism is most incisive. In his opinion it is necessary to minimize the requisites for balanced development. In other words, we must limit the number of operations to be carried out convergently because the strategy based on the principle of investment coordination "demands a precise definition of timing and methods employed, a fully integrated forecast, an absolute certainty as to objectives and means of achieving them, and, as a result, all of [these requisites] together represent a negation of the principles of research and development. To plan a network of interdependent industries able to respond to a change of demand, necessarily requires that the planners [...] turn a blind eye to the evident need, implied by their proposals, to undertake innovations of a technological and social nature"<sup>18</sup>.

In conclusion, development models which adopt the notion of the industrial complex may prove to be inadequate because the vision that takes the environment as given and the hypothesis of balanced growth do not allow us to consider important aspects of the development process such as new skills acquisition and the change in the social, economic and institutional context.

<sup>18</sup> Hirschman (1967), p. 86.



## II. Pole of growth and pole of development in the analysis of François Perroux

In the article containing his “notes on the concept of development”, Perroux remarks that “growth does not occur simultaneously everywhere; but manifests itself in points or poles of growth of varying intensity; expansion takes place towards different channels and with final effects that vary in relation to the economy as a whole”<sup>19</sup>. From the nineteen-fifties onward, this aspect of growth has led Perroux to investigate the special role of points or poles of growth and channels of transmission of growth. Thirty years on from his initial formulation, Perroux recapitulates his theory of development based on the concept of pole and draws a fine (and not merely terminological) distinction between pole of growth and pole of development<sup>20</sup>.

The pole of growth is a whole that is able to induce growth of another whole (growth is defined as an increase, extended over time, in an economic indicator, e.g. gross product). According to Perroux, the concept of pole of growth refers to an economic development model characterized by balanced growth and driven by the aggregate investment. In such a model, nobody challenges the importance for agents involved of a rise in the production growth rate, nor is there any reference to the social structure or to income distribution, and a regime of perfect competition is taken for granted.

Unlike the pole of growth, the pole of development is able to “engender a dialectic of economic and social structures whose effect is to increase the complexity of the whole and to expand its multidimensional return”<sup>21</sup>. The concept of pole of development advanced by Perroux should not be viewed in a context of general economic equilibrium of the Walrasian type, but rather within a theory called by him “theory of generalized equilibrium of active units”. This theory assumes that the agents, who are not all equal, are capable of changing their human and material environment. The asymmetrical behaviour of the agents is of importance for Perroux’ theory of development, which, as Kindleberger recalls<sup>22</sup>, must not be understood in terms of domination or exploitation of one economic unit by another: the reference is, rather, to a theory of leadership. The units possess unequal abilities to modify their environment owing to differences in size and structure, but it would be imprecise to argue that only the large firms or monopolies are active. The active units create their own abstract space

<sup>19</sup> Perroux (1966, p. 146).

<sup>20</sup> As Perroux himself recalls (1988), his first formulation of the concept of pole of growth gave rise to a copious literature which appropriated the concepts of pole of growth and pole of development, making sometimes substantial modifications.

<sup>21</sup> Perroux (1988, p. 49).

<sup>22</sup> See Kindleberger (1978).

for decisions and actions, and thus it is possible to construct centres which exert propulsive effects that in certain combinations stimulate development: total output increases and cumulative processes are set in motion in workforce training and in a rise in the level of their aspirations and their ability to create and perform. Hence, what we find is a nexus between theory of development and theory of spaces, of structures and of active units. Thus, the poles of development stand as an intermediate entity between the totality of all the possible relations (economic, but also social and institutional) and the individual “active unit”.

The economic space within which the active units act is not an abstract space defined on the basis of relations among the objects analyzed. Rather, it must be understood as a field of forces, made up of centres (poles or foci) from which centrifugal forces issue outwards and towards which centripetal forces are directed inwards. This space, rather than the technical space of the firm, is what plays a central role in Perroux’ analysis of the poles of development.

“Development through the poles” is not synonymous with “territorial development”: in general, Perroux (1988) does not rule out the possibility of regions where the propulsive effects come from outside. Still, although a pole of development may be non-territorialized, Perroux attributes importance to the “effects of intensification of economic activities due to proximity and to human contacts”. Thanks to this proximity (e.g. in the sphere of production) entrepreneurs, skilled workers and industrial cadres “are trained, mutually influence one another, create their own traditions and may share in a collective spirit”<sup>23</sup>. For “it makes a great difference whether people view their own activity as work pure and simple or also as part of a collective project”. Training of people and human interrelations are thus of crucial importance for development.

People are necessary not only for the conception and formulation of a plan, but also for its implementation. Basic instruction, education policy and, more generally, the transmission of information favour development precisely because they contribute to training. And here Perroux refers to the ways in which information is transmitted in market exchanges as well as in the use of machines. But it is the interrelations among people that trigger the basic desire to create and work, and that stimulate decision making and the desire to invest. As in Hirschman’s analysis, so in that of Perroux, all these conditions are indispensable in making investment decisions.

The possibility of defining a “non-territorialized” pole of development enables Perroux to stress that development is not the end result of an automatic mechanism: development will not be achieved simply by planting any productive unit in any environment whatever. There must be a policy that selects those units that induce development and which act on the envi-

<sup>23</sup> Perroux (1966, p. 154).

ronment where the unit in question exerts its propulsive effects. The active unit or units cannot be chosen without considering the relations that characterize the particular environment where the effects are to be brought about, relations that must be specified in a temporal and spatial dimension. Perroux quotes several examples of types of unit that induce development. Among these it is worth recalling the large expanding firm that increases its supply of or demand for raw materials; the firm supplying another firm with machinery thus enabling it to avoid bottlenecks that might otherwise prevent it from increasing its supply in response to a rise in demand; the firm that makes new manufacturing techniques available to another firm chosen as subcontractor; the firm introducing new techniques that are subsequently copied by its competitors.

The point is there exist active agents and less active ones and, in a given environment over a give time span, the driving firm exerts an inducement effect on other firms. This effect is partly due to the increase in demand for products from the supplier prompted to increased production by the driving firm, and partly due to the ability of the latter to prompt the supplier to adopt innovations. To assess this power to prompt increased production and innovation, Perroux opines, a direct study should be made<sup>24</sup>. And in this connection he draws attention to what Hirschman has termed the contagious character of investment, conceptualized in terms of the effects of backward and forward linkages.

The key point in development policies, for Perroux as for Hirschman, is their effectiveness in activating linkages among existing resources. What resources? We do not know, says Perroux, since up to now we have only studied the potential resources and, in particular, the natural and human resources. Hirschman reminds us that in many so-called backward countries there exists a “reserve army of entrepreneurs”; but also, Perroux adds, of administrators, politicians and inventors of new human equilibria.

In many ways the view of growth put forward by Perroux resembles Hirschman’s. Both of them stress how development is not an automatic process and there are no “usual forms” of growth. Furthermore, chance events, both exogenous and endogenous, play an important role in development. And Perroux (1987) reminds us that we cannot define once and for all what is exogenous and what is endogenous, precisely because development has the effect of redesigning the whole set of variables included within the frame of reference.

<sup>24</sup> An instance where this power is visible and important is provided by firms producing machine tools (Perroux, 1966, pp. 257-8). The significance of this production lies in its role in the process of generation and transmission of technical and economic information important in the production activity. Similar reflections can be found in Rosenberg (1963) and Strassman (1963) who stress the importance of the interactions between users and producers of machine tools in the development of the American economy in the mid-nineteenth century.

In the interpretation of Perroux' analysis proposed e.g. by Boudville, and by most regional economists and geographers, the purely technical and quantifiable aspects are highlighted. The development policies influenced by Perroux' studies relate only to the strictly economic and production characteristics of the pole of development and take no account of the social, cultural and political interrelations that characterize the community of people. It thus remains an "industrial complex", even though not exactly the same as in Isard's models: the difference being in the role played by the firms in the two productive structures. In the theory advanced by Perroux there are acting-agents capable of altering their own environment, whereas Isard's models have agents operating in an environment taken as given. This is by no means a problem of secondary importance, it indeed lingers in the background and, ultimately, the two different structures are frequently indicated by the same term: industrial complex.

To conclude, in passing from theoretical analysis to a concrete proposal of which policy measures to adopt, two radical changes have occurred. The effect of these changes is that development policies based on the concept of pole of development have concentrated on a purely technical and quantifiable aspects that are, in theory, applicable to any place at any moment in time. However, different cultural, social and institutional conditions may themselves affect (positively or negatively) the creation and performance of a pole of development. A historical analysis dealing with these issues would therefore seem to be indispensable in defining development policies through the poles.

### **III. The industrial district.**

The term industrial district is currently used to refer to different notions of local development (such as industrial complex or growth pole), or it is directly associated with flexible specialization or with the existence of small firms in an industry, and sometimes it is used only in a purely metaphorical sense that may overlap with the network metaphor. Hence, the copious literature stemming from the idea of industrial district offers many analysis approaches. In order to compare the industrial district with the industrial complex and pole of development, I shall focus my analysis in this article only on the implications of the notion of industrial district in one very specific version: that defined by the Italian economists Giacomo Becattini and Sebastiano Brusco and their colleagues. After a brief presentation of this definition, I shall consider the implications for development analysis and policy of four aspects that emerge from the studies of industrial districts: the time perspective in development process, the co-existence of many efficient modes of production, the interaction between social and economic factors and, lastly, heterogeneity of firms.

### *In search of local systems*

Becattini (1989) defines the industrial district as “a socio-territorial entity typified by the active co-presence, in a circumscribed territorial area chosen for natural and historical reasons, of a community of people and a population of firms” (p. 112)<sup>25</sup>. The dominant economic activity of the district is characterized by the presence of firms which specialize according to phase in the same production process. The final product of the district is generally bound for the world market and there are stable relationships between suppliers and customers which operate within the district. The local community shares “a system of values which is expressed in terms of an ethic of work, activity, family, reciprocity, change” (Becattini, 1989, p. 113). In addition, there is a system of institutions (market, firms, families, church, school, public offices, political parties, unions and other bodies) which spread, safeguard and transmit those values.

While the socio-economic analysis has generally discussed development problems with reference to the accumulation of the physical and financial capital, studies of industrial districts have highlighted the importance of accumulating technical and entrepreneurial skills which are distributed throughout the various social classes. The paths taken by the local communities in accumulating entrepreneurial, technical and commercial skills have been identified by the literature on districts relating to sharecropping, cities, technical schools and large size firms<sup>26</sup>.

In the district, the technico-productive aspects are interconnected with the socio-cultural aspects of the life of the community. This interconnection manifests itself in the co-operation between firms. In fact, though the firms in the district are in competition among themselves, many forms of conscious co-operation are nevertheless at work, as when the firms form consortia, or service centres. There are also, however, forms of semiconscious co-operation, meaning various types of relationships between the firms: those which have helped forge a common language of production, those which have created business practices, those which have given rise to reciprocal trust<sup>27</sup>. Why is the co-operation manifested in such relationships an important phenomenon from the economic point of view? Becattini reminds us that all these relationships generate semi-formalized networks which make it possible to carry out functions which are much more complex than those that the single firm, with its organization

<sup>25</sup>In this article I shall not discuss the possibility of applying Marshallian economic analysis to industrial districts. On this important perspective see Becattini (1989).

<sup>26</sup> Cf. Brusco (1989).

<sup>27</sup> A now classical reference on the discussion of how trust is generated from interfirm relationships is Lorenz (1988).

and capital, could carry out in isolation. Co-operation is thus the key to understanding the systemic nature of the population of firms in the district<sup>28</sup>.

How can the notion of industrial district or local system be useful for local development policies?

A local development policy has first of all to identify the local systems its measures should address. Here, the methodology proposed by Sforzi (1987) for drawing up the map of local systems points us in the right direction<sup>29</sup>. In more general terms, we might identify, as Becattini suggests, “zones in which there are already present the first signs of a self-propelling development, that is signs of local vitality [...] on which development micro-processes can be built, mobilizing the best of skills, both local and non-local”<sup>30</sup>. This line of investigation is based on a definition of “place” understood not merely as a geographical space but defined by the history, culture and traditions of a group of people living in a certain territory – history, culture and traditions also affected by the geographical conformation of the territory they inhabit. Industrial districts are a form of local system characterized by special relationships between production systems and the community of persons belonging to the local system in question. This community is antecedent to the industrial district (as it is antecedent to the pole of development). A development policy may thus contribute to reinforcing the features of a community, but it is not of itself sufficient to construct that community. For, as Braudel has

<sup>28</sup> In the systemic reading of the notion of industrial district proposed by Dematteis (1994), a geographer closely involved in the industrial districts debate, the self-organizing character of the system is stressed. Nevertheless, Dematteis' reference to the category of autopoiesis does not seem appropriate to me because autopoietic systems are structurally determined. They are systems which do not admit of instructive interactions (cf. Maturana, 1992, p. 131) and this characteristic is not consistent with those of the industrial district.

The concept of autopoiesis formulated in the biological field is having great success in many disciplines and is at the centre of a cultural phenomenon of considerable significance. For a philosophical criticism of the use made in the social sciences of the concept of autopoiesis see Zolo (1987, chaps. 1, 14, 15); while Ageno (1986, in particular chapter 11) convincingly demonstrates how the use in the social sciences of the biological notion of self-organization is based on hypotheses relating to the function and behaviour of genes which turn out to be unfounded from the biological point of view.

<sup>29</sup> The research procedure suggested by Sforzi consists of three phases each of which serves to construct a spatial model of the production system, the social system and the urban system, respectively. The combination of these three models helps us to “establish whether the local production systems in a given territory are merely areas of production specialization or whether they approximate to the concept of industrial district” (Sforzi, 1987, p. 146).

<sup>30</sup> Cf. Becattini (1990, p. 30). A first step in this direction might come from circumscribing the small business territorial systems as required by the recent Italian law 317/91.

pointed out, the “construction” of a community of people has conditions and time-scales that require the activation of long-term historical processes by which societies are formed.

### *Time perspective in development process*

In development economics it is well known that the development process requires time, but it is not known how much, and on this point there are no empirical studies. The work of Eckaus (1983) is a major contribution, underlining the fact that development economics does not consider the length of processes or the temporal sequences of development, except for one or two cases in which temporal sequences are held to be closely connected to engineering practices.

From studies of industrial districts it also emerges that the various actions and policy measures which promote development take effect over different time-scales. An extremely long time is required for a society to evolve. For example, in Bologna, the world capital for the production of automated packaging machinery, there is more than four centuries of production tradition: from the time when Bologna enjoyed European supremacy in working with silk<sup>31</sup>, to its decline and re-growth along a development path which assimilates and transforms the emerging mechanical technologies of the industrial revolution. And the formation of a mechanical culture grafted onto the production tradition required many decades: from the birth of the technical schools in the second half of the nineteenth century to the years following the Second World War<sup>32</sup>.

On the other hand, the time required for the creation, acquisition and spread of new specific skills may be shorter: for instance, Brusco and Paba (1992) have shown that a few decades were enough for the effects of the large firm to make themselves felt in generating these specific skills. Different time-scales apply when the debate switches to the effects of service centres for firms, since they may have different structures and aims: for example, the effectiveness of service centres set up to promote the birth of new firms like TecnoPolis (in some southern regions of Italy) can only be assessed in the very long term, whereas this same assessment would be possible over much shorter periods when a service centre like CITER (for textile firms in Carpi) is considered.

<sup>31</sup> Poni (1990) analyses the birth and decline of the silk-working industry in Bologna and explains the mechanisms which made it possible to maintain its supremacy – as, for example, the protection of its inventions or the complex relationship between local silk producers, in the country, and its elaboration in town. Poni also reconstructs the economic policy debate in Bologna during the period of decline in silk production, a debate about the various possible development paths which highlights the elements of continuity – in the social fabric and in cultural traditions – between silk production and the subsequent mechanical production.

<sup>32</sup> For a compelling historical and economic reconstruction of these events see the essay by Vittorio Capecchi (1992).

However, the same policy measure may have very different time-scales, when one considers the time required for a policy to take effect and the institutional time-scales required to confirm the political credit of the persons who implemented that policy. Vittorio Capecchi's analysis<sup>33</sup> of education policies shows, for example, that while the planning strategies of the various measures can only have a medium/long term time-scales, the electoral strategies determining the decisions of those responsible for the planning aim at obtaining a quick result.

Broadly speaking, skills training takes time, as do many readjustments in the economic and social environment and it is necessary for development policy to take account of them<sup>34</sup> even if the various time dimensions often cannot be separately identified as being caused by technology, or by processes of individual and social readjustment. Otherwise, as Eckaus reminds us, it would be like arguing that effort and result are simultaneous and this would imply errors in defining the characteristics of development and the formation of development policy.

#### *Many efficient modes of production*

The various measures of a development policy may have an impact on the productive activities of local systems, but these measures will not be confined to those aiming at directly influencing the economic variables, since the linkage between economic variables and extra-economic variables is essential to the development process. There must therefore be policy measures which effect local systems such that the long-term processes will also be influenced. As Brusco (1993) reminds us, these measures aim to implant new knowledge and create conditions of trust among those operating within the local system. Given these objectives, the diversity of local systems makes it necessary to define local policy measures that will be specified case by case. Moreover, there is also room for development policies that do not *a priori* identify one particular type of measure, and that are prompted by the idea that linkage effects may originate in sectors other than industrial ones<sup>35</sup>. Hence, from the industrial districts and local systems debate it emerges that development, like technical change, is triggered by different factors at different times and in different places.

If we discard the idea that the vertically integrated firm is the sole efficient form of production, then the causal nexus between a given model of production (e.g. mass production or flexible specialization) and a single way of organizing production within that model disap-

<sup>33</sup> Capecchi (1991).

<sup>34</sup> A thorough analysis of development in the South of Italy such as that undertaken by Trigilia (1992), even though based on an analysis of industrial districts, largely leaves aside considerations of time needed for development initiatives and in this sense is less effective, reducing the conditions for "autonomous" development into an atemporal action.

<sup>35</sup> Hirschman (1983).



pears<sup>36</sup>. The notion that development can be arrived at by many different routes stems largely from the conviction that there is more than one efficient mode of production and that each of them must be characterized with respect to the interrelations of firms and the economic and social environment.

In contrast with this view, another interpretation might be considered: only with the spread of flexible specialization in the Seventies was the need to take account of the environment in which firms worked seen as being urgent, and therefore a change in development policies, which aimed at monitoring the relationship between a firm and its environment, becomes necessary<sup>37</sup>. And yet (still arguing, one might say, in the Fordist age) Perroux was already maintaining that firms not only operate in an environment whose particular features are relevant for development analysis, but that the firms are actually themselves actors (i.e. active agents) capable of changing the environment in which they operate.

What changes is therefore not so much the production model (from the Fordist model to the flexible specialization model) as the vision the development economist has of the firm's role and of the interrelations between firms and the economic and social environment.

#### *Embeddedness and context: adaptation or change?*

The industrial districts debate is bound up with that of economic action as social action. Though Karl Polanyi (1957) had already illustrated the impossibility of accounting for economic phenomena without interpreting the interplay between economic and social phenomena, this interplay has never constituted a systematic reference in the analysis of economic development. Here the contributions of the scholars of Italian industrial districts are relevant, since they have highlighted that interplay as one of the key factors in interpreting the particular way in which industrial districts work and in accounting for economic development in regions of central and northern Italy over the last thirty years. Such a development would otherwise not be interpretable by means of models currently used by development economists.

With respect to the original formulation proposed by Polanyi, useful insights can be found in the notion of embeddedness as put forward by Granovetter (1985)<sup>38</sup> who argues that, though

<sup>36</sup> Thus, for example, flexible specialization in Japan, Germany and Italy has very different production organization forms, and it is yet to be demonstrated that Toyota is the only efficient one. Cf. Williams *et al.* (1992).

<sup>37</sup> This seems to me, for example, to be the reading of changes in development policies proposed by Trigilia (1992), pp. 24-6 e 184-5.

<sup>38</sup> Other formulations of the notion of embeddedness of economic relations in social relations have been adopted in sociological studies. Reference here is made to the way in which Granovetter uses that notion, which is very close to the one Karl Polanyi originally proposed in the 1957 essays on economics as an institutional process.

economic behaviour is embedded in systems of social relationships, an effective analysis of human action must avoid the automatism implied in the extreme theories of under- and over-socialization. It is in this context that Granovetter adopts the notion of embeddedness to highlight the role of concrete personal relationships and of the structures of such relationships in generating trust and in discouraging malpractice. He underlines the need to analyze concrete models in social relationships because it is the particular characteristics of social structures which determine the configuration which is found<sup>39</sup>.

In Granovetter's analysis not only are firms linked by networks of personal relationships on several levels (management board, sales departments, ...) <sup>40</sup>, but, in more general terms, the economic transactions are also conducted via personal relationships: and it is from a study of such relationships that the existence of many intermediate forms between idealized markets of the atomistic type and vertically integrated firms emerges<sup>41</sup>. Embeddedness does not imply that we should expect there to be trust and order in economic relationships. This is because, in the words of Granovetter, the “networks of social relations penetrate irregularly and in differing degrees in different sectors of economic life”, therefore there may be a lack of trust, opportunism, disorder<sup>42</sup>. The existence of social relationships is, therefore, a necessary condition, but is not sufficient to guarantee trust and correctness of behaviour. On the contrary, instances of opportunism and malpractice can be created.

When relationships between the firms are long-term relationships of contractors and sub-contractors and are embedded in the community of those working in the same sector, these conditions “generate standards of expected behaviour that not only obviate the need for but are superior to pure authority relations in discouraging malfeasance”<sup>43</sup>. We are invited here to recognize the importance of moral codes in contributing to economic success. This is a central theme in contemporary theoretical reflection on economic activity as social activity, a reflection which bears the clear mark of Sen who points out that every society has codes of behav-

<sup>39</sup> Granovetter (1985, p. 493).

<sup>40</sup> Cf. Granovetter (1985, p. 496). The empirical reference to these considerations is an important work by Macaulay (1963) which presents the results of an investigation carried out into 850 corporate contracts in the State of Wisconsin, and into all cases in which the 500 biggest American firms are involved in legal proceedings between the years 1948 and 1963. In Macaulay's investigation – which also made use of interviews with businessmen and lawyers – the characteristics of the relationships among the employees of the various firms were also examined.

<sup>41</sup> This point is taken up by Powell (1989) in the discussion of hybrid forms of organization.

<sup>42</sup> Granovetter (1985), p. 491. On this point see Shapiro (1987).

<sup>43</sup> *Ibid.*, p. 498.

behaviour which can be changed, even if with difficulty<sup>44</sup>. How, then, do we create new standards and codes of behaviour which improve economic efficiency? The debate on industrial districts has put forward some original contributions on this theme, as emerges from the works by Brusco and Sabel on industrial policies. Brusco (1993) refers to the creation of institutions which are able to generate standards of behaviour leading to a respect for common norms which, in turn, can lead not so much to forms of co-operation as to forms of behaviour which are generally less opportunistic and in which people do not cheat. In the Sabel (1994) analysis particular reference is made to the Japanese experience of developmental associations. Both Brusco and Sabel underline the fact that if trust is missing it cannot be imposed<sup>45</sup>. Nevertheless, attempts can be made to obtain it as a result of the policy maker's action: his action must be both informed and skillful because, as Sabel reminds us, it needs to transform the transactions into a continuous discussion of the common possibilities and objectives. The historical relationships between the parties determine the reciprocal expectations and any discussion must coax out the elements which typify personal involvement, reciprocal acceptance and readiness to admit that talks have broken down and that, therefore, whoever wishes to can look for another interlocutor<sup>46</sup>. Great political skill is needed to persuade the contending parties to reinterpret their ideas of reciprocity such that they can contemplate revising their position in a co-operative and regularized way<sup>47</sup>.

Codes of behaviour are the result of the particular social and institutional context, the history and the traditions of the people who live in a given place: an analysis of all this must therefore have a central reference in development policy. Nevertheless, as for the notion of embeddedness, this reference must not be used in a deterministic sense<sup>48</sup>. In particular, as Sabel (1994) argues, if it is true that a group of people cannot create its own history by making deliberate choices, then, at least they can create institutions which make a deliberate choice of the mysterious emergence of innovative networks.

<sup>44</sup> "... the codes of behaviour in a given society can be difficult to change, but there is little empirical evidence to support the thesis that they are immutable" (Sen, 1994, p. 198).

<sup>45</sup> See also Perrow (1992, pp. 460-1).

<sup>46</sup> According to Sabel, in a discussion basically three relevant things happen: the parties must specify their common situation in such a way as to expose the limits of their understanding and agree to explore ways to overcome those limits; the parties must accept the possibility that their visions of the world and the interests which derive from them – in short their identity – may be changed unexpectedly as a result of those explorations; finally the parties must accept the possibility that for several reasons one party may be incapable of seeing the conversation through, and hence find new interlocutors (Sabel, 1994, p. 145).

<sup>47</sup> Sabel (1994, p. 158).

<sup>48</sup> On this point see Sabel's criticism of the "cultural explanation" of development. Cf. Sabel (1994).

In what way should we take account of the role of socio-economic and historical context in defining development policies? Let us recall what Hirschman observed in the assessment of several development projects financed by the World Bank in the Fifties and Sixties<sup>49</sup>. According to Hirschman, development projects are in general marked by the dilemma between acceptance and change of the context, and the art of project design lies in avoiding this dilemma. In fact, if the context is accepted as being immutable and inevitable, the negative aspects are reinforced; if the project is made to depend on the change of the context, then if it fails, the planners will be accused of having neglected local circumstances, the traditions, the political and social structures. It is therefore necessary to accept certain features of the extant situation as temporary features which can be changed and other features as permanent and immutable.

But which features should be accepted and which changed? According to Hirschman<sup>50</sup> many features, as for example certain types of professional skill, can be changed slowly, “as you go along” during the period of transition. Other features, as for example the system of values, are changed suddenly, even if before the new forms are internalized there is a lapse back into the old ways. In other words, there is alternation between one extreme and another, as in every transition phase. Then there are changes in social behaviour which are not planned, but which turn out to be induced by innovations of a technical nature<sup>51</sup>.

In any discussion of local development it is important to clarify the role of the historical, social and institutional context so as not to return to a vision of development as being determined by several preconditions. This vision lies behind the thinking of those who attribute the success of industrial districts to the specific histories of those places and who therefore consider the development of industrial districts or of local systems unrepeatable. On this point it is worthwhile stressing what Hirschman concluded in his work for the World Bank, i. e. that in development policy it is a mistake to give central importance to what a country is in terms of its geographical, natural, and institutional features. Only in avoiding this error can there be hope of possible development for a country which has “the wrong” resources. The vital point

<sup>49</sup> Cf. Hirschman (1967). Although the World Bank selects the most promising projects, all those examined by Hirschman had had problems of various kinds. Hirschman offers a transverse assessment of 15 projects examined with the aim of adding to what is known of the success and failure of research projects: in such analysis the observations on the role of context in defining and favouring development projects is crucial. In 1967 another volume on assessments of projects financed by the World Bank was published: a book in which J. A. King, on the basis of the World Bank's experience, assesses each project taking into account the economic, technical, managerial, organizational, commercial and financial aspects. Unlike Hirschman, King does not refer to the social, political and institutional context in which the projects are carried out.

<sup>50</sup> Cf. Hirschman (1967), pp. 130-33.

<sup>51</sup> *Ibid.*, p. 148.

is to know how to adopt the right projects, i. e. projects likely to induce learning processes, to change the attitudes of the population, to renew institutions.

### *Differences between firms and the relationships between firms*

By adopting a systemic perspective in the analysis of the interrelationships between firms in the industrial district, we have to take into account that firms are different in terms of strategy, structure and core capabilities<sup>52</sup>. In fact, these differences are key elements that characterize the innovative activity of the firms and the way they react to changes in market conditions: two aspects that are essential in a dynamic analysis of the industrial district as well as in development policy.

Though several empirical studies of industrial districts have shown that heterogeneity of firms has had a decisive role in the development process, the theoretical debate does not entirely trace the nexus between the behaviour of individual firms and the performance of the local production system. In fact, the characteristics of the firm are generally stylized with regard to a typical firm which is in competition, with other firms operating in the same phase of the production process, and in co-operation, with firms that operate in different phases. This dichotomy between competitive and co-operative relationships overlooks some important aspects that I shall discuss here.

First of all, the debate on industrial districts often stresses the importance of variability of demand and the consequent efficiency of small batch production by firms which specialize, even if only in one stage of the production process. This does not imply that all firms always produce one single product: they produce a variety of products and use a variety of inputs and this cannot be schematized as a niche case, since product differentiation is really a very general case. Accordingly, in a local production system, two firms which specialize in the same stage of the production process might be in competition with respect to an output of that stage of production. However, they might be contractors, one of the other, for different intermediate components, or even for a different output of that stage of the production process, as happens when a firm buys goods which it then sells as if it were the producer, using its own trade mark and accepting responsibility for product quality<sup>53</sup>. If firms buying the goods are themselves producers of similar products, and not just commercial distributors<sup>54</sup>, it is not obvious what will be the result in terms of strategy of the different firms operating in the local production

<sup>52</sup> The notions of strategy, structure and core capabilities are used here in the sense specified by Nelson (1994).

<sup>53</sup> In this case an original equipment manufacturer (OEM) contract applies.

<sup>54</sup> Though not specifically referred to firms operating in local productive systems, a line of research that analyzes the role of firms buying goods to be sold with their own trade mark is proposed by Paba (1994) with regard to what he calls “the visible firm”.

system and hence what will be the outcome at the aggregate level of the local production system. It follows that the behaviour of firm might be difficult to interpret if we classify firms as either contractors, subcontractors, or competitors, since every firm may have a multiplicity of relationships even with firms that, in the same market, specialize in the same stage of the production process.

Secondly, by taking into account this multiplicity of relationships, we are compelled to reconsider what is a fundamental characteristic of a subcontracting relationship in an industrial district, i.e. that the stability of this relationship does not imply dependence. Broadly speaking, the condition of independence is related to the firm's autonomy in investment decisions, in what technology to adopt, the setting of prices and, ultimately, profit margins. As Brusco (1986) highlighted, the independent subcontractor is typically the firm operating in an industrial district: its independence is made possible by the fact that the technical feasibility of breaking up the production process is conditional upon a high demand for the output of each stage of the production process; this demand is created by the quantity of firms and it is satisfied by the quantity of specialized producers located in the district. In this situation, subcontracting relations between firms in the district are stable, but it does not create dependence of subcontractors on contractors because each subcontractor has a potential high mobility to shift to another contractor (and *viceversa*). But this argument does not hold when we consider that, in the case of the production of differentiated products, the more the firms specialize in each stage of the production process, the more the demand for their output might not necessarily be high enough to allow them the potential mobility that is supposed in theory. In fact, their specialization – in terms of capital equipment and technical, organizational and commercial capabilities – should be adequate to allow them to shift to a similar production process. Moreover, the more they specialize, the more they may find it convenient to have stable multiple relationships of the kind discussed above. But this may reduce the ability of some firms to have new relationships when some of the more long term relationships end due to market changes, external factors, or even changes in internal organizational structure of the firms with whom they have relationships.

For these reasons, when we consider the role of long term relationships, and hence of stable relationships, as a crucial ingredient for understanding the way a local production system works, we have to explain the existence, within the district, of stable networks of relationships which may have internally differing degrees of dependence: networks of stable relationships not simply interpretable in terms of property relations, or in terms of size-related power.

All these remarks on differences between firms and on the existence of different kinds of relationships in which firms are concurrently engaged must be kept in mind if we are interested in using the industrial district as a unit of investigation in development policies.

*Towards a model for the industrial district: if neither market nor hierarchy, what should it be?*

In neoclassical models firms are different because the technical characteristics of the production processes are different or, as is the case of recent institutional developments, because the institutional context, initial conditions, or also random historical events create differences. In other words, all things being equal, firms would be identical for the purposes of an economic analysis which considers the firm as a rational agent which maximizes an objective function. Studies of the industrial district highlight that the heterogeneity of firms matters and that it is impossible to resort to models which presuppose a maximizing behaviour of agents: such a hypothesis could be maintained only on condition that the firm is assimilable to the individual<sup>55</sup>. Indeed, the moment this condition no longer obtains we do not arrive at a result which is consistent with maximizing an objective function<sup>56</sup>. Hence, it is impossible to refer industrial district analysis both to neoclassical theory and to transaction cost theory, which is substantially consistent with the neoclassical model from which it derives its principles, since they do not make allowance for the heterogeneity of firms (in terms of strategy, structure and core capabilities) and for a peculiar characteristic of the firm, i.e. the fact that it is above all an organization which interacts with other organizations.

If less emphasis is thus given to the reference to the dominant economic analysis, it would appear, on the other hand, equally impossible to resort to game theory which over the past decade has gained wide acceptance as a theoretical reference point both in the field of economic as well as political analysis. Indeed, though game theory might take account of the heterogeneity of firms in terms of strategy, a game theory model could not easily abandon the hypothesis of the individual's maximizing behaviour, and neither could it take account of the multiplicity of games in which the firms in a given district are concurrently involved. Certainly inspiration can be drawn from game theory in order to identify the way in which the forms of cooperation which come about among firms in the district are made possible not only by reciprocal trust, but also by an equilibrium of interests. In all events, an equilibrium of interests as defined by game theory is the result of an optimization process which cannot be hypothesized in a model for the industrial district.

Having abandoned the traditional theoretical frame of reference, the copious literature on the subject has yet to formulate an analytical model on industrial districts and local systems of

<sup>55</sup> This conclusion is amply demonstrated by the literature on business organization. The recent volume edited by Rumelt, Schendel and Teece (1994) collects an interesting survey of these studies. See Barney (1994) for a discussion of the individual metaphor in business organization studies.

<sup>56</sup> This is why also transaction cost models are not effective in modeling industrial district analysis. For a discussion of the characteristics of firms in transaction costs theory and game theory cf. Simon (1991) and Nelson (1994).

production which is able to define the structure of the district in a precise and abstract way. The need for such a model is now all the more urgent given the growing interest in the industrial district as a possible development model and in view of the consequent need, typical of development economics, to define analytical methods and pinpoint measures to be adopted.

The need to formulate an analytical model for industrial districts is also motivated by another, more purely theoretical, need which arises from a fundamental issue in the research on industrial districts: the issue is that the interdisciplinary nature of the analysis of these districts and the reliance on historical analysis are crucial for the interpretation of industrial districts. However, resorting to historical analysis and abandoning models and methods traditionally adopted by economists makes it very difficult to communicate with academic economists who are not able to perceive the analytical potential of studies on the industrial district precisely because they do not recognize the language and do not perceive the theoretical references which they consider, at best, as well-meaning attempts at “mere historical analysis”<sup>57</sup>.

The formulation of a theoretical model for the industrial district is thus a theoretical challenge which is irresistible for anyone who wishes to continue to consider local development as a crucial phenomenon in development. At the basis of the industrial district model there should be, above all else, a language which is suitable to the task of describing the object of the analysis. One possible line of research might be to resort to network analysis which is, typically, adopted in sociology (Wellman and Berkowitz, 1988; Wasserman and Faust, 1994). Such analysis has long since abandoned its initial purely metaphorical character, implicit in the image of the network, and is now seen as an analysis for which the social structure must be sought in the forms of recurrent interaction among the various social actors. The emphasis given to the recurrent nature of the interaction is the element which distinguishes the network approach from that based on the neoclassic notion of the market, which concentrates rather on transactions and presupposes formal and static boundaries between actors. In this analysis, moreover, account should be taken of how the differences between the firms in terms of strategy, structure and core capabilities concur to determine the performance of the local production system<sup>58</sup>.

Eventually, a model which draws inspiration from network analysis should enable us to analyze a range of economic and social relations within the firm and among firms, individuals and institutions which make up the industrial district, relations such as, for example, the purchase and sale of manufactured items, the exchange of information, production and property

<sup>57</sup> Salvati (1994).

<sup>58</sup> Recently, network analysts like Powell and Perrow have brilliantly retold the story of the industrial district as if it were a network analysis story, but they do not spell out the methodological aspects of a network oriented approach to industrial districts. Cf. Powell (1990), Powell and Smith-Doerr (1994), Perrow (1994).



relations or joint ownership, as well as individual relationships such as friendship and kinship. Such a line of research should, first of all, define which analytical tools to use and how to collect data; moreover, in order to obtain a concise description which would throw into relief the hidden structure of the local production system, it should make it possible to pinpoint measures for the patterns of interaction among the various nodes also making use of the statistical methods developed in network analysis.

#### **IV. Some concluding remarks**

What has been proposed in this essay is a comparative reading of the notions related to the industrial complex, pole of development and industrial district.

In discussing the theory of poles of development I have highlighted those passages which appear to me to come very close to the analytical work done on industrial districts. Some agents may be more active than others, some competing while others cooperate. Moreover, economies take place outside the firm and inside the environment in which the effects of a pole of development make themselves felt. In addition, alongside the population of firms – there is a community of persons with the ability to work and create for a project that will offer opportunities not only to the individual but to the community as a whole. In the pole of development, as in the industrial district, the identity of the community of persons – which is a community of more or less conscious actors – has defined itself over time. In both cases, the characteristics of communities may be different and may alter in the course of time.

Paradoxically, a pole of development model may be conceived either as an industrial complex or as an industrial district.

Regardless of mathematical techniques and hypotheses about the behaviour of firms, the pole of development resembles the industrial complex when development policy is implemented on the sole basis of the quantitative features of the model. Even in these conditions there are differences between the two policies in terms of how the measures are set in place, but the analysis is essentially of the same type.

On the other hand, when the model of the poles is considered in the form closer to Perroux' original formulation, it should include all the qualitative elements that enable the notion of development to be extended so as to include not merely the interrelations among production activities, but also those between the population of firms and the community of persons; and in this sense the analysis of poles of development closely resembles that of industrial districts. Even so, differences persist: in the case of industrial districts the endogenous conditions of development play a crucial part, whereas in the model of the poles, the firm which is the driving force is able to prepare the ground by exerting external forces. But in order for the ef-

fects of that development to be permanent, the action of the driving unit must be reinforced by endogenous forces.

In the case of the industrial complex, technical and engineering features and its production target are enough to forecast the expected increase in the overall income in that area, but it is doubtful whether even a technical assessment can be made in the terms envisaged by the theory. On the other hand, policies based on the notion of pole of development and industrial district must demonstrate a range of possible outcomes which are only partly predictable in the sense that we cannot say in advance what will happen in a given locality. Its history, as well as a careful examination of the social and institutional context, helps us in policy choice, but we must bear in mind that in development policy the work of what Hirschman (1975) calls “the principle of the hiding hand” can also be most helpful. What is meant is an invisible hand which conceals the difficulties from us, because the only way to mobilize resources of a creative type is to misunderstand the nature of the enterprise, imagining it to be less demanding than it really is. “That of the hiding hand is a mechanism that makes the risk-advertiser take risks and in the process turns him into less of a risk-advertiser”<sup>59</sup>. In this way such a mechanism releases the so called prerequisites or preconditions of development in that it brings them into being following the event for which they were held to be prerequisites<sup>60</sup>.

In conclusion, any analysis of development based on the concept of poles of development, or industrial district, or local system in Becattini’s definition, takes as read the irreducibility of economic, social, cultural and institutional elements to transactional relations. Hence, a representation of the territorial dynamics in mechanistic terms is unacceptable and models with a more limited predictive capacity, as Dematteis remarks (1989, p. 139) should be explored. In this direction analytic-descriptive models<sup>61</sup> might be of great assistance in collecting and synthesizing the information needed for analyzing the historical, social, economic and institutional aspects important in an analysis of development. This information becomes crucial in defining industrial policy measures that take account of the diversity of local systems and the time-scales required for these measures to take effect.

<sup>59</sup> Hirschman (1967), p. 26.

<sup>60</sup> This theme is also discussed by Hirschman in the volume *Obstacles to development*, 1965.

<sup>61</sup> In the definition proposed by Landesmann (1989, pp. 281-2), analytic-descriptive models applied to the analysis of production do not make use of a single unifying principle as happens, for example, in the optimization approach, but hypothesizes that there is a multiplicity of mechanisms which regulate the behaviour of agents.

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## *Abstract*

The idea that industry is not an adequate research unit in the analysis of development policy is well known. It was present in the tradition of regional economists working on the concept of industrial complex, in Perroux' theory of the pole of development, in Damhen's definition of development blocks, and in the view of development put forward by Hirschman. Nevertheless, even if they have typified the development policies of many countries in the past decades, the notions of industrial complex and pole of development now seem less effective than the notion of industrial district. This notion, which emerged during the Eighties in the interpretation of the development of certain Italian regions, is gaining wide acceptance in the Anglo-American literature on development policies and in the literature investigating the "hybrid forms of organization" that are neither market, nor hierarchically coordinated.

Comparing the notions of industrial complex and pole of development, this article intends to offer a preliminary outline of the conditions in which the notion of industrial district can become an effective tool for analysis and formulation of development policy.



## *Résumé*

L'idée que l'industrie seule ne constitue pas une unité de recherche suffisante dans l'analyse des politiques de développement est bien connue. On constate sa présence dans la tradition des économistes dont les recherches se concentrent sur les régions et qui s'occupent du concept de complexe d'industries, dans la théorie de Perroux sur le pôle de développement, dans la définition de Dahmen du bloc de développement, et dans la vision du développement proposée par Hirschman. Quoiqu'elles caractérisent depuis des décennies les politiques de développement de beaucoup de pays, les notions de complexe d'industries et de pôle de développement semblent moins efficaces que la notion de district industriel. Cette notion, qui émerge dans les années quatre-vingts dans l'analyse du développement de certaines régions d'Italie, s'impose de plus en plus à l'attention dans la littérature anglo-américaine sur les politiques de croissance et dans les études sur des formes hybrides d'organisation qui ne sont coordonnées ni selon le marché ni selon une hiérarchie.

Mettant la notion du complexe d'industries en comparaison avec celle du pôle de développement, cet article propose de donner un aperçu des conditions dans lesquelles la notion de district industriel peut devenir un outil efficace pour l'analyse et la formulation des politiques de développement.