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Power and the Analysis of the Food System

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Abstract - This paper stresses that in order to understand the current restructuring processes in the food system it is necessary to take explicitly into account the role of power as a driving organizational force. Agricultural economics, drawing pervasively on the walrasian model, has mainly analysed power in the form of market and bargaining power. Stemming from different definitions of power, the paper focuses on some definitions suggested by the new institutional economics and the network theory, showing their relevance to the analysis of the food market.

Key words: power, scale-free networks, new institutional economics.

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Introduction

It is widely accepted that the current accelerated processes of concentration in the food sector could negatively affect the resource allocation, on both sides of equity and efficiency. Several issues are at stake: 1-the consumers' losses due to the exercise of market power at the final stage of the marketing channel; 2- the unequal distribution of the value added among actors in the food chain endowed with different degrees of buying and market power; 3- the general efficiency loss associated with monopolistic situations; 4- the exploitation of rural and environmental resources in developing countries carried out by multinational firms; 5- the difficulties of projecting and testing effective policies in a sector widely affected by market imperfections.

During the last two decades a good deal of theoretical and empirical literature have tried to model and estimate market power in the food sector, especially with the aim of supporting and guiding antitrust legislation. This literature has mainly been based on models of imperfect competition offered by the standard economic theory (Sheldon, Sperling, 2001). Only a few studies (Magdoff et al., 2000; Goodman, Watts, 1997) have tried to use non-orthodox approaches to explain the ways in which the occurring concentration and centralization of capital in the food sector could affect national economies and societies well beyond the general accounted "market power effects".

In this paper I stress that in order to understand the current restructuring processes in the food system it is necessary to take explicitly into account the role of power as a driving organizational force in the system.

In the first section, I introduce the concept of power, confronting some different definitions of power from different realms of social science. Section 2 surveys economic literature on power, stemming from the view of the standard model to the newest theories developed by the new institutional economics and to power definition and concepts suggested by different strands of social network analysis. Section 3 uses different concepts of power to address some organizational problems in the food system.

1. Power definitions

1.1 A power definition: power as a relational behaviour

A great deal of social and political literature has attempted to give accurate definitions of power and it would be a challenging task to even give only a taste of it. Some classical monographs (Lukes, 1986, 2005; Popitz, 1986; Clegg, 1989) offer a wide survey of the issue. My aim in this section is to sketch a short “systematic of power” limiting the attention to those definitions of power that better fit the economics of the food system.

Russel (1986) defines power as the production of intended effects, that is the capability of somebody of achieving her own interest. This definition is a wide one and states the first attribute of a workable concept of power: the behavioural attribute.

Power is mainly a behaviour, involving a rational human being, who acts to pursue some aim. That which gives the actors the possibility of deciding (defining goals and means) and acting (actually performing their task) is their endowment of material and immaterial assets. The magnitude of this endowment also determines the degree to which the actor is able to achieve his desires (that is the success of his behaviour). In this general form power can be labelled “power to act” (Palermo, 2000), or “power to do” (Holloway, 2002).

In order to achieve her aims the actor can also command somebody else to do something and/or control the behaviour of somebody. In this case the power to do something somehow implies the power over somebody. Accordingly, power is defined in a relationship, and becomes a strategic behaviour (this means that the behaviour of one actor takes into account the behaviour of other actors; in other words the choice domains of two or more actors are in some way overlapped). The relational dimension of power is underlined by the well-known definition by Dhal, thoroughly quoted in the literature on power: “At the most general level, power terms in modern social science refer to subsets of relations among social units such that the behaviours of one or more units (the responsive units, R) depend in some circumstances on the behaviour of other units (the controlling units, C)” (Dhal, 1986).

The difference between the two power characterizations is more visible when using languages such as Italian, French and German where the nouns *potere*, *pouvoir* and *macht* have both the meanings of can and command-control (the German noun *macht* has also the explicit meaning of doing). To underline this point it is useful a quotation from Holloway (2002, p.29): “power, in the first place, is simply that: can-ness, capacity-to-do, the ability to do things”. Borders between the two power characterizations, power-to-do and power-over, tend to vanish if we assume that the actors’ behavior is social before it is individual (therefore rejecting the methodological individualism which the standard model is based on). As Holloway claims:

«Power-to-do is never individual: it is always social.....Doing (and power-to-do) is always part of a social flow, but that flow is constituted in different ways. It is when the social flow of doing is fractured that power-to is transformed into its opposite, power-over. The social flow is fractured when doing itself is broken. Doing –as-a-projecton-byond is broken when some people arrogate to themselves the projecton-beyond (conception) of the doing and command others to execute what they have conceived. Doing is broken as the ‘powerful’ conceive but do not execute, while the others execute but do not conceive.»

The difference between these two power characterizations, power to act and power over, is the first step in my power systematic, as illustrated in figure 1. Power to do refers to the “brighth” side of the concept, i.e. power as possibilities (can-ness), freedom, opportunities. Power-over refers to the “dark side” of the concept, i.e. power as control, command, coercion.

The second step in my power systematic is the characterization of power-over stemming from the very famous weberian definitions of power.

Weber defines generically power (macht) as “the probability that one actor within a social relationship will be in a position to carry out his own will despite resistance, regardless of the basis on which this probability rests.” (this sentence, taken from the English edition of *Wirtschaft und Gesellschaft*, is quoted in Dhal, 1986).

Besides this primary form of power, that indicates a relationship de facto, regardless of its legitimacy (Ferrarotti, 2004), Weber dedicates his analytical effort to the legitimate power (Herrschaft), i.e. to that power which identifies a legitimate relationship of subordination. The latter takes three ideal forms: 1) bureaucracy, when legitimacy lies in the legal system; 2) the traditional power, when legitimacy lies in culture and tradition, that is in those informal contracts (common values, conventions) that integrate societies besides the state; 3) charismatic power, when legitimacy lies in the peculiar characteristics of the leader that make the subordinates ‘instinctively’ be willing to obey.

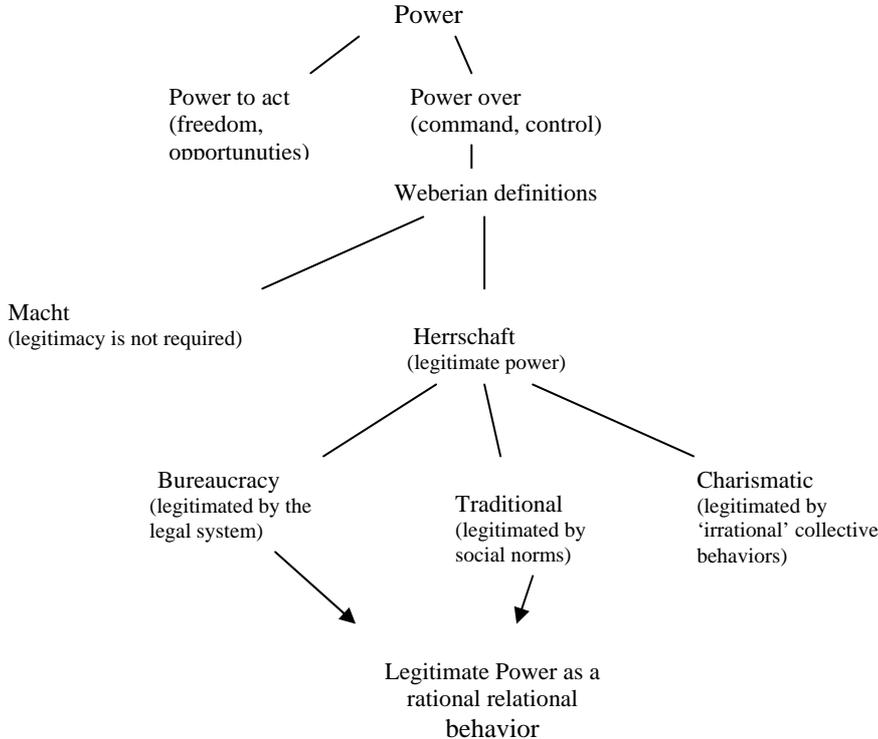


Figure 1 General power definitions.

The weberian definitions of power (see figure 1) are consistent with the basic definition of power as a relationship (power-over). The absolute form of power (macht) does not need legitimacy to be exercised and includes the extreme form of coercive power, violence. The legitimate power (herrschaft) is based on consensus obtained through a formal contract (bureaucracy), or by an informal contract (traditional power) or by faith. These definitions are useful to restrict the analysis of power to those kinds of power that assume the form of a rational behaviour in a given institutional constraint. In this way it is not taken explicitly into account the problem of the role of power in determining a specific institutional framework (i.e. the problem of the genesis of the constitutions), and the kind of power linked to non-rational behaviours (where a rational behaviour is defined as a purposive behaviour, i.e. a behaviour guided by goals known with awareness by the actors). Power-over legitimated

through contracts, either formal or informal, can be referred to as “legitimate power as rational relational behaviour”, as reported in the last row of figure 1. In its relational dimension power can be viewed as an actors’ behaviour (determining the structure of the relationship) or as a type of structure of the relationship (determining the actors’ behaviour). The first view is backed by social theories based on the assumption of methodological individualism (basically all approaches that make a wide use of the theory of rational choice), while the second view is backed by those theories based on the assumption of methodological collectivism (Archer, 1995) (basically functionalism and structuralism, but somehow also the theory of conflict). Both approaches are essential for a full understanding of the power phenomenon.

To better delimit and understand the power definition given so far, ‘legitimate power as a rational relational behavior’ (see figure 1) it is worth remembering the analysis of power made by Coleman (1999) and that made by Crozier and Friedberg (1977).

1.2. Coleman’s concepts of authority and power

The social theory of Coleman (Coleman, 1990) is basically an individual-level theory of action, which assumes social actors to be self-interested purposive responsible individuals. Coleman’s social theory seeks to explain the behavior of a social system by means of three components: “the effects of properties of the system on the constraints or orientations of actors; the actions of actors who are within the system; and the combination or interaction of those actions, bringing about the systemic behavior.” (Coleman, 1990, p. 27).

According to Coleman, society, both at the micro and macro level (considering also the connections between the two levels), can be understood stemming from a theory of rational choice, built on four elementary ingredients: actors and resources, as the two basic elements, and interest and control, as the two ways in which these elements are related. Resources are those material and immaterial assets in which actors have interest and over which they have a certain degree of control. It is assumed that the goal of the actors is to maximise their realization of interests (their utility). When each actor has control over resources she is interested in, society is merely a sum of separate individuals and its study is trivial. On the contrary, as Coleman states (Coleman, 1990, p.29):

«What makes a social system is a simple structural fact: actors are not fully in control over activities that can satisfy their interest, but find some of those activities partially or wholly under control of other actors. Thus pursuit of one’s interest in such a structure necessarily requires that one engage in transactions of some type with other actors.» It is interesting to notice that in this respect the theory of Coleman is very close to the “classical” theories of social exchange previously conceived by Blau (1964) and Homans (1958).

In the Coleman’s construction actors are conceived as rational utility maximizing individuals, and resources are conceived as rights. Taking for granted the existence of a legal system of property rights, Coleman notes that when exchanging a resource what really is exchanged are the rights to exercise a certain degree of control over the resource. It is worth noticing that this idea, -that what is exchanged is not the good, but a right to carry out actions involving somehow the good-, is not useful in the case of the typical economic goods of the standard economic model (i.e. goods that are private, divisible, alienable and with no externality).

Among those resources over which individuals have control are their own actions, and therefore among rights foreseen by the legal system are individuals’ rights of control over their actions and rights of transfer these rights. Stemming from this consideration, Coleman defines authority as the right to control another’s actions (Coleman, 1990, p.66). An authority

relation occurs when individuals give up the right to control certain of their actions, because either they are under threat or promise, or they see it as in their best interest to do so. In other terms, an authority relation of one actor over another exists when the first has rights of control over certain actions of the other. Coleman distinguishes between involuntary and voluntary authority relations.

Involuntary authority relations occur when the right to control the action and the right to transfer that right, are not held by the actor, but by someone else. In the involuntary case there is no consensus among the parties involved in the relation, the subordinate and the superordinate. When the consensus is not even external to the relation, involuntary relation is a form of illegitimate power, as in the extreme case of violence. When there is an external consensus, involuntary relation is in any case a legitimate form of power. The external consensus can be embodied in the legal system (for example when constitutionally individuals have different civil and political rights, as in the case of children and women) or can be embodied in social norms (in this case the kind of legitimacy is the same as in the Weber's traditional power).

In the case of voluntary authority relations, rights of control and the right to transfer those rights are held by the actor (the subordinate) who voluntarily vests authority in the other party (the superordinate) of the relationship. Therefore it is a consensual relation. Coleman considers two broad classes of voluntary relations: 1- conjoint authority relations, where "one actor vests authority in another because the first actor believes that he will be better off by following the other's leadership" (Coleman, 1990, p.72); 2- disjoint authority relations when "the actor transfers rights of control without holding this belief, but in return for some extrinsic compensation" (Coleman, 1990, p.72).

Examples of conjoint relations can be found in associative organization based on collaborative behavior and partially sustained by trust, such as trade unions, communes, and to some extent cooperatives. Examples of disjoint relationship are employment relations and broadly speaking all principal-agent relationships in bureaucratic organizations.

Finally it must be underlined that the definition of authority and power given by Coleman are complete and operationally effective, both on the theoretical and empirical ground, only considering the legal system (i.e the State, i.e. the constitution) as given, as a variable external to the model. Therefore Coleman's theory does not give solution to the basic "political and moral" organizational problem of societies, namely how to define, distribute and enforce property rights, that is the basic constitutional problem.

So far the definition of power given by Coleman, in term of authority is quite equivalent to the definition of Herrschaft given by Weber, unless for the involuntary non-consensual case that is closer (but does not completely cover) to the weberian concept of *macht*. Nevertheless, Coleman also explicitly introduces the term power. In the chapter dedicated to rights (it is good to remember that in the Coleman's construction all resources involved in social exchange can be ultimately considered as rights) Coleman points out that to make social exchange begin it is necessary that actors hold the rights involved in the exchange and this is possible "at the pleasure of relevant others". Relevant others are just actors at whose pleasure a right is held. "The general definition of relevant others is a simple one: they are those with the power, collectively, to enforce the right." (Coleman, 1990, p.58). This definition locates the source of rights in power. Nevertheless, given that "the power itself may be constrained by the prior existence of other rights" (Coleman, 1990, p.58), the discourse on the genesis of rights (and power) becomes recursive, and definitions of power and rights collapse in a tautological loop.

Somehow, Coleman addresses the classical hobbesian dilemma, i.e. that a multitude of human being in its "state of nature" is not able to accomplish common goals (and hence to promote prosperity) because the individual self-interest and the lack of coordination make

social interaction take the form of a paradigmatic one-shot prisoner dilemma game. Hobbes states that to solve this dilemma it is necessary that people abdicate the right to control their action, vesting authority in the Leviatano, an autocrat with absolute coercive power. This is intended to be the ultimate “social contract”, and social order and prosperity only can come from this. Hobbes fails to explain clearly how this contract can be achieved, but it is quite implicit in his discourse that it will be imposed on a part of society by another part simply through violence. Now it is clear that Coleman, in his attempt to draw a self-governing society shaped by actors’ rational behaviors, cannot solve the dilemma anyway, leaving blank the definition of power.

1.3. Power in action: the role of power in formal organizations

Crozier and Friedberg (1977) have examined thoroughly the role of power in formal organizations. They stem from the very same definition of power which has been given so far, a relation between rational actors.

Somehow their investigation begins where the Coleman’s analysis ends. According to Coleman, exchanges of rights among actors lead to those authority relations that make the superordinate determine the actions of the subordinate according to the terms signed up in the contract. This means that the behavior of the parties is perfectly disciplined by the contracts. Following the Williamson’s definition (Williamson, 1985), Coleman confines his analysis at the ex-ante part of the contractual relationship, considering in this way only contracts that are perfect, complete and enforceable through an effective legal system.

Crozier and Friedberg start with a given set of formal disjoint authority relations, as a bureaucracy, and show that, during the execution of contracts, parties will be engaged in bargaining activities (and hence new exchanges will occur) for the exploitation of those rights of control left out by contract’s terms. Consequently new power relations will take place, where the power of an actor A over an actor B is defined as the A’s capability to obtain favourable outcomes in the exchange relation engaged with B. Obviously when A covers the role of superordinate of B in the authority relation, this gives him more opportunity to exercise power also in other bargaining settings. Nevertheless also B can exercise power over A, using the “marge de liberté” (Crozier, Friedberg, 1977, p.36) left to him by the sources of incertitude inside the organization, which gives him the possibility of refusing to accomplish A’ requests.

Crozier and Friedberg claim that besides the formal position in the hierarchy there are other sources of power, generally linked to those properties of the organization at high degree of incertitude: functional specialization, informative systems, unstable external environment, professional competences, resource specificity. Power of actors in the organization is due to their endowment of “atouts” and to the value of these atouts in the bargaining for the control of the incertitude (the residual rights of control); the value of these atouts will depend on the “pertinence” with the exchange relation and on the interest on it by other parties (Crozier, Friedberg, 1977, p.66-69).

In terms of contract theory in the analysis of Crozier and Friedberg the relevant power relations are those emerging from the negotiating process, which occurs during the execution (ex-post) of incomplete long-term contracts. Therefore power relations are sustained by those elements, informative problems, limited rationality, opportunism, non-effective external enforcement system, that also limit the organizational functions of competitive markets.

2. Power and the economic theory

In this section, in surveying different approaches to the study of power in economics, I first present approaches stemmed from the standard model that preserve hypothesis of methodological individualism and rational choice. Subsequently I introduce three structural approaches stemmed from literature on sociological economics based on the hypothesis of methodological collectivism. Finally, I integrate these different approaches in a general framework drawn on the perspective of the New Institutional Economics.

2.1. Power and the standard model

Methodological individualism, and the assumption of rational optimizing actors, make the Coleman's social theory based on the analysis of social exchange, be a sort of mirror of the standard economic theory (based on the analysis of economic exchanges). Given this theoretical and methodological similarity, one question is pertinent: why has the analysis of authority relations, and of the sources of power held by actors in the relation, not been studied with equal emphasis in Economics? Coleman (1990) gives an exhaustive answer to this basic question at page 782 of his book:

«If the system of action is a perfectly competitive market and all transactions are voluntary exchanges within that market, it is possible to characterize the power of each actor very simply.....It is the amount of wealth he brings to the market, either in the form of money (which is the measure of wealth) or in the form of goods and services desired by others who have wealth (which is measured by the extent of that demand). In such an individualistic, voluntary, and competitive system, power is well specified and consists of nothing more or less than wealth. In such a system money will buy anything, and thus the amount of power an actor can exert in the system (that is, the degree to which he can realize the outcomes he desires) is merely the amount of money (or other resources measured in terms of the money they can be exchanged for) he holds.»

Coleman's statements clarify that even when we assume 1-that the political problem (who decides to whom rights are originally -i.e. before the exchange system starts working-distributed) is already solved, and 2- that there exists a complete system of perfectly competitive markets, even then power is present in the system. In this case power assumes explicitly the form of power to act, but it can also assume the form of power-over, when among goods being exchanged are rights limiting personal freedom or basic human rights. Furthermore, in the real extreme competitive case authority relations do not occur because they would entail long-term contract, while an ideal competitive system foresees only short-term contracts (spot markets). In the enlarged model long-term contracts are foreseen, but in the form of complete contracts. In this latter case power-over indeed occurs, in the form of legitimate voluntary exchange relations as drawn by Coleman, while characterizations of power drawn by Crozier and Friedberg are excluded.

It is a matter of fact that, according to the definitions of power given in the previous section, the standard model also accounts for power, nevertheless it does not explicitly analyse and not even name power. The reason is that orthodox economists, in their apologia of market economies, have stressed the "freedom-aspect" of power relations. In that way power to act (in the form of purchasing power) becomes freedom to act and the exercise of power-over is confused with the exercise of the coordinative entrepreneurial ability.

Mainstream economics deals explicitly with power only in the form of market power and bargaining power (Rothschild, 2002). Somehow, the fact that the possibility to set a price exceeding the competitive one is named market power, witnesses the ideological bias of the orthodox economics given by the "reification" of market. Market economies, and liberal societies based on market economies, are seen as perfectly democratic because the market (a

sort if divine entity) is deemed to allocate resource in an otherwise acephalic system (the result is a sort of magically ordered anarchy where there is no reason for raising the classical “hobbesian worries”). In this view actors who take the place of the market are said to have power, the power to take decisions that involve other people (consumers) besides themselves.

Also in the case of bargaining power, the power is connected to the possibility for the parties to make the price, with the party with more bargaining power being able to “command” the exchange terms to the other party.

Market power and bargaining power are analysed as cases of market imperfection, i.e. cases in which the market (intended as the basic institution of capitalist economies) fails to perform its function of coordination. It has been the literature on market failure together with the modern theory of firm that have opened the way to the power issue in economics. There are at least two important strands of literature that directly address the issue: the contested exchange approach within the neo-behavioural economics; the literature on the internal politics of firms, within the managerial theories of the firm

2.2. The contested exchange approach and the influence cost theory

Through the contested exchange approach Bowles and Gintis show that in capitalist economies voluntary market exchange engenders a structure of power relations among economic agents, even when a competitive equilibrium is attained. This view contrasts with the assertion (generally sustained by orthodox economists) that power relations are produced by deviations from competitive conditions, such as the pervasiveness of monopoly, the autonomy of management, corporate influence over government policy and consumer demand, the ubiquity of disequilibrium.

By a ‘competitive capitalist economy’ Bowles and Gintis (1999, p.14) mean “one in which productive assets are privately owned, production is carried out by employees, and all markets are characterized by free entry and large number of buyers and sellers”. In such an economy power relations can occur whenever contracts defining exchange’s terms are incomplete and the walrasian ‘exogenous enforcement assumption’ does not hold.

Incomplete contracts give rise to competing claims, that make transactions need an adequate enforcement system to be viable. When a third party enforcement is not possible (for instance when the contested attribute can be measured only imperfectly or at considerable cost; typical examples are work effort, quality in case of experience and credence goods, the degree of risk assumed by a firm management), an endogenous enforcement system is required. Bowles and Gintis (1993, 1999) refer to “contested exchange” as an exchange setting where the benefit the parties derive from the transaction depends on their own capacities to enforce competing claims. The party in the relationship who exercises power is the one able to institute monitoring and sanctioning mechanisms by which to induce the other party to provide the desired level of the contested attribute. The authors take as an example an employment relationship where the contested resource is the work effort. In the example the employer (A) gets the desired effort from the employee (B) offering B a higher wage than the reservation wage (reservation wage equates the equilibrium wage in the Walrasian model), at the same time using an endogenous enforcement mechanism, called ‘contingent renewal’. A contingent renewal obtains when A elicits performance from B by promising to renew the contract in future period if satisfied, and to terminate the contract if not. The difference between the reservation wage and the offered wage is the enforcement rent. The existence of the enforcement rent allows the equilibrium wage to be higher than the reservation wage and consequently makes the labour market not clear in competitive equilibrium, with a part of workers rationed out of the market. Defining the short side of a market as the side for which the quantity of desired transaction is the least, it happens that “short-side agents have power

over the long-side agents with whom they transact, since they may at little or no cost to themselves impose significant sanction by terminating the contract” (Bowles and Gintis, 1993, p.90). In this case A who can purchase any desired amount of labour (given the unemployment associated with an equilibrium wage higher than the reservation one) is on the short side of the market. On the contrary B is on the long-side. In the example long-side agents are of two types: “those such as B who succeed in finding an employer and receive a rent which constrains them to accept the employer’s authority, and those such as C who fail to make a transaction and hence are rationed out of the market”. (Bowles, Gintis, 1999, p. 22-23). More generally the phenomenon of short side power explains why those in authority in an organization may reasonably expect to be obeyed, namely because they are in a position to deprive the long-side counterparts of a substantial enforcement rent, even where no transaction-specific assets are involved.

Business and management literature has approached the power issue with the aim to analyse the political dimension of firms. Political activities can be largely defined as those activities carried out by different members of an organization in order to influence the organization’s decisions in a way useful to achieve their own interests, even when the latter are not consistent with the goals of the organization. Political activities are carried out by firms by trying to influence the decisions of outside organizations in a way to reduce constraints (or raise opportunities) for the betterment of their own internal strategies. Political activities are also carried out within the firms by different members of the organization (owners, managers, workers, stakeholders) in order to exploit possible sources of rents. Literature on rent-seeking behaviour and influence cost theory (Milgrom and Roberts, 1999) have analysed the effects of these activities on firms’ performance, and have suggested organizational “mechanism designs” adequate to mitigating the negative ones (such as distortions in decision making processes). Actors who succeed in their influence activities are those who exert power over the actors whose actions and decisions affect their interest. Power is here associated with the fact that, contrary to the prescriptions of the standard model, “the outcomes of firm decisions create winners and losers, where winners enjoy quasi-rents” (Milgrom and Roberts, 1999, p 47). The reference is to the general definition of rents and quasi rents: rents are payments beyond those required to attract a resource in an activity; quasi-rents are payments beyond those that a resource could expect to get by quitting the activity where it is engaged and entering into another activity. Therefore power can arise whenever firm decisions have non trivial distributional consequences.

2.3. Structural approaches

As structural approaches to the analysis of power I consider three theories that can be widely inscribed in the social network analysis literature (Wasserman, Faust, 1994): the power dependence theory; the theory of structural holes, and network theories inspired by the small world phenomenon. According to these approaches power, as other actors’ behaviors and characteristics, arises from the structure of the system, where structure refers to the “web” (with its proper scale, scope and shape) of relational ties among actors in the system.

The concept of power featured by the power-dependence theory (Emerson, 1962) derives from exchange theory emphasis on the ties of mutual dependence that underlie all social structures. Social exchange theory depicts many forms of social interactions as exchanges of benefits. The underlying idea is that people strongly depend on one another for the different resources they value and they provide them to one another through the process of exchange, also outside the economic marketplace. To the extent that dependence is mutual, actors in social relations have power over each other. Moreover to the extent that their dependencies

are unequal, their relations are unequal, with more powerful (less dependent) actors enjoying greater benefits at lower costs.

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In general terms given two resources x and y that are exchanged between two agents A and B, with $\alpha x, \alpha y, \beta x, \beta y$, being the unit value (i.e. the utility) of the resources to A and B, the theory states that: "In any exchange relation ($Ax; By$) the power of A over B (P_{ab}) is the potential of A to obtain favourable Y minus X outcomes at B's expense and is equal to the dependence of A upon B (D_{ab}), i.e. $P_{ab} = D_{ba}$. The dependence of A upon B (D_{ab}) is a joint function varying directly with the value of αy minus αx , and varying inversely with the availability of y to A from alternative sources." Power therefore is related to the number of alternative exchange possibilities available for an actor, i.e. to her exchange network structure.

In spite of its very "structuralist assumption" (the web of relations matters "in primis", actors' behaviours depending on it), power-dependence theory allows for a better understanding of at least two important features of actors' behaviour that affect the role of power in determining exchange outcomes: normative concerns and strategic use of power.

Normative concerns are taken into account by Cook and Emerson (1978) in addressing the problem of indeterminacy in bilateral monopoly. Specifically they stress the role of power and equity, both considered as social structural phenomena, in determining the location of the outcome along the contract curve, this latter defined as the cluster of points of different distributive equilibria of the maximum outcome available from the exchange. They demonstrate that the equitable solution of a dyadic exchange (i.e. the equal distribution of the total maximum exchange value) occurs when neither party has alternative sources and when the behaviour is driven by normative concerns about equity (i.e. the parties will refuse any outcome that unequally distributes the total profit, in the same way as in the ultimatum game the responder will refuse low offers). When one agent has alternative sources and equity concerns are weak, the exchange outcome will be chosen by the agent with more power, with the power associated with the position of the agents in the network, i.e. with the number of alternative available sources. In other terms power reaches its highest "organizational performance" when actors actually behave like the homo economicus, while giving way to reciprocal norms and trust as organizational devices when homo reciprocans and homo equalis (in the terminology used by Gintis, 2000) enter the stage.

The strategic use of power is dealt with by Molm (1997) in her research on coercive power in social exchange. Molm offers experimental and theoretical evidence that the basic assumptions and concepts of exchange theory can be extended to include punishment and coercive power, besides the traditionally assumed reward power. Stemming from this evidence Molm features a strategic use of power that differs from the structurally induced power in an important behavioural principle. Actors who use power strategically respond to others' behaviours (as in the case of principle of reciprocity of the "standard" power-dependence theory), but they also attempt to influence them. "Rather than giving rewards to obtain benefits in return, actors administer rewards and punishment contingently; in particular

they impose cost (by administering punishment or withholding rewards) on partners who fail to provide sufficient benefits.” (Molm, 1997, p. 161).

Social exchange theory focuses on the analysis of singular dyadic relations taking as its subject matter the more or less enduring relations that form between specific partners (or in terms of contract theory incomplete resource-specific long term contracts). Accordingly it offers a structure-based solution to the classical bargaining problem of bilateral monopoly, leaving out the issue of structural determinants of competition, this latter specifically addressed by Burt’s theory of structural holes. In the introduction of his book Burt explicitly states that the subject of the book is “how competition works when players have established relations with others” (Burt, 1992, p.1), i.e. when the competitive arena is investigated as a network whose nodes are the players in the competition game. Network structure is responsible for differences in competitive advantage among the players, with structural holes, defined as disconnections or nonequivalencies between players, being the core structural element. Burt’s main argument is that players with networks rich in structural holes (and therefore with high structural autonomy) enjoy high rates of return on investments because “they know about, take part in, and exercise control over more rewarding opportunities” (Burt, 1992, p.2). Burt explains the competitive advantage associated with structural holes in terms of freedom (freedom to exploit market opportunities), explicitly excluding the power argument: “This is the focus of the structural hole argument, a theory of freedom instead of power, of negotiated instead of absolute control. It is a description of the extent to which the social structure of a competitive arena creates entrepreneurial opportunities for certain players to affect the terms of relationships.” (Burt, 1992, p. 7). With the previous definitions of power in mind, one can contend that Burt’s statement holds only when power is defined as illegitimate and/or coercive. When power is considered in the form of power to act, or, as power over, in the form of legitimate reward power (bargaining power is an example), then the competitive advantages of actors with networks rich in structural holes stem from the exercise of power. The asymmetry in the social capital endowment by actors and the structurally induced consequences of this asymmetry on their market opportunities (also in the form of exercising market power) and bargaining power is the very cause of high performance associated with structural holes. Burt fails to recognize the power source of competitive advantages; this for the same reason that in the standard model, the power to act of wealthier actors is termed freedom, whilst bargaining and market power are considered as mere results of market imperfections, instead of peculiar behaviour able to influence in their turn market structures. In a way, Burt’s denial of the power argument is even stronger than that of the standard model. Assuming competition as a matter of relations, and not of players’ attributes, he affirms that “competition is a matter of freedom, not just power; the structural hole argument is a theory of competition made imperfect by the freedom of individuals to be entrepreneurs; competition is imperfect to the extent that any player can affect the terms of any relationship; structural holes theory is a description of the extent to which the social structure of a competitive arena creates opportunities for certain players to affect the terms of their relationships “ (Burt, 1992, pp.6-7).

When an actor provides bridges across structural holes (for instance a manager who creates interdivisional links in a large organization), combining information from disparate groups that would not otherwise communicate, she relocates herself in a “higher-power” position. Networks with an architecture characterized by a certain number of actors located in bridging nodes across structural holes exhibit a small world structure. A small world structure is intermediate between regular (each node with exactly the same number of links) and random (as links placed randomly in a graph, nodes have a random number of links). Regular and random networks display a low degree of clustering. While this property is evident for regular networks, in the case of random networks it is predicted by Erdos and Reny random

network theory, one finding of which is that if the network is large, despite the links being placed completely at random, almost all nodes will have approximately the same number of links. As pointed out by Barabasi (2003, pp.22-23) both of these networks have a very democratic nature, i.e. the histogram plotting nodes and associated links follows a Poisson distribution, meaning that, for example, in a given society most people have roughly the same number of friends and acquaintances. Erdos' random model dominated research on complex network modelling until recent developments made by Watts and Strogatz (1998) on clustering. Studying communication and biological network architecture (while trying to solve challenging problems on chaos and synchronization) they found that these displayed a high clustering coefficient, in contrast with the small one predicted by the random theory. The clustering coefficient (with a value ranging between 0 and 1) is obtained by dividing the number of actual links between a set of nodes linked to a given node, and the number of potential links they could have if they were all linked to each other. If the clustering coefficient is zero, then the "central" node is the only element that allows for an (indirect) relationship between other nodes. Watts and Strogatz found that the architecture of randomly created networks can be depicted as a regular lattice (where each node is connected to its immediate and next-nearest neighbours) to which a few extra links are randomly added, making the regular turn in a small world network. This finding formalizes Granovetter's model on the role of weak ties in social networks (Granovetter's society includes many highly connected clusters, linked to each other by weak ties, where weak ties correspond to the extra link added to the regular network) and offers a general model for the small world phenomenon (small world networks can emerge from a minimal random rewiring of a regular network). Nevertheless, since it forbids nodes with significantly more links than average, it does not account for the actual shape of real social networks.

As informally introduced by Gladwell's "tipping point argument" and as formalized by Barnabasi's research into power law, real social networks usually display hubs, i.e. nodes with an extraordinarily large number of links. Hubs tell us that in the social and economic system, in order to succeed not only does it matter who, as opposed to what you know, but that we lack the same opportunities (as in egalitarian random models), with actors in hub positions controlling most opportunities. Inequality and power (opportunity) asymmetries are ubiquitous in real networks, where the 80/20 rule applies. According to this rule, known also as Pareto's principle (since Pareto observed that 80% of Italy's land was owned by 20% of the population), in a network a few hubs grab most of the links, meaning that in the network the degree distribution follows a power law. "While a bell curve has an exponentially decaying tail (consistent with the absence of hubs), a power law distribution exhibits a far slower decay allowing for "rare events" such as the hubs" (Barnabasi, 2003, p 69). Power laws dominate the architectures of complex networks and indicate that these systems, being far from random (in physics power laws describe systems in transition from chaos to order), are instead governed in their evolution by the law of preferential attachment. Networks with power-law degree distribution are referred to as scale-free networks. These networks are the result of a growth process guided by the principle of preferential attachment: "in the expanding process of real networks, when deciding where to link, new nodes prefer to attach to the more connected nodes; thanks to growth and preferential attachment, a few highly connected hubs emerge" (Barnabasi, 2003, p.87).

In economic exchange networks a scale-free structure predicts power whether because hub actors (firms) have a negotiating power higher than that of their attached nodes where customers and suppliers are located (according to the prediction of power-dependence theory), or because they have access to more sources of competitive advantages (according to the prediction of structural holes theory). Moreover, in the measure to which hub actors can forbid the attachment of given nodes, a strategic use of power can also be assumed.

Industries characterized by a network form of organization, exhibiting a scale-free structure, can be thought of as inherently non-competitive, and should be closely monitored by antitrust authorities.

2.4. A general framework from the perspective of the New Institutional Economics

In a sense, New Institutional Economics can be considered as an enlargement of the standard model that takes explicitly into account the power issue. The famous Robertson's definition of firms as "islands of conscious power in this ocean of unconscious cooperation like lumps of butter coagulating in a pail of buttermilk", was used by Coase (1937) to launch the question of how is that in capitalist economies firms (and thus power) do substitute the market as a means to allocate resources (this issue has been recently addressed by Rajan and Zingales, 1998).

When examining the role of firms in economic organization we can think of two aspects: 1- the internal organizational environment (i.e. authority relations that define employment relationships) and 2-the external organizational problem (i.e. the way through which the firm exchanges resources with the external environment, as in the case of procurement relationships), i.e. the vertical integration issue. The ways in which New Institutional Economics addresses the two issues are useful to integrate different approaches in the analysis of power in economics.

Let's start from the vertical integration problem.

New Institutional Economics points out that certain characteristics of procurement relationship (for instance repeated purchases, with complex contract specification) can lead the parties to switch from short-term contracts (spot markets) to long term contracts that entail power in terms of Coleman's voluntary authority disjoint relationships.

When these contracts are complete and enforceable by a third party, it is even possible, according to Coleman, separate the economic realm from the political one because exchange of rights can be thought in this case to occur in a competitive market, where, following Coleman's reasoning, the only source of power is "money" (the power-to-act type that is in any way in a capitalist economy). It does exist a coercive power, that makes the authority relation work, but it resides outside the exchange relationship, in the state's legal system, i.e. in the political realm.

On the contrary when long-term contracts are incomplete and not enforceable by a third party, power arises in the form foreseen by the contested exchange approach and it is no more possible to separate the economic realm from the political realm. The outcome of the exchange and its distribution will depend on the behaviour of the more powerful party and any grant of equity and efficiency assured by the standard model will vanish. The incomplete contract theory of the firm (Hart, 1988; Grossman and Hart, 1986) states that vertical integration (and hence the firm) occurs when contracts fail because of their incompleteness, then the party more able to exploit the residual claims (the party in the terminology of Crozier and Friedberg more "puissance"-endowed, or in the lexicon of Coleman, with more power) will acquire the residual rights of control. In the model of Grossman and Hart any process of vertical integration entails a redistribution process that will favour the more powerful party, with contradictory equity and efficiency effects. This result sharply contrasts with the Williamson explanation of vertical integration that accounts for the shift from one organizational form (the long-term contract) to another (the firm) exclusively in terms of transaction costs minimizing, implying an efficiency improvement. According to Williamson (1985) high resource specificity (along with opportunism, bounded rationality and an imperfect legal system) turns a competitive relationship into a bilateral monopoly; when the bargaining entails unbearable transaction cost, a contractual agreement fails and vertical

integration occurs. In this way power is intended only as bargaining power, linked to a lack of competition. In other terms while in Williamson's explanation firms integrate to save on transaction costs, the incomplete contract theory of firm claims that firms integrate to exploit residual rights of control. What Grossman and Hart fail to underline, is that incomplete long-term contracts do not necessarily lead to vertical integration (and thus to power in the form of voluntary legitimate relations that define firms) or to exchange failure. They can instead survive thanks to endogenous enforcement mechanisms (on the type of 'contingent renewal' suggested by Gintis) that secure the power to the party on the short side of the exchange relationship, or thanks to trust-based or power-based self-enforcing agreements. In the case of power-based self-enforcing agreement power refers to the capability of one party to "informally" enforce the agreement by obtaining obedience by the other party (through promise, threat, retaliation, reward, punishment). Source of power is either structural or resides in the "power-endowment" (or the "atouts" endowment in the terminology of Crozier, Friedberg, 1977) of the powerful actor.

Let's turn now to the internal organizational problem.

Neo-institutionalists are used to thinking of firms as "nexus of contracts". In this way power issues related to the firms' internal organizational problems take the same form as those related to the external organizational problems. Here again contracts defining relationship among various members of the organization can be complete and-or enforceable by a third party or incomplete and not externally enforceable. In the first case power assumes the form of disjoint authority relations (in Coleman's terminology) whose ex-ante and ex-post problems, such as those related to shirking and monitoring can be solved defining the kind of incentive contracts that correct adverse selection and moral hazard problems in agency models. In the second case the kind of power foreseen by Crozier and Friedberg, that could be labelled 'politically-based power', must be accounted for. In this latter case self-enforcing or self-policing agreements (Furton and Richter, 2000, p239), are involved. Once again when constitutional problems arise (that is the problem of whom to give the power to to enforce rights, or, in Coleman's lexicon, the "choice" of relevant others), economic exchanges, such as social exchanges, are supported by political other than economic behaviours.

Finally it is worth noticing that the neo-institutional approach also offers the possibility to confront the organizational role of power and trust. Literature on trust has widely shown how trust lowers transaction costs in the system and enhances the general organizational efficiency, correcting markets as well as contracts and bureaucracies failures associated with opportunistic behaviors. Power also corrects organizational problems, because, as we have seen, when incomplete contracts fail, power intervenes and let the transaction work out. Nevertheless besides their functional similarity trust and power act very differently in the system. While trust promotes equity and fair competition, power promotes inequality and unfair competition. While trust is based on cooperative behaviors, power is based on extremely competitive behaviors. Furthermore, unlike trust, power produces power at an exponential rate of growth, eventually reinforcing its negative effects. Finally, and this is the worst, power can destroy trust very easily, while trust hardly can scratch power. An ordered society can lie on the absolute coercive power of the Leviatano, and pay the order through inequalities, but can also lie on trust and promote equality. Rawls, in his theory of justice, has shown that an ordered society grounded on a concept of justice as equality needs a great deal of trust to operate and needs to limit the "organizational role" of power. Rawls (1971) recognizes that some problems of collective choice indeed take the form of a prisoner dilemma game, in the same way as does the problem of the state of nature figured by Hobbes, and their solution can be attained only using some form of coercive power. In his research on the relationship among collective choice dilemmas, power and economic prosperity Olson (2000) comes to the same result.

Results attained so far (figure 2 summarizes relationships between power and economic organization) allow for the following four general statements on power and economics:

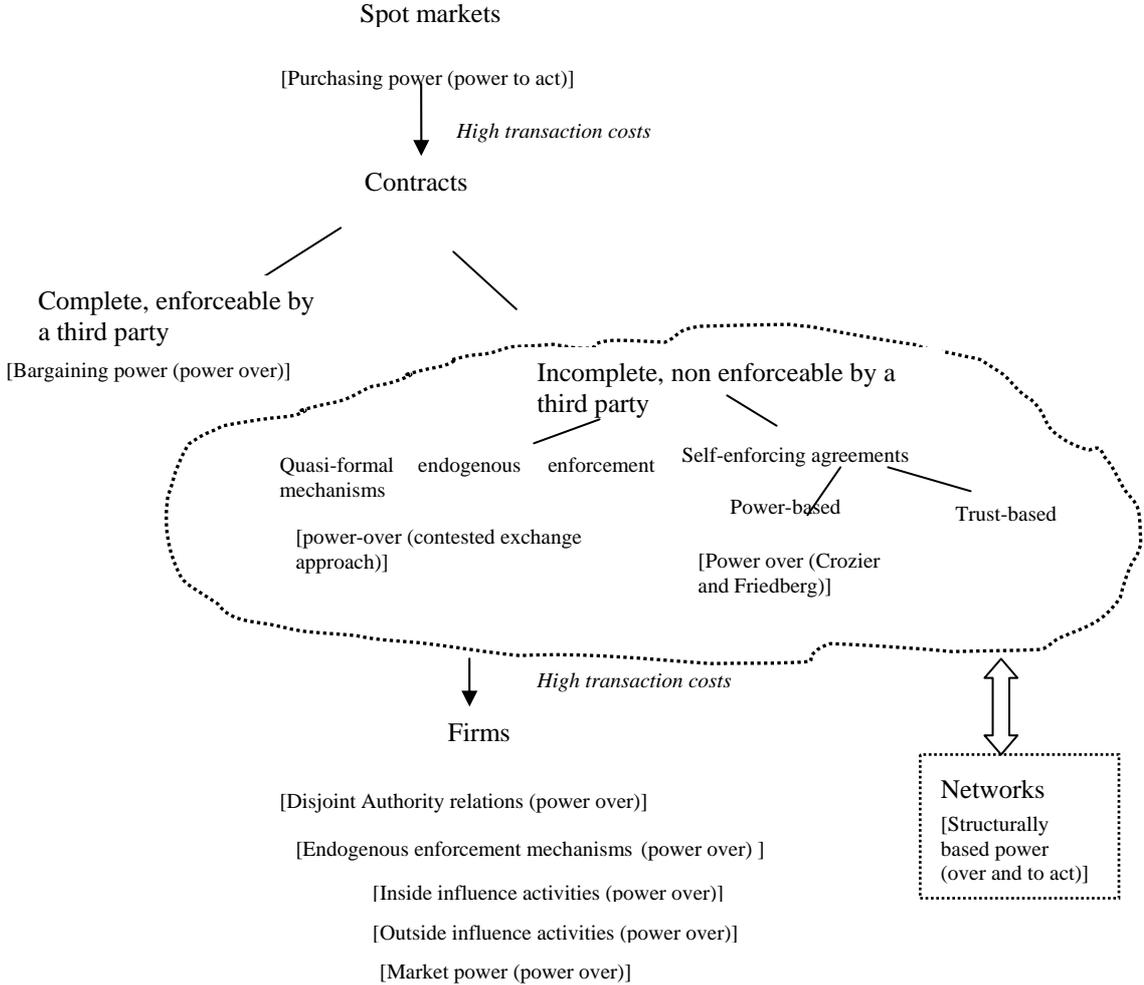


Figure 2. Organizational forms and entailed forms of power.

- I- A distinction can be made between power-to act and power over.
- II- Standard economics explicitly considers only three kind of power: purchasing power, market power and bargaining power. The first is clearly a form of power to act, but is also an “atouts” that gives actors the possibility to exert power-over. The second is a form of power over. The third is a form of power-over, even if standard economics fails to recognise it, because it vaguely defines bargaining power as the share of the surplus that one gains in a bargain, rather than to consider the means of attaining it (i.e. through a power-based behaviour).
- III- The contested exchange approach clearly indicates contract incompleteness as a source of power in the system.
- IV- The new institutional economics implicitly puts the issue of power at the core of the organizational problem, demonstrating that, even stemming from a methodological individualism approach, and deploying the analytical techniques of the rational choice theory in a liberal context (actors act voluntarily), power emerges as a fundamental organizational force in capitalistic economic systems.

In the presence of positive transaction costs resource allocation can no more be attained exclusively through the competitive exchange on spot markets and other organizational forms take place, contracts and firms. Complete contracts enforceable by a third party entail power in the form of voluntary authority relations. Incomplete contracts not enforceable by a third party involves another form of power, stemming either from the use of quasi-formal endogenous enforcement mechanisms (as in the case of the contested exchange approach) or from informal power-based or trust-based self-enforcing agreements. Firms (vertical integration) occur when contract incompleteness is not corrected by power (in either the two forms), or alternatively by trust (in the case of trust-based self enforcing agreement). Once the exchanges are organized inside the firm, then again power takes the form of Coleman's disjoint authority relations, or, in case of contract incompleteness, the two forms associated with endogenous formal and informal enforcement mechanisms; furthermore, market power, and power associated with the influence activities inside and outside the organization must be considered. To complete the picture I circled the cases of contract incompleteness, jointing the circle with a fourth organizational form entering the framework, the network form. This means that when in an industry a good deal of incomplete contracts survives, thanks to trust or power, networks of manufacturers and suppliers take the place of vertically integrating firms. When networks are observed, besides the different forms of power investigated through a methodological individualism approach, we must take into account also structurally-based forms of power described by structural theories analysed in the third paragraph of this section. Concluding, we can add a fifth statement to the four just mentioned:

V- Although new institutional economics is grounded on the very same epistemological assumptions of the standard model, the organizational issues it raises draw a bridge between this latter and new theoretical strands of radical economics and economic sociology. In the case of power new institutional economics allows also orthodox researchers for a dive into the sea of structuralism and of new models of rationality introduced by Kahneman and Tversky's prospect theory.

3. Power in the food market

It is a fact that currently the agro-food system is widely populated by imperfect markets. Figure 2 shows that when the economic system shifts from competitive (i.e. spot markets and complete contracts) to imperfectly competitive environments made up of incomplete contracts and large firms, power affects the system through a variety of forms beyond the "traditional" market and bargaining power forms. Therefore, in studying food system organization, whether for descriptive or normative aims, the analysis of power, carried out using the different approaches surveyed in the previous sections, should not be neglected. In this section I make three examples of power-related issues in the analysis of the food market: 1) welfare-assessment of vertical contractual arrangements; 2) the analysis of recent processes of networking; 3) the multiform power of large firms and the role of corporate social responsibility.

3.1. Welfare assessment of vertical contractual arrangements

New institutional economics gives an efficiency-based explanation of organizational dynamics in the economic system. Every time a new hybrid arises moving along the continuum of organizational forms that range from spot markets to contracts and hierarchies, it entails an efficiency improvement in terms of transaction and/or production cost reduction. Using the power argument I stress that a contractual arrangement with a low exchange value

can last in the system even when other arrangements exist with a higher exchange value. Let us assume a high contractual incompleteness, with transaction costs associated with problems of post-contractual enforcement and ex-post incentive alignments. According to the Williamsonian view, either a hierarchy emerges (with one party assuming via legitimate formal contracts the control of residual claims), or the incomplete contract survives because a high level of trust reduces risks of opportunism and reduces monitoring and assurance. On the contrary, according to the power argument, the incomplete contract can survive also in presence of high transaction costs. That happens when the party on the *short side* of the market (as predicted by the contested exchange approach) or less dependent on the exchange (as predicted by the power-dependency theory) "forces" the other party to bear all monitoring and insurance costs. The example in the following box (figure 3) clarifies this point.

Figure 3 - A numerical example

Let's assume a transaction between a supplier and a buyer characterized by the following elements:

1) a minimum quality standard is required; 2) compliance to the standard is supplier's liability; 3) the standard can be attained through the effort of both parties or through the effort of the supplier only; 4) a long term procurement contract is subscribed to, with a clause stating the contribution of both parties to the standard achievement; this contribution to be called "quality investment"; 5) while supplier quality investment is necessary to the achievement of the standard, the lack of buyer quality investment only occasionally causes standard violation; 6) buyer quality investment is not observable and not verifiable by a third party .

Let us denote: C_{ps} = Seller production cost, C_{pb} =buyer production cost, C_{qs} =seller quality cost, C_{qb} =buyer quality cost, TEV = total exchange value, EV_s =seller exchange value, EV_b =buyer exchange value, S = sanction, P =price on the market (i. e. received by the buyer). Let us assume $C_{ps}=3$; $C_{pb}=2$, $C_{qs}=1$; $C_{qb}=1$; $P=16$; $S=4$.

Depending on the different ways in which parties deal with contract incompleteness, four exchange outcomes are possible:

I A high level of trust exists and therefore the seller does not insure herself against a possible lack of buyer quality investment. Parties exhibit equity preference (or they have an equal bargaining power). Therefore, parties equitably share the total exchange value. In that case $TEV = P - (C_{ps} + C_{pb} + C_{qs} + C_{qb}) = 16 - (3 + 2 + 1 + 1) = 9$; $EV_b = 4,5$; $EV_s = 4,5$.

II There is lack of trust and power balance and therefore the seller does insure herself (as a consequence seller quality cost rises to 3) against a possible lack of buyer quality investment (that implies $C_{qb}=0$). Parties exhibit equity preference (or they have an equal bargaining power), and therefore, they equitably share the total exchange value. In that case $TEV = 16 - (3 + 2 + 3 + 0) = 8$; $EV_b = 4$ $EV_s = 4$.

III There is lack of trust and power imbalance. Buyer has a power advantage (and parties do not exhibit equity preference) and therefore has incentive not to fulfil the agreement. The parties unequally share total exchange value. In that case $TEV = 16 - (3 + 2 + 3 + 0) = 8$; $EV_b = 5$ $EV_s = 3$.

IV There is lack of trust and power imbalance. Seller has the power to require the buyer to "certify" his quality investment (since quality investment is not verifiable by a third party I refer to "indirect" forms of certification; for instance seller could require the buyer to make verifiable investments that indirectly prove quality investment). As a consequence buyer quality cost goes up to 4. Seller also has the power to appropriate a larger share of surplus. In that case: $TEV = 16 - (3 + 2 + 1 + 4) = 6$; $EV_b = 1$ $EV_s = 5$.

Confronting outcomes from cases I and II, it is evident that trust lowers transaction costs due to contract incompleteness and enhances total welfare. Cases III and IV show the inefficiency (compared to trust) of power as a means to correct incompleteness. They also show that the effects are different depending on which party has power advantage. In the example the worst case is the fourth, with the lowest value of total exchange and the highest distributive distortion.

It is worth noticing that with power imbalance of case IV transaction costs due to contract incompleteness and lack of trust are higher than in case of power balance (case II), meaning that the inefficiency of contract incompleteness is worsened by the exercise of power. In other terms power can stick a transaction to an inefficient organizational arrangement. Note also that the weaker party in case IV could have an incentive to vertically integrate as long as the cost of integration is less than 8 (8 is the difference between the maximum exchange value reported in case I and his share of exchange value when seller has the power). Vertical integration in such a case would lower total exchange value, meaning that this strategy can be carried out with the aim of countervailing (or exploiting) different forms of power (besides the market power generally accounted for), with a negative welfare effect not clearly dealt with by traditional related literature.

More generally power argument linked to contract incompleteness helps to explain the low level of vertical contractual integration in the food system. Traditionally, the shift from a weak contractual relationship to a tight contractual integration is deemed to occur when it can lower transaction and /or production costs (for examples those costs associated with a high degree of resource specificity or with scope economies) and/or raise market power. Looking at the problem in term of power associated with contract incompleteness helps to explain why a weak incomplete contract is used even when a tighter contract (it does not matter if more or less incomplete) could yield a marketing surplus. This is the case when the pre-existent contract is incomplete in a way such that the party with more power (with more atouts) can control sources of incertitude in such a way as to raise her own interest. For example, let us be the case of a new opportunity to raise the marketing surplus by making investments whose specificity needs more contractual integration (this can be the case of a product innovation that needs vertically coordinated quality assurance activities). If in the new contract the party in high power position in the pre-existent contract cannot get a gain higher than the current one, he will not switch to the new contract. Therefore power motivations (other than market power) will stick the channel to an inefficient organizational arrangement.

The policy implication is that to promote the supply chain efficiency it is not always appropriate to rely on competition policy and market deregulation. A higher market concentration could lead to a better exploitation of market and technological opportunities. Moreover appropriate market regulations (intended here in a broad sense as legal enforceable constraints that raise the completeness of contracts) could change the “structure” of the “contract-game” in a way such as to prevent parties from exerting power, whenever power harms more than benefits organizational efficiency.

The above considerations suggest that difficulties in assessing welfare effects of vertical restraints (Dobson and Waterson, 1996) partially arise from the limited attention given to power. As argued by Hamilton (2003), vertical restraints, as retail slotting allowances, more than being associated with retailers’ market and buying power, seem to be associated with various strategic practices carried out by retailers as well as processors in order to raise their gain opportunities in a broader way than simply exercising market power. From a power perspective we could say that vertical restraints change the size and the distribution of the economic surplus by changing the organizational structure of the chain. Specifically, actors who promote vertical restraints try to change the institutional framework of the exchange in order to increase their “marge de liberté” in exploiting possible sources of rents.

3.2. Understanding recent processes of networking

In the 1960s and 1970s the key players in world economy were large vertically integrated transnational corporations (TNCs), whose use and abuse of power has been often deemed to jeopardize sovereignty and effectiveness of national governments. In the 1980s and 1990s radical changes took place. In this period “the rising integration of world markets through trade brought with it a disintegration of the production process of multinational firms, since companies found it profitable to outsource (domestically and abroad) an increasing share of their non-core manufacturing and service activities” (Gereffi, 2005, p. 166). As a consequence, the whole production structure in the global economy changed, with the emergence of international trade and production networks. During the last two decades in the food sector many TNCs have progressively reduced their involvement in first-tier processing and have engaged in policies of outsourcing together with high investments in brand equity. Brand and financial management are currently the core activities of these companies and the coordination of their suppliers’ networks is central to their corporate strategies. (A good

example of this behaviour is the implementation of Project Millennia and Project Excel by Heinz in the processing tomato industry – as reported by Pritchard, Burch, 2003). The shift to those globally networking is likely to affect at least three general issues: 1- the process of industrial upgrading in developing countries, 2- the efficiency of industrial structures, and 3- how the new transnational capitalist class will rule the global system. The structurally based power argument suggests that distributive and efficiency effects of networking processes will depend on network structure and on power imbalances characterizing linkages in networks. When network structures shift from regular or random types to scale-free types it is very likely that the growing networking process will lead to an exacerbation of disproportion in income distribution (both at intra and inter country level), due to the ‘rich get richer’ effect. As a result, when a network exhibits a scale-free structure, anticompetitive effects can occur (requiring the intervention of antitrust authorities), even in presence of a not excessively high concentration index.

Literature on industrial organization has compared networks to vertical integration as alternative supply structures for specialized inputs, where networks turn dedicated into flexible assets. The general wisdom is that flexible assets and networks involve social benefits when there is high demand uncertainty. When relationships between buyers and suppliers entail incomplete long-term contracts, payments are often determined or adjusted ex-post through informal contracts. In this case networks’ welfare effects will depend on how the exchange surplus in ex-post negotiation is shared among firms in the network. Kranton and Minehart (2000) demonstrate in their model (using game theory) that when the Shapley value is used instead of the Nash bargaining solution, players’ investment incentives are no more aligned with economic welfare. In terms of power argument this means that when relations in networks are affected by power imbalances (considering bargaining as well as structurally based power) causes of vertical disintegration do not need to reside in efficiency seeking (or “simply” market power enhancing) behaviour.

3.3. The multiform power of large firms

As Coleman’s theory points out, power is a trivial issue only in the case of a perfectly competitive market system (where the only power is the purchasing power), otherwise power is at the core of the socio-economic organizational puzzle. The fundamental trait of market imperfection is not the chance to get positive price-cost margins; instead it is the switching from the market institution to the firm institution as a new exchange government form. Firms, unlike the ideal economic actors in the walrasian design, besides purchasing power, exert at least five other forms of power, as summarised in table 2. While the first form of power (authority relations within the firm) can be thought to have positive efficiency effects (it is supposed to make the system save on transaction costs), the other four forms are associated with monopoly inefficiencies and rising costs, due to influence costs and rent-seeking behaviours. Moreover, considering the political activity of firms calls for a deeper attention to all the activities they carry out (especially multinational corporations, as recently documented by various authors, such as Bakan, 2004; Korten, 2001; Nace, 2003; Rosefield, 2002) by persuading, bribing or threatening public regulators in order to obtain “personal” advantages. “Power abuse” by firms also includes practices *that* corporations habitually carry out in order to externalise (more or less legally) their costs, thus causing harm to “others” (workers, consumers, communities, the environment), and other practices such as unfair presentation of financial statements, deceptive advertising, breach of trust and so on.

The power argument upheld so far leads to at least four basic tenets:

1-When valuing negative consequences of market imperfections, distortions stemming from forms of power other than market power should be seriously taken into account.

2-While deregulation policies are generally deemed to improve efficiency by boosting private enterprise, they should instead be considered as a way of facilitating firms' exercise of power, with all the possible negative welfare consequences.

3-More generally, when comparing different institutional frameworks (in order for instance to choose the "right" agricultural or food safety policy instrument) power-based considerations should "accompany" efficiency-based considerations.

4-In many cases power abuses by firms cannot be prevented by ad hoc regulation policies (when these latter induce excessive distortions of private incentives). In such circumstances, the hope for a "better world" eventually resides in corporate social responsibility, and public intervention in the socio-cultural sphere can turn out to be much more effective than intervention in the economic sphere.

Concluding remarks

The paper is an attempt to introduce power, as an autonomous analytical dimension, for the analysis of food chains and networks. To that aim many theoretical perspectives of the study of power have been explored and have been eventually incorporated in a unified framework, keeping together standard economics, institutional perspectives, and network and managerial sciences. One result is that power is a kind of topic that fits the "encompassing" scope and methods quoted in the early research agenda drawn for the chain and network science (Omta, Trienekens, Beers, 2001). Another result is that even remaining within the standard model, power can successfully enter the research agenda of agricultural economists. Nevertheless, best results in the analysis of power could be attained starting from a structurally based perspective, especially when dealing with current processes of vertical disintegration and networking in the food system.

While quite successful on a theoretical ground the paper is very incomplete on a more empirical ground, giving only a few examples of "real food issues" related to the topic of power. This lack is due to the scant available literature. To partially fill the gap between theory and practice, it is worth ending the paper with a list of some topics of the current research on food chains and networks "sensitive" to the outlined concepts of power: transparency, strategic alliance, and global sourcing.

While transparency is generally deemed to improve food safety and organizational efficiency in the supply chain (Hofstede et al., 2005), there is still controversy about institutional features able to create and sustain transparency. It has been argued that the more intense the division of labor, the more process interdependencies result and the lower transparency is (Theuvsen, 2004). The power argument suggests that the more incomplete and non enforceable contracts are, the more the relationships must rely either on trust or on power to succeed; while trust positively affects transparency, power tends to erode it.

The raise and fall of strategic alliances are still "obscure" phenomena in business and organizational literature. Recently, Kumar and al. (2005), suggested tackling alliances as open social systems in order to face their multidimensional and complex features. Power can add new insights to this issue at least in three ways: 1-power can be considered as a conflict-solving means, alternative to trust; 2-the hidden power (Cross, Parker, 2004) of social networks linking CEOs and managements of "allied organizations" emerging as a result of alliances, can be the ultimate arbiter of alliance fortunes; 3-the parties empowerment of structural-based power emerging from the alliance can be the main strategic motivation of the agreement.

Recently, a strain of literature (Feenstra, Hanson, 2005; Antras, Helpman, 2004) has tried to tackle the issue of global sourcing by integrating lessons from incomplete contract theory, general equilibrium models of international trade, and industrial organization models of imperfect competition. While power enters these model only in the form of bargaining models

(equilibria are very sensitive to the kind of solutions assumed for the bargaining games at the level of buyer-supplier relationship, with the Nash bargaining solution being the favourite to allow for analytical tractability) it would be challenging to consider power in the form of control asymmetry due to the unequal information and legal enforcement systems among the parties, as well as in the structural form emerging as a result of the outsourcing processes, with firms that consolidate their hub positions being the ultimate exploiters of outsourcing advantages.

Concluding, the paper has barely touched upon the “hot” issue of power and food system, to deal with which a large amount of theoretical and empirical research is required.

References

- Antras, P., and Elhanan Helpman, 2004. Global sourcing. *J. of Pol. Ec.*, 3, 552-580.
- Archer, M.S., 1995. *Realist social theory*. Cambridge University Press.
- Bakan, J., 2004. *The corporation: The pathological pursuit of profit and power*. Free press.
- Barabasi, A.L., 2003. *Linked*. Penguin Book.
- Bowles, S. and H. Gintis, 1999. Power in competitive exchange. In: Bowles, S., Franzini, M. and Pagano, U. (eds.). *The politics and Economics of power*. Routledge, London.
- Bowles, S. and Herbert, Gintis, 1993. The revenge of homo economicus: contested exchange and the revival of political economy. *J. of Ec. Perspectives*, 7, 83-102.
- Burt, R.S., 1992. *Structural Holes*. Harvard University Press.
- Clegg S.R., 1989. *Frameworks of power*. Sage Publications.
- Coase, R., 1937. The Nature of the Firm. *Economica*, 4, 386-405
- Coleman, J.S., 1990. *Foundations of social theory*. Harvard University Press.
- Cook, K. and R. Emerson, 1978. Power, equity and commitment in exchange networks. *Amer. Soc. Rev.*, 43, 721-739.
- Cross, R., and A. Parker, 2004. *The hidden power of social networks*. Harv. Bus. Press.
- Crozier, M. and E. Friedberg, 1977. *L'acteur et le système*. Edition du Seuil.
- Dahl, R., 1986. Power as the control of behavior. In; Lukes, S. (ed.). *Power*. New York University Press. 94-143.
- Dobson, P.W. and M. Waterson, 1996. *Vertical restraints and competition policy*. Research Paper 12, Office of Fair Trading, London.
- Emerson, R. M., 1962. Power-dependence relations. *Am. Sociological Review*, 27 31-41.
- Feenstra, C., and G. Hanson, 2005. Ownership and control in outsourcing to China. *The Quart. J. of Ec.* May, 729-761.
- Ferrarotti, F., 2004. *Il potere*. Newton Compton editori
- Furubotn, E., and R. Richter, 2000. *Institution and economic theory*. The Un. Michigan Press.
- Gereffi G., 2005. The global economy. In: Smelser N.J., Swedberg R., editors, *The handbook of economic sociology*. Princeton University Press.
- Gintis, H., 2000. *Game theory evolving*. Princeton University Press.
- Goodman, D. and Michael Watts, editors, 1997. *Globalising food*. Routledge.
- Grossman, S. and O. Hart, 1986. The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration. *Journal of Political Economy*, 94, 691-719.
- Hamilton, S.F., 2003. Slotting allowances as a facilitating practice by processors in wholesale grocery markets: Profitability and welfare. *Amer. J. Agr. Econ.*, 85, 797-813.
- Hart O., 1988. Incomplete contracts and the theory of the firm. *J. Of Law, Economics and Organization*, Spring.
- Hofstede, Gert Jan; Lia Spaans, Hans Schepers, Jacques Trienekens and Adrie Beulens (eds), 2004. *Hide or confide: the dilemma of transparency*. Reed Business Information.
- Holloway, J., 2002. *Change the world without taking power*. Pluto Press.

Korten, D.C., 2001. When Corporations rule the world. Kumarian Press.

Kranton R., and F. Minehart, 2000. Networks vs vertical integration. *Rand J.of Ec.*, 570-601.

Krumar, R., G. Duysters, and T.K. Das, 2005. Understanding alliance evolution: establishing a research agenda. *Journal on Chain and Network Science*, 5, 2, 51-63.

Lukes, S., 2005. Power: a radical view. Palgrave MacMillan, second edition, first edition 1974.

Lukes, S., editor, 1986. Power. New York University Press. 94-143.

Magdoff, F., Foster, J.B. and F. Buttel, 2000. Hungry for profit. Monthly Review Press.

Milgrom, P. and Roberts, J., 1999. The internal politics of the firm. In: Bowles, S., Franzini, M. and Pagano, U. (eds.). The politics and Economics of power. Routledge, London.

Molm L.D., 1997. Coercive power in social exchange. Cambridge University Press.

Nace, T., 2003. Gangs of America. Berret-Koehler Publishers.

Olson, M. (2000). Power and prosperity. Basic Books.

Omta, O., J. Trienekens, and G. Beers, 2001. The knowledge domain of chain and network science. *Journal on Chain and Network Science*, 77-85.

Palermo, G., 2000. Economic power and firm in new Institutional Economics: Two conflicting problems. *Journal of Economic Issues*, 34, 573-601.

Popitz, H., 1990. Fenomenologia del potere. il Mulino.

Pritchard B., 2003. Agri-food globalization in perspective. Ashgate Publishing Company

Raghuram G. Rajan, and Luigi Zingales, 1998. Power in a theory of the firm. *The Quarterly Journal of Economics*, may, 387-432.

Rawls, J. (1971). A theory of justice. The Bellknap Press.

Rosefield, S., 2002. Comparative economic systems. Blackwell publishers.

Rothschild, K. W., 2002. The absence of power in contemporary economic theory. *The Journal of Socio-Econ.*, 31, 433-442.

Russel, B., 1986. The forms of power. In: Lukes, S. (ed.) Power. New York Un. Press.19-27.

Sheldon I., and R. Sperling, 2001. Estimating the extent of imperfect competition in the food Industry: What have we learned?. The Ohio State Univ., Work. Paper: AEDE- WP- 0018-01.

Theuvsen, L., 2004. Transparency in netchains as an organizational phenomenon. *Journal on Chain and Network Science*, 4, 125-138.

Wasserman, S. and K. Faust, 1994. Social network analysis. Cambridge Univ. Press.

Watts, J., and S. Strogatz, 1998. Coll. Dynamics of small-world networks. *Nat.*, 393, 440-442.

Williamson, O., 1985. The Economic Institution of Capitalism. Free Press, New York.