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**Mental Proximity: Identifying the Boundaries of Firms and Networks**

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## Mental Proximity: Identifying the Boundaries of Firms and Networks

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### Abstract

Firms operate within a “dense network of co-operation and affiliation” (Richardson, 1972), a mode of organising production that has raised issues related to the need for co-ordination. With this paper we propose a further perspective, going back to the concept of a firm and locating it in a context of production characterised by linkages between more or less complementary organisations. In particular we suggest that the modalities of co-ordination that characterise production networks have important implications for the definition of firms’ boundaries. To highlight the differences between different network organisations, we analyse firms’ boundaries in three different production contexts: 1) the capitalist firm; 2) networks of direction; 3) networks of mutual dependence. Although other forms of production can be analysed using existing economic concepts such as transaction costs and economic power, an explanation of what holds together networks of mutual dependence, given their nature, requires a new concept. For this reason we introduce the idea of “mental proximity”, to indicate actors’ degree of compatibility in strategies, objectives, and means to achieve them. Our conclusions emphasise how the definition of a firm’s boundaries is dependent on the pattern of strategic influences that the firm can exert on others. Building on the results of our analysis, we explore the implications that direction and mutual dependence have for the positive freedom of economic actors.

**Key words:** networks, firm’s boundaries, mental proximity

JEL classification: L2, P1

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## 1. INTRODUCTION

A specific notion of freedom, which directly refers to the increase of people's capabilities, has driven the attention of development economists (Sen, 1999) and influenced the re-orientation of co-operation strategies in some of the major development organisations, such as the World Bank. Some streams of economists now consider the division of labour, upon which the "wealth of nations" is supposed to depend, as one aspect amongst others that contribute to increases in people's freedom.

These concerns, which have enriched and transformed the debate over development, are not new. Freedom, however, was marginalized in mainstream economic analysis when the market as a perfect and impartial co-ordinator of activities became the main point of reference. In perfectly competitive conditions, the Walrasian auctioneer assures the safeguarding of people's opportunities by leading economic agents to foresee optimal equilibrium prices. But the reasons why optimal equilibrium should be the outcome are not convincing when looking at production. Investment decisions that entrepreneurs undertake to meet expected demand, as Richardson (1998) noticed, are put in place only if the entrepreneur reckons to have an advantage with respect to other firms. This happens because the perception of investment opportunities is not evenly distributed amongst entrepreneurs. Knowledge asymmetries and imperfect information alter the course of the Walrasian auction, and different learning abilities and capabilities of entrepreneurs and organisations can further differentiate the outcome that investment projects generate in different contexts.

With the market as a perfect co-ordinator, the idea of freedom has been reinterpreted and re-introduced with the concept of so-called "free-markets", places of exchange where actors are freed by the absence of excessive regulation. Freedom from constraint or, in Berlin's terms, "negative freedom", has strongly impacted on industrial policy of the last twenty years. Mainstream economists have rarely criticised this postulate and mostly recognised the co-ordination ability of the market, which – by virtue of its optimisation capacity – is said to enhance people's freedom.

The reasons why a view confined to negative freedom is partial have been advanced in Sacchetti and Sugden (forthcoming) where it is maintained that the implications of the organisation of production can be observed in their real connections only when introducing economic power into the analysis. Differences in power generate different opportunities and levels of freedom. Therefore, where markets are populated by actors with different amounts of economic power, information asymmetries and biased influences on strategic decisions can jeopardise the ability of the market to generate outcomes respectful of the aims of all the actors involved.

In the context of development, in this paper we propose an analysis of the organisation of production that emphasises those elements that enable people to be positively free, or to expand their factual opportunities. In particular, we suggest that production is also a context where economists should think in terms of what is the impact of the organisation of production on actors' development possibilities. Production and production investments are part of economic analysis and the organisation of production has a substantial impact (although it is not the only relevant factor) on the development of regions and localities. In order to analyse in more detail the nature and implications of different forms of division of labour we suggest an approach that looks at linkages amongst firms. In particular, we analyse the relationship between the nature of the linkages that keep networks together and the implications that different types of production systems may have on the promotion of capabilities of economic actors. To do this, comparing different forms of organisation of production, we link the capability of economic actors to pursue desired objectives (positive freedom) with the nature of firms' boundaries, which represent the space within which firms plan and undertake activities.

In Section 2 we provide background considerations about some existing approaches to the boundaries of the firm. In Section 3, taking a perspective based on economic power, we introduce the arguments that link the nature of the organisation of production with the idea of firms' boundaries. In the two following Sections we propose two opposite situations that emphasise the differences between two contrasting forms of organisation of production. In particular, Section 4 analyses firms' boundaries within a first typology of network organisation, which is essentially based on the hierarchical principles of the capitalist firm, whilst Section 5 suggests an alternative modality of governance in production that subverts

the most common image of co-ordination based on concentration of economic power. We call this type of production network “networks of mutual dependence”. In order to explain how production can be undertaken without the concentration of power, we introduce a new concept, that of “mental proximity”. In Section 6 we expand this new concept by addressing communication as a complementary mechanism that allows participation in strategy making and co-ordination of production. Section 7 sketches the experience of a network of scholars within universities, which outlines how the production of knowledge and learning can occur across nations without mimicking hierarchical organisations. In the last Section, before suggesting our conclusions, we address the main differences between the idea of mental proximity and some constituent elements of industrial districts, a comparison which is functional to a reinforcement of some key aspects of mental proximity.

## **2. THE BOUNDARIES OF FIRMS IN THE THEORY OF PRODUCTION**

In seeking to provide a perspective on the scope of production activities, we need to start from the firm and, in particular, from its boundaries, which represent the space where activities are undertaken and decision making is activated. Firms operate within a “dense network of co-operation and affiliation” (Richardson, 1972). This mode of organising production points to the need to understand two main issues. The first was identified by Richardson: the necessity for co-ordination. The second is to understand that the conceptual definition of the firm needs to be positioned in the context of networks, which have been a major form of organising production since the 1970s. In particular we suggest that networks of production have important implications for the definition of firms’ boundaries. The first question that we address is therefore how to define firms’ boundaries within the context identified by networks.

Contract economics, and in particular the ownership school (Grossman and Hart, 1986), have designed the boundaries of the firm as the result of “trade offs surrounding the allocation of residual control rights” (Baker and Hubbard, 2001: 190). According to Hart (1995), assets are allocated between individuals to exploit the elasticity of effort to asset ownership and the elasticity of surplus to individuals’ effort (Baker and Hubbard, 2001). The perspective which emerges from this approach to firms’ boundaries is mainly concerned with

finding the best scheme of individual incentives which maximises individual effort and surplus. The problem form which boundaries depend upon is therefore a problem of opportunism, what Williamson (1975) has called the risk that arises because of contractual incompleteness. Such incompleteness, as Loasby (1999) notices, derives from incomplete knowledge, a precondition which threatens theories based on equilibrium analysis.

This problem suggests an alternative perspective. The issue of knowledge within the firm – which both Penrose (1959) and Richardson (1972) have observed in terms of capabilities – can be directly linked to the explanation of firms' boundaries. In discussing why firms decide to undertake activities, the problem of the boundaries of the firm appears to be related to two issues: the asset specificity required by the firm's activities and the degree of dissimilarity of complementary activities, which require different skills, specialisations and market connections. The asset specificity of firms can be understood in terms of the knowledge incorporated in physical (such as technologies) as well as in intangible assets (such as diffused knowledge). Knowledge, in particular, can be seen as a specific asset of the firm (Sacchetti, 2003) that requires commitment (both in terms of financial resources and time invested in the creation, transmission and reproduction of knowledge) and internal coordination (such as in the process of knowledge socialisation and codification). Therefore, the creation of competences is also subordinated to the capacity of firms to commit themselves to the acquisition and maintenance of specific pieces of knowledge capital.

The more complementary pieces of knowledge are dissimilar, the greater is the commitment that adding a new piece of internal competence requires. On the one side, highly specific assets require commitment and internal co-ordination, whilst competence complementarities in production may require external co-operation. The definition of firms' boundaries, in this sense, may generate and be generated by a trade off between co-ordination and flexibility whenever complementary activities require highly specific investments both in terms of physical capital and knowledge.

However, the distinction of the elements that generate a trade off is not so neat, as indeed both alternatives (external co-operation or internal direction) imply some sunkness. Decisions to undertake activities inside the firm or to co-ordinate production in cooperation with others are two faces of the same coin. As Langlois (1998: 192) notices, one relates to the

sunkness internal to the firm; the other refers to the degree of specialisation of activities with respect to others. The two aspects are strictly connected, linked by a dynamic that balances problems of co-ordination of production when specialisation inhibits flexibility (Langlois, 1998). In particular, when asset specificity (both in terms of physical and knowledge capital) arises between two firms and some degree of behavioural uncertainty is linked to the risk that the relationship ends prematurely thus causing a loss of productive value, it becomes imperative “that the parties devise a machinery to ‘work things out’ – since contractual gaps will be larger and the occasions for sequential adaptations will increase in number and importance as the degree of uncertainty increases.” (Williamson, 1985, p. 60) These considerations recall what Richardson earlier suggested. Firms are not isolated entities but their activities may be more or less dependent on the complementary activities of others which, therefore, require some form of co-ordination.

In *The Economic Institutions of Capitalism*, Williamson offers a theory which provides the reader with enough elements to forecast the exact level of governance and production costs under which a firm decides to integrate vertically. Related to this, the firm’s size problem has been traced back to the “efficient boundaries problem” identified by Ouchi (1980, Williamson, 1985, p. 97). However, as we will further argue in this paper, there are forms of economic organisation that can be understood from a different perspective. In particular, following our analysis of networks, we will argue that there are forms of vertical integration (*networks of direction* in our terminology) which go beyond the efficient boundaries problem. The idea of efficient boundaries emphasises production stages. The scheme proposed by Williamson (1985, p. 98) reflects a functional view that breaks production activities apart and either re-composes them inside the firm or, alternatively, spreads them in the market which co-ordinates them. Differently, we propose two schemes of networks which are not centred around production functions (the *event* that is subordinated to the existence of a production unit), but on firms (the *object* on which production depends), which are the place where production activities are undertaken and, more importantly for our perspective, the places where strategic planning occurs. Linkages amongst firms, therefore, are not analysed just in terms of complementary knowledge and functions, as the competence theory emphasises. Rather, we want to understand the nature of linkages with respect to their impact on the choice options of firms. The problem of boundaries is extended beyond the firm to cover the significant linkages that the firm can activate. In particular, a linkage is

significant when it can make a difference for the firm, depending on the commitment that the linkage requires, on the opportunities that the linkage makes available to the firm or on the constraints that it poses.

### **3. ON THE IMPLICATIONS OF THE ORGANISATION OF PRODUCTION FOR FIRMS' BOUNDARIES**

In discussing the boundaries of firms, we reviewed considerations about incentive problems, asset specificity, and co-ordination of production. In particular, problems of co-ordination of investments and production have referred to two different modalities: one within the firm through direction, the other amongst firms through co-operation. Choices about the definition of firms' boundaries, however, are strategic choices and may not always respond to criteria of optimisation of effort or to the need to create the right balance between flexibility and specialisation.

The implications of strategic choices for the definition of firms' boundaries – an issue that has not been entirely analysed by economists – refer both to the opportunities opened by the division of labour – an argument which is decisively not new – but also to the distribution of such opportunities amongst those who are involved in the organisation of production. The location of the benefits that derive from the division of labour can be brought back to the distribution of economic power amongst actors and to the possibilities that this opens for positive and negative freedom. A specific angle for the observation of power distribution in production is based – compatibly with the Smithian perspective on the division of labour – on knowledge. Production and knowledge are strictly interrelated and the first could not be undertaken without the second. In particular, we maintain that the knowledge and skills owned by firms can, without being a self-sufficient condition for that, tangibly shape firms' economic power.

Knowledge complementarities could amplify the existing opportunities of individual actors. Where the division of labour occurs amongst firms and when co-ordination is not left entirely to the market, but rather it is reinforced and sharpened by network relations, different pieces of knowledge can be harmonised and generate activities or possibilities that would otherwise be undisclosed to firms. As Desai (1994: 44) notices, in Hayek's thought each



individual can remain an “island of fragmented knowledge” as long as he does not receive the knowledge he needs *to harmonise his plans* with those of others. For individuals to set their own objectives compatibly with others, we need co-operation. In particular, Hayek recognises that each individual has “unique information of which beneficial use might be made, but of which use can be made only if the *decisions depending on it are left to him or are made with his active co-operation*”. (Hayek, 1945: 80; emphasis added).

Two important implications derive from the need for harmonisation, both referring to the idea of the firm and to aspects of co-operation between firms/actors. The first implication relates to the division of labour. As far as production processes are concerned, firms as *islands of economic planning* (Coase, 1937) become limited in what they may know as single actors. Therefore, the active involvement of other actors’ knowledge allows more beneficial outcomes to be achieved. As Richardson (1972) emphasises, when undertaking production, firms need to allocate efficiently wide amounts of productive resources. No single firm could do it entirely alone, but rather it needs the participation of a number of other actors.

However, the isolation to which Coase refers is related not just to a production decision, but mainly to strategic planning (Cowling and Sugden, 1998). The harmonisation of plans amongst firms may not be an issue within some specific forms of organisation of production. One major problem with this is elite control over strategic decisions. If on the side of production a firm may want to involve other actors in order to be more efficient, on the side of strategy it may not want to alienate its “monopoly” over strategic power in favour of others, even if this means getting more knowledge and achieving better decisions for all. Under capitalism the firm is held together by one centre of strategic decision-making. This centre has been identified by main theoretical approaches either with the entrepreneur, with shareholders or with management (Berle and Means, 1932). In both cases, whoever is the decision maker, what we can observe is that in the capitalist firm an elite of people controls strategic activities (Cowling and Sugden, 1998). The way in which control is exercised is through economic power, that is through the ability to bring about desired consequences even (but not necessarily) against the resistance of others (Rothschild, 1994).

This view, which directly builds on the Max Weber theory of power, can also be extended beyond what are normally conceived as being the firm’s boundaries. If production

occurs within “dense networks of co-operation and affiliation” (Richardson, 1972), networks of production – if compared to individual firms – provide a useful and more significant unit of analysis when trying to understand differences in the nature and implications of alternative forms of co-ordination. By virtue of the linkages through which production is undertaken, the firm, as a production and strategic decision-making unit, cannot be considered alone, but as part of a wider network organisation. More specifically, we consider the boundaries of the firm as the pattern of structural influence that the firm has on other actors’ strategic decisions.

In a previous work (Sacchetti and Sugden, forthcoming) we have introduced these issues, providing a detailed analysis of governance inside networks. Essentially we have considered economic power as a constituent part of the economy, excluding from network analysis assumptions of powerless interactions. From this perspective, direction is a mode of co-ordination that can go beyond the boundaries of the legal firm. Complex meshes of inter-firm relationships entail different governance modalities, and direction – as one amongst these situations – can concern also relationships between firms.

In particular, we have identified two forms of governance structures, where the main element of distinction is the power distribution amongst the participants in the network. We call one form of governance *networks of mutual dependence*, and the other *networks of direction*. Networks of mutual dependence include power in the form of reciprocal dependence based on complementarity of resources, shared objectives and on the agreement not to act against the interests of others in the network. In practice, however, there may not always be a real agreement amongst actors to refrain from exerting their power at the expenses of others. What is called a network, therefore, is not always a reciprocal, preferential, and mutually supportive locus of production. Taken to its extreme point, this latter situation becomes prominent in networks of direction, where all firms except one have no influence on strategic decisions. An example is given by hub-and-spoke networks, where the core firm concentrates control and, most importantly, strategic decision making power.

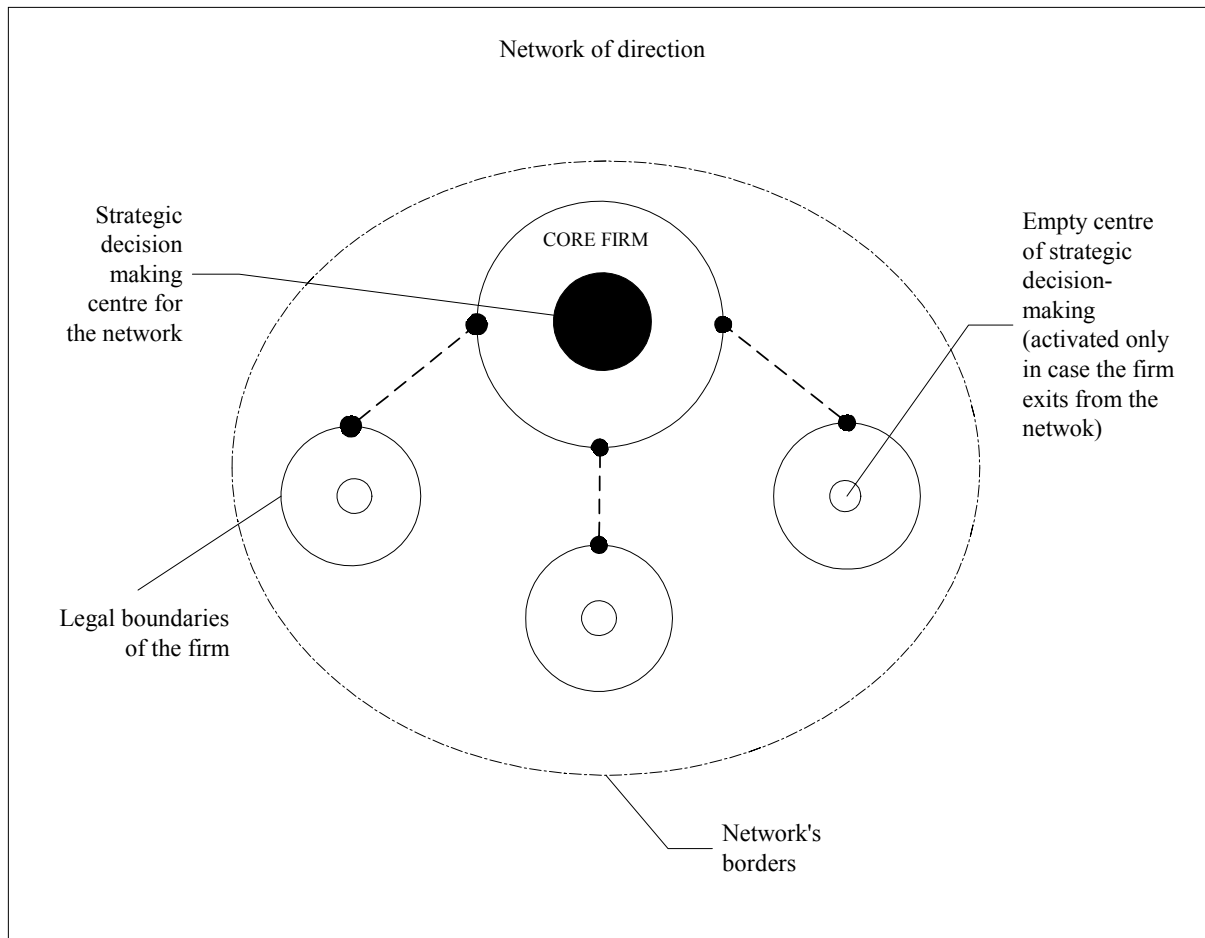
More specifically, following Zeitlin (1974), strategic decision-making can be defined as the ability to determine in a broad sense a firm’s relation with other firms, its relationship with governments, employees, and consumers, and its geographical orientation. In line with our definition of power, this concentration of economic power does not necessarily imply that

decisions are taken against others' will. However, it heavily obfuscates (or rather nullifies) the actual capability of those who are left out of strategic decision making to actively participate in the determination of broad policies and objectives. In this sense, direction as a mode of coordination can go beyond the boundaries defined by the legal firm and effect also relationships between firms.

If we build on the power perspective, the modality of governance that characterises inter-firm relations, that shapes the pattern of strategic influences of each firm over others, and impacts on the degree of reciprocity of such influences, provides important information about the elements shaping firms' boundaries. We now provide further insights by focusing on the connections between the organisation of production and the boundaries of the firm.

#### **4. FIRMS' BOUNDARIES IN NETWORKS OF DIRECTION**

As in the capitalist firm, networks of direction reproduce a hierarchical structure where the power of the core to control and make strategic decisions extends *de facto* the boundaries of the focal firm to the borders defined by the mesh of its hub-and spoke relationships. As in the capitalist firm, what holds together a network of direction is a strategic core.



**Figure 1: The organisation of production in networks of direction**

The core of a network of direction can be identified with the legal firm hosting the elite that retains the power of strategy making for the whole network. Therefore, a network of direction can be composed of a number of different legal entities whose strategy depends on the decisions of the centre. Within this mode to co-ordinate production, linkages between firms may be of various kinds, for instance formalised by a contract or by shareholding. In case the core firm owns a relevant share of another firm in the network, its control over strategy can be further reinforced. The directed firm, having alienated its strategic decision-making power to the core of the network, does not have the power of “voice” over the network strategy. The decisional space of the directed firm will be essentially limited to operational decisions for which the “voice” option may be possible. Strategy making for the network is retained by the core, which decides, for example, about firms’ relations with other firms, with governments, employees, and consumers, as well as about firms’ geographical orientation. If the strategy planned by the core is not compatible with the objectives of the

directed firm there are two solutions opened: the firm may accept the core strategy and neglect its objectives, or it may exit from the network. Whether exit is an opportunity is conditional on a number of factors, for example on the ability of the firm to enter another network of relations, to eventually adapt its competencies to different production contexts and to afford the separation loss\* which may be caused by this adaptation.

If we focus on specific abilities and competencies, deficiencies that hierarchies present with respect to participation in strategy making suggest further thinking about firms' boundaries in terms of learning, path dependencies, technological opportunities, selection, and complementary assets. This perspective, which is essentially dynamic and evolutionary (Dosi, 1994: 231), provides some elements to analyse the room for manoeuvre of both the core and directed firms. When strategic planning does not involve directed firms, their learning process risks to be confined to those operational tasks decided by the core under a strictly planned and controlled division of labour. This means that there are firms where, *although activities are complementary to those of others*, the dynamics of learning and knowledge creation involved in production may not reach the level that raises actors out of subordination. The trade off between specialisation and flexibility here goes clearly beyond efficiency explanations. Expanding on Smith's *Wealth of Nations* - Marglin has emphasised that the choice of the division of labour lies "between the workman whose span of control is wide enough that he sees how each operation fits into the whole and the workman confined to a small number of repetitive tasks. It would be surprising indeed if the workman's propensity to invent has not been diminished by the extreme specialization that characterizes the capitalist division of labour" (Marglin, 1974). These considerations can be applied when looking at the division of labour across firms and reinforce the need for undertaking an inquiry about firms' boundaries beyond the approaches offered by the ownership school and by the competence view.

The economic boundaries of a firm are extended with respect to the legal boundaries of the firm. Legal ownership, skills and competencies, the closeness of complementary activities or investments are indeed elements which are present in different types of networks and could not *per se* identify power distribution within networks. If the real issue here is represented by the possibility to participate and have voice in strategy making, the crucial

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\* Richardson measures the level of sunkness by the "separation loss" which is given by the difference between the

decision for firms does not have to be confined to the choice of which competencies to construct, rather it needs to address how to govern such competencies. When co-ordination in the network occurs through direction, the options available to directed firms are seriously reduced in terms of strategy making. The degree of specialisation and competencies of the firm may, if there is space for adaptation to different production contexts, represent an opportunity to exit from the network when the core strategy does not meet a directed firm's objectives, but in case specialisation inhibits flexibility, a firm may sensibly see its opportunities and economic power reduced. Due to the investment constraints that the nature of linkages and specialisation imply, adaptation to different contexts could not be sustainable, even if the firm's heritage of knowledge can still be useful for other complementary activities. Only if firms have voice then their knowledge can also lead them to more freedom. Therefore, we can argue that knowing – although being a fundamental element of positive freedom – may not always be a sufficient condition for exploiting competencies or, most importantly, for pursuing specific purposes by participating in strategy making. The concentration of strategic decision-making power within an elite centre directly impacts on the factual capability of directed firms to shape and follow their own purposes. When firms are directed according to the objectives of someone else there is no real participation and – due to lock-in situations to the pre-existing – special skills and competencies may not always help directed firms to exit from a situation of subordination.

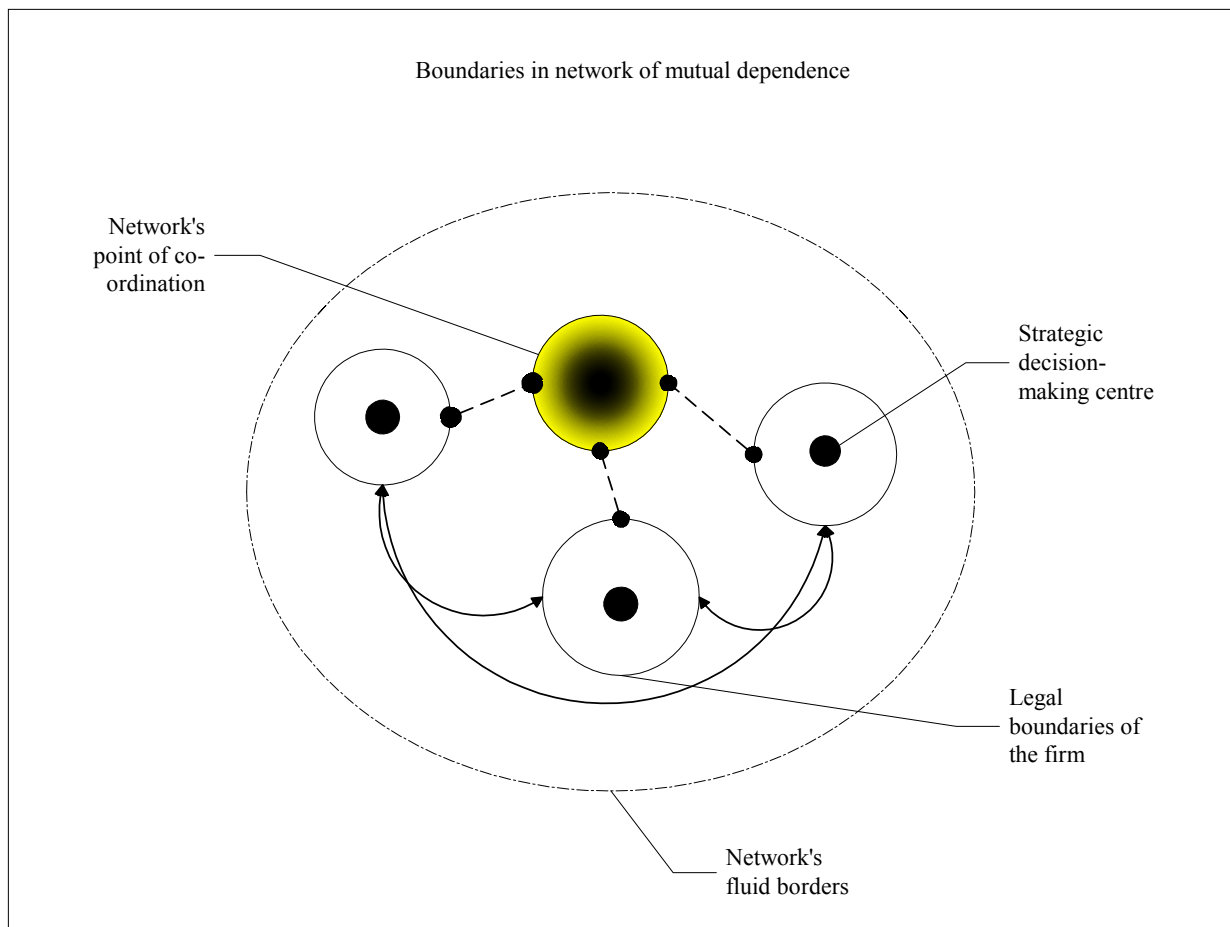
In synthesis, the way we define firms' boundaries when production is organised through networks of direction comes from the analysis of strategic influences. A network of direction is essentially a system to plan production activities according to the objectives of one core, with or without the agreement of others involved in the network. These circumstances enlarge the borders of the core firm from those defined by its legal boundaries to those defined by its ability to direct resources in the network. In networks of direction, therefore, the core firm's boundaries find a correspondence with network boundaries. These resources include directed firms as reservoirs of skills, investment capacity and economies of scale. Specialised knowledge, therefore, may not be a sufficient condition to have voice in strategy making. Distribution of economic power also entails governance choices that directly impact on the capability of firms to be involved in strategy making.

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value in sale and the value in use of assets (Cf. Richardson, 1960).

## 5. HOLDING NETWORKS OF MUTUAL DEPENDENCE TOGETHER: THE CENTRALITY OF MENTAL PROXIMITY

Existing organisational forms cannot precisely identify the organisation of production occurring under networks of mutual dependence and it is difficult to refer to them without alluding to some sort of ideal-type of network. Notwithstanding this institutional and theoretical difficulty, what we have called networks of mutual dependence may be found in existing production contexts. Under this mode of governance the unique centre of strategic decision making that we find in networks of direction is substituted by a centre that coordinates activities without retaining also exclusive strategic decision making power. Each firm in the network can participate in strategy. The distribution of strategy making power amongst firms implies that complementary activities and investments are planned considering the interdependencies with other firms and that decisions are taken compatibly with the long-term objectives of participants.



**Figure 2: The organisation of production in networks of mutual dependence**

Because the division of labour occurs among different firms, co-ordination may be possible if there is an agreement about the network's overall objectives and strategy. This does not mean that firms, individually, must all have the same strategy. Each one has its own, which must nonetheless be consistent with the network strategy. In this respect, networks of mutual dependence present an overlapping between the individual dimension of firms and the collective dimension of the network. Harmonisation of objectives is a mode to bring different actors together. It is not synonym for convergence, rather it represents the idea of compatibility. It is a modality that expands the possibilities of firms, whose scope is enlarged by the synergies created by complementary competencies and functions. A firm's strategy is linked to a network's objectives, where the outcome of the junction of the individual and the collective strategy derives from effective participation in strategy making. Differently from networks of direction, strategy making in the network is the outcome of participation of all actors, commitment is always mutual and there is an underlying agreement amongst participants not to act against each other's interest.

In networks of direction boundaries relates to the presence of a centre and to a number of controlled agents. Oppositely, the organisation of production in networks of mutual dependence is totally different from the traditional idea of the firm, where boundaries are defined in terms of the ability of the core to co-ordinate and control its units. In networks of mutually dependent actors there is no such thing as a centre, as meant in a hierarchical structure. If there is not a centre, as the theory of the firm has usually assumed, we need to look for a different concept of boundaries.

In introducing this form of network governance we have said that a network of mutual dependence is a system of organised co-ordination where co-ordination amongst firms is achieved without concentrating strategic decision-making power in the hands of one single firm. We now try to identify the mechanisms that facilitate co-ordination without concentration of economic power also when activities are strictly linked and capital investments are required.

We first consider the length of relations. In networks of mutual dependence relationships are repeated over time. This undoubtedly facilitates the insurgence of reciprocal knowledge that, in turn, helps the creation of expectations about the behaviour of others. A



network, therefore, constitutes a more predictable space of production with respect to, for instance, arm-length relations. The consolidation of expectations and its effect over uncertainty<sup>†</sup> reinforces governance mechanisms as it provides a more favourable environment for the joint definition of strategies and for the co-ordination of networked activities. A decrease in uncertainty is therefore dependent on the degree to which actors share a network's strategic objectives and develop trust in one another. Together with the creation of a more certain environment, networks of mutual dependence provide a context where risk is also reduced. The closer is the "empathy" between firms - for example, between a producer and a prime contractor - the less will be the risk of hazardous behaviour. In this case, firms may rely on mutual dependence for banning opportunism.

Most importantly, however, firms rely on what we define as *mental proximity*. This notion identifies proximity of organisational views when this is not the outcome of some actor imposing its own view over the view of someone else. In particular, we use the notion of mental proximity to indicate the degree of compatibility in objectives, strategies, and means to achieve them. Mental proximity implies that rules and norms are flanked by a common view on how relationships should be. It is as if there is a strong code of conduct, which results from shared values on how production should be organised and developed for the benefit of participants in the network. In practice this commonality of values and views that we call mental proximity does not exclude the existence of formal agreements between the parties. Rather, formalisation may facilitate the institutionalisation of linkages through contracts or property rights, especially when firms undertake specialised complementary activities (for instance high-tech activities) and when idiosyncrasy of investments reduce the flexibility of firms outside the network. When at least some individual objectives can be harmonised into a common strategy, mental proximity facilitates governance mechanisms based on trust, but also standardised systems of pricing and formal contracts regulating actual purchases, which can constitute the complementary mechanisms to manage mutual dependence. The commonality of values and the harmonisation of objectives that mental proximity – as the essential element that holds networks of mutual dependence together – implies may have an

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<sup>†</sup> Koopmans (1957, p. 162) distinguishes between primary and secondary uncertainty, where primary uncertainty is state-contingent, while secondary uncertainty occurs because of "lack of communication, that is from one decision maker having no way of finding out the concurrent decisions and plans made by others. In Williamson (1985, p. 57). To the uncertainty related to lack of communication, Williamson flanks behavioural uncertainty, which arises "because of strategic non-disclosure, disguise, or distortion of information" (ibid.)

impact over the opportunities available to firms. In particular, the extension of firms' opportunities seems to be the result of how much the strategy of firms can be orchestrated through a pattern of mutual structural influences that are governed by means of mental proximity.

## **6. FIRMS' BOUNDARIES IN NETWORKS OF MUTUAL DEPENDENCE. THE ROLE OF COMMUNICATION**

In practice the mechanisms that can help to share values and mitigate possible contrasts can be founded in the ability of different firms to interact on a common ground. As a first condition actors must possess the resources that enable them to participate in a process of mutual exchange in production. In order for co-ordination to happen and a feeling of mental proximity to appear, ideas, problems and solutions need to be exchanged. In finding solutions about problems of co-ordination and harmonisation the voice option should therefore prevail. This system of continuous interaction and sharing of perceptions requires communication amongst firms and other relevant actors. Communication, in turn, arises because of symmetries between individuals or – in different terms – because of “sympathy”. This characteristic of the emergence of communication implies, over time, a process of imitation and identification of individual actors with other actors in the group (Hayek, 1952). These perceptions create further affinities amongst actors and reinforce mechanisms of learning through imitation and reciprocity, whilst discouraging opportunistic behaviour.<sup>‡</sup> In addition to the reciprocal knowledge that develops through repetition of contacts and to psychological dynamics, we also maintain that the more communication can be institutionalised in some form of stable roundtables/forums for discussion, the more participation of firms and other actors in strategy making can be effective.

More generally, the idea of communication lies at the basis of democracy and implies that different views are exchanged. When interactions begin, there are no certainties about the outcome. In other words, communication opens possibilities that are unknown ex-ante. On this point, Buchanan (1954/1989: 64) asserts that the definition of democracy as “government

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<sup>‡</sup> These behavioural schemes have been proposed by Hayek in *The Sensory Order* and confirmed later by recent studies in neurobiology. See Rizzello (1997) for a deeper treatment.

through discussion” implies that individual values can change throughout the decision-making process. To the formation of social preferences, therefore, discussion - hence communication - is crucial as it leads - before deliberation - to agreement formation between different parties, and to a more or less generalised consensus on the rules of the game. This point is incisive, as it emphasises that the individual order of preferences *after discussion* can be different from the order of preferences *before discussion*.<sup>§</sup> This does not mean that disagreement can never occur. Networks of mutual dependence are ideally open spaces of production, where possibilities for firms are left opened. Exit of firms must be possible if a balance between flexibility and specialisation is maintained.

As in public life, one of the most difficult aspects of effective participation in production is the *process* for creating consensus on the rules of the game. The whole process of democratic discussion has a central role in terms of power. Most importantly, the collective advantage that derives from discussion is - at first - the more or less spontaneous creation of *fora* where issues can be continuously raised and interests balanced inside the community of firms, especially because individual preferences are not immutable. Then, the process generates a number of agreements which - coming from balanced interests - should also reflect a *balance of power*.<sup>\*\*</sup>

The idea of creating a balance of power is not common in the theory of production. We treat this concept as the outcome of the process of interaction that occurs amongst firms in the network. Interactions can occur at various levels, when dealing with operational activities or strategy formation, by means of formal and informal meetings, exchange of ideas and opinions. At each level of interaction (operational or strategic) firms will meet other actors with whom a process of coalition formation may arise. Thus, networks of mutual dependence, in addition to an agglomeration of mentally proximate firms, appear also as spaces of production where firms can try to influence strategic decision making in the network by forming different coalitions about operational activities and strategy. Coalition formation can

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<sup>§</sup> Buchanan's critique to Arrow's conclusions is based on the fact that Arrow's impossibility of social rational choice assumes that individual values are immutable and that, therefore, discussion is meaningless (Buchanan, 1954).

<sup>\*\*</sup> For an exhaustive treatment of the relation between interests and powers cf. Hirschman (1977). For a treatment of the relation between liberty and balance of powers cf. Montesquieu (1748), book XI.

actually represent a modality for communication to be more effective, as those firms who support the same view on specific issues will have a single voice.

Amongst firms and coalitions, the norms and rules that regulate discussion provide an important aspect of communication. In particular, a form of communication requires that actors behave according to a criterion that is different from instrumental rationality. Probabilistic calculus is substituted on the one side by the normative role played by what Habermas (1984) has called *discursive rationality* and, on the other, by the functional role played by rules, routinised arrangements, and habits, where such norms and institutions provide “more-or-less reliable information regarding the likely actions of others”, thus enabling the conscious decision-making of actors (Hodgson, 1988: 132-133).

Habermas' notion of discursive rationality, in particular, has been used in the literature on National Systems of Innovation. This literature has developed an approach to rationality that is consistent with the presence of uncertain outcomes, for which rationality is bounded by uncertainties and strongly dependent on the rules and norms followed by the actors. In this sense, rationality is context dependent or, in other words, differentiated. Actors with different types of rationality interact within a dynamic environment where the outcome of interaction is not certain. In such a dynamic and uncertain world, “interactive learning” may substitute “instrumental rationality”, that is decision-making based on price signals. Such a basis for interaction presents some advantages compared with instrumental rationality. It is argued that actors acting on the basis of other sets of norms, such as mutual trust, respect or curiosity, will be more successful than agents interacting on the basis of mere calculation (Lundvall, 1992: 47). Social norms, however, do not arise because they are rational for the individual or the entire economy, but because - since founded in the social structure as a whole - they transcend instrumental rationality. Here Lundvall advances the hypothesis that “discursive rationality” could be a more typical path for interaction within a society, where interactive learning represents a particular type of discursive rationality in the forms of relations that involve firms, public agencies, financial institutions, as well as R&D organisations.

The notion of discursive rationality reinforces the centrality of linkages and communication amongst actors. The relational element together with communication allows mental proximity to be created and maintained. From a power perspective, this approach

means that production relations are based on mutual participation of firms in strategy formation, and therefore it is consistent with the idea of organisation of production based on the participation of economic actors in strategic decision-making. This shift from instrumental to discursive rationality represents a change in perspective in which production is mainly about *harmonisation of diversities* rather than homogenisation of objectives.

Following these considerations, we suggest that in networks of mutual dependence, where actors mutually participate in production and in strategic decision-making, boundaries depend on the ability and willingness of actors to recognise and build linkages with other actors, on the capacity to co-ordinate activities and to harmonise objectives. This attitude, in turn, is related to a number of elements, such as the ability to enter into processes of communication, the tangible and intangible resources owned by firms, their learning ability, as well as the local sphere of institutions that surround them.

## 7. L'INSTITUTE: THE COMING OF MENTAL PROXIMITY

We have earlier referred to the objective difficulty to bring examples of networks where mental proximity is the element that holds a network together. If we move beyond manufacturing activities and think about intangible production, such as the production of knowledge, we can parallel the idea of networking amongst firms with the idea of networking within universities. Amongst the different strategies for developing international networks amongst academics, one in particular can be brought back to the creation of a space governed by mental proximity. Sugden (2002a,b) comparatively analyses two models of internationalising universities, one based upon copying and serving large corporations (and associated with the notion of the “corporate university”), the other envisaging the creation of a “multinational web” of scholars (based on a “college of scholars” approach) where inclusion and mutual exchange are constantly encouraged.<sup>††</sup>

The first form of internationalising universities mimics the hierarchical structures described by the corporation or by networks of direction, where universities are transformed

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<sup>††</sup> For a detailed analysis of the two approaches and case studies see Sugden (2002), on which this Section is based.

into “organisations similar to ordinary commercial firms so that they can be assessed and managed in roughly similar ways” (Boer, 1999: 132). Take for instance corporate universities, organisations established by a corporation as part of the corporation itself, typically operating like the other parts and intended to serve the strategic objectives of the corporation. This type of university would undertake internationalisation processes along a pyramidal structure of the kind described by networks of direction, with university branches in the world being dependent on the strategies and views of the headquarters located in the home country. This could lead to socially undesirable outcomes, as universities facilities located around the world would not be designed to reflect the interests of the host local system. Rather, strategic decisions for the branches would be designed by decision-makers in the home nation to reflect their own interests. The governance structure of an organisation of this kind would clearly be one of direction where foreign branches are subordinated to headquarters’ objectives, an organisation that would exclude local interests in the activities related to learning and research.

Conversely, an alternative internationalisation strategy is centred around the inclusion of individuals into a network that aims at institutionalising “an open college of scholars, rooted in but crossing different universities, respecting and drawing upon varied experiences and expertise, designed for mutual advantage. It would also be to institutionalise certain ways of crossing countries” (Sugden, 2002a: 4). Consistently with the idea of diffused participation in strategic decision making, harmonisation of interests, mutual support and communication, the internationalisation process of research and learning would follow a development path based on the coordination of linkages amongst scholars by means of a non-hierarchical organisation. As an example of this, *L’institute (Institute for Industrial Development Policy)* was established as a joint venture between the Universities of Birmingham (England), Ferrara (Italy) and Wisconsin-Milwaukee (US). The aim of *L’institute* has been to stimulate dynamic networking using research projects, learning programmes and discussion forums, typically in conjunction with members of *EUNIP (European Network in Industrial Policy)*, a network of scholars spanning different European and American universities which was constituted in the early 1990s.<sup>‡‡</sup> By creating an explicit organisation within established universities, vital

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<sup>‡‡</sup> For further description, see [www.linstitute.org](http://www.linstitute.org).

institutional roots were planted; networking was provided with a concrete presence, clearly lifting it beyond short run initiatives and abstract theorising.<sup>§§</sup>

Scholars who wish to join the network are encouraged to base their network relationships on few evolving principles, drawn up by participants and intended as a guide for engagement ([www.linstitute.org/principles.html](http://www.linstitute.org/principles.html)). These refer to “a flat and non-hierarchical organisational structure” focusing on “freedom to do, the ability to act within a broad framework without onerous constraint from others”.<sup>\*\*\*</sup> The officers of *L'institute* are seen as “accountable to the participants and to the partner universities”, and “whilst the partners have formal control of *L'institute*, there is a commitment from the participants that its strategic direction be determined democratically”.

The idea is of an expanding set of projects planned and undertaken by researchers identifying with each other in a multinational web. The intention is to develop a nexus of criss-crossing relationships between those projects. The most immediate inputs might be provided either by researchers working in a group or by a researcher working alone. Some projects might directly involve at their core researchers from different nations whilst others might be undertaken by essentially one person, nevertheless feeding into and off of other activities that make up the web. In addition, each of the constituent projects is envisaged as independent - the ‘property’ of the individual or team undertaking the activity - yet based (in part) on recognition of mutual co-operation and support. Such recognition implies, for example, that each would explicitly identify its involvement in the web and look for opportunities to relate with others, thereby improving the quality and quantity of outputs from each project. This reflects the general importance of being conscious of the sort of characteristics described as mutuality, participation, communicative rationality and non-opportunistic behaviour; without awareness there would be very limited opportunities for participants to learn about and hence develop an appropriate networking process. Scholars who share this view on the multinationalism of learning and research are mentally close in the

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<sup>§§</sup> According to Dearing (1998), “scholars and researchers find their being not in institutions but in the pursuit of knowledge. The first loyalty of the academic is to his or her discipline, rather than to any institution. Academics see themselves as part of a community of scholars. In spirit therefore the academic is international, rather than local or national in outlook” (p. 9). Even if true, academics usually rely on institutions to pay their salaries and provide a career structure. This is a reason for a web to be firmly rooted in established institutions.

<sup>\*\*\*</sup> These quotes refer to the principles published on March 1<sup>st</sup> 2002.

sense the we have highlighted earlier in the paper. *L'institute* does not represent the exact realisation of what we have described as a network of mutual dependence. However it certainly goes towards that direction, being in contrast with what we have called networks of direction.

## **8. MENTAL PROXIMITY INSIDE INDUSTRIAL DISTRICTS**

Just as mutuality is made easier by complementarity of resources, mental proximity is aided by shared values, and harmonisation of objectives is based on communication, so also the boundaries of firms depend on the effectiveness of all these elements that hold the network together. In contrast with the market pattern with which instrumental rationality is associated, mental proximity identifies principles of behaviour that are not designed for one function only, such as in the market model where individuals choose and behave to maximise their own utility. It is rather a broader approach to the division of labour that is aimed at enhancing the positive freedom of all actors collectively. On the face of it, firms will value co-operative linkages only in so far as they serve this end. Every step in the process of production is geared to a number of interests which ensure that the required step is taken. These interests will be harmonised compatibly with the principle of promoting and safeguarding the positive freedom of all. The absence of the motive of exerting economic power on others on a non-reciprocal basis is not an obstacle to the co-ordination of production and distribution. Rather, the harmonisation of individuals' plans to those of others enhances the positive freedom of all. As Goodman (1989: 12) noticed, "freedom in activity is not solely J.S. Mill's freedom as autonomy, but freedom as integrity. This emphasizes both the need of the individual to be true to himself – to fulfil his own plans and projects – and the need to be true to a common project, to perceive and recognize the aspirations and needs of those with whom he is working."

Broadly, this mode of co-ordinating production activities, which requires proximity in terms of values and selected objectives, does not have to be confined to firms and actors placed within the geographical borders of some specific region. Interactions amongst economic actors occur not only at the local level, but may involve different spatial dimensions. If we enlarge the view, the macrostructure where production is developed, actors



learn, and innovation is achieved, can be conceived as a stratified system rooted in the capitalistic structure of a world economy, where the division of labour is continuously redefined by technological change, and by the coexistence and interaction amongst large transnational corporations, medium and small sized firms, as well as institutions. Accordingly, the concept of network is particularly appropriate, as it is not bounded by geographical space, as may be a district or a cluster.

Taking an institutionalist perspective, we maintain that whenever actors can understand each other on the basis of shared norms, values, and beliefs, then mental proximity does not necessarily require geographical concentration, as is the case of industrial districts or clusters. Rather, it is consistent also with “virtual communities” of actors. When members of “virtual communities” interact, they can draw the boundaries of networks beyond localities and national borders. In this sense, production is the “real” outcome of actors who are mentally close but can be geographically distant for at least most of the time.

Being not necessarily connected with geographical proximity, the mechanisms that hold networks together have not been properly developed by the contributions that focused on spatial agglomeration. No less a thinker than Alfred Marshall suggested that the existence of industrial atmosphere was dependent, amongst other elements, on space.

Since Marshall, other contributions have been developed. Regional economists, for example, have given great emphasis to physical proximity and to the benefits that actors obtain from being located in the same geographical area. According to Baumol and Willig (1981), for instance, geographical proximity can eliminate the sunk cost of searching for cooperative firms, and if this specific cost constituted an entry barrier, then the spatial dimension can make monopoly untenable. More generally, earlier contributions argued that spatial agglomeration lowers the cost functions of firms by virtue of external economies of scope. According to this perspective, there are economies of agglomeration when firms can make use of a “sharable factor” at a specific location (Goldstein and Gronberg, 1984: 102); for example, when the agglomeration of activities within an urban area allows firms to dispose of a number of functions and services without having to activate them within the firm. Drawing upon economies of agglomeration, the consolidation of particular product specialisms in different regions allows regional economies to benefit from a cumulative

causation effect. One of the major arguments of this literature, as Amin and Thrift (1992: 572-573) notice, is that “negotiations involved in producing and exchanging certain types of commodity are less conveniently carried out at a distance”. These earlier contributions, however, starting from a standard economic perspective, failed to consider the immaterial elements of proximity (Harrison, 1992) or what Marshall called the “industrial atmosphere”.

Marshall’s “industrial atmosphere” was then captured by other works, in particular by the studies on industrial districts of the so-called *Third Italy* (Becattini, 1990; Brusco, 1990; Piore and Sabel, 1984) and clusters (Schmitz, 1989). The majority of the contributions to what has been called regional or spatial economics contain notions of agglomeration economies, trust, networks of relationships, and embeddedness as common denominators. Authors deal with the formation of inter-firm relationships, patterns of linkages amongst actors, information exchange, the impact of linkages on the cost functions of firms. From earlier works, in which the characteristics of proximity have long been considered within a locality as a given entity, regional economists have then started to consider localities as the outcome of an evolutionary process, revisiting existing explanations in a context of continuous mutation (Becattini and Rullani, 1993; Bianchi and Miller, 1995; Camagni, 1989; Gilly and Torre, 1998; Poma, 2000). Within that theoretical context, a closer focus on the notion of proximity is important in order to understand the potential of regional economics, as well as its limitations.

In the existing approaches, the presence of what we have called mental proximity is strictly connected to the relational dimension of districts, which derives – in turn – from geographical proximity. This represents a specific case of mental proximity, which relies – in our conception – on a broader source of constituent elements in addition to physical closeness. A further difference from mental proximity can be appreciated if we look at Italian districts. In this specific case it is not always clear whether relations amongst firms are shaped around a principle of positive freedom. This ambiguity is indeed not surprising, as Italian districts are the actual exemplification of a system of production that is embedded in everyday economic relations. For this reason, inside what is usually subsumed under the same conceptual cap we can find very different realities.<sup>†††</sup> What the idea of networks of mutual dependence is trying

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<sup>†††</sup> For empirical evidences of the existence of local specialisation without freedom see for instance Amin (1989).

to cut away are essentially those productive realities that are not consistent with the idea of promoting the actual purposefulness of economic actors. In this sense the idea of mutual dependence is not compatible with the presence of “sweatshops” or to command and control relationships such as those subcontracting linkages where no space is left for learning and mutual adaptation between the prime contractor and subcontractors.

## CONCLUSIONS

In this article we have addressed some implications of different ways of organising production by analysing two specific forms of governance amongst firms. The opposite alternatives that we proposed clearly represent two extreme cases in which the absence or the presence of participation of individual firms in strategy-making characterise the essence of network relations. Using these two extremes as points of reference we have considered the implications for the definition of firms’ boundaries. At first, we have suggested that direction is a mode of co-ordination that can be used by a core firm to exert its strategic influence over other firms, without necessarily implying ownership relationships. Conversely, relationships based on mutual dependence, reciprocity of commitments, and mental proximity provide a space of production where co-ordination is reached by means of communication and harmonisation of strategic objectives.

These two opposite extremes show that the definition of firms’ boundaries is substantially linked to the pattern of influences that strategy makers have on other actors in the network. Where the locus of decision-making is the strategic centre of the core firm, that is when economic power is concentrated in the hands of an elite, the borders of the *core firm* are actually extended to the borders of the network. This is the case in networks of direction. Oppositely, when strategy making is the outcome of a process of communication and harmonisation of scopes, then the opportunities of *all firms* in the network are enlarged by the potential offered by the co-ordination of complementary activities. This is the case in networks of mutual dependence.

Implications for the positive freedom of economic actors are substantially different in the two types of networks. Where strategic power is a prerogative of the core, the positive

freedom of directed firms is seriously jeopardised, as their capability to take strategic decisions is almost nullified. Where instead strategic decisions are taken through a process that balances the interests of all participants, the purposefulness of firms is enhanced and their opportunities to achieve desired objectives, through the synergies activated by the network, are amplified. In particular, our analysis suggests that participation in the process of production is not only a matter of knowledge and competencies but, by virtue of the impact of power distribution on economic systems, it reflects also the way competencies and knowledge are governed when interacting with other economic actors.

These two extreme modes of organising production, the one based on direction, the other on mutual participation, bringing such diversities in terms of the positive freedom of individuals, must be properly evaluated, especially when assessing regional development policies aimed at the enlargement of people's freedom.

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