

*Typical and traditional productions:
Rural effect and agro-industrial problems*
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Typical products and local development: the case of Parma area

ABSTRACT

The purpose of this study is to check the presence of reciprocal synergies between typical and traditional products and local development. The area in question is the province of Parma, where the presence and intensification of relations between the primary and secondary¹ sector were, in the first fifty years of the century, the deciding factors of the economic development (Basini and Forestieri, 1989; Giacomini and Mora, 1996).

To analyse this case we used the method of the chain-analyses, to study Parmigiano Reggiano Cheese (PR), and the idea of agro-industrial districts to examine Parma Raw Ham case.

1. THE LOCAL ECONOMY

1.1 The development: an outline

Parma faced the first fifty years of the century with a renewed agriculture², from a technological point of view, and a large number of firms which undertook the processing of agricultural products, even if they still had artisan peculiarities. Moreover, at the end of the First World War, the chief

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¹ In 1890 the processing of agricultural products used 30% of the employed workers, milling industries more than a half and cheese dairies 23% of the whole. The first industry census in 1911 showed that a good 245 firms out of 594 were interested in the processing of agricultural products. In 1927 “the most important industries of the province were those which were based on the processing of agricultural products: food preservation, dairy, milling, and pork industry.” (Lo Monaco, 1930).

² On this subject it is important to underline the privileged relation that has always characterised the agricultural world and the most important local banking company (Cassa di Risparmio of Parma, today of Parma and Piacenza). (Basini G.L., Forestieri G., 1989).

food-industries had to increase production to meet the rising demand by stimulating the expansion of agricultural cultivation: the production of sugar-beets increased: 8,000 tons in 1918 and 24,500 in 1920; in 1924 the production of tomatoes tripled, compared to the production of 1919. The chief industries were those which were based on the processing of agricultural products: food preservation industry, dairy industry, milling and pork industry, etc. These are typical local industries not only because they are based on the processing of local agricultural products, but also because they are grounded on local capitals³.

After a long period of crisis (1930-1945), Parma, which had come out of the war conflict less damaged than other cities and with a production system specialised in agro-food, lived more intensely than other provinces the period of fast development of the Italian economy which is named "economic miracle". Since the first years of the post-war the local economic growth had been faster than the national and regional one, to the point that during these years the income per person was higher than the national one by 20,5 % and by 15,6% compared to the regional datum. Development was favoured especially by the rapid growth of the secondary and the services sector.

From 1936 to 1961 the assets of the primary sector passed from 59,6% of the total amount to 32%, and the agricultural added value passed from 60% to 32%. In 1951 the economy of Parma was more bounded to the primary sector than the regional economy (34%) and the national one (23%); however, 25 years later the relative economic prominence passed from agriculture to industry, which recorded one of the most important growths in the country. During these years Parma lived a period of real change, in the economic and social field, which had a weigh upon the features of the primary sector and upon its importance in the local production system.

Moreover, the Sixties recorded a rapid and general improvement of the living standard and of the private income, and this caused a rapid growth of the demand of foodstuffs and agricultural products, followed by positive effects upon the income of the sector.

However, the real development of this area took place during the last years of the Sixties, when the country was taking the road of the great economic growth, and it was stirred at first by the big business, then by a characterisation at local level (North-East and Centre area) and with sectorial peculiarities; from the traditional manufacturing industry (textile-clothing, shoe-manufacturing, food industry) to sectors characterised by mechanical specialisation.

³ The industry census of 1927 is the only source of information about the industrial structure of this period.

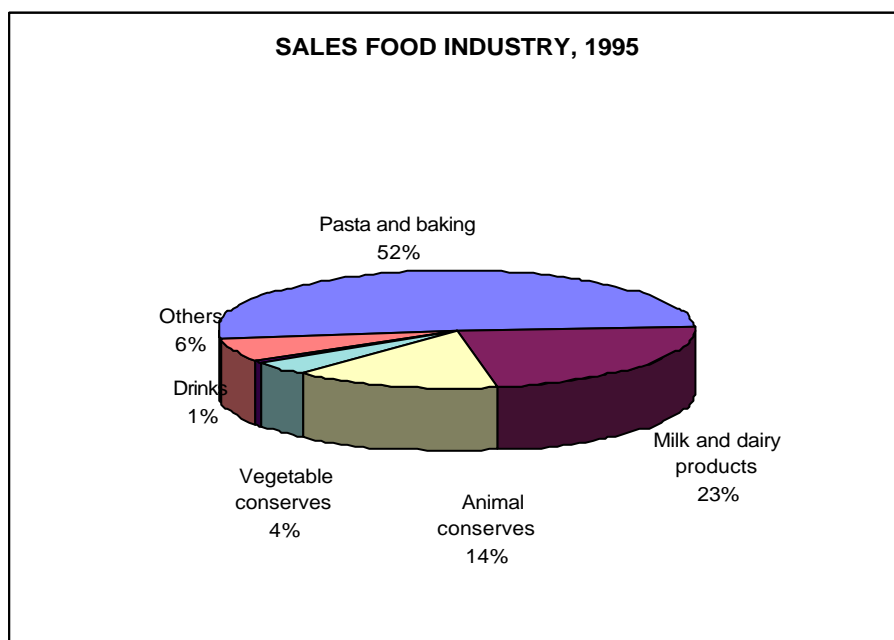
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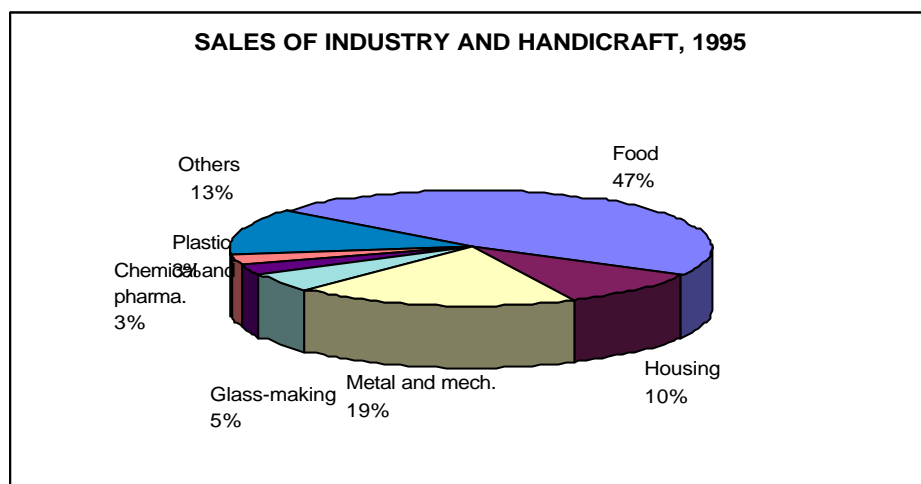
Tab. 1: Food industry and its manufacturing equipment

Year 1995	Sales (billions £)	Employed*	Export (billions £)
Pasta and baking, pastry, cereals, sugar, soups, frozen-food	6,200	6,500	382
Dairy products, milk, ice-creams	2,600	2,000	37
Animal preserves and butchering	1,600	4,000	170
Vegetable and fruit preserves	450	1,255	185
Drinks: mineral waters, non alcoholic drinks, wines, spirits.	80	300	6
Other sectors: fishing industry, feeding, etc.	340	150	59
Food Equipment	2,200	8,700	1,187
Total (food and equipment)	13,470	22,905	2,026
Total (industry and handicraft)	23,900	65,000	3,747

Source: Unione Parmense Industriali, 1996

* ISTAT, 1991 Census.





Parma represents 1/4 of the workers of the regional food industry, which is second at national level, and 3.5% of the national total amount.

Tab.2: Local unity (Ul) and employed (Ad), food industry and other connected industries

	1951		1961		1971		1981		1991	
	Ul	Ad	Ul	Ad	Ul	Ad	Ul	Ad	Ul	Ad
Tot.	1 083	5 097	1 133	7 957	1 484	11 133	1 849	14 550	1 352	13 960

Source: ISTAT

Parma places itself, also, among the first Italian cities for its living standard and its income per head. The composition of its production reveals, moreover, the ascent of the services sector, which covers today 60% of the value of the local production of goods and services. Moreover, the composition of the workers points out a generalised expansion of the tertiary sector in the economy of Parma.

Tab. 3: Some economic indicators of the primary sector

Year	% employed	% Added Value *
1936	59,6	60,1
1951	48,7	42,3
1961	32,2	32,4
1971	19,3	13,2
1981	12,7	6,6
1991	8,9	5,3
1996	7,5	3,5

*on the economic total amount

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Source: our calculations

1.2 Parma agri-business

From the analyses of the composition and value of the Saleable Gross Output⁴ it is possible to get the quantitative aspects of the specialisation process performed by parmesan agriculture. Today livestock production covers 80% of the output, with an increasing quota of milk. The prevailing importance of livestock production makes parmesan agriculture similar to northern European countries; as a result, at national level, livestock covers 34% of the total Final Output (46% in Northern Italy), while in the countries of Northern Europe it covers a superior percentage: 64% in Holland, 62% in Belgium and France, 71% in Germany.

Today big proportions of agricultural (tomatoes, sugarbeets) and livestock production are transformed straightway by local industrial equipment whose dimensions are capable of gathering also, and most of all, products coming from other areas, just as it happens for milk and durum wheat.

Tab. 4: Final Output of agriculture, chosen years (composition)

	1938	1950	1960	1970	1980	1990	1996
Vegetable production	55.56	52.47	39.8	35.66	29.55	26.33	19,7
Livestock:	44.45	47.54	60.20	64.33	70.45	73.67	80.3
cow's milk	14.82	17.85	26.38	32.24	34.44	36.01	61.59

*: provisional data

Source: elaboration about data of different origin

The remaining agricultural production quota is assigned to the processing (industrial and/or artisan) of products which are protected by DCO (Designation of Controlled Origin) and/or DPO (Designation of Protected Origin). Parmigiano Reggiano cheese⁵, typical pork such as Prosciutto di Parma, Culatello di Zibello (both DPO), Salame di Felino, Coppa di Parma and typical wines and mushrooms (Borgotaro).

There are two distinct typologies of the production process: the production of ham follows industrial schemes, while the production of Parmigiano and wine is based on artisan methods.

With regard to the agriculture-processing connection, it is very strong in the case of milk-Parmigiano Reggiano processing, because almost all the milk produced in the province is transformed in Parmigiano Reggiano.

⁴ To compare the assets of different years, it was necessary to relate them to one year, 1980. For this reason all the assets referred to preceding years were multiplied by a specific coefficient relative to the wholesale price index (coefficients deduced from an ISTAT publication, *Il Valore della Lira..*), while the assets referred to years after 1980 were deflated by indexes of prices of products bought and sold by agriculture.

⁵ Parmigiano Reggiano (from now on indicated as PR) is a cheese made with milk of cows, whose basic feeding is forage from field and alfalfa meadow grass. Rigorous standards, established by law, determine the method used in the production of cheese.

In 1960 Parma represented 22% of the total production; today it covers 32%.

Today the production of PR represents 15% of Italian cheese market and more than 30% of DCO and labelled cheeses, which represent about 75% of all cheese manufacturing in Italy; 75% of the milk used in the production of PR originates in Emilia Romagna (from now on indicated as ER), the second most important region in dairy production after Lombardia (respectively producing 20% and 35% of the national dairy production).

More feeble is the (present) connection between hograising and the processing industry of salt pork. As a result, today less than 1/10 of pig legs comes from the provinces. According to the percentage method, assuming the local agricultural production is 100, 85-90% is addressed to manufacturing (artisan or industrial). And assuming the total agricultural production is 100, the resulting DCO products are about 70% of the total agricultural production, which is above 700 billions of £- in current £.

With regard to the present destination of pork meat, according to production typologies, we point out: "Prosciutto di Parma" (Parma ham), "Salame di Felino", "Culatello di Zibello", "Spalla di S. Secondo".

Since 1963, when the Consortium was founded, the production of typical raw ham has passed from 50.000 raw hams to almost 7.8 millions in 1996; in particular the development of the production took place after 1970, when the designation of origin "Prosciutto di Parma" was approved. Today Parma raw ham covers 45.5% of the national raw ham market.

It's common knowledge that the life of the two leading products, that is Parmigiano and Prosciutto, have something in common.

The evolution of the organising, technical and global aspects, in other words, of the product-production system has changed, especially during the last century and, as a result, today the organisation and the relations with the territory of the two most important and typical products are undoubtedly typical. To analyse the two cases and to achieve the above-mentioned purpose, we have elaborated two different methods in order to reveal the peculiarities of these two experiences.

1.3 Parma Raw Ham and Parma cheese history in short

a) The history of PR originates in the period of the Roman colonisation in the Cisalpine region. According to the tradition, the place of origin of PR was between the actual provinces of Reggio and Parma. The word "parmigiano" appears in 1300.

Strictly correlated to milk processing was hograising and, consequently, pork processing.

In particular, ham processing has very ancient roots both in the area of Parma and, on the whole, in western Emilia Romagna. Until the end of the XIX century hograising represented an economic incentive to an agriculture based essentially on share-cropping management (*mezzadria*).

b) As regards cattle rearing, after the economic boom of the Sixties, while the number of heads of cattle didn't change, the number of farms rapidly diminished.

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Tab. 5: Reared cattle, milk cows and farms

	Cattle	Milk	Farms
1868	66 946	-	-
1908	137 000	-	-
1936	193 000	100 000	-
1961	249 984	123 296	22 662
1970	197 484	99 794	15 197
1982	198 993	98375	8 109
1990	191 461	107 109	5 166

Source: studies based on data of various origin.

In 1990 the number of reared cattle was 191.461, of which 107.109 were milkcows. Cattle stock was distributed among 5.166 farms (reduced by 47% with respect to 1970). 32% of the heads was concentrated in farms of considerable dimensions (163 heads of cattle on average); however, there were also farms with less than 10 heads of cattle.

90% of milkcows was concentrated in the plain area and in the hills. The strains were in the main the Italian Friesian (85%) and the Brown Swiss (13%).

Cooperation was very important in the Sixties: cheese dairy co-operatives represented about 45% of cheese dairies in the province, and the average quantity of processed milk for each dairy was 480 tons, which was larger than the quantity of private cheese dairies.

In 1990 the active co-operative cheese dairies were 75% on the whole and they processed about 90% of milk, partly produced by partners and partly gathered from about a thousand of private farms.

Tab. 6: Cheese dairies; processed milk per cheese dairy and production of PR (province of Parma)

	Cheese dairies	tons PR
1921	420	6,500
1955	540	14,800
1961	533	15,800
1965	485	14,500
1970	448	15,600
1975	383	15,475
1980	335	17,734
1985	346	29,100
1990	277	32,000
1996	229	37,213

Source: Consortium of PR

c) During the period 1950-1970 the amount of reared hogs passed from 50.841 to almost 200.000 heads.

Between 1961 and 1971 an industrial kind of raising started gaining importance, connected to cheese dairies and which availed itself of a large amount of whey.

Hograising was assuming the typical dimensions of an industrial kind of activity, although the bond with the dairy-factories was still strong, but decreasing.

In the Seventies breeding was deeply transformed: from 1970 to 1990 the amount of reared heads increased by 34%, while the farms reduced by 90%. The peculiarity of the farms of Parma was represented by the fact that they were almost exclusively interested in the fattening of suckling-pigs, often bought outside the province.

In 1990 38% of the farms were located in the hills, 42% on the plain and 20% in the mountains.

With reference to the amount of heads of cattle, 36% of the whole was concentrated in the hills, 58% on the plain and only 6% in the mountains (in this area the loss, by 21% with respect to 1992, has been more abrupt than the 15% of the province).

Full-owing farms represented 80% on the whole (34% of heads), while farms based on wage labour were 19%, but they covered 66% of reared heads; in fact, the average quantity was 128 in full-owing and 1.057 in the ones based on wage labour. This means that only a 30% of heads was left to smaller farms (especially those connected to cheese dairies).

Tab. 7 : Heads of hogs and hograising farms

	hogs	farms
1868	55 000	-
1961	100 000	-
1970	194 344	7 503
1982	309 806	2 348
1990	265 163	875

Source: studies based on data of various origin

d) In 1996 only 40% of hogs was still raised in cheese dairies. This quantity is still decreasing because of the always more urgent necessity of rationalising raising methods, in particular in the light of recent adjustments to sanitary measures and to rules related to the reduction of the influence on environment.

In fact, this body of rules represents the main obstacle to the development of the sector, in relation to the complex ecological question essentially bound to water pollution caused by hograising.

2. THE CHAIN (FILIERE) OF PARMIGIANO REGGIANO

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To study the case of Parmigiano Reggiano (hereafter PR) we have used the *chain analyses*⁶. PR has been the subject of many studies in Italy because of a number of interesting economic and social factors: these studies began with a theoretical analysis of the determinants of demand, supply, market behaviour and have now developed in an analysis of chain. This sector has been one of the first in Italy that has been studied from a chain point of view, with a particular attention being paid to the different factors that contribute to the production and improvement of the product.

The choice of studying PR by using the chain analyses corresponds to a hypothesis of authors who, considering all together the characteristics of the product and of the connected production units, considered that PR couldn't be totally assimilated to the reality of the agro-industrial district. Other important studies (Iacoponi, 1994) esteemed that the agro-industrial district could easily adapt itself to the reality of PR. On the other hand, there are authors who are in agreement with our hypothesis (Bertolini, 1988).

2.1 Localisation and main aspects on raw material sector

As noted before, the origin of milk for the production of PR covers the provinces of Parma, Reggio Emilia, Modena and parts of Bologna and Mantova; the first four provinces are in Emilia Romagna, while Mantova is in Lombardy. Thus, the link between the production zone of PR and the source of raw material is very strong in Emilia Romagna; about 75% of the milk produced in Emilia Romagna is processed into PR (Tab.2); in the mentioned four provinces (representing 80% of the farms and the cows of the region) almost the whole dairy production is directed to PR.

⁶ The concept of *chain of production* is used to describe technical operations, from raw materials to products. From the beginning to the end of this process, the operations follow one upon the other, using technologies which have no correlation, inside different firms. The unifying factor is the final product. The function of the chain concept is to point out the degree of interdependence of the production system and its historical function is to interpret those interdependencies and emphasise the poles of attraction. The agrofood chain is related to the itineraries followed by products inside the production, processing, distribution systems and to the connected various fluxes.

According to Malassis (1973) the study of a chain involves:

- a) the identification of the chain by pointing out: its products, the courses they follow, the agents, and the relations that connect them, the different operations;
- b) the analyses of the structure and the working of markets, State intervention and economic planning

The chain concept is very similar to the idea of integration, however, it expresses something more than a mere amount of processing phases. In particular, the chain unit has been used to point out its leading activities and localise public action avoiding useless dispersal of resources.

Tab. 8: Total production in Emilia Romagna (ER) and weight of milk produced for PR

	ER production (00 tons)	Milk for PR
1985	17,166.2	61%
1991	18,228.0	75%
1995	17,793.0	75%

Source: calculation on ISMEA and Consorzio PR data

In 1995 milk produced for PR in the 'typical zone' was about 1,45 million tons, 1,34 million tons of which were produced uniquely in the region ER. The milk produced in ER comes from many small (less than 20 hectares) family farms; many of them found in the disadvantaged hill and mountain areas: 43% of total amount of cows is in this area.

Recent studies pointed out remarkable processes of reorganisation, with a progressive concentration of cows in the largest farms especially in plain areas. In this respect, the data from the Third and Fourth Census of Agriculture underlined an acceleration of this process: in this short period, the number of farms in ER was reduced by 40%, passing from 30659 to 17982, and the average herd size passed from 12.3 cows in 1982 to 20.8 in 1991.

This reduction took place in different ways according to altitudinal zones: it was particularly marked in the mountain and plain areas (-43%), while it was much weaker in the hill areas (-38%). Today 28% of the farms and only 15% of the cows are concentrated in the mountain areas, while in the hill areas we have 30% of the farm and 28% of the cows, and in the plain zones we have 42% of the farms and 57% of the cows. Concerning the distribution of cows in medium and large sized farms see Tab.3.

Tab. 9: Cows distribution in ER

	1982			1990		
	Farms	Cows	% Cows	Farms	Cows	% Cows
Mountain	8832	58698	16	5124	57883	15
Hill	8693	100872	27	5368	105158	28
Plain	13143	218464	57	7490	211395	57
Total	30659	378034	100	17982	374436	100

Source: calculation on ISTAT (Central Statistic Office) data.

As far as it concerns the distribution of cows in the various types of farms, the small farms (with less than 20 cows) represent 66% of the total; the medium sized farms and large farms ((20-49 and more than 50 cows) represent together the remaining 34% of the farms, but concentrate 75% of the cows. This phenomenon is becoming more intense in the last ten years: in 1982, actually, only 55% of the cows was concentrated in this second group of farms bred (Tab.4).

The number of small farms is particularly reducing in the plain areas, whereas in the mountain areas dairy farming constitutes an important link between man and territory, an essential element in the protection of the natural environment and also an indispensable condition for the continuation of other economic activities.

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Tab. 10: Distribution of dairy farm in ER

Dimension	Farm	Cows	Average	Farm	Cows	Average
1-5	12,764	37,052	2.9	4,336	12,497	2.9
6-9	6,514	46,902	7.2	3,016	22,134	7.3
10-19	6,523	85,550	13.1	4,582	62,069	13.5
20-49	3,714	105,527	28.4	4,378	128,800	29.4
50-99	846	54,111	64.0	1,243	80,312	64.6
> 100	298	48,892	164.1	427	68,624	160.7
Total	30,659	378,034	12.3	17,982	374,436	20.8

Source: calculation on ISTAT data

In the period between the two last Census of Agriculture, the drop in the number of cows has been slight, especially if we consider that at the end of the Nineties some restricting rules of EEC have been strengthened (Regg. 857/84 and 1546/88 recently modified by Regg.EEC 1183/90 and 2138/90). The effects of this restriction of EEC policy in the production zone of PR is partially offset by a favourable milk price trend. The positive trend in milk price and the increased productivity has maintained Emilian milk farmers' incomes at a level superior to the average in agriculture. In the last 5 years the net income per hectare has been stable and family income per work unit increased. In the last ten years a comparative enlargement of the farms has reduced the difference between ER and Europe, while there remains a significant difference between ER and the rest of Italy, where the average dimension of the farms is smaller.

Tab. 11: Average size of dairy farm in ER

	Mountai		Hill		Plain	
	1982	1990	1982	1990	1982	1990
1-5	2.9	3.0	2.9	2.9	2.8	2.7
6-9	7.1	7.2	7.2	7.3	7.2	7.5
10-19	12.6	13.1	13.1	13.6	13.3	13.8
20-49	26.2	28.2	28.2	29.5	28.8	29.7
50-99	65.5	62.3	63.8	64.1	63.8	65.1
> 100	151.3	131.1	145.8	147.5	169.6	167.1
Total	6.7	11.3	11.6	19.6	16.6	28.2

Source: calculation on ISTAT data

If we look at the ratio of cattle to hectares, we find out that it is bigger in the plain than in the mountain areas. The reduction of intensity in the disadvantaged areas brings attention to the natural environment and to the quality of the product, which depends on the cows' feed rations originated in the same area.

2.2 Cheese dairies

As we observed before, the farms that produce milk are closely linked to the cheese dairies. This is evident from the large amount of milk producers' co-operatives (82% of the total). This link between cattle breeding farm and cheese dairy is one of the most particular aspects of the productive filière and has both advantages and disadvantages.

In the private cheese dairy the farmer buys the milk and processes it, with all the risks this entails. The co-operative cheese dairy, which is the most common in the area, processes milk of its members (breeders); the cheese dairy has an average of 35 member-breeders supplying milk.

Tab. 12: Distribution of cheese dairies

	Private	Cooperati ve	Total
1955	729	1,627	2,356
(%)	31	69	100
1992	134	653	787
(%)	17	83	100
1995	119	533	652
(%)	18	82	100

Source: calculation on 'Consorzio PR' data

Relating to 1996, in the same way as milk, the cheese dairies are numerous in ER: 92% of the total is concentrated in this region. These 649 cheese dairies are the highest number of productive units for the dairy sector, which is a very important sector of the whole regional economic system.

Tab. 13: PR Cheese dairies

	Emilia Romagna	(%)	Total typical zone
1980	1,069	90.7	1,178
1985	898	90.4	993
1991	763	91.2	837
1996	597	92.0	649

Source: calculation on CPR data

There are great differences between the structures of PR and the structures of milk for industrial processing, which have industrial production, while PR still retains artisan characteristics. This is evident if we compare the quantities of milk processed in the farms: 1,800 tons in the cheese dairies against an average of almost a thousand tons in fresh milk.

Regarding the distribution of the cheese dairies, 2/3 of PR is now produced in the plains, and the rest is equally distributed among the hills and the mountains; the highest number (229) is concentrated in Parma, followed by Reggio Emilia (199).

A great decrease in the number of cheese dairies has taken place since 1955, when PR was given the DCO brand; the 2300 units in the fifties have fallen to the current 649, with a strong restructuring process (Tab.11).

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Tab. 14: General data on restructuring process

	Cheese dairies	Production n	Average
		(tons)	(tons)
1955	2,356	57,0000	24,2
1970	1,652	76,2650	46,2
1980	1,178	79,4832	67,5
1991	837	106,2640	127,0
1996	649	104,8960	161,2

Source: calculation on CPR data

The farms that processed up to 1,200 tons of milk in 1985 represented about 50% of the total, while only 15 years before they represented more than 80%. The reduction has been greatest in the plains than in mountains where there are many more limitations to the concentration, related to the distances between farm and cheese dairies. Currently, the Consortium rules state that a cheese dairy must be situated in a place central for the milk producers.

As we said before, the production capacity of each cheese dairy increased even if many big differences remain, especially between hill and mountain areas.

Tab. 15: Milk processed (tons) per dairies, 1996

	Plain	Hill-Mountain
Parma	2,5314	1,8438
Reggio Emilia	2,6789	1,8491
Modena	2,5915	1,4771
Mantova	3,4207	-
Bologna	2,1786	2,0047

Source: calculation on CPR data

Moreover, these different typologies of factories and the provinces have evolved differently in the process of restructuring and concentration from 1955 up to now: so there is a bigger reduction in private structures, and between different provinces; Parma has the bigger drop in firms (-50%), followed by Reggio Emilia (35%), Modena (27%), Mantova (22%) and Bologna (18%). The current situation shows the prevalence of Parma and Reggio Emilia (65% of cheese dairies).

Tab. 16: Distribution of cheese dairies by province

	1955	1996	Var. %
Parma	560	229	-59
Reggio Emilia	669	199	-70
Modena	723	153	-78
Mantova	301	52	-82
Bologna	32	16	-50

Source: calculation on CPR data

A strong variability in productivity is illustrated in an analysis of all the cheese dairies of Parma province, where the data show better performance by co-operatives.

Tab. 17: Productivity (mould yearly produced) per work unit in Parma province, 1991

Dimension (00 tons)	Co- operatives	Private	Mountain	Hill	Plain
< 8	1,626	748	1,817	1,691	933
8 - 16	1,435	946	1,160	1,655	1,533
16 - 24	1,586	1,356	1,607	1,868	1,542
24 - 36	1,585	1,520	1,479	1,621	1,612
> 36	1,448	1,252	1,500	1,682	1,402

Source: calculation on CPR data (one mould= 0.035 tons)

The relationship between co-operatives and milk producers establishes fixed links between them and introduces some rigidities into the whole system, with much inefficiency especially in the use of equipment. We must consider that the system has already other rigidity problems because of difficulty in adapting equipment to the seasonal variability in the production.

If we consider the strategies of the cheese dairies up to now, their main efforts have been in the reorganisation to a bigger scale; the most common dimension is still small, especially if compared to the producers of Grana Padano. This is the strongest competitor of PR and cheese dairies equipment processes more than double the quantity of milk.

Another element becoming more and more important in the PR zone is attention to the quality, with the gradual introduction of the payment milk according to quality: the number of cheese dairies that adopted this strategy goes from 32% in 1984, to 41% in 1985, to 60% in 1996.

From this it is evident that the cheese dairies face many problems; we must also remember the undercapitalization (typical in co-operatives), low rotation in storehouses (that causes a lengthening of the financial cycle and worsens the liquidity of the invested capital).

From the analysis of the data of a sample of cheese dairies (all situated in Parma province and representing 33% of the total) we also notice that the current processing structure and the relationship between the agents of the chain are more complicated than they appear. This is due to the fact that approximately 90% of the co-operative cheese dairies let out dairy collection and processing on contract to artisans ('casaro'). These artisans are paid according to the quantity of processed milk. The strategy of the contract is used less in small (< 800 tons of processed milk) or very large (>3,600 tons) cheese dairies.

2.3 Ripening and distribution

After the stages of milk processing and the connected operations, the cheese needs a long process of maturing, afterwards continued in adjoining store rooms.

This aspect of the production process has particular importance for product quality and needs heavy financial investment for the equipment of the storehouses, where the product must remain for the ripening period (18-20 months). It also needs a large amount of capital because of the time lapse between production and selling.

So, from a technological point of view the maturing is a very important stage of the production process, while, from an economic point of view, it is the farthest stage from breeding and

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processing and differs from them both in dimensions and operative strategies. 70% of the cheese dairies have installation that are not large enough to contain their own output for maturing.

The most part (85%) of PR is distributed through a 'long channel'; with the intermediation of the wholesaler-seasoner between cheese dairy and consumer. The remaining PR is sold in farm shops annexed to the cheese dairies (direct channel) or conveyed to co-operatives and retail traders ('short channel'). In this way, the ripening stage of a great part of the production is mostly entrusted to farms external to the processing and of quite different types. They range from wholesalers who ripen the product directly before selling it to the complex structures of consortia, that collected co-operatives. These represent an important aspect (even if it is not big) because they connect production to ripening and avoid the speculations, that cause the cyclical crises typical of PR. Today 80% of the production of PR is seasoned in private structures, where the production of the co-operatives is also taken, while the consortia control only about 15% of the ripening. Private farms, as said before, are spread among many different subjects: there are more than 250 wholesalers, but 90% of the market is controlled by 1/5 of them.

The wholesalers-seasoners often turn to the store rooms of banking companies, from which they obtain a loan with 'pledge on product' with a slightly reduced rate interest. The seasoners' role is important because they have a strong market power that could frustrate the attempts of the producers to control the market fluctuations: for instance, because it could nullify the supply autoregulation policies that have been realised, with many difficulties, in order to stabilise market and prices.

On the other hand, the wholesaler-seasoners are the ones who take the risk of the ripening (in terms of final quality of the product) and the problems of tied up capital.

One of the biggest problems in the management of the wholesale-ripening farm is the fraction of the ageing and marketing costs, that vary considerably according to the dimension of the farm.

2.4 The 'cyclical crisis' of PR

The 'PR cyclical crisis' (every 5-6 years) has been the subject of many studies.

The most important reasons for these cycles seem to be:

- small dimension of dairy farming (milk producers) and cheese dairy;
- fragmentation of agents (farmers, cheesemakers, seasoners and retailers) who are responsible for the production and valorisation of PR.

Regarding the first reason, the deep division between farmers-cheesemakers and wholesaler-seasoners was indicated as the most dangerous cause of instability of the chain. These facts demonstrate that a conflict still exists in the filière and it is not resolved by social solidarity.

This behaviour leads to a lack of transparency on the market, and increases the fluctuations due to the demand. The length of the response process makes it difficult to forecast the sales and prices and leads to speculative behaviour.

It is interesting to examine comparatively the dynamics of production costs and consumer prices during the last ten years. The 'gap' between market and production decisions, can be calculated from annual analysis.

Some mechanisms have been introduced to manage these crises and to stabilise the market:

a) the attempt made to restructure the dairy farm and the cheese dairies sector, to favour the adoption of scale economies;

b) supply limitation (fixing of a certain productive level, inferior to the equilibrium level) applied by all the cheese dairies together to keep up prices. Up to now the self regulation hasn't been very successful because of the lack of unanimity in the decisions taken by some filière agents.

Recently quotas policies adopted by the Consortium were in contrast with milk quotas policies established by the European Union. It is necessary to point out, on this subject, that milk quotas assigned by the European Union to the production zone isn't sufficient to cover the present supply. The overabundance of milk (production - milk quotas) is equal to about 130,000 tons. The introduction of milk quotas represents a limit to the development of farms and, at the same time, to the growth of cheese dairies. In fact, the first ones will have to reorganise their production by buying quotas from less efficient dairy farms which will have to leave the market. Co-operative cheese factories, instead, will have to "look for" new partners. On this subject, considering the peculiar structure of co-operatives, the only farms which might enter the system of PR are those which are presently supplying food industry with milk and which might change the destination of their milk only if the differential between the "processing value of cheese factories" and milk prices would become particularly significant.

c) to increase the intervention of the 'agricultural parties' in the seasoning and distribution of PR: this will mean more responsibility for the cheese makers' co-operative than now.

The solutions are supported by the ones decided at EU level. In particular, it is important to point out that since 1994, with the enactment of Regulation 1880/94, the Commission suppressed the aid for public storage of PR, maintaining, however, the aid for private storage (Reg. EEC 2569/94).

With reference to Emilia Romagna, the payment (enactment of Reg. 2569/94) in 1995 corresponded to about 66,2 billions of lire, equal to about 66% of EU support to Emilia Romagna dairy sector, transfer payments that in 1995 reached the threshold of 99,7 billions of lire. It was especially traders that took advantage of this support and not co-operatives, and, consequently, not farmers. In fact, there are few co-operatives which carry out the second seasoning and when they do they gather in Consortia of second level which, then, put on the market the seasoned product on their own.

The seasoning inside a cooperative cheese factory lasts only one year, because farmers have increasing financial requirements to face the costs of their activity. Moreover, the growth of a farm makes the system more rigid, because it increases considerably the level of advances that breeders have to face.

For this reason, co-operative cheese factories reflect, more than commercial strategies of processing factories, commercial strategies typical of farms, which are put into practice for the reasons already mentioned, by minimising production costs, most of all the financial ones.

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d) Up to now, diversification of output in cheese dairies (for example soft-cheese) is not widespread.

e) the 'quality payment' of milk has been introduced more recently. The opportunities for the future, considering also the bond of the milk quotas that (after a non-fulfilment by our country over many-years) will become effective, depend on a qualitative improvement of production and a better remuneration for milk, especially the one produced in unfavourable areas.

2.5 The quality

The connection between all the elements analysed up to now, and the further justification for the adoption of the chain analyses to examine the sector of PR is realised by a common component represented by quality.

In fact, every economic dealer involved in the chain operates according to a "qualitative" logic, which gives the possibility of differentiating a product and of assuring a *premium price*.

It is some years since the Consortium of PR pointed out, inside the policies based on quality, a strategic element to face either problems related to the market and those related to the restructuration of the production system.

As regards market, the main statement of reasons for the adoption of quality policy comes from the increasing attention that consumers pay to the purchasing of high quality products, determined not only by the intrinsic characteristics of the product, but also by food safety and healthful ingredients of the product (low fats products).

As regards the production system, the adoption of quality policy represents an important tool to face some problems which come from the current process of concentration. First of all the problem of limiting the production of scrap cheese, which can't be exposed to second seasoning, causing economic damages to the seasoner.

The current concentration, either in dairy farms and in cheese factories, has provoked a remarkable increase of processed milk for each cheese factory, with the final risk of increasing the quantity of cheese not suitable for seasoning. An attempt is being made to insert, inside a technological system of artisan characteristics, a series of controls and procedures that make the productive process more standardised, in other words, similar to industrial processing.

The quality policy started by the Consortium is based on a process certification, regulated by UNI EN ISO 9002 rules, by means of which the following goals will be attained:

- 1) the defence of tradition and the methodical and controlled respect of *cahiers de charges*;
- 2) the rationalisation of management along the whole productive chain;
- 3) the adjustment to the new Italian and European rules related to quality assurance.

The first two points show that the attention of the Consortium is paid especially, on one hand to management, from a quality point of view, of the process of renewal which characterises the productive sector of PR, on the other hand to the organisation of a more effective co-ordination along the whole chain

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The final aim is the reduction in the quantity of scrap cheese, which has a negative influence either on the budget of co-operatives and on the consumer, from the point of view of its image.

2.6 Some considerations

It is clear that PR system can be considered as a complex system, in which co-ordination among economic actors takes place through a chain mechanism, "cause-effect", which connects directly producers to processing and commercialisation.

Given the widespread on the territory of productive activities bound to the production of PR, the most characteristic element of the system is represented by the rigidity of production which has effects that influence directly the market, causing the mentioned cyclical crises.

Recently, producers' worries about the market, have been followed by the actual beginning of the quotas system. This might influence in a negative way the future of PR, because it would not allow to use the productive potential that PR was capable of reaching in the past. In particular, the cut of 130,000 tons of milk, necessary to return to be within the quota, would penalise not only producers, but also cheese factories that, in this very cyclical phase, have to conform to EEC 43/92 regulations.

In the presence of unfavourable market prospects, the attempt of the Consortium of PR of making the associated cheese factories adopt the way of qualitative improvement, should be considered positively, because it guarantees the consumers constant quality and it gives the possibility of improving the returns of cheese factories, as a consequence of the cut in the production of scrap cheese.

3. THE CASE OF "PROSCIUTTO DI PARMA"

To examine the Parma ham case (Parma ham is a raw -uncooked- ham), we used the idea of *agro-industrial district*.

The idea of Marshallian Industrial District has been recently applied to the agro-industrial system for analysing and interpreting the relationships among agriculture, industry and the socio-economic environment over the course of time, finding out specific intermediate survey unit.

The study of the evolution of connections between local pig breeding and seasoning industry of pork provides useful starting points to comprehend the formation and development of a district, and to elaborate some explanatory lines about its future.

The unit of research *agroindustrial district* (AID) connects itself to the idea of marshallian industrial district (MID).

The unit of research AID is useful to check present connections between agriculture and industry, with the aim of considering the degree of involvement of the production of agricultural raw materials within the remaining agroindustrial system.

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This integration can be considered from various angles: in function of local interdependencies (Iacoponi, 1987) or in function of market (Casati, 1988).

In the definition of agroindustrial district, Iacoponi refers to the idea of “agribusiness” (Davis and Goldberg, 1958); the agro-industrial district carries out on the territory, within a precise area, all the three stages of “agribusiness”: “farming, farm supplies, processing and distribution”. Moreover, Iacoponi, following the distinctive characteristics of the industrial district defined by Beccatini, picks out the peculiarities of agro-industrial district.

Agro Industrial District conditions:

1. a typical product is made;
2. the production process can be taken apart and can be divided;
3. the territory offers a concentration and a specialised production of the factories;
4. connections among industries create the so-called “community market”;
5. relations between people favour a special informing atmosphere.

The definition adopted by Cecchi (1992)⁷ applies the adjective “agro-industrial” only when processing industry of agricultural raw materials has a high level of independence from the local primary sector, to the point that the supplying of agricultural products takes place most of all outside the district; on the contrary, when agriculture integrates with an industry which has n’t got other markets which provide raw materials, we are referring to an “agricultural district” (Cecchi, 1992).

We examined two elements to identify the “critical” aspects of the district of Langhirano: the prominence of the processed raw material of local origin on the whole and the contrast between local system and big firm vertically integrated.

With reference to the first point, analysing the Langhirano case, we have pointed out a reality which is developing in the way described by Cecchi (1992). The development of the agro-industrial district begins when, on a well-defined territory, the native traditional industry (made up of many firms of small dimensions), which processes agricultural products using industrial methods, gives rise to the broadening of the purchasing area, to the point that local agricultural production is confined to a marginal role.

With reference to the second point, in the area in question we noticed a typical development based on small domestic firms which were able to exploit the economies outside the firm (the forming of a Consortium, the processing on behalf of a third party, the widespread of innovating capacities, and so on). The localisation inside the area of the district has become an element of competitive success by comparison with the firms outside the typical area. Capitals, know-how, enterprising abilities, innovating incentives have a common origin within the district.

⁷ Cecchi (1992, p.96) points out some distinctive characteristics of agricultural district: a strong prevalence of agricultural production... the presence of processing industry of agricultural products,... characterised by a large number of firms and connections especially with local agricultural producers”. The agroindustrial district, in contrast, is characterised by a “consistent presence of agricultural production (achieved by a large number of small firms) that lives and connects itself with the processing industry of agricultural products (still with a large number of small firms); ; but the primary distinguishing factor will be represented by the fact that processing industry will make use most of all of agricultural products coming from outside the district. (p.97).

An important contribution to the birth of the district was given by the influence of a particular kind of mentality deeply rooted in every social strata, which originated from the country family⁸ and, in particular, from the presence of sharecropping management, which characterised local agriculture⁹. It is common knowledge that sharecropping played an important part in paving the way for a widespread enterprising spirit.

The deep respect for the importance of family and of solidarity among its members, of country extraction, characterised the first seasoning factories which for a long time preserved their domestic characteristics. And the signs of family factories are still visible today in many enterprises which are in trouble when they have to find a worthy succession for their leader.

And also the capitals that till then were by tradition invested in the land, discovered new and more rewarding investments. Among these investments, seasoning factories began to be in need of new financial resources. The particular kind of mentality that characterised this generation of undertakers who, as we have already said, were of country origin, had made sure that the capital requirement hardly came from financial agents. People turned especially to private saving assigned by other members of the family or of the same community. Also from this point of view cultural and social bonds prepared the ground for the development of new activities.

3.1 Distinguishing characteristics of the agro-industrial district

The spatial concentration of factories

It is important to check the actual concentration of numerous small firms specialised in a particular production, on a limited but not stable territory. The area concerned with this phenomenon shouldn't be urbanised with big metropolis, but should be included in a specific area where town and country live together. In the picture of regional production of hog-seasoning, the concentration of this kind of activity on the territory is extremely evident: the province is occupied by 50% of the factories. If one refers to the production of raw ham, it is possible to notice how this activity is further concentrated in the province: in fact 2/3 of the production of the entire region is processed within this area. This high production specialisation is achieved by a very large number of firms of small and medium size. The province of Parma, which preserves its traditional inclination to processing and ripening of pork, presents on its territory, and particularly in some towns, a peculiar density of firms.

The high concentration of firms in the hills¹⁰ stands out clearly. Considering on the whole the towns of the agro-industrial district, it is possible to obtain much more interesting results. In 1990

⁸ In the heart of the country family the concept of work as a primary value was slowly taking shape, together with the idea of personal responsibility as a means of improving one's position (on this theme see Paci, 1980).

⁹ Sharecropping concerned until the end of the Sixties about 1/4 of farms located in the hills.

¹⁰ In the hills there is a concentration of 73,8% of establishments. As it can be noticed, the larger amount of pork industries is located in the valleys of the most important rivers of the province. And so, 54% of the industries is located in the communes of river Parma valley (Langhirano, Lesignano, Tizzano and Corniglio), 20% in the

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there were 282 firms with 2358 employed. A large number of specialised firms, whose dimensions are undoubtedly medium-small, as the average of the workers and the establishment shows (about 8,3). In 1990, out of these 282 firms, 215 were recognised by the Consortium for the production of Prosciutto di Parma. These 215 establishments represent 68% of the whole of the province and 76% of the establishments located in the area with "designation of controlled origin"¹¹.

Tab. 18: Distribution of factories and workers (1990)

	Factories	Workers
Plain	30	308
Hills	232	2,134
Mountains	52	226
Total Province	314	2,668
Total AID	282	2,358
% AID / TP	90%	88%

Source: FLAI-CGL

As regards the factories producing Prosciutto di Parma they amounted to 201 in 1993¹², according to Consortium data. It's important to point out that 113 firms, that is 56,2 %, are joint-stock companies (S.p.A and S.r.l.), while 88, which represent the remaining 43,4% are partnerships. Supposing that business names can be considered in some way as indicators of corporate sizes, we can assert that the considerable incidence of partnerships attests that many firms are still today of small size, supporting the hypothesis that in this decentralised area , starting from the second post-war, a very particular kind of development set off, compared to the industrial development of the big firms in north-western Italy.

It was a "self-centred" kind of development based on the growth of numerous small firms able to exploit in the best way the resources of the territory.

As regards the demographic trend, in Collecchio and in Langhirano not only the decrement rate of inhabitants has decreased but it has also become positive; the same happened in the other hilly villages.

valley of the torrent Baganza (Sala Baganza, Felino, Calestano) and 10% along the river Taro (Noceto, Collecchio, Medesano, Fornovo, Solignano, Borgotaro, Albareto).

¹¹ The commune which records the largest number of firms on its territory is with no doubt Langhirano, with its 99 firms, followed by Felino with 37 factories, Sala Baganza and Lesignano 24. Therefore, Langhirano, the historical capital of ham appears to be the centre of the potential district, followed by the above-mentioned communes of Sala Baganza, Felino, and the most important centres of the typical production area identified by legislative measures, such as Collecchio, Calestano, Corniglio, Tizzano, Palanzano, Neviano Arduini, Traversetolo, Medesano and marginally Varano Melegari, Solignano, Fornovo and Montechiarugolo

¹² The commune characterised by the largest number of firms is still Langhirano which counts 81 firms, followed at a distance by Tizzano and Lesignano with 17, Felino with 16, Sala Baganza with 14, Collecchio 13.

As for Collecchio the reason for it is the closeness to Parma and the presence of a strong food industry, while for Langhirano the reason lies in the development of the district.

Tab. 19: Demographic trend

	1961/51	1971/61	1971/51
Calestano	-20,31%	-16,29%	-33,3%
Collecchio	-2,04%	8,8%	6,58%
Corniglio	-15,92%	-24,87%	-36,7%
Felino	-13,53%	-4,13%	-17,1%
Fornovo	-6,89%	-1,01%	-7,8%
Langhirano	-9,09%	0,12%	-8,87%
Lesignano	-18,9%	-14,48%	-30,6%
Medesano	-9,27%	-3,13%	-12,1%
Neviano	-26,57%	-26,39%	-45,9%
Palanzano	-21,74%	-26,72%	-42,6%
Pellegrino	-25,39%	-34,22%	-50,1%
Sala B.	-14,77%	-8,32%	-21,8%
Solignano	-24,43%	-18,94%	-38,7%
Tizzano	-16,84%	-17,74%	-31,6%
Traversetolo	-3,77%	-3,29%	-6,7%
Varano	-17,84%	-17,46%	-32,2%

Source: Census, 1951, 1961, 1971.

Tab. 20: Demographic trend

	1981/71	1990/81	1990/71
Calestano	-11,55%	-3,65%	-14,78%
Collecchio	12,07%	1,75%	14%
Corniglio	-15,56%	-12,94%	-26,49%
Felino	24,76%	18,65%	48%
Fornovo	-3,1%	-0,3%	-3,4%
Langhirano	8,78%	1,87%	10,82%
Lesignano	12,6%	16,52%	31,28%
Medesano	7,6%	1,9%	9,75%
Neviano	-10%	-7,8%	-17,13%
Palanzano	-11,78%	-11,2%	-21,65%
Pellegrino	-19,9%	-9,24%	-27,36%
Sala B.	23,57%	6,15%	31,2%
Solignano	-0,8%	6,7%	5,8%
Tizzano	-12,1%	-12,5%	-23,2%

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Traversetolo	12,9%	9,5%	23,7%
Varano	-5,2%	-2,17%	-7,27%

Source: Census, 1971, 1981, 1990.

*The external economies of scale*¹³

The considerable concentration, in a delimited area, of industrial activities is the result of the continuous improvement that has involved numerous seasoning factories arose in the Fifties, together with a series of connected activities. This has brought about the formation of a “localised accumulation” of numerous firms, bound by industrial relations, and characterised by a certain temporal stability. In the same way as in the marshallian districts, the growth zone of these establishments has got a precise sectorial connotation which identifies the typical industry, in this case the ham seasoning industry.

Beside this primary activity, a wide range of auxiliary industries has developed with the passing of time and with which various connections have been established. A structure has been formed to obtain a typical product, with which different and subsidiary firms cooperate. Therefore, there is a range of “diagonal” relations relative to the development of services for seasoning industry, such as mechanic industries specialised in the building of equipment and machineries for pork-meat industries, firms that provide industrial refrigerating units, seasoning plants, carrying trade firms. Then, there is a flourishing of other activities, still characterised by the fact that they provide various services: building enterprises, firms related to the building and maintenance of electric and hydraulic plants, and also offices of qualified accountants and business consultants¹⁴.

The formation and the development of all these relations among small industries is important for the survival of the district, because they provide, with a peculiar adaptability, specific and efficient services for the establishments of the seasoning industry. In this way, finding on the local market services necessary to production, seasoning industry hasn't been “obliged” to overload the corporate structure, by providing by itself for what, instead, was offered by the local market. As a matter of fact, facing this alternative, firms opted for buying instead of making.

Besides this kind of “diagonal” relations there is also a wide range of “lateral” relations among firms, due to the presence, in a limited area, of industries that produce the same products using similar methods. Relations of this category of industries are essentially based on keen competition which grants a continuous effort to maintain sufficiently fair the prices of the exchanges among different dealers.

Through the use of external economies there has been the creation on the territory of those necessary conditions for the survival of small industries. Such economies, which are outside the industry but inside the district, are given also by the possibility of acceding, quite easily and with informal negotiations, to services that are particularly aimed at their necessities. This has been in

¹³ While “internal economies of scale” depend on resources of single firms, on their organisation, internal efficiency and administrative abilities (these are advantages attainable through the dimensional development of industry, which gives the possibility of improving possible connections between different elements of production), “external economies of scale are a result of what is known as “general industrial development”.

¹⁴ According to data provided by the Consortium in 1992, the lump sum of the employed in the production of typical ham and in the auxiliary indirect activities is 3,500.

the past, and in some ways is still today, the deciding factor of the birth and development of seasoning industries. All this has been realised thanks to the phenomenon defined as “widespread entrepreneurship/enterprise”, according to which once there has been the creation of favourable circumstances for private enterprise, this takes shape by exploiting every opportunity offered by the development of the leading industry. “Self employment” has become an attainable goal, thanks to various initiatives which take shape by working and offering services to numerous industries on the territory. Private initiative, in a dynamic environment such as the one of the district during the last thirty years, has found a propitious ground for its development. Ham market lived a continuous development and, in case of business failure, the prospects of employment were such as to make less traumatic the reinstatement in the production system: even if the initiative hadn’t been successful, opportunities of wage-and salary work wouldn’t have been lacking.

The community market

The achievement of the external economies examined above comes from the formation, inside the district, of what is defined as “community market”. Economic relations among firms are characterised, on one hand, by a keen competition which urges them to find the best productive solutions, on the other by co-operation and mutual confidence. In fact, institutions as the Consortium probably have played an important part to preserve the “sensation of membership”, which is a necessary element for the growth of the district, even if this “sensation of membership” has deep social and cultural roots that are the basis of the communities in which every actor of the district takes part. There are attitudes and traditions that are universally shared and that have a deciding influence on economic relations. The entrepreneurs share the same language, have similar stories and probably know each other personally. Obviously, this involves a constant interaction, not only among experts of seasoning, members of institutions and of the same community, but also interaction with other economic subjects that offer services and raw materials. The awareness that these relations are continuous and very frequent causes the lateral correlations and the exchanges to take place in accordance with usual practice. In fact, an opportunist attitude will only have a negative effect on the future course of one’s activities, because reputation is considered as a basic principle in business. And so, in accordance with this process, dealings are made in an informal way, though reality is quickly evolving.¹⁵

Innovation

With reference to the technical innovation of the production process, we must remember that it developed in a totally independent way, according to evolving patterns suggested by the most examined district analyses. At the beginning processing methods derived essentially from rural tradition; they were extremely simple and based on the use of sodium chloride and of peculiar expedients connected to the airing of rooms, achieved thanks to the winds that blow in the valleys

¹⁵ From this point of view, it is very important to participate at Modena’s “Monday market”. This weekly meeting represents an important occasion, not only for the contracts that are made (which are often concluded outside this centre), but most of all for the contacts with people and the exchange of ideas.

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of the rivers of this area. Real difficulties arose when , with the introduction of refrigerated holds, people tried to get free from difficulties related to seasoning and wanted to transform the poor local production, characterised by artisan peculiarities, in a product realised on an industrial scale. In fact, it was necessary to learn how to apply this invention, derived from other sectors, to the necessities of a traditional production. This was achieved thanks to the continuous testing of alternative solutions of businessmen who risked their own activities to resolve such problems. The solution was found in an empirical way. Only after constant tests people discovered which were the decisive elements of success. The fact that in such a limited area many specialised people were not only involved in production, but constantly committed on this front, permitted a decisive, generalised effort. The ability to get over technical difficulties was further developed by frequent and direct contacts among various experimenters. Membership to a common social-cultural structure played, since then, a decisive role for progress inside the district. In fact, besides favouring various opportunities of direct connections (local market, religious feasts, family ties), this atmosphere of continuous research and improvement was effective on other industries. The fast propagation and sedimentation of knowledge and competencies enabled people to share this “industrial climate” which was extremely creative. The fact that a lot of people achieved and, contemporaneously, studied solutions for the critical paths of the production process has been, since the birth of the district, a deciding element for the development of a widespread innovating ability. Constant technological growth was based on the widespread idea of “learning by doing” and of “learning by using”.

All this has been achieved thanks to the existence of a substantial mobility among industries which has made possible the spreading of knowledge and of technical improvement inside a plant to other realities. At first the role of seasonal technicians was very important. Then, and still today, the widespread was due to the so-called refrigerator “frigoristi”, and salter “salatori”. The first ones are those technicians who are interested in a very crucial phase for the achievement of a successful production, that is the installation and maintenance of refrigerated rooms. They are self-employed workers who work for different firms and, in this way, get experience in the evaluation of solutions arranged by different firms. If a certain method or a new expedient results particularly effective, the technicians divulge the information, suggesting similar solutions in other plants. Practically, this is what happened when a firm introduced in its structure cells equipped with airing and with a phase of warm temperature. Such an expedient, widespread by now, seemed totally in contrast with the methods used till then, but it turned out to be a very effective method against dampness, thanks to the intuition of a firm and its propagation by the refrigerator. The same thing happened with regard to the phase of “cold temperature” to which pig legs are exposed (from a period of only 60-70 days, at first, to 90-100 days now everywhere). The other important figure is the “salter”, in other words the person responsible for the production inside a firm. He too is a self-employed person who, moving from a firm to another, carries with himself experiences and methods proved in the different plants where he has worked.

The widespread of innovations in every part of the district has contributed enormously to the achievement of an important collaboration with local mechanical firms that , in a short time, have specialised in putting right particular equipment for seasoning industry. Thanks to constant direct contacts between these two kinds of firms, new solutions have always been studied for the mechanisation of the most difficult processing stages, by creating plants arranged for this purpose

which in no way are available on the market. In this way, for example, there has been the introduction of belts and machines that wash, presalt, move and massage ham.

The fast and easy access to the technical improvements achieved inside a district¹⁶ and the ample availability of skilled labour had a considerable influence on the productive growth. In fact, those who in the beginning had been simple financiers of others' initiatives could easily take advantage of these opportunities to start working in business on their own. After having achieved positive results from their investments they decided to invest directly their capitals in an activity, by exploiting a kind of know-how easily available on the market¹⁷.

3.2 The future of the district

At this point we ask ourselves if the district, as a local model of development, can conform perfectly to "new" productions on markets not yet conquered, or if it has to develop towards the realisation of bigger productive units, able to avail themselves of internal economies of scale. The flexibility and adaptability of small firms seems not sufficient to face on the market the availability of one's capitals and the privileged appeal to the credit that big industries have with the aim of developing their plants and cutting down expenditures. Therefore, the survival of minor industries seems to be bound to their capacity of following the way of high quality. As there is no direct connection between dimensional development and realisation of a product of high quality, such firms can find for themselves suitable places on the market which give them the possibility of controlling prices that can cover higher production costs.

The opportunity of renovating the district or its definitive disappearance to the advantage of big firms, depend on the ability of firms to identify the most effective strategies and to take advantage of the opportunities offered by the market.

From a theoretical point of view, analyses of the social economical development of territorial areas which are characterised by a particular concentration of firms, through the unit agro-business district, is certainly very useful because it provides effective instruments for the comprehension of reality. Contemporaneously, however, it isn't able to give totally exhaustive explanations, especially when the evolution which is under way, testifies an extremely dynamic situation in which the subjects evolve and change their function and their importance inside the territorial productive system.

Another feeble aspect of AID is represented by the (increasing) weight of unbranded production on the whole of raw ham sector; even though we don't dispose of official data, we can estimate that the unbranded production passed from 20% on the whole in the first years of the Eighties, to 50% in 1990 and 150-200% today! Unbranded production, in its turn, comes partly from raw materials of national origin (10-15%), and the remaining quota comes from foreign raw materials. The supply of unbranded production is a strategy of the producers which, in our opinion, doesn't find a solution to market crises, but pushes it to extremes, and, moreover, represents the weak point of the survival of the agro-industrial district, which includes not only the agricultural sector,

¹⁶ From the analyses of patents of agro-food industry (Fanfani and others, 1994), it results that in Langhirano the most important patents related to meat processing and preserving were filed.

¹⁷ The subject of investments, credit and self-financing, and on the whole of financial management is today a key problem for the firms of the district. The analyses suggested by us ignores it on purpose.

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directly and immediately penalised, but also the processing system of local propriety and the same culture that permeates it. This phenomenon seems strictly linked to the introduction inside the district of foreign capitals, attracted by high profitability and, on the whole, by the desirability of business.

As to the problems linked to overproduction, with reference to Prosciutto di Parma, today the Consortium has obtained the authorisation, regulated by Art. 4 of 287/90 Antitrust law, for the adoption of “programming plans” during the 1995-1998 period.

In fact, according to the Autorità Garante della Concorrenza e del Mercato (Anti - Trust Authority), programming plans, waiting for the complete adoption of those measures related to qualitative control, improve supply conditions as they operate for the increase of qualitative level of production. Therefore, programming plans involve an essential advantage for consumers and, moreover, restriction of competition seems necessary to the achievement of a general improvement.

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