



Qualification and spillover effects for geographical indications: the case of *Prosciutto di Parma* PDO

Giacomini, C.; F. Arfini¹; D. Menozzi

University of Parma, Department of Economics, Via Kennedy 6 – Parma (Italy).

¹filipp.arfini@unipr.it

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The study analyses the spillover effect from *Prosciutto di Parma* (Parma Ham) PDO to non-PDO ham in the Prosciutto di Parma district. Two distinct networks are identified: a Parma Ham PDO network and a Parma-type ham network. The Parma-type ham network includes producers and a production process similar to the PDO product network but lacking compliance with the PDO code of practice. The paper shows the relationships between the two networks, identifying the geographical and reputational spillover that benefits the Parma type ham producers, their process and reputation.

Keywords: *Prosciutto di Parma* PDO, agro-industrial district, geographical knowledge spillovers, reputational spillovers.

Ce travail analyse les effets d'entraînement dits spillover dans le district du jambon de Parme AOP et les relations qui en suivent parmi les produits AOP et non AOP. L'étude a permis d'identifier dans le district du jambon de Parme deux réseaux distincts: le premier concerne exactement le jambon AOP et le second concerne le jambon façon Parme qui utilise une technique productive similaire à celle de l'AOP, mais ne respecte pas les termes du cahier des charges AOP. L'article montre les relations entre ces deux réseaux, en particulier les effets d'entraînement géographiques et réputationnels dont bénéficient les producteurs du jambon façon Parme dans leurs procédés et leur réputation.

Mots-clés: *Prosciutto di Parma* AOP, district agro-industriel, effet d'entraînement géographique, effet d'entraînement sur la réputation.

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INTRODUCTION

The 1995 paper by Mora and Mori found that the production area of *Prosciutto di Parma*¹ (Parma Ham) constitutes a geographical area with the characteristics of an agri-industrial district (Iacoponi, 1990; Cecchi, 1992, Carbone, 1992). The district is defined by the specification of one of the most important Protected Designation of Origin (PDO) products in Italy, Parma Ham, and is home to a strong concentration of small and medium enterprises specialised in production and services related to its distribution and marketing. A system of firms with different and complementary functions has grown into an area of “widespread entrepreneurship” with a series of external economies underlying development of the area. These economies derive from what is called a “common market”², because relationships between firms are based on competition at the same time as cooperation, given that they share the same language and stories and have often known one another personally for many years. This inter-firm environment and belonging to a socio-cultural system has encouraged endogenous development of innovation which has spread in an informal manner inside the district and raised the overall level of technology. Mora and Mori stress that the Parma Ham district is characterized by the central governance role of the Parma Ham Consortium. Since its inception in 1963, the consortium has catalyzed relationships between firms, production strategies and initiatives to guarantee Parma Ham reputation on European and international markets. The district is strongly characterized by production of Parma Ham, but in the last twenty years, particularly the last five, other types of cold cuts and sausage have also increased. These include *culatello*, *culaccia*, *Coppa di Parma*, *Salame di Felino*³ and especially a type of ham which is extremely similar⁴. The volume of Parma-type ham⁵ is unofficially estimated at about 15 million hams, and is thus much higher than the 10 million PDO hams produced per year. It is important to note that “Parma-type ham” is produced inside the Parma Ham district by the very same firms which produce PDO ham,

sometimes using plants dedicated to Parma-type ham, which can exploit existing external economies.

This paper asks whether the growth in output of Parma-type ham inside the Parma Ham district could be analyzed as a spillover effect and identifies the reasons for this growth, and competition between the two types of ham.

METHODOLOGY

Spillover

Because of the ‘spatial’ contamination brought about by production and social interaction, the interdependence that develops inside a district between agents cooperating and competing at the same time encourages the spread of technological and market know-how. The positive effects of this geographical spillover include the development of networks of communication among firms, directly by way of alliances, or indirectly through intermediaries (Feldman, 1999; Döring and Schnellenbach, 2006).

In order to show the relationships and inter-relationships forming these networks we examined documentation and interviewed key players, as the Parma Ham Consortium representatives, which is naturally the main point of interest, and 94 firms out of 164 Parma Ham producers.

Given that the Parma Ham district is based on one of the best known specialty products of Italy, we also examine reputational spillover whereby overall growth of a sector is led by a stock of intangibles consisting of consumer appreciation of particular products. Reputation spillover is based on the reputation of players and their governance during periods of both growth and recession (Mayer, 2006; Yu and Lester, 2008). The presence of both types of spillover; geographical and reputational, may have important consequences for management and strategy of Parma Ham producers and firms benefiting from its reputation (Rossi and Rovai, 1999).

In order to identify reputational spillover we examine synergy and competition between Parma Ham and Parma-type ham. We focus on company strategy and compare price trends, market prospects on the basis of forecast demand, and marketing policies for the two different products.

The network model

Comparing the two networks requires a model which shows the relationships between operators acting inside and outside the district and particularly relationships with institutions of governance affecting firm behavior and markets. These relationships may concern tangible goods such as raw materials, and services, etc., or intangible flows such as rules and regulations, information management, technical knowledge, etc.

One of the most frequent models for this is the Ara model (Håkansson, 1987; Håkansson and Snehota, 1995) consisting of three main elements; players, resources and activities. It interprets a network as the outcome of the interaction process between different players, which may be individuals, sections of companies, firms or groups of firms, all defined by their functions and the resources they are endowed with and

¹ Henceforth, Parma Ham.

² The terms “widespread entrepreneurship” and “common market” were used by Becattini in his important studies (1981, 1987, 1989) of industrial districts. Agro-economists have identified agri-food and agri-industrial districts as Marshall's Industrial Districts on the basis of Becattini's work.

³ *Culatello di Zibello* has also obtained PDO, and applications for PGI status are pending for *Coppa di Parma* and *Salame di Felino*.

⁴ Henceforth, Parma-type ham. This ham is processed and cured in the Parma district mostly with foreign meat. Moreover, Parma-type ham do not have any distinctive label. In this sense Parma-type ham is only a convenience in this paper, and not a real denomination itself, indicating a type of dry-cured ham originating from foreign meat.

⁵ On the *Borsa Merci* exchange in Parma, unbranded raw ham is termed “*Prosciutto crudo stagionato con osso*”(Cured raw ham on the bone) rather than Parma-type ham. In this work, the term Parma-type ham is used as the current name used in the Parma Ham area for hams produced in the district that is specified in the code. Hams quoted on the *Borsa Merci* could originate from different areas.

linked to other players through exchange of resources and activities. The model classifies activities as either processing, whereby existing resources are transformed, or trade, whereby they are made available to different actors. Trade can be tangible, in goods and services, or intangible, in know-how and information.. Relationships in the network can be direct or indirect and can be classified as economic, social, technical, logistic, administrative, informational, legal or organizational etc. There may be processes of institutionalization and governance (Håkansson and Snehota, 1995). In the Parma Ham network for example, the IPQ (Istituto Parma Qualità)⁵, carries out an important institutional role alongside the Consortium's role in governance.

The Parma Ham PDO network

Parma Ham PDO: protection and specification code

The first step in the recognition and tutelage of Parma Ham was the setting up in 1963 of the "*Consorzio Volontario tra i Produttori del Prosciutto Tipico di Parma*" or Voluntary Consortium of Typical Parma Ham producers. 23 members laid down a "code of practice" governing the production process and the name of the product with the area of origin, using a collective label to protect the product (Giacomini *et al.*, 2007).

The original Consortium has undergone far-reaching change as a result of changes in European and Italian legislation⁶. CEE Regulation No. 2081/92 and Community Law No. 526 of 1999 in particular redefined the role and functions of Consortia in protection and promotion of geographical markers. The functions of control and supervision were clearly separated, with control to be carried out by a third party and the Consortia to supervise operations once the certification body had laid down standards⁷. On this basis, the *Consorzio del Prosciutto di Parma* or Parma Ham Consortium supported the setting up of the certification body, the IPQ, which was authorised by the Ministry of Agricultural and Forestry Policy. In order to fulfil the requirement for independence, the IPQ checks documentation of inspections and tests carried out at all farms, slaughterhouses and producer firms. It strengthens links all along the supply chain.

The Parma Ham Consortium in 2004 has amended its statutes to ensure a more balanced representation of the supply chain, as laid down by Law No. 526/99. The new statutes take different roles into account; Article 1.1 allows for farmers, slaughterers, cutters and packers to join the consortium and contribute to its budget as well as the processors themselves⁸. The requirements for

producers have also been relaxed: it is no longer necessary for at least 75% of ham output to be Parma Ham.

Parma Ham production is based on Consortium specification codes for each phase of production, which are approved at EU level. The code of practice on one hand allows regular use of the geographic indication and on the other the allow the quality control of the PDO Ham produced according to the standards. In line with the specifications in the specification codes, policy based on common rules on the use of the designation and protecting the reputation enshrined in the geographical indication has an effect on the local economy (Vandecastelaere *et al.*, 2009).

The Parma Ham code clearly specifies the production area (Fig. 1). It covers about 2,000 km² and all processing of the raw material as well as production, cutting, slicing and packaging as laid down by the specification must be carried out in this district. The definition of these rules has built up an indissoluble link between product and district, with direct effects on employment and income. In 2008, production accounted for 3,000 jobs. Quality production has also boosted service firms working for *ham factories*, in allied activities such as de-boning, greasing and salting, as well as freight and certification. It has generated a process of economic integration with other areas of activity such as tourism.

The direct link between product and area has positive effects on the area. The specification codes lay down that all phases of production and processing up to slicing must take place inside the district, which means that the value added by processing the fresh hams is kept in the district itself.

The code of practice also involves a series of costs payable by the supply chain which are not incurred for uncertified ham. Parma Ham production is in fact distinguished by the quality of raw material or fresh ham used, as well as the production characterized by environmental and human factors. The code of practice specifies that the fresh hams must come from an area which includes places in eleven regions of Italy and is thus wider than the production district (Fig. 1)⁹. Pig farms for Parma Ham, slaughterhouses and cutting factories for the PDO output must all be located in this wider area. The raw material producers in the same production area deliver pig meat also for others PDO products located in Northern and Central Italy such as San Daniele, Toscano, Modena PDO Hams. We can argue that the production network guarantees the supply of meat for all those products, and that Parma Ham PDO specification became a standard widely applied in Northern and Central Italy helping producers to adopt a similar way to conceive quality in ham production.

⁵ This body is responsible for the certification of Parma Ham.

⁶ At first the role of the Consortium was regulated by Law No. 506 of 4 July 1970. This laid down a system of sanctions against fraud and unfair competition. The government Ministry also played a role in supervision (Mancini, 2003).

⁷ Article 10 of EEC Regulation No. 2081/92 lies down that control should be carried out by "an independent third party" in order to ensure that PDO and PGI products comply with regulations of their specification.

⁸ In order to give more prominence to *ham factories* themselves, Consortium statutes give 66% of votes to producers, and the remaining 34% are divided among other

supply chain members, farmers, slaughterhouses, cutters and packers.

⁹ Regions specified in the specification codes are Emilia-Romagna, Veneto, Lombardia, Piemonte, Molise, Umbria, Toscana, Marche, Abruzzo, Lazio and Friuli-Venezia Giulia.

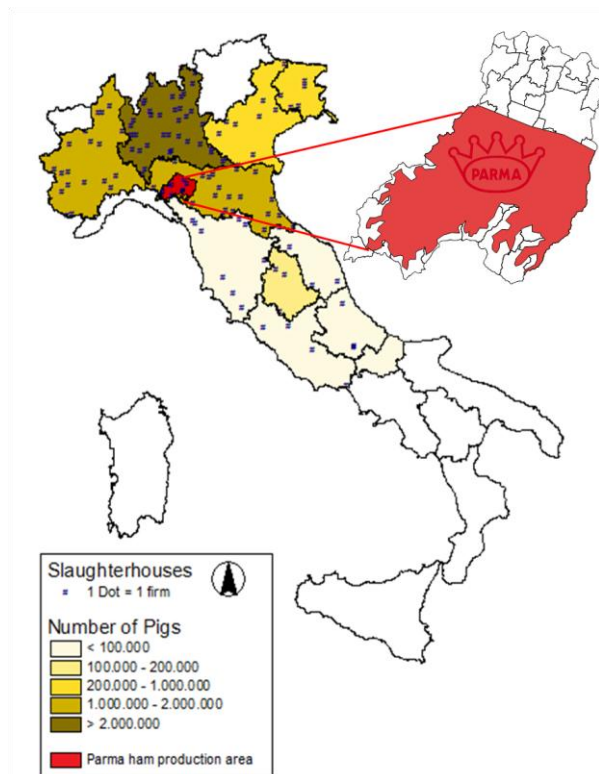


Fig. 1: Production area of pigs and fresh hams (left hand side map) and production area of processed hams in Parma Province (right hand side map).

The production of Parma Ham PDO, according to the code of practice, is made by meat obtained from “heavy pigs” which must reach a weight of 160 kg and a minimum age of nine months at slaughter. Pigs used for Parma Ham are kept alive for three months longer than those for uncertified production, although the same genetics than the conventional lean pig production are used. Slaughtering at higher weight means that the cost of feeding and rearing accounts for a higher proportion of production costs, so that Parma Ham pig farmers have costs 20-25% higher than EU competitors producing lower weight carcasses (CRPA, 2009).

Parma Ham PDO - supply chain and market

There are twenty-eight Italian pork products recognized by EU legislation on specialty products, and in 2008 9.1 million pigs were given certification in Italy. The highest volume product is Parma Ham for which about 10 million fresh hams were used in 2008. Parma Ham holds a 41% share of the end market for raw ham in Italy, which in 2008 was thirty-two million tons (*Consorzio del Prosciutto di Parma*, 2009).

The certified pigs are reared in about 4 800 farms, and 88% of these are located in four regions of Northern Italy: Lombardia (1 936 farms), Piemonte (970), Emilia Romagna (926) and Veneto (430). The remaining 10% of farms involved in PDO production are in the other regions (IPQ, 2008). Slaughtering for certified supply chains takes place in 121 houses. IPQ figures for 2008 confirm the concentration of certified production in a

small number of units¹⁰. This situation gives negotiating power to these operators, especially in upstream phases, and lessens market transparency. Slaughterhouses today not only divide up the carcass but also purchase live pigs, often stipulating contracts for a series of deliveries. They also supply the fresh hams to the producers. Producers thus depend on the slaughterhouse for price, quality and payment terms. Another factor which has made the live pig and ham market less transparent is the concentration of slaughterhouse. The picture is further complicated by the fact that some slaughterers have also taken over curing plants and thus are both buyers and sellers of fresh hams (Ass.i.ca., 2006).

The processing or curing of hams destined for Parma Ham takes place in 164 *ham factories* or producers in the district of production in the province of Parma. Figure 2 reports the evolution of labeled ham production and the number of *ham factories* from 1963, the year the Consortium was set up, to 2008.

Figure 2 shows the growth in producers up to the early 1980s and the rapid growth of production from the mid-1980s, followed by a leveling off in the number of firms. In those years, the increase in production led to a fall in wholesale prices (Menozzi and Cernicchiaro, 2008). The Consortium attempted to halt the fall by introducing

¹⁰ 70% of slaughtering of certified pigs takes place in 27 slaughterhouses in only four provinces: Mantova, Cremona, Modena and Parma (IPQ, 2008).

a quota system of production. The system however was ruled restrictive by the Italian Antitrust Authority in 1996 and finally halted by the Consortium at the end of 1998. Parma Ham output thereafter continued to increase and today has reached ten million hams a year (Fig. 2).

Figure 2 also shows the gradual trend towards concentration of production in the various stages of Parma Ham production. Figures from the Associazione Industriali delle Carni (Ass.i.ca., 2006) show that half of all output comes from less than one fifth of firms. Clearly uncompetitive smaller firms have been squeezed out of the market or obliged to join forces.

Looking at sales, in 2008 about 80% of labeled hams were absorbed by the domestic market and the other 20% exported. Particularly important for export is the pre-sliced ham for self-service sales¹¹. This now accounts for about 11% of total output and is showing high annual growth (IPQ, 2008). It presents clear advantages in terms of service, tutelage of ready-to-eat foods and the Consortium name, and particularly for enhancement of the brand. With pre-packaging not only is shelf-life lengthened but it becomes possible to provide consumer information on packs.

Relationships in Parma Ham PDO network

There are two types of actor in the Parma Ham network: supply chain operators and institutions. Supply chain operators comprise pig farmers, slaughterhouses and cutting factories, PDO ham producers in the production district, service firms such as those de-boning and greasing the meat, machinery firms, freight firms and research institutes, as well as wholesalers, distribution firms and international buyers. Institutions include the Parma Ham Consortium and the IPQ, the Istituto Parma Qualità, the independent supervision and certification institute.

There are also two types of activities: governance and accreditation and trading resources. Governance and accreditation includes strategic management as carried out by the Consortium and ensuring product quality, through traceability procedures, supply chain control and branding. Trading involves the buying and selling of tangible resources such as pork meat and intangible resources such as technical know how within the network. Some actors carry out both types of function and some only one type.

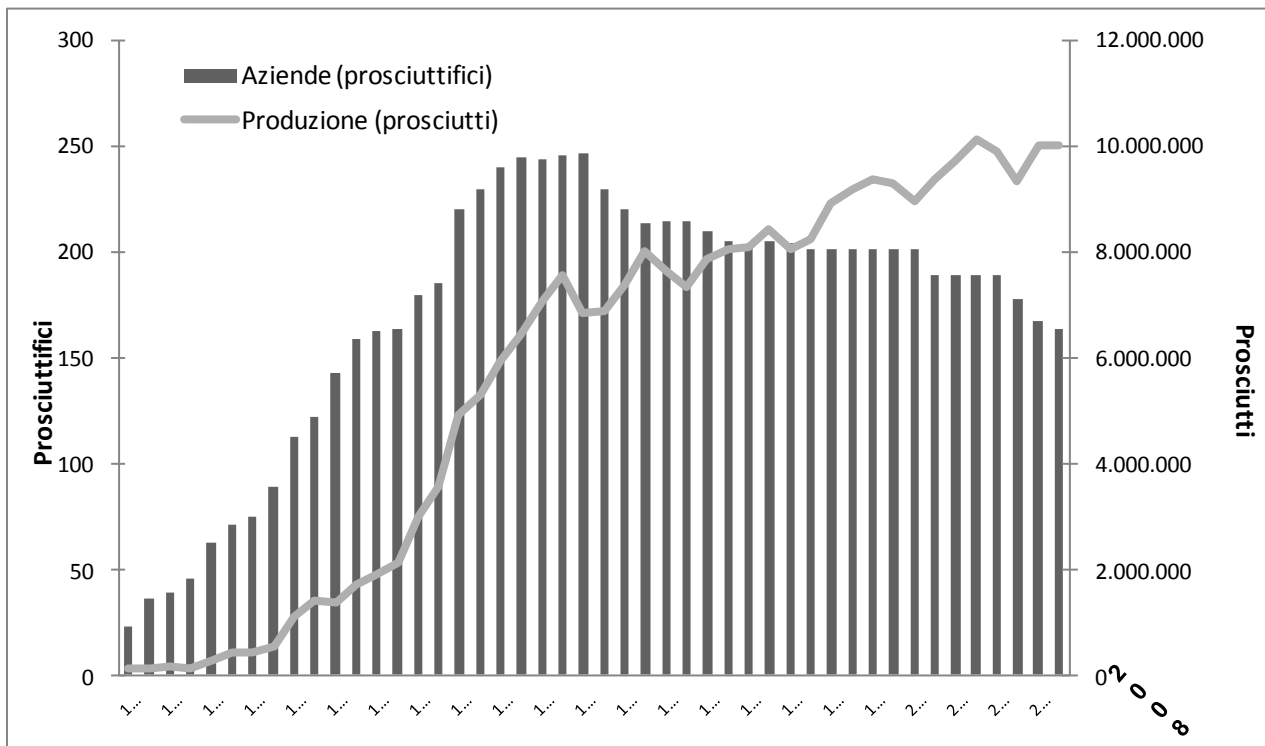


Fig. 2 –Production trends for Prosciutto di Parma PDO and number of prosciuttifici (producers / curers)Source: Our elaborations on figures from the Consorzio del Prosciutto di Parma.

¹¹ As stated in the previous section, production specification codes lay down that packing takes place in the production area under the supervision of the IPQ, which is responsible for labeling packs.

1 Governance and accreditation

Figure 3 shows the relationships between governance and accreditation in the Parma Ham PDO network. The Parma Ham Consortium is the central node of the network. Law No. 526/99 lays down its functions as tutelage, enhancement and consumer information. In governance it holds regular meetings where members are informed of strategy (Link a). The link is in two directions as members elect the Board of Administration and other panels and thereby influence policy. As noted above, all firms are today eligible to vote regardless of the proportion of Parma Ham that they produce. This means that big producers can influence the Board decisions more than small producers and this can affect the Consortium strategies, especially those related to quality definition. The Consortium therefore represents the interests of two types of producer of conflicting vocation and company strategy. On one hand, there are the small producers, often producing exclusively Parma Ham, and on the other large and even multinational manufacturers for whom Parma Ham is simply a product to place on the market. Consortium decisions are inevitably a compromise between these two conflicting poles.

The Parma Ham Consortium is closely linked to the IPQ (Link b). Although the IPQ is independent operationally, it was set up by the Consortium and category associations it represents. The IPQ has also capitalized the experience of the Consortium in managing the supply chain and conformity with regulations dating from 1963.

In a one-way link, the IPQ also carries out inspection and certification of supply chain firms (Link c). It checks firms' compliance with the specification codes and is responsible for the marketing of identification labels guaranteeing authenticity and traceability, and checking documentation. As well as this, the Consortium is very active in supervising sales and has no hesitation in taking legal action against counterfeiting and abuse (Link d). It is this complex system of supervision and governance of the network which has helped to give the PDO product its widespread recognition for soundness.

At the same time, the close relationships between the different producers make up an informal network based on mutual trust and respect for guideline specifications (Link e). This mutual trust is very strong and enables a sort of "social control" which accompanies the formal supervision procedures of the Consortium (as internal control) and the IPQ (as external control) (O'Reilly et al., 2003; Mancini, 2003).

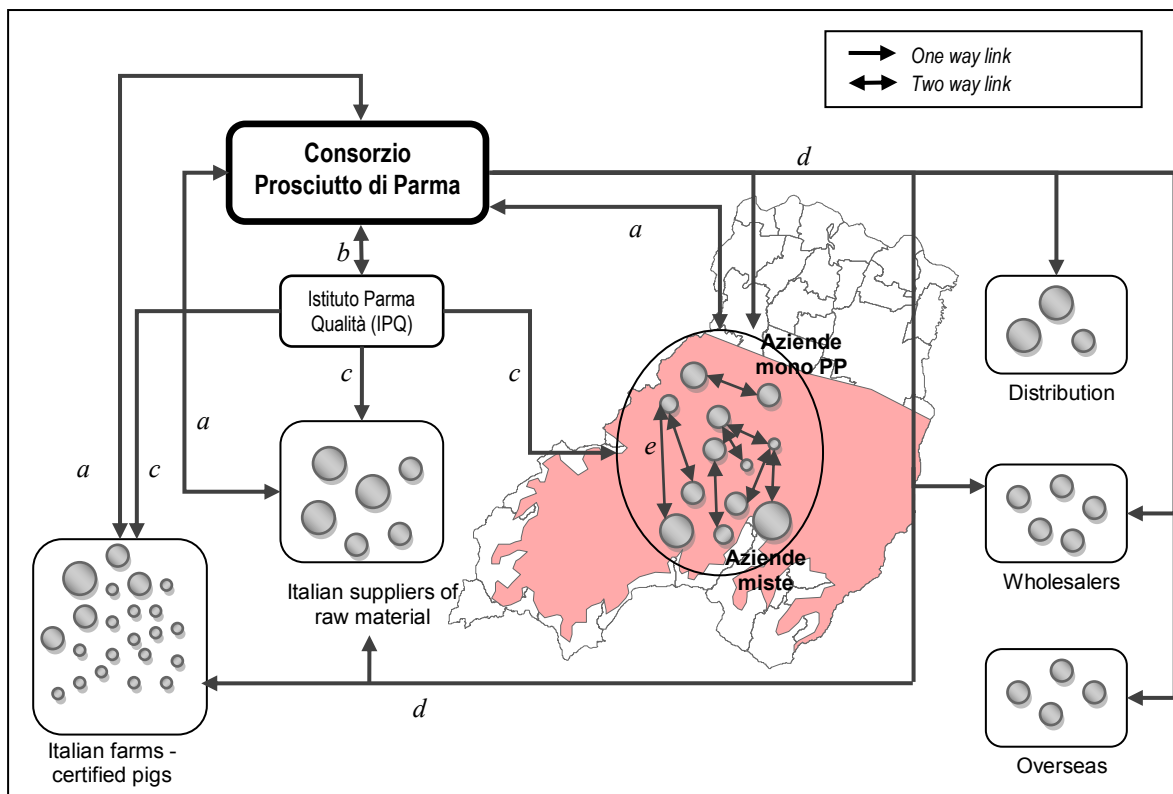


Fig. 3 - Governance and accreditation relationships in the Prosciutto di Parma PDO network.

2 Trading resources

Trade in tangible resources or the flow of goods, and trade or flow of intangible goods are both important in the network (Håkansson and Snehota, 1995). Figure 4 shows tangible trade as a continuous line and intangible as a broken line¹². Some activities are interdependent and linked; others like the supply of services are independent.

The Parma Ham supply chain (Fig. 4, Link a) originates in the flow of pigs from farms to slaughterhouses and cutters, and continues with the flow of this raw material, the fresh hams, to the *ham factories*, which may be mono- or multi-production in the district. These firms sell the cured ham to Italian or overseas wholesalers or to the retail trade, modern or traditional. As well as the flow of material tangible goods, there are also flows of intangible goods such as trading information, regarding, for example, product traceability and identification (Link b).

In the Parma Ham district the larger firms tend to have a diversified range of activities and carry out curing, wholesale selling and occasionally end retail too. There are also smaller firms, which make use of the services supplied by other firms mainly situated in the district. In fact since the beginning of the 1960s, an endogenous process of innovation has been taking place, which has led to a rapid spread and sedimentation of know-how and skills. Numerous operators have sought solutions and remedies for problems in the production process and this has led to a widespread capacity for innovation (Mora and Mori, 1995). Continuous technological growth is based on widespread processes of “learning by doing” and “learning by using” (Arfini and Mora, 1998), supported by research bodies such as the *Stazione Sperimentale per l’Industria delle Conserve Alimentari*¹³.

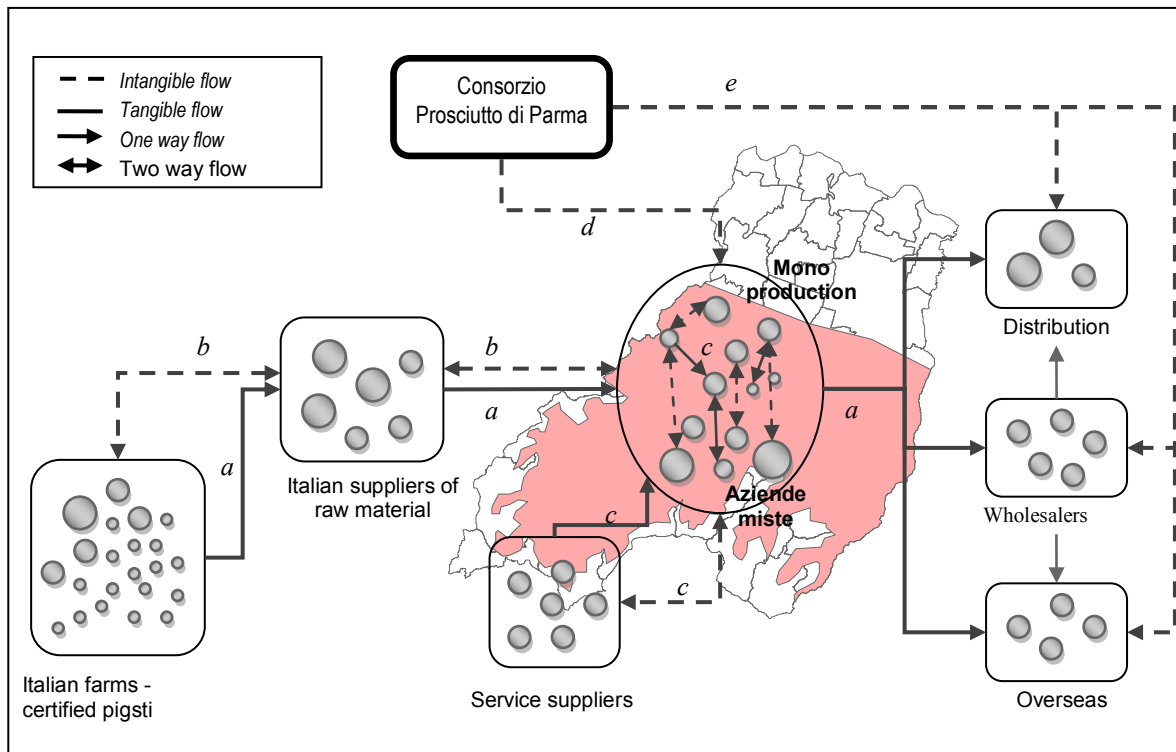


Fig. 4 - Trade in resources within the *Prosciutto di Parma* PDO network.

¹² Fig. 4 does not show the IPQ as its function of support to the Consortium is exclusively institutional. The IPQ does not trade, whereas the Consortium takes part through its assistance to members and its role of supervision.

¹³ The *Stazione Sperimentale per l’Industria delle Conserve Alimentari* (SSICA) or Experimental Laboratory for the Preserved Food Industry is public applied research body with headquarters in Parma. Its aim is to promote technical and scientific progress in the food preserving industry in fruit and vegetables and meat and fish sectors.

The spread of innovation over the district has been helped by the fact that it is often led by local engineering firms which lose no time in producing appropriate machinery and equipment for curing hams, for example. Continuous contact between producers, service companies and research bodies, (Fig. 4, Link c), have meant that new solutions for the mechanization of salting and refrigeration were rapidly developed in the same area. This has had a significant impact on production, while the plentiful supply of skilled labor has had a significant impact on the economic expansion of the area affecting other ham and sausage products, particularly Parma-type ham.

In this context, the Parma Ham Consortium helps members in production and sales in Italy and overseas through an advice and support service covering techniques and production, requirements in retail, health and safety insurance etc. (Link d). It also supplies a great deal of information through regular meetings and national and international publications, as well as promoting research and development (Mancini, 2003).

The Consortium enhances the image of Parma Ham in Italy and overseas through advertising campaigns and promotional initiatives in collaboration with traditional stores as well as the major supermarkets (Link e). Its communications include traditional press advertising as well as informational publicity material emphasizing product quality.

The Parma-type ham network

In the same district, there is also a parallel and flourishing production of non-PDO raw ham which is not branded with the Parma label. There are no official figures on Parma-type ham produced in the district, but it is thought that the volume is much higher than PDO (Ass.i.ca., 2006). Unofficially the Parma *Azienda Unità Sanitaria Locale* (Local Health Authority) estimates that about 15 million Parma-type hams are produced annually. It is very competitive compared to Parma Ham, mainly because of the big price differential and the fact that end consumers are not able to distinguish between the two types especially in hotels, restaurants and catering (ho.re.ca). Although official controls are in force both from the Parma Ham Consortium and the Italian Ministry of Agriculture to prevent moral hazard behavior, information asymmetries in ho.re.ca. services can't be completely avoided. Trade in resources in the Parma-type ham network (Fig. 5) is closely linked to the genuine Parma Ham network, partly because some of the players are the same and partly because Parma-type ham takes advantage of the geographic and reputational spillover from the PDO version.

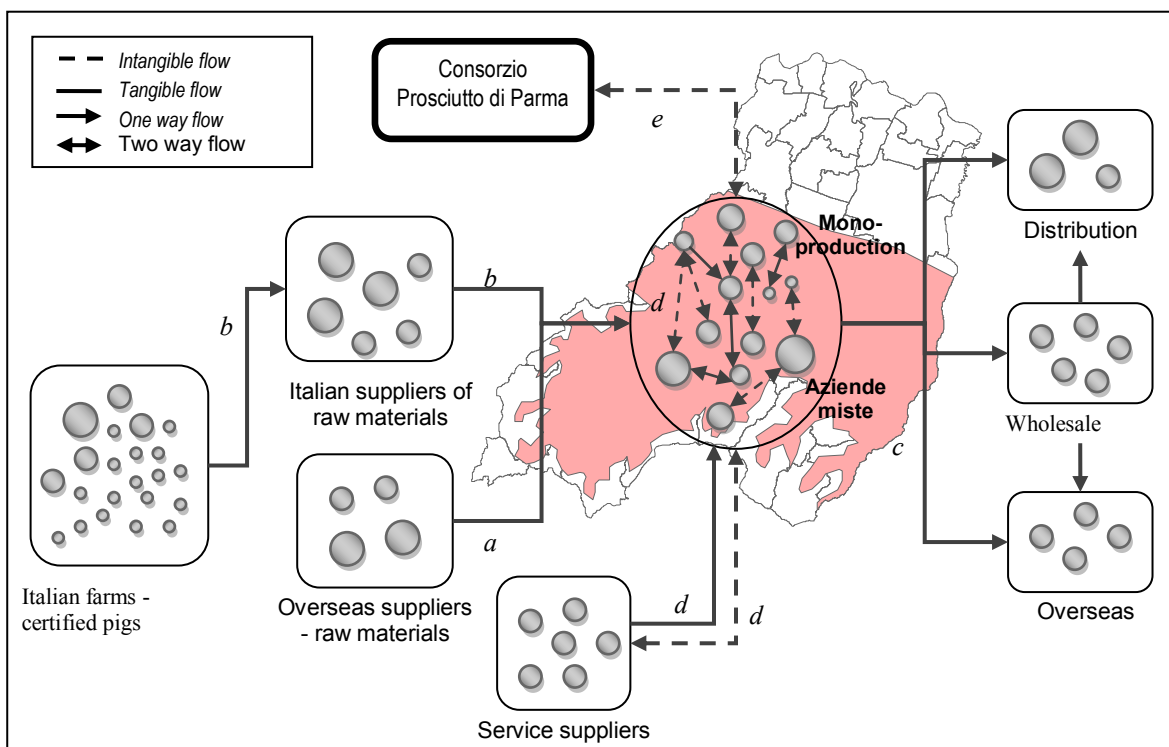


Fig. 5 - Trade in resources in the Parma-type ham network

The raw hams for Parma-type ham come mainly from overseas suppliers of ham or slaughtered pigs (Link a) and to a lesser extent from the PDO chain (Link b)¹⁴. Distribution channels are often the same (Link c). Parma-type ham is hard to distinguish at the point of sale and benefits from the reputation of Parma Ham, but without undergoing the controls, certification and monitoring required for PDO production.

Parma-type ham manufacturers also benefit from synergy in the Parma Ham district, the widespread availability of information and know-how in production techniques built up over decades, as well as parallel services supplied by firms in the production district (Link d). It is mainly larger firms, often producing both types of ham, which benefit from this geographical spillover.

The role of the Parma Ham Consortium in the Parma-type ham network can be seen from two angles (Link e). On one hand, the informational and enhancement carried out by the Consortium indirectly affects the Parma-type ham network as geographic and reputation spillover. On the other hand, Consortium policy is influenced by its mixed membership.

So the two networks, Parma Ham and Parma-type ham (Fig. 4 and Fig. 5) overlap at several points. Many elements and phases are common in both production and sales, and this naturally strengthens the reputational and geographic spillover. This overlapping creates a competitive advantage for those producers trying to increase quantity, instead of providing quality benefits, and competing on national and international markets using price and differentiation strategies at the point of sale. At the same time, small producers attempting to create value and gain a competitive advantage through providing superior product quality could be placed out when market prices are decreasing.

Competitive strategies of the two networks

Our interviews of Consortium, company directors, health

service veterinary surgeons and other operators confirmed the presence of two parallel productions. They compete on the same market through big 30% price differentials. This enables many producers to widen and differentiate output in order to reach different market segments; wholesale, traditional retail, supermarkets and Ho.re.ca, according to evolving consumer needs and tastes and willingness to pay. The segmentation of demand for the two products is possible because of the lower costs of Parma-type ham production resulting from lower weight and price of fresh hams, shorter financial cycle and the absence of certification costs. Parma-type ham is thus an opening to "low price" markets which form a large share of end demand, increasingly important for the main distribution channel of supermarkets and for ho.re.ca. Figures from the Parma Chamber of Commerce from January 2002 to October 2009 show that the average price differential of the wholesale product was about 2.40 €/Kg (Fig. 6). In particular, the gap grows wider during periods when the price of Parma Ham is rising on the market (reaching a maximum of +3.10 €/Kg in April 2004), while in periods of difficulty the gap narrows (minimum of 1.18 €/Kg October 2009).

Comparison between wholesale prices between 2002 and 2009 reveals the well-known cycles in Parma Ham prices (Medici *et al.*, 1983), although there has been an overall downward trend in recent years. Parma-type ham prices, on the other hand, are steadier over time. This may be because, unlike for PDO ham, the procurement of fresh hams is not affected by decisions taken at the farming stage. There is however a significant correlation coefficient between the basic price trends (0.77), which is further confirmation of the link between the two products¹⁵. The differing price trend of Parma-type ham while Parma Ham is going down does not belie this; it can be presumed that in the last quarter of 2009 demand switched to the less expensive Parma-type ham, strengthening firms' interest in a product positioned in a lower price band.

¹⁴ IPQ carries out checks at all phases of the PDO supply chain. The selection at many levels on the raw material and the preliminary checks, including company self-certification, limits the number of approved hams in the final phase. The number of hams rejected at one of the phases is about 300 000 annually. There are also between 1.5 and 2 million hams approved at slaughter for PDO production, but which are not approved by the producers. These mainly go to the production of Parma-type ham (IPQ, 2008).

¹⁵ The average price of Parma Ham from 2002 to 2009 was 7,94 Euro/Kg. with a variation coefficient of 9.1. For Parma-type ham the price was 6,56 Euro/Kg. with a variation coefficient of a 7.7. This shows the greater price stability of Parma-type ham prices, even though there is a significant correlation coefficient of 0.77 between the two prices trends.

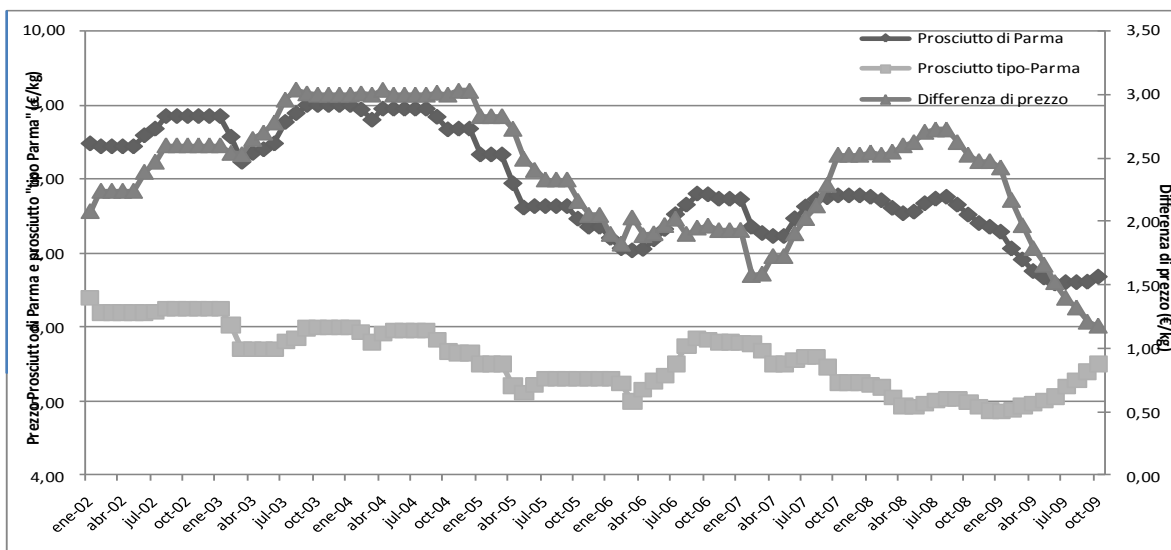


Fig. 6 – Wholesale prices for Prosciutto di Parma PDO and Parma-type ham. Source: Our elaborations on figures from the C.C.I.A.A. Parma (2009). N.B.: The figures are for boned hams, cured for at least 12 months and sold in lots of minimum 9 kg

Our interviews examined the main concerns and current and future strategies of the Parma Ham supply chain. On one hand it was confirmed that all the firms in the sector ranging from pig farming to processing are facing difficulties. This is because of the high level of supply of certified raw hams, which keeps prices low at all stages (Menozzi and Cernicchiaro, 2008)¹⁶. On the other hand, a combination of factors is making Parma Ham and Parma-type ham complementary in production and competitive on the market. This means that the segment of high quality hams is not always functioning as the Parma-type ham is considered as a possible substitution of the Parma Ham. Such situation can be a real danger for the PDO providing possible benefits only to larger firms producing both products. Price analysis shows that PDO Ham goes to premium price demand segments, to quality catering outlets and demanding consumers with greater respect for tradition and willingness to pay¹⁷.

¹⁶ This conclusion is the result of repeated price trend observations at different stages in the supply chain, see ISMEA report of 2008. It may appear inconsistent that a fall in upstream prices has little effect on downstream prices. But although few studies have been carried out on this (Canali and Moro, 1988; Giacomini, 2001), the explanation appears to be that it is slaughterers who regulate the market (See Footnotes 10 and 11), and that they are bound by rigid supply contracts with pig farmers. When production of pigs with certification increases, these have to be purchased. The supply of fresh hams increases and the *prosciuttifici* have to try to absorb them. But the capacity for curing is rigid, so sales need to be increased, even where demand is steady. The effect is a fall on mature ham prices on the wholesale market. This occurred in the last five years, give or take seasonal variations.

¹⁷ Parma Ham PDO was defined as a "high level commodity" by one of our interviewees.

Operators however consider this market to be saturated, with few opportunities for growth in Italy or overseas. But in order to meet the significant demand from low price consumers, many firms have diversified and supplement PDO production with Parma-type ham. It is clear that Parma Ham, unlike many other PDO products, is not a niche product but widely consumed. In spite of its high price, the volume of output is high thanks to advanced technologies and mechanization of production. Parma-type ham, obtained from imported raw materials or the hams rejected by the PDO supply chain gives producers the opportunity to diversify towards lower price band ranger in the market.

The difficulty of the Consortium to exploit the opportunities offered by segmentation of demand is partly a result of the production code of practice rigidity and of other internal rules shared by the members of the PDO Consortium, a limit faced by all PDO products. At this stage, for instance, is impossible to officially differentiate the quality upon long ham aging or raw material origin and, again, only some category of producers can take advantages. At the same time there is also a reluctance among members and Consortium management to introduce a strategy which would open up competition between different member firms which are today underwritten by the predominance of the Consortium brand over individual members. It is true that firms can use both the Consortium brand and their own brand, but the individual brand of most of the company is totally unknown by consumers, while almost every Italian consumer knows the Parma Ham Consortium brand.

Member firms often supplement production of Parma-type ham with other local sausage and ham products; *culatelli*, *culaccie* and cooked ham, widening their range of products and sometimes using scale and

organizational economies. There are in fact two different production systems present in the Parma Ham district:

- Production of PDO ham only. This system is entirely regulated by the Consortium and is dominated by the Consortium brand. Because producers do not invest in communication for their own brand, and only the Consortium invests on the collective brand, there is no consumer recognition of individual brands and few incentives for individual brand enhancement and for quality differentiation. Quality is inevitably affected and tends to fall to minimum levels defined by the code of practice. For these reasons, the Parma Ham Consortium brand generally overwhelm the marketing power of companies' individual brands (Mancini, 2003; O'Reilly et al., 2003). At the same time, because of the code of practice rigidity and barriers to differentiate for the quality characteristics of the product, there are few possibilities of taking advantage of market opportunities for luxury or premium price products¹⁸;
- Mixed production of Parma Ham PDO and Parma-type ham, and sometimes other ham and sausage products. In such firms there is direct positive spillover from Parma Ham and differentiated products allow producers to meet segmented demand. Their product portfolio is often widened by other sausage and ham products. They achieve scale economies, and if investment levels are high enough, aim at publicizing their own company brand¹⁹. These producers may take advantage of being PDO producers for increasing their reputation on the whole range of products.

In the second system, the production of Parma-type ham can use the synergies and know-how of the Parma Ham network. Sharing these as well as elements like reputation and technologies makes the two types of output complementary.

The current move towards complementary marketing strategy for the two products in order to gain advantage from segmentation is largely the result of the growth in sales of pre-sliced and pre-packed ham. The introduction of pre-packing was a watershed for Consortium marketing; packs can now be branded

without the intervention, not necessarily transparent, of the retailer. It was also important for the production and marketing of both types of ham, as individual firms can now advertise their own brand on pack labeling. Pre-packaged sales encourage market penetration of both types and stimulate the use of pigs with smaller hams than those for Parma Ham. This introduces a further element of complexity to the network, since fresh hams provision is not localized for the Parma-type ham. So firms can buy the raw material outside of the PDO provision area taking advantage of the low prices on the global market. Farmers dedicated to heavy pigs for PDO hams are less competitive on this market.

CONCLUSIONS

This research has revealed the existence of two distinct but interconnected networks inside the Parma Ham district. The first is Parma Ham, comprising all players and links in the governance and production of PDO. It includes all firms in the Parma Ham supply chain, from pig farmers to ham producers, including slaughterhouses and meat cutters, and service industries providing technical, logistic, administrative and commercial assistance. The Parma Ham Consortium and the IPQ are a fundamental part of this network, active in governance and certification of compliance with specifications and tutelage, promotion and enhancement of the designation Parma Ham PDO. The second is the Parma-type ham network which comprises players in Parma Ham, Parma-type ham, and other ham and sausage products. These include firms present in the Parma Ham network like producers and service firms, as well as importers of pork and fresh hams from overseas.

Our interviews showed that the two networks are complementary in both production and marketing; they meet and overlap at various different nodes on the network thanks to technology and the common market developed in the district. In order to meet segmented demand, some producers, especially larger firms, supply two types of product to distribution; (wholesale, traditional retail, ho.re.ca and especially supermarkets) a premium price PDO ham and an unbranded low price product. Price trend analysis revealed a close correlation between the two products. This price trend negatively affect the PDO ham, weakening the segmentation of the market. In this way, the spillover effect can reduce the premium for the PDO as the low price product is considered as substitutive to the PDO one. In this context, only large firms producing both PDO and non-PDO products can benefit, while smaller-sized companies mainly producing PDO hams can be harmed.

The Parma-type ham network thus benefits indirectly from the positive externalities generated by the Parma Ham PDO network. Geographic spillover occurs through the flow of information between institutions and firms and among the firms themselves. A particularly important feature is the collaboration between ham factories and local mechanical industries, which has made possible the spread of innovation to all interested operators in the district, producing of both types of ham. The availability of skilled labor is another important

¹⁸ In the "Disciplinare del Consorzio" Consortium codes of practice, Table H, "Elementi specifici della presentazione, identificazione ed etichettatura del prosciutto di Parma" specifies: «The use of qualifying terms such as "classico" "autentico", "extra" and "super" is not permitted; the use of retail descriptions except for "de-boned" and "sliced" is not permitted». On top of the constraints on production contained in the specification codes, these limitations are a clear indication of the difficulty and lack of will to differentiate quality and type of output. And as the individual company brands are subsumed under the collective Consortium brand, there is little incentive for producers to strive for the highest quality levels. Many opt to save on production costs and do the minimum to comply with specification codes; their product in any case is labeled "Prosciutto di Parma PDO". Theoretically this is morally hazardous behavior; any adverse consumer reaction would penalize collectively *Prosciutto di Parma PDO* rather than the individual company.

¹⁹ These firms are often interested in developing pre-sliced ham.

factor. Consumer trust and the trust placed by distribution and catering in Parma Ham and its system, have been built up over time. It is based on the detailed system of supervision and governance, technical and production know-how and the close relationships between producers and allied service firms. All this contributes to the good name of Parma Ham, and it is a reputation which spills over into the reputation of Parma-type ham too.

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