

# **Local networks and institutional frameworks: the role of power in the re-organizational processes of food markets.**

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## **Abstract**

In industrial districts social norms are as important as formal institutions in coordinating actors' behaviour. While the literature on agro-industrial districts has generally stressed the role of trust, the paper states that power can be as effective as trust in solving coordination problems stemming from contract incompleteness and opportunistic behaviours. The paper presents the results of an empirical research carried out in the Italian processed tomato industry and discusses some definitions of power given by the social network analysis.

## 1. Introduction

Industrial districts are a special type of inter-organizational form characterized by the presence of a small-firm network with specific territorial boundaries. Firms in the network act as a coordinated system able to achieve good performances at the single firm level as well as at the aggregate level, preserving the stability of the system against external shocks and turbulences.

Horizontal and vertical coordination of firms' activities in the district is reached through hybrid organizational forms (non-equity partnerships, collaborative alliances and informal agreements), that give the actors in the network the strategic control, without incurring the high costs of bureaucracy, and preserving the efficiency and flexibility of market relations. At the core of the district's organizational specificity is the exploitation of some form of social capital embedded in social relations. While the literature on industrial districts has generally stressed the role of trust-based relations (Pyke and Sengerberger, 1992; Brusco, 1996; Sodano, 2002) in this paper we test the hypothesis that power-based relations may be just as important in facilitating coordination activities in industrial districts. To this end we discuss some of the outcomes of a field research recently carried out in the Italian processed tomato industry. In the first section of the paper we review some concepts and definitions of power, suitable to address the specific issue of coordination within industrial districts. In the second section we discuss the role of power in the organization of processed tomato industry, using concepts and analytical tools of the social network analysis. The concluding remarks offer some insights and suggestions for further researches.

## 2. Concepts of power

Marxian theories (such as radical economics) put the question of economic and political power at the core of the distribution problem in capitalist societies. Conversely, the mainstream economics has impressively neglected power, explicitly addressed only in the form of market power and bargaining power (Rothschild, 2002). Power entered the standard economics in a new form through the developments of the organizational theories that stemmed from the previous insight of Coase (1937), who considered firms as a means, alternative to the market, of allocating resources in capitalist economies. The specific characteristic of the firms is the allocation of resources through “commands”, and hence through the exercise of power, where power is defined as the capability of an actor to receive obedience to her/his commands by an other actor. The neo-institutionalist organizational

theories (and especially the transaction cost economics) relying strongly on the economizing hypothesis have partially hidden the power-based explanation of organizational forms proliferation in modern capitalist economies. Different perspectives, like the contested exchange approach, recognize that different organizational forms ranging from hierarchies to spot markets are not the result of a cost-minimizing rationale of the agents and/or the system, but the result of a contracting game where political, over and above economic and social, issues matter. Bowles and Gintis (1993, 2000) refer to “contested exchange” as exchange settings where the benefit the parties derive from the transaction depends on their own capacities to enforce competing claims. Competing claims arise because of information problems and opportunistic behaviours that require an adequate enforcement system to make the transactions viable. While neoinstitutionalist (or post-Walriasan) literature turns the problem of endogenous enforcement into the problem of finding optimal incentives under conditions of moral hazard and adverse selection, the contested exchange approach contends that enforcement arises from the exercise of power by the stronger party in the relation, i.e. the party that may terminate the contract without incurring unsustainable losses. 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). 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. “The phenomenon of short side power thereby resolves the puzzle of obedience thrown up by the Coasean theory of the firm” (Bowles and Gintis, 2000, p 11) and is the evidence that the exercise of authority is a non-market phenomenon, mainly attributable to the structure of organizations.

The concept of power featured by the contested exchange approach is very akin to that of the power-dependence theory (Cook and Emerson, 1978) within the social exchange approach. Addressing the problem of indeterminacy in bilateral monopoly, the social exchange theory stresses 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. Assuming that two resources  $x$  and  $y$  are exchanged between two agents  $A$  and  $B$ , and letting  $\alpha_x, \alpha_y, \beta_x, \beta_y$ , be the unit value (i.e. the utility) of the resources to  $A$  and  $B$ , an equitable exchange should assure equal profits ( $\alpha_y Y - \alpha_x X = \beta_x X - \beta_y Y$ ). 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. The dependence of  $A$  upon  $B$  ( $D_{ab}$ ) is a joint function varying directly with the value of  $\alpha_y$  minus  $\alpha_x$ , and varying inversely with the availability of  $y$  to  $A$  from alternative sources. Given the identity  $P_{ab} = D_{ba}$ , the equitable solution of a dyadic exchange 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. Power is somehow associated also with the social status of an actor, where status refers to an actor's relative standing in a group based on prestige, honour, and deference (Thye, 2000). When power is exercised by high-status actors, other actors are more likely to accept it and consider it fair.

Summarizing the above arguments, assuming that economic exchanges are embedded in social networks, where the actors' behaviour has relational and normative dimensions (beyond the selfish atomistic homo economicus of the standard theory), the exchange organization will be affected by power as well as by cost-minimizing concerns. Power entails unequal access to the exchange outcomes. Actors with multiple exchange partners, in high-status positions within the social network, and wealthier (at the short-side of the market) are the most powerful and may choose distributive rules within the network.

### 3. Organizational patterns in the Italian processed tomato industry: the “power vs. trust” argument

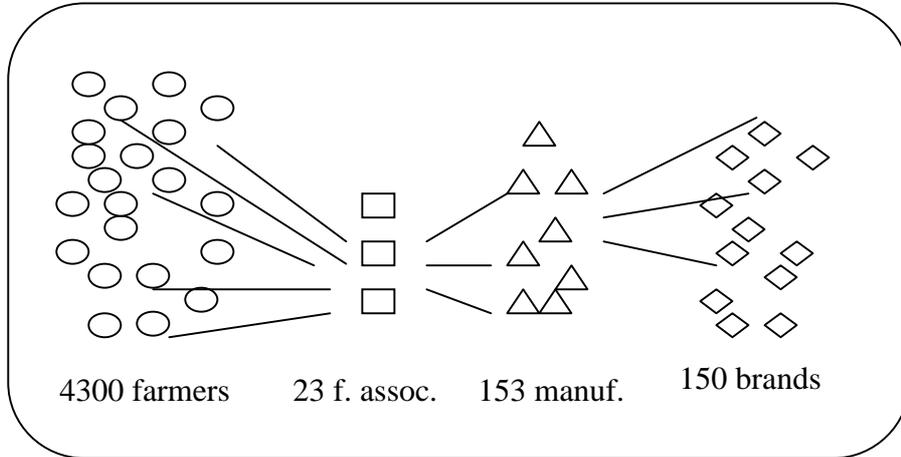
Italy is the second producer (next to California) of processed tomato in the world. Production and distribution activities are performed by clusters of actors located in vertical stages of the production process. Farmers supply the agricultural raw material to manufacturers through the intervention of associations of agricultural producers that are entrusted by EU laws (Reg. 1996 n. 2200 and n. 2201, and followings) of negotiating contracts between farmers and manufacturers. The product reaches the end market with many brands (national, store and minor brands) controlled by manufacturers and retailers that buy the product from other manufacturers. Generally each manufacturer sells their products both with their own brand and with the brand of other manufacturers. The sector is located in two narrow regional territories where the different actors of the supply chain are linked through different kinds of ties in an inter-organizational network. Consequently it is possible to identify two agro-industrial districts, the southern district and the northern district. The two districts are approximately the same size (34000ha cultivated in the northern district and 31000ha in the southern one) but have a different network structure. In table 1 we sketched the basic structure of the two networks, drawing the three clusters of central actors (farmers, farmer associations, manufacturers) and the cluster of different brands available on the end market. Solid lines between the clusters describe the vertical exchange activities, while the dotted lines bundling sub-groups within each cluster represent collaborative relationships among actors at the same stage of the supply chain. Numbers at each stage of the vertical chain refer to the number of firms at that stage. Northern district exhibits larger firms (and a higher degree of concentration at each stage of the chain), fewer brands and more collaborative inter-firm relationships, in the form of farmer cooperatives, inter-professional agreements, producers' consortia, and quality standards.

The two districts show good performances, at aggregate and individual firm level. The whole sector experienced a 2,4% average rate of growth per year, between 1995 and 2001. Manufacturer firms in both districts show credit balances, with a return on investment near to 3% (figures refer to 2001; source: ANICAV). The market is not highly concentrated, with the C<sub>4</sub> equal to 43% in value and to 35% in volume (source: IRI Info scan, 2001). Total market in volume is shared among three groups of actors: private labels, 28% share; national brands (Cirio, Star, Valfrutta, CPC Italia, Mutti, De Rica, Del Monte, Parmalat) 52% share; “minor” brands, 24% share. Although the product is a standard one, prices show a high inter-brand variability, meaning that some firms (manufacturers and/or retailers) have market power.

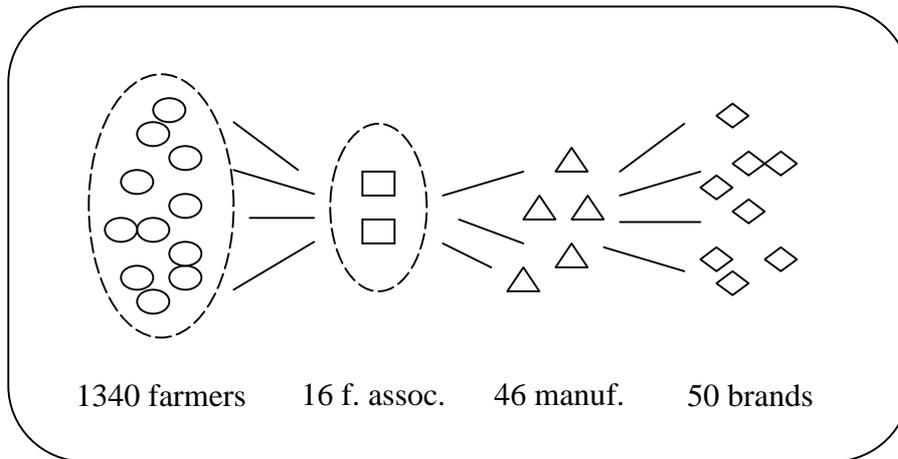
Stemming from this description of the sector and from the result of a field research carried out during the last two years (and still in progress) at the Department of Agricultural Economics of the University of Naples, we endeavour to show how in the southern and in the northern district organizational patterns are shaped, and backed by different socially-based coordination instruments, namely trust and power.

Table 1 Network structures in the two districts

The southern district



The northern district



To gauge the presence of trust in the two districts we use both indirect and direct trust indicators. As indirect indicators (rows 1-3 in table 2) we consider the diffusion in the districts of collaborative agreements, which accounts for that form of impersonal trust featured by Fukuyama (Fukuyama, 1995) and linked to the Coleman's concept of social capital. As direct indicators (rows 4-7 in table 2) we consider the attitude of actors towards others' trustworthiness, which accounts for the interpersonal side of trust, linked to the cognitive and affective features of the actors (McAllister, 1995). Information was gathered through a questionnaire answered by a sample of farmers and manufacturers in the districts. Interpersonal trust was operationalized with a set of original scale items derived from the conceptual definition of the indicators and pretest results; each of the direct trust indicators

was measured with three Likert scale items. Table 2 summarizes the main results. Collaborative agreements such as farmer cooperatives, inter-professional agreements and quality standards are common in the northern district, while are rare in the southern district, where we find only a few small cooperatives. Actors in the southern district are more likely to trust their exchange counterparts. The majority of farmers and manufacturers when asked to voice an opinion regarding each other's fairness, said they would totally trust their counterparts as regards to the observance of raw materials procurement contracts. They also declared a high willingness to engage in risky activity with other actors in the supply chain. Conversely in the southern district only a few farmers and manufacturers said they would trust their partners in exchange and innovation activities.

Table 2 Trust indicators in northern and southern districts

Trust indicators	Northern district	Southern district
Cooperatives at agricultural level	many of large size	few of small size
Interprofessional agreements	yes	no
Quality standards	yes	no
Farmers believing in manufacturer and f. associations' fairness	80%	32%
Manufacturers believing in farmers and f. associations' fairness	79%	38%
Willingness of farmers to invest in risky activities with manufacturers	high	low
Willingness of manufac. to invest in risky activities with farmers	high	low

We conceptualise power as the actors' freedom of choosing their strategies without depending on strategies and decisions of other actors in the network. Strategical freedom refers to the possibility: 1) of costlessly switching to new partners; 2) of opportunistically exploiting extra-rents generated by the incompleteness of contracts (when enforcement mechanisms do not work due to the lack of social capital); and 3) of benefiting from favourable exchange conditions. Power is associated with the position held by an actor in the network, in the way outlined by the power-dependence resources (Pfeffer, 1978; Pfeffer and Salancik, 1978) and the structural holes (Burt, 1992) theories. The more the exchange alternatives available to one party in an exchange, the less the power of the other party in the relationship. Given that a hole exists between two people (alters) in a network if they are not connected to each other but share a tie with a common third party (ego), a player (ego) with many structural holes around his/her contacts is structurally autonomous and therefore less dependent on other players in the network

Sparse and disconnected networks of large size (many nodes), and with a low level of trust such as the southern district, give players in the "right position" (i.e. tied with disconnected nodes) more power than dense and integrated networks with high trust, such as the northern district. Table 1 shows that in the southern district manufacturers have more power than in the northern district over the farmers, because of the low level of collaborative agreements at the agricultural and at the farmer associations level; this makes southern manufacturers negotiate with more disconnected players. The analysis of the networks structure at the level of the relationship between manufacturers and brands gives a measure of power that manufacturers exercise on the end as well as on the processed product procurement market. Stemming from

the sociomatrix built considering contacts between pairs of brands (a contact between two brands occurs when they buy the processed product from the same manufacturer) we calculated Freeman's centrality measures (Wasserman and Faust, 1994) using the software Ucinet 6 (Borgatti, Everett, Freeman, 2002). Results show that the northern network is more dense and connected than the Southern one. The normalized average degree of centrality indicates that in the South each brand shares its suppliers with other four brands, while in the North each brand has contacts with at least eight other brands. Therefore southern brands may exercise a higher buying power. In the South, the higher number of brands (150 brands against 50 brands in the North) and the higher number of isolate nodes indicate that southern brands also exercise market power on the end market, through the exploitation of competitive advantages based on differentiation strategies.

Table 3 The structure of brand-manufacturer network in the northern district. Freeman's degree centrality measures.

Descriptive statistics	Degree	Norm. degree
Mean	4.039	8.078
Std. Dev.	5.797	11.594
Variance	33.606	134.425
Minimum	0.000	0.000
Maximum	37.000	74.000
Network Centralization	68.61%	
Homogeneity	6.00%	
Number of isolate nodes	8.00	

Table 4 The structure of brand-manufacturer network in the southern district. Freeman's degree centrality measures.

Descriptive statistics	Degree	Norm. degree
Mean	6.297	4.284
Std. Dev.	9.334	6.349
Variance	87.114	40.314
Minimum	0.000	0.000
Maximum	84.000	57.143
Network Centralization	53.58%	
Homogeneity	2.16%	
Number of isolate nodes	12.00	

#### 4. Conclusions

The main conclusion of the paper is that power can substitute social capital in facilitating coordination activities in local networks. Findings from the empirical research carried out in the Italian processed tomato sector show that while both trust and power are effective in strengthening the cohesion and the resilience of local districts, they may have different welfare implications. We found that a network structure characterized by few structural holes and a high level of trust are pushing the northern district towards cost-advantage competitive

strategies, implying the adoption of efficiency enhancing technologies. On the contrary, a network structure rich in structural holes and the lack of social capital, are conducting the southern district towards product differentiation strategies and to rent-seeking strategies based on the exploitation of power from various sources. Networks rich in social capital seems to promote efficiency and equality, while networks rich in power are more likely to produce an unequal and inefficient resource allocation. Further research is needed to explain circumstances favouring power as a substitute for trust in shaping the organizational patterns of the networks. Path-dependence arguments, used to explain the appearance of alternative traits in the evolution of biological and technological systems, could be very effective in dealing with such an issue.

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