

Integration Policy in Agri-Food Chains: Theory and Empirical Evidences

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Abstract

The paper takes into consideration policy intervention designed to promote integration in the AgriFood chain. According to the Transaction Cost Economics approach, a tentative analytical framework is proposed based on four dimensions: adaptation, enforcement procedures, stability and responsibility. The empirical investigation is carried out by data concerning a regional policy intervention in local Italian Agri-Food chains. The evidence collected shows that the integration objective is accomplished if the parties are involved in mutual interdependence associated to the necessity of maintaining legal autonomies of the parties. Furthermore, the stability of the relationships established appears to be influenced by asset specificity. The results then corroborate the hypothesis that integration goals can be accomplished if hybrid forms are adopted according to the conditions identified by the theory.

Key words: *integration, hybrids, coordination, stability*

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1 Introduction

Policy makers are aware that many socially important outcomes are contingent on the organizational arrangements in supply chains. Expectations explicitly concern, for example, the enhancements of food and environmental quality, food security, food safety as well as improvements in the distribution of the activities gains among the agents. Seeking to promote the accomplishment of such socially important outcomes, policy interventions are often aimed at sustaining integration. Several factors determine trends toward integration among agents along Agri-Food supply chains (Mènard, Valceschini, 2005; Frank, Henderson, 1992). Economic theories state that integration posits peculiar issues about the investment decisions (Grossman, Hart, 1989) and provides useful explanations of the underlying alignment processes (Williamson, 1985, 1991). It is recognized that aiming at chain integration policy makers assume that the governance of the chain matters, whereas Economic theory states that governance is the means through which to infuse order, thereby to relieve conflict and realize mutual gains (Williamson, 2002, p. 439). In this context, the paper adopts a Transaction Cost Economics (Tce) approach and examines the relationship between the alignment of the governance

structures and the achievements of policy objectives intended to promote chain integration. Assuming that the policy intervention is a potential innovation in the institutional environment, the general research question addressed is, under some restrictive hypothesis, to what extent a policy intervention is really effective in promoting chain integration ?

It is worth pointing out that the present analysis does not consider the ‘probity transaction’: albeit it is connected to the public intervention, requiring the involvement of public bureaucracies to guarantee the needed loyalty and the achievement of the public goals (Williamson, 1999). Instead, the focus is on the private decisions and behaviours as sustained and framed in public policy actions. A broad criterion derived from Tce would suggest that public intervention should favour the adoption of the governance structure which minimizes the transaction costs. Nonetheless this appears to be a partially controversial point at least because of two issues: firstly, it would imply that the public authority should have the correct information about the transaction dimensions at hand, but the theory shows that this is not often the case; secondly also the policy intervention requires to minimize the transaction costs (Dixit, 1998; Spiller, Tommasi, 2003). The study does not address these theoretical issues, but contends that the objective of chain integration which relates to the idea of promoting close coordination and cooperation and to pool agents resources while maintaining distinct property rights. Our approach recognizes that the policy objectives entail the adoption of hybrid structures of governance (Williamson, 1991; Mènard, 2004) as agents have incentives to choose hybrid organization when the asset specificity causes substantial contractual hazard without justifying complete integration and the uncertainties are so consequential to require tighter coordination than in the market (Mènard, 2006, 2004). Therefore integration is a potential policy objective under these conditions. The objective of the paper is thus to show that integration can be accomplished if hybrid the theoretical conditions for the adoption of hybrid forms are met. For this purpose, four dimensions are taken into account (*adaptation, enforcement procedure, responsibility and stability*) and a tentative assessment framework is proposed. Testable hypothesis are drawn from the analytical framework and managed within an empirical investigation which concerns cases of Regional policy interventions (Umbria, Italy). The paper is organized as follows. The analytical framework is presented in paragraph 2. The methodology of the empirical investigation and the research questions are proposed in paragraph 3. The empirical analysis is illustrated in paragraph 4. The final remarks are presented in paragraph 5.

2 Analytical framework

2.1 Interpreting the integration as a policy objective

Few studies have focused the policies aimed at achieving the integration of the firms along a supply chains, exceptions are Huggins (2008), Vence *et al.* (2000), Krug, Hendrichske (2008), Hawkesworth and Imrie (2009). To our knowledge, however, a analytical gaps about the issues related to integration policies still exist. Our study aims at contributing to a more comprehensive analysis of this field.

The general research question addressed concerns how policy intervention is effective to achieve chain integration. Preliminary assumptions are: a) the policy making process is effective; b) the importance of integration for social and public goals is taken for granted; c) it is possible to focus on the transactions which are considered by a policy integration intervention, which usually represent just a subset of the transaction carried out along a whole supply chain. These hypothesis restrict the extent of the study results which instead concentrates on the relationship between the integration policy on the governance structure alignment.

The first point to consider for this purpose is how to conceptualize the policy intervention. We assume that the policy intervention is a potential innovation of the institutional environment. This reflects the definition of institutional environment (Williamson, 1991; North 1990), while the attribute 'potential' refers to the fact that the intervention may be misconceived and may fail. The institutional environment influences the parameters of the agents' decisions (Williamson, 1991), thus a policy intervention may cause shifts of the parameters of the governance structure alignment. Policy makers can design intervention in order to promote the adoption of expected governance structures. Assuming that the decision making process is grounded upon an appropriate information base, the intervention requires to tackle the peculiar circumstances of each case. For example, the intervention may require the companies to comply with monitoring and controlling norms and this in turn could determine specific investments and induce the diffusion of more centralized governance structures (Mènard, Valceschini, 2005).

The second point to take into consideration is the content of integration. The integration among agents in supply chains takes place along vertical and horizontal directions. The parties to a transaction align the characteristics of the governance structures (market, hybrid, hierarchy) to the transaction attributes (asset specificity, uncertainty, frequency) (Williamson, 1985). The specific question is thus what is the 'adequate' governance structure to achieve integration? Attention has to be paid to the processes at stake at the time of the policy decisions. The

point we would suggest is that critical differences exist among the potential cases according to two aspects: whether or not the process of integration is currently activated; whether or not investments related to integration have been made or alternatively is being planned or not.

The policy perspective should change depending on the occurrences of the potential cases. Broadly speaking, a case could be one in which investments have been carried out and evidence exists about the integration process, then the policy perspective should be concerned with management procedures and the conflict resolutions. Alternatively, the necessity of integrating should be accurately assessed, before planning public supports to investments. Many other cases can be identified and each entailing several potential courses of action both on the private and the policy side.

Williamson (1991, 2005) states that as the asset specificity increases, the agents are induced to adopt more centralized forms of governance. Furthermore, integration is based upon patterns of cooperation and coordination among the partners, patterns which are embodied by the governance structure in the parties relationships with a specific role for the opportunities of managing the emerging of *ex post* disturbances. Our working hypothesis is that the rational integration objectives concern transactions characterized by non negligible asset specificity and the necessity of close coordination and cooperation. This reflects circumstances of mutual interdependence associated to the necessity of maintaining legal autonomies of the parties: scholars have shown how, in such circumstances, complex institutional arrangements are established by agents, also entailing private and public orderings connections (Ménard, 2006; González-Díaz *et al.* 2003; Martínez *et al.*, 2007).

Hybrid forms are characterized by a *mix* of cooperation and competition as regards the mechanism designed to reconciling legal autonomy and interdependence (Ménard, 2004). Three fundamental regularities emerge from empirical evidence: the tendency toward aggregation of resources (*pooling*), the *relational contracting*, and the tendency toward competition (*competing*). The tendency toward *pooling* implies three main effects: (i) the choice of potential partners is crucial, since common investments give rise to potential opportunistic behaviors; (ii) common planning systems must be provided; (iii) implementation of a proper information system among participants becomes strategically essential. Pooling requires continuity of the relationship which, in turn, means necessary cooperation and coordination. This is the core of the first problem characterizing hybrid forms: how to carry out low-cost coordination among agents without giving up the advantages of decentralized decision-making (Ménard, 2004, 2006). *Relational contracting* characterizes many hybrid forms, since the contract signed by participants is frequently a simple framework where more or less ample room is allowed to every-

one. The second typical problem is then the need to identify the best mechanisms for optimizing alignment of transactions to the government structure by monitoring the organization and the search for solutions to emerging questions. *Competition* influences hybrid forms, because both partners and organizations may compete among themselves. Moreover, if asset specificity is moderate, participants may be encouraged to move into alternative and competing organizations, rendering the starting form unstable. So the third typical problem concerns the design of a mechanism allowing joint decisions in order to discipline partners, resolve conflicts and prevent free riding.

The degree of centralization adopted corresponds to the degree of mutual dependence and to the complexity of the environment (Mènard, 2006, p.35). The theory indicates that as the mutual dependence increases even with increasing influence of uncertainty, the organizational arrangements give rooms to coordination centralization and monitoring activities.

To summarize the argument developed insofar **let's** consider the general question on how the integration policy can be conceptualized. Our assumption is that it can be thought of as an innovation of the institutional environment able to cause shifts of the parameters of the governance structures alignment. On the other hand, the integration requires stable cooperation and coordination which in turn are supported by 'adequate' governance structures. As a consequence a more specific question arises on what is the 'adequate' form of governance intended to achieve integration among the chain agents as parties of the transactions considered. The hypothesis is that hybrid structures should allow to achieve the expected outcomes. These preliminary conclusions entail some possibilities of analysis. Namely, having recognized the appropriateness of integration expectations, the policy strategy should be referred to the possibility of steering the private decision making in accordance with to the general criterion of transaction costs economizing. The alignment of governance structures to the transactions should take place according to the environmental parameters reflecting the necessity of a reasonable continuity of the relationship. A tentative framework is proposed in the next section.

2.2 Governance structures and integration in Agri-Food chains: some critical dimensions

The previous section points out the complexity of the issues posited by the governance in hybrid forms. With respect to the objective of the study, four dimensions are considered: the adaptation, the enforcement procedures, the stability, the role of responsibility.

2.2.1 Adaptation

As noted by Mènard and Valceschini (2005) many factors promote the centralization of the governance structure in AgriFood chains. The dimension *adaptation* would summarize the adequacy of the governance structure in terms of organizational adaptation: according to the Tee approach, this entails alignment of the governance structure to the transaction. The “adequacy” of the governance form is primarily relevant to the public interest in terms of private efficiency. The adequacy has to be identified in each specific transaction with respect to both *ex ante* and *ex post* transaction costs. The *ex post* conditions may crucially influence the outcomes of the integration. Disturbances occurring during the contractual relation, requires cooperative responses (Williamson, 1996, pp. 110 ff.) may strongly influence the effectiveness of the integration with respect to the expectations of both private partners and policy makers. With respect to hybrid forms the “adaptation” dimension also deals with the definition of a common planning system and of a proper information system involved in guaranteeing low-cost co-ordination.

2.2.2 Enforcement procedures

The second dimension we consider are the *enforcement procedures*, namely in relationships to the governance structure and to the public orderings (Mènard, 2000). The expected degree of integration appears to be conditional to enforcements procedures to the extent that the latter support the governance structure. The relation between the enforcement procedures, governance structures, private and public orderings provides a general interpretation of this influence (Mènard, 2000; Hadfield, 2005). Raynaud *et al.* (2005) point out the diversity among the enforcement patterns in terms of degree of centralization and identify a trade-off between the reputational capital and the systems of certification. The enforcement procedures are correlated with contractual arrangements embedded within specific governance structures. Mènard (2000) states that uncertainty is the key factor in choosing the enforcement procedures of a contractual arrangement. When there are no consequential discrepancies between *ex-ante* and *ex-post* circumstances *relatively stable conditions*, simple self-enforcing mechanisms can be designed into (automatic clauses of adjustment or hostage clauses). Situations in which consequential uncertainties are anticipated at the time of the agreement (*relatively unstable conditions*). These mechanisms can be formal or informal. Self-enforcing contractual clauses are based upon the mutual consent among the parties with no arbitrariness a without intervention of a third party. The stability of the environment, the frequency of the transactions and low degree of asset specificity appear to be the crucial conditions determining the choice of self-enforcing clauses (Mènard, 2000, pp.239-240). The intensity of assets specificity tend to promote

the choice of credible commitments (Ménard, 2000; Williamson, 1996), but as the asset specificity increases the risk of hold-up tend to challenge also the effectiveness of credible commitments: the subsequent ordering activity can be private, public or a mix of the two. The pattern of enforcement procedures has thus to be shaped with respect to the degree of uncertainty faced by the agents. In the context of a policy intervention, public authority and private actors are expected to interact and to exchange information in order to identify accurately the nature and possibly the intensity of the uncertainty as it is strictly concerned with the potential behaviours of the agents (Williamson, 1996) A common informational basis allows the public and the private actors to design the appropriate set of enforcement procedures.

2. 2. 3 Stability

The stability of the governance forms are of great importance to the integration objectives. Actually, contingent relationships do not allow to achieve viable patterns of coordination and cooperation. Three factors influence the stability: the competition among hybrid structures; the legal duration of the relationship; the effectiveness of the enforcement procedures. Ménard (2004) points out that the stability of a hybrid is affected by the factors promoting the competition among hybrid structures. Stability is also affected by the legal duration of the form chosen by the agent: for example, the law sets limits to the duration of some companies associations and a possibility exists that agents have incentives to exit the relationship as the time threshold has met. For example, without the legal framework some rules of integration (e.g., fiscal payments control or also monitoring activities) may give rise to transaction costs higher than the costs associated to the best outside option causing the exit from the relationship¹. Analogously, the costs of governing the transaction by the hybrid could become too large for some part due to not effective enforcement procedures. This could give rise to non negligible maladaptation costs provided the difficulty of dealing with disturbances: as a consequence non effective cooperative adaptation may determine the exit from the arrangement.

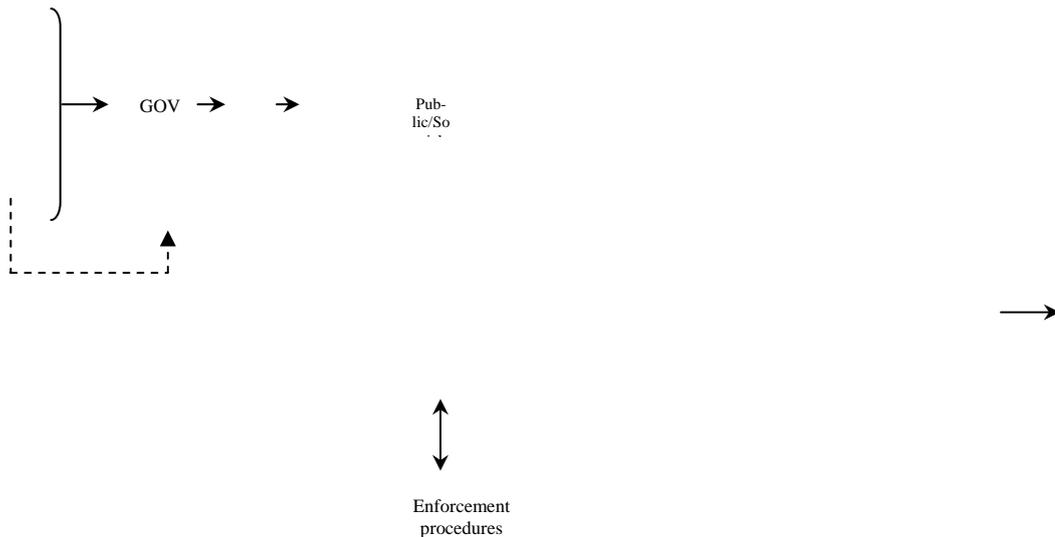
2. 2. 4 Responsibility

From various points of view the relationships between private and public interests is considered in the light of organizational analysis. Braithwaite (2007) em-

¹ See Brosseau and Raynaud (2006) for a general analysis of the individual preferences for contractual rules.

phasizes the possibilities of steering economic activities relying on endogenous mix of private and public orderings. The literature concerning co-regulation (Martinez *et al.*, 2007; Gorris, 2005) provides examples of how private solution to socially evaluated issue could be embedded within policy approaches. Obermann (2007) points out the increasing importance of the role of the State as a guarantor and the emerging role of transaction costs in organizing and providing public services². Albeit this conceptualization relates to the supply of public services, it seems that it can be assumed that they also are critical in the case of socially relevant outcomes. For example, the traceability systems require that agents along the chain are charged by the obligation of providing the right flow of information, while the public authorities contribute to the credibility of the whole system. An example relationship arises in the context of policies intended to promote food safety and to enhance the communication along the food chains.

Fig. 1. Governance structure and integration policy expectations



The figure 1 summarizes the relationships among the dimensions proposed. We consider this framework in order to evaluate policy intervention aimed at integration processes in Agri-Food Chain.

² Williamson (1999) identifies a fourth transaction attribute, the probity which refers to the loyalty and attitude with which certain public transaction are to be discharged. See Ruiter (2005) for a discussion.

3 Methodology of the empirical investigation

The empirical investigation was conducted by case studies and collecting data at the Regional Government Level. The latter were collected by interviewing public officers involved in the programs, by analyzing plans and reports. As for the case studies we chose two very different cases among fifteen integration plans funded by the Regional Government of Umbria (Central Italy) within the Rural Development Plan. From the methodological point of view, according to the usual approach in Agri-food sector (Sterns *et al.*, 1998), a set of *research questions* were preliminarily specified. The crucial question here concerns how Agri-food agents integrate their activities. *Theoretical propositions* were then composed and structured in order to define a prediction pattern. The generalization method is the *analytical generalization* in which a previous developed theory is used as a template for comparing the empirical evidence from case study (Yin, 1994, p.31) and in which results are generalized to theory. The basic theory from which the predicted pattern of nonequivalent variables (Yin, 1994) is derived, from the analytical framework introduced above. Firstly, the predicted pattern deals with the mutual dependence issues and the role of uncertainty (Ménard, 2004). In hybrid forms agents aim at linking their investments and then would bear a certain degree of dependence and the related risk of opportunism (Williamson, 1991, 1993; Ménard, 2004). According to this analytical framework, the following nexus appear to be relevant: a) specificity → risk of opportunism → closer form of control; b) specificity → interest to quasi-rent appropriation → centralization of coordinating. Furthermore, uncertainty is particularly relevant in the field of food safety, since it may trigger contractual hazards able to intensify the trend toward centralization (Ménard, 2004). In our approach a prominent role is recognized for the stability. As illustrated above the competition among hybrids, the legal duration and the effectiveness of the enforcement procedures affect the degree of stability. As for the enforcement procedures in Agri-Food sector the institutional dimension of the productive systems can include specific rules concerned with quality and safety policies (Raynaud *et al.*, 2005; González-Díaz *et al.*, 2003).

Therefore the predicted pattern includes: a) general characteristics of hybrid forms chosen; b) specificity nexus in terms of forms of control and centralization; c) role of uncertainty in input selection and in the transformations processes. The study aims thus at showing that the empirical evidence is consistent with the predicted pattern. To some extent, the matching between the predicted and the empirical patterns would provide a control of the theory proposed.

The economics of hybrid form (Ménard, 2004) provides the analytical framework to link empirical data to theoretical propositions. *Criteria for interpreting the findings* are derived from the usual business study and Tee approaches.

The *case study design* includes multiple units of analysis and aims at examining the relations along the supply chains. The case studies were carried out through different activities of data collection. The sources of the data used were: a) *documents*: internal reports, administrative documents and formal studies, newspaper articles; b) *archival records, organizational records*: budgets; c) *inter-*

views: focused repeated interviews of Responsible of University centers involved and technicians. In order to enhance the information validity, data triangulation among different sources has been performed.

The research questions addressed by the case studies were designed to test the following predictions:

H₁: *The larger the assets specificity, the more stable is integration.*

Actually, the theory predicts that in the case of non negligible asset specificity, the parties tend to adopt hybrid structures of governance, which are able to support the integration between the parties in a more efficient manner than the spot market. On the other hand, in this form more stringent rules are elaborated and adopted in order to enforce the contract and to discipline the partners (Mènard, 2000).

The role of the institutional environment is also important as it supports the private orderings or directly contributes to the public orderings. Given the degree of asset specificity, a more effective institutional environment should better support the enforcing mechanism and the disciplining devices. Therefore, the following hypothesis should hold:

H₂: *The larger and more specific the investments made by the agents, the more intense the cooperation and the more centralized the coordination mechanisms.*

This hypothesis is derived from the general theoretical statements mentioned above about the causal nexus between the asset specificity and the closeness of the controlling activities. Furthermore, theory states that the increase of the asset specificity determines the centralization of coordination (Mènard, 2004; Williamson, 1985). The third hypothesis concerns the system of rules:

H₃: *The more structured the rules of the institutional dimensions of the productive system, the more stable the integration.*

The rules in the institutional framework give the opportunity of planning activities and making clear the characterization of the products and of raw materials (Raynaud *et al.*, 2005; Martinez *et al.*, 2007). They also facilitate the effectiveness of the enforcement procedures and may sustain the private-public patterns of enforcement.

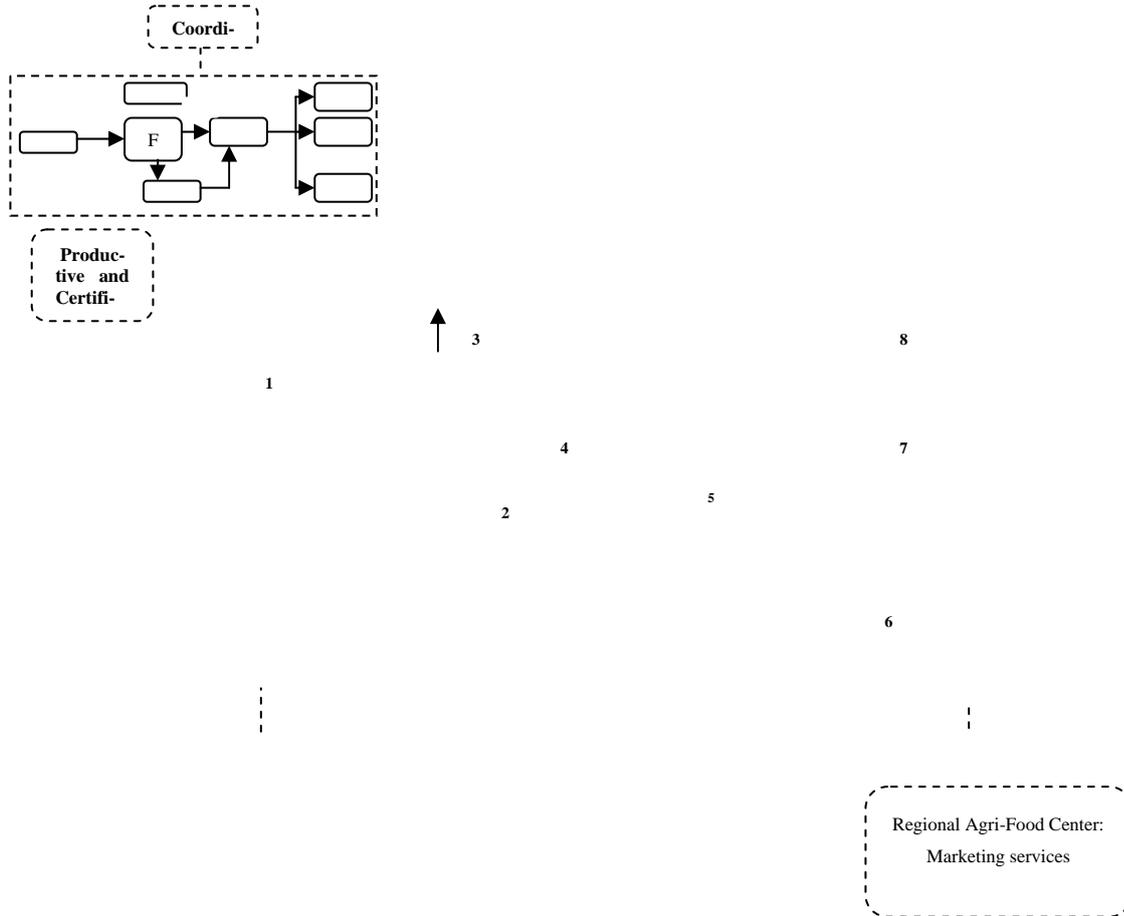
4 Case studies

4.1 Case *Carne Chianina del Parco Fluviale del Nera*

The case “Carne Chianina del Parco Fluviale del Nera” refers to the agreement signed by several agents to promote the qualitative enhancement of the meat supply in a small area in Umbria (Central Italy). The project relies on the possibility of substituting the bovine strains in use with selected heads of Chianina, which is a long-tradition breed enabling the agents to supply high quality meat. The main objectives of the Temporary Firms Association were: a) to promote investments at farms level and in other chains firms; b) to empower farmers with respect to the remaining chain agents; c) to supply a high-quality food product and to promote the participation of the farmers to the Protected Geographic Indication (PGI) “*Vitellone Bianco dell’Appennino Centrale*”; d) to project and implement the brand “*Parco Fluviale del Nera*” a tool for the promotion of the territory.

The total percentages of farmers of the territory who have chosen to adhere to the project increases from 79.0% (2005) to 90.0% (2007), but the absolute amount of the head supplies is really small (about 400 heads, managed by 14 farms). This point is of interest as it contributes to the understanding of the degree of stability of the integration. The small number of agents reflects the size of the economic activities in the area. Actually, the intervention area is a mountainous territory, with low population density and some elements of interest for environmental, cultural and religious tourism. The general objective of the intervention is promote the integration among the sparse actors of the supply chains, assuming that integration may empower each chain stage, and favour the increase of the value added produced by through bovine meat supply in the area. The project aimed at promoting the technological enhancement in order to allow the meat produced to meet the standards of the existing PGI “*Vitellone Bianco dell’Appennino Centrale*”. According to this purpose the institutional arrangement of the project was designed defining relationships among farmers, local butchers, a meat processor, local retailers and restaurants, and some public bodies: the Natural Park of Nera, the Consortium “*Vitellone Bianco dell’Appennino Centrale*”, the Regional Technological Park and the Regional Agri-Food Center. The figure 2 provides a sketch of the productive and institutional relationships designed and implemented. The solid lines indicates the flows of physical products, whereas the dot lines framework indicates the basic institutional arrangements. The numbers identify the types of transactions (e.g., farmer-farmer etc.).

Fig. 2. The “Carne Chianina del Parco Fluviale del Nera”: The institutional and productive relationships.



The Temporary Firms Association aims at promoting connections among the agents by two main institutional drivers. First the farmers and the other chain agents were requested to collaborate to define a common strategy concerning the quality signals. The PGD “*Vitellone Bianco dell’Appennino Centrale*” requires the production be based exclusively on specialized bovine genotypes (Chianina, Marchigiana, Romagnola, Podolica) with the animals being included in the Herd Book. A Consortium manages the PDI, including the brand, Certification commitments, Labelling and Traceability systems. This actor participates in Tempo-

rary Firms Association in order to provide technical assistance and to implement the Certification procedures. The Regional Technological Park was involved in the elaboration of the technical rules needed for the local commercial brand “*Parco Fluviale del Nera*” which is then managed by the Park Council. This driver is based on the institutional dimensions of the quality signals- The involvement in the PGI requires the agents to comply with productive rules (e.g. qualitative standards and productive norms) and certification rules. Scholars state that such a set of rules give rise to cohesive system of relationships which in turn shape the individual productive systems and interests in such a way that agents progressively recognize the economic convenience of their participation, leading to a more stable arrangement (Mènard, Valceschini, 2005; González-Díaz *et al.*, 2003) The commercial brand “*Parco Fluviale del Nera*” was thus designed to accomplish two potential goals: a) to promote the improvement of the quality of the local production; b) to introduce a local quality signal, framed within the general PGD system. All the agents are thus required to meet the standard requirements concerning the technical rules, the certification procedures and the Labelling and Traceability commitments. The second institutional driver is based upon the contracts subscribed by the agents. The general agreement defined with the Temporary Firms Association actually provides just the framework of the relations, while specific agreements were planned to be filled according to the agents individual interests. This corresponds to a characteristics of the hybrid, which usually define a general contractual framework, leaving the parties free to implement specific agreements (Mènard, 2004, 2006).

The contracts signed were: *Farmers-Farmers*, to supply calves to be fattened; *Farmers-Processor*, to organize slaughtering and subsequent stage of meat processing; *Farmers-Local butcheries*, local retailers and restaurants, to supply high quality meat to consumers; *Processor-Large retailers*, to supply high quality meat to consumers.

The variety of the contractual solutions reflects the flexibility of the general agreement, which was intended to support the organizational degrees of freedom of the participants. Thus each agent had the opportunity to organize his/her transaction according to the specific necessity and was not forced to adopt not preferred contractual rules, except than the general ones. The flexibility of the agreement not only favour the adoption of contractual solutions corresponding to individual needs, but also admits the *ex post* adaptation of the contracts as to unforeseeable consequential disturbances. The possibility of adopting preferred contractual rules contributes to reduce the costs of organizing the transactions at stake (Brousseau, Raynaud, 2006) and also reduces the maladaptation costs potentially arising as a consequences of the emerging of unforeseen contingencies (Williamson, 1996).

The productive relationships (solid lines in the Figure 2) support the investments decisions and the flow of products. The integration project included the following main investments: a) Physical assets, at farms (Euro 1.069.760) and processing company (Euro 450.298) level, intended to substitute the bovine strains and to improve the structures of the processing stage; b) Elaboration and implementation of Haccp systems at level of the farm butchery; c) Elaboration of the set of technical and organizational rules needed to introduce the commercial brand “*Parco Fluviale del Nera*”

The total amount of the investments sub *b*) and *c*) was Euro 275.000, while the ratio between the total investment made and the heads managed is Euro 764.3 Euro/head. The investments were funded by the Regional Government up to 50% of the total amount. In the contest of the Temporary Firms Association agreement, the investments made tend to be specific to the parties involved in each transaction. Even though the farmers could exploit some degrees of freedom in supplying the products, the complementarity of the products in the farmer-to-farmer relation (calves to be fattened) and the overall quality system make the identities of the parties critical to the exchange gains. The crucial point is that, even though spot market can be exploited by each participant, the possibility of supplying the products and processing services supplied tend to put the parties to transaction 1, 2, 4, 5 in close relationships, with the value of their investment progressively dependent on the specific transaction at stake. The possibility of supplying meat on various market segment (see transaction 3, 6, 7, 8) is intended to both integrating the final stage in the chains and to allow the suppliers to exploit the consumer demands according to the timing of the production.

A further aspect to be pointed out is the fact that the brand and the involvement in the PGI system tend to emphasize the centralization of coordination mechanisms: a unique coordination body is recognized by the agreement, which is in charge of coordinating the general supply strategies allowing the specific agreements to be signed by individual actors.

In summarizing the evidence collected by this case study we point out that:

a) The degree of asset specificity is associated with both the stability of the agreement and the centralization of the coordination mechanism, these provide evidence for hypothesis H_1 and H_2 ;

b) the production and the certification rules increase the convenience to participate, while the variety of contractual relations determines flexibility: both this causal relation provide evidence for hypothesis H_3 .

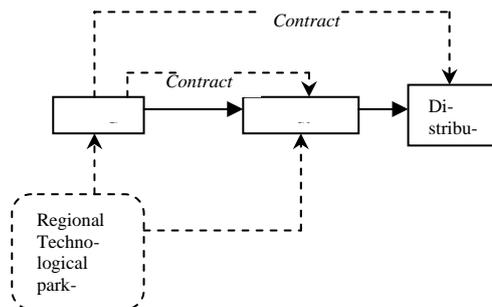
4.2 The case “Pollo d’erba”

The second case study considered is opposite to the previous one and relates the project of integration of agents involved in the supply of organic poultry meat. This is a niche product obtained by traditional poultry genotypes with qualitative characteristics very different from the conventional poultry meat. The production system is based on a few simple rules entailing natural feeding and housing and a very low density (n. of head/m²). As a consequence the cost of production is larger than in the case of the conventional product and difficulties arise in efficiently organizing the supply system. This is also due to concentration of the poultry market. In this context the integration project was intended to establish a close coordination among the parties in order to structure their relationship and increase the possibilities of selling the product on selected market segments.

The integration project included the following main investments: a) Physical assets, at farms (Euro 255.500), intended to diffuse the poultry strains and to implement production protocol; b) Elaboration and implementation of certification systems and of the set of technical and organizational rules needed to introduce the commercial brand “Pollo d’Erba” (Euro 283.280).

The total number of parties involved were: a) four agricultural farms; b) one agricultural cooperative; c) a national level Association of Organic Producers (Aiab); d) a regional Technological park. The productive and institutional relationships are illustrated in the figure 3.

Fig. 3. The “Pollo d’erba”: The institutional and productive relationships



The solid lines indicate the flow of product, while the dot lines indicate the institutional relationship. The system planned was very simple, with two institutional drivers: a general framework concerning the technical basic rules and the general contractual framework establishing the framework for the agents arrangements. This partially reflects the characteristics of hybrid forms and the simply contracts designed by the agents largely rely on the general structure provided by the enforcement procedures established by the Organic Producers Association (Aiab) and on the production protocol specified with the scientific contribution of the University. This framework reflects the role of quality and certification systems in enforcing the contractual relationships (Raynaud *et al.*, 2005). The expectations of the integration are strongly related to the market structure of poultry supply: in concentrated market, the integration of agents involved in high quality product is believed able to promote the increase of the supply even though on selected, small market segment and provide the consumer with product entailing also cultural consumption dimensions. To some extent this also reflects the patterns of the dynamics provided by rural Sociological analysis: a competition process takes place in rural areas among differently organized supply systems, with increasing opportunities for locally grounded short chains (Sonnino, Marsden, 2006).

After almost three years, the integration revealed elements of instability and difficulties emerged which significantly reduce the size of the supply. The main difficulty was due to the free-riding behaviour of the largest farm involved in the Temporary Firms Association, which progressively reduced the quote of meat supplied with the brand "Pollo d'Erba" to its customers. This exploitation of the market share originally gained by the brand was admitted by the lack of adequate safeguards. Furthermore, the remaining agents were really slightly involved in the systems and progressively the coordinating efforts were reduced leading to a persistent very low degree of integration. Furthermore, the supply was largely not coordinated, with agent basically feeling free of implement her/his plans. Two factors seem to have determined this outcome. The lack of safeguards, which appears to reflect inadequacies of the contractual framework of the hybrid. But the main factor seems to be the very low level of specific investment made by the agents, which allowed each of them to exit the relationship seeking for alternative exchange relationships. The low degree of asset specificity was determined by the original plan which charged private actors (farmers, cooperative) with just low amount of investments, whereas public bodies were requested to collaborate and to invest in implementing technical rules and the commercial brand: these tools revealed to be not effective with a low amount of investments involved. Furthermore, the coordination of supply systems was not sufficiently close to integrate the individual flexibility (search for the best market opportunity) with the need to establish common plans of production and supply. Even though in a negative direction, all three hypothesis are corroborated by the case study.

4.3 Stability and specificity of investments

In order to provide further evidence about the relationship between the specificity of the investments and the stability of the arrangements, we collected data about the number of agents who exited the relationships at the time of the investigation. This number was thought of as an index of stability. Data were also collected about investment which can be considered specific. Difficulties exist about index concerning asset specificity (Macher, Richman, 2008; Saussier, 2000; Masten *et al.*, 1991). As index of specific investments we chose the part of the investments recognized by the Public Authority as amount eligible for funding. Actually, the potential funding decision required a detailed administrative process designed to verify the relationship of the investments with general objectives of integration. We then run the following linear regression model:

$$(19) \quad \text{LNEX}_i = \beta_0 + \beta_1 \text{SPEC}_i + \varepsilon_i$$

Where LNEX_i is the logarithm of the number of exited agents from the i -th organizational arrangements ($i = 1, \dots, 15$), SPEC_i is the index of asset specificity and is ε_i the error terms. Table 1 summarizes the results.

Table 1. Linear relationship between N. of exit agents and investments

N. obs = 15						
R ² = 0.182						
Variable	Coef. S	td. Err.	t	P>	[95% Conf.Interval]	
SPEC	-0.00115	0.000325	-3.55	0.004	-0.0019	-0.00045
Constant	0.980	0.179	5.48	0.000	0.590	1.37

Source: our elaboration

The coefficient of the asset specificity is negative and statistically significant, thus the results show that the asset specificity influences the stability of the hybrid according to the hypothesis H₁.

4.4 Discussion

The analysis carried out indicates that integration is connected to viable pattern of close coordination and cooperation if the theoretical condition for adopting hybrid forms are met. Table 2 summarizes the values assumed in the case studies by the dimensions of the analytical framework proposed and confirm that the interpretation suggest helps to understand the policy process at hand. Furthermore, the

linear regression corroborate the nexus conjectured between stability and asset specificity.

Table 2. Synthesis of cases studies

		Carne Chianina del Nera	Pollo d'Erba
ADAPTATION	Design of the division of labour	Tasks decomposition appropriately designed among the participants	Tasks decomposition appropriately designed among the participants
	Centralization of coordination	Coordinating body	Not clearly identified
	Common Planning system	Production and supply are organized according to general agreements, but flexibility is allowed to the parties	Production and supply are organized according to general agreements flexibility
	Proper information system	Labelling Traceability	Labelling Traceability, but not specific
	Cooperation	Stable Premium price	Unstable premium price
ENFORCEMENT PROCEDURES	<i>Relative stable conditions</i> • Automatic clauses • Hostage clauses		
	<i>Relative unstable conditions</i> • Formal clauses • Informal-tacit clauses	Technical rules	Technical Rules
STABILITY	Exit	scarse	important
	Legal duration	Not influential	Influential
	Effectiveness of enforcement procedures	Strong	Weak
RESPONSIBILITY	YES/NOT	Yes	No

5 Final Remarks

In this paper we have examined the potential relationship between integration policy and organizational choices in the Agri-Food Chains. The argument has been developed in the light of TCE and relies on the importance of hybrid structure. We propose to consider four dimensions in order to assess the contribution (adaptation, enforcement, responsibility and stability). The proposition that institutional solutions adopted by the agents may contribute to the achievement of integration if the conditions for adopting hybrid forms are met, seems to be corroborated. More structured theoretical and empirical investigations are required. Opportunities for future research seem to arise along two directions: to relax some restricted hypothesis here adopted (i.e., the efficiency of the decision making process) and implement the analytical framework; to extend the range of case con-

sidered in empirical investigation also considering various institutional environment.

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