POLITECNICO DI TORINO

Corso di Laurea in Management Engineering

Tesi di Laurea Magistrale

DOP, IGP and STG in the Italian agri-food sector. The performance of denominated Sicilian agricultural products

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DICEMBRE 2020

Abstract

This thesis aims at analysing the scope and the impact of denominated Food and Wine products on the Italian economy.

The initial part describes the denominations and how these can be obtained, including who are the players which are involved in the process and what are their roles.

In the following part it has been explained how the concepts of Consumer Theory are related to the denominations, in order to understand how the perception and the understanding of high quality products is important.

Starting from ISMEA (Istituto di Servizi per il Mercato Agricolo Alimentare, Institute of Services in Agri-food Market) data it has been possible to focus initially on the Italian Panorama with a deep analysis on sectors that have a strong presence of Big Players. Subsequently the focus shifts on the specific case of Sicily, one of the most important regions in this sector.

With the participation of Comune di Ragusa it has been possible to focus on three cheese products: Pecorino Siciliano DOP, Ragusano DOP and Piacentinu Ennese. These products have been compared to the leaders of the market in order to understand which can be the solutions that can take place in order to enhance their penetration in the domestic and the foreign markets.

In the final part of the thesis, it has been studied the specific case of the Wine e-commerce platform Tannico in order to promote a solution which can be applied in the Food sector also.

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Chapter 1

Introduction on the Certifications

1.1 DOP, IGP and STG

Quality-certified products represent the Italian excellence in the agri-food sector as a key for competitiveness in Europe and the world. More specifically, we consider in our analysis three different kinds of quality certification:

- **DOP – Denominazione di Origine Protetta (*Protected Designation of Origin*)**:
  A name which identifies the belonging of a product to a place, region or country. The quality and characteristics of the product are hence derived specifically from the natural environment, natural and human factors and the production phases which take place in the determined location of origin.

Figure 1.1: DOP logo

- **IGP – Indicazione Geografica Protetta (*Protected Geographical Indication*)**:
  A name which - again - indicates the belonging of the product to a

determined place, region or country and attributes the quality to the specific location itself. The reputation derives from the carrying out of the production (or at least one of the inherent phases) in a determined geographic zone.

Figure 1.2: IGP logo

- **STG – Specialità Tradizionale Garantita (*Granted Traditional Speciality*)**:
  STG products are the result of specific recipes and traditional transformation methods. The products become specialities due to the raw materials and ingredients which characterize them, regardless of the geographical indication of production.

Figure 1.3: STG logo

The denominations bring an added value to the products, which gives economic advantages and growth opportunities to the producers and high-quality products on the consumers' tables.
The DOP system, besides being a prestige and economy driver, gives Italy the proper instruments for the fulfilment of the European Green Deal, written by the European Commission (Brussels, 11 December 2019). The document represents a response to the challenges of climate change and species extinction. The aim is to transform European economy and society in order to put it on a more sustainable path. The role of the denominations is of tracking the productions and transformations to ensure the zero-emission of greenhouse gases and the respect of the environment.
In this scenery, the Italian agri-food system enjoys with no doubts a great competitive advantage, thanks to its 824 recognitions. In details, Italy counts

300 different certified food products among DOP, IGP and STG and 524 wine products in terms of DOP and IGP.

1.2 The main players

As it is possible to imagine there are several players in the DOP system, which participate in different ways to the validation, achievement and maintenance of the certification.

- **Producers and transformers of agri-food product**s
  According to the ISMEA (Istituto di Servizi per il Mercato Agricolo Alimentare, Institute of Services in Agri-food Market) report of 2019, Italy counts over eighty thousand agri-food operators involved in the DOP system. Although this is a very small portion of the total of agri-food operators present in the territory (which amounts to more than a million of people), they contribute to the production or transformation of goods with an overall value of around 16.2 Bln €.

- **Agri-food unions**
  The Italian Ministry of Agricultural, Food and Forestry Policies declared that in 2020 there have been counted 161 agri-food unions which treat DOP and IGP products on the national territory. These associations are made up in order to preserve the products checking the compliance with the DOP/IGP specifications and to promote market opportunities for producers and transformers. Some of them have also a research role and verify the presence of new possibilities in terms of new products to be added to the certification system. This happens, among the others, with the CoRFiLac (Consorzio per la Ricerca nel settore della Filiera Lattiero Casearia) in Ragusa, Sicily which treats in particular two kinds of cheese: the Ragusano DOP and the Piacentinu Ennese DOP.

- **Italian and European Government**
  Governments play an important role in the path which leads to the obtaining of the DOP or IGP certification. In particular the procedure involves firstly the Regional Administration body under which the producers develop their activities; the forward step requires the participation of the Italian Ministry of Agricultural, Food and Forestry Policies; finally the European Commission makes the ultimate judgement of the documentation related to the product. As far as the STG is concerned the iter is analogue.

1.3 The DOP/IGP certification for Agri-Food products

The European Regulation of reference which is used is the 1151/2012. Regulation 1151/2012 on quality schemes for agricultural products and foodstuffs came into force on 3 January 2013, repealing and replacing Regulations 509/2006 and 510/2006. It merges into a single legislative instrument the three complementary regimes of Geographical Indications (GIs or PDOs/PGIs - DOP/IGP), Traditional Specialities Guaranteed (TSG - STG) and the new Optional Quality Terms (OQTs). Moreover, the new Regulation establishes a unified legal structure designed to regulate certain general aspects common to GIs and TSGs such as definitions, controls and procedures.

The request can be presented by any group of producers and/or transformers which belongs to a delimitated territory and which treats the same product as object of request.

1.3.1 Filing of the demand

The official demand has to be presented to the Regional Administration body and to the Italian Ministry of Agricultural, Food and Forestry Policies. The fundamental documents in order to proceed are:

- The constitutional act of the association of producers/transformers
- The documentation about product specifications (see point 1.2.2)
- Name, address and contacts of controlling body related to the product
- The report about the historical background of the product and applied processes
- The technical report of the processes
- The socio-economic impact analysis of the product
- The cartographic documentation in order to individuate properly the site of production
- The abstract containing the final synthesis of what specified above

1.3.2 Product specifications document

The elements of the document are:

- The name to be protected
- The product description, including raw materials and the physical, chemical, microbiological and organoleptic characteristics
- Definition and description of the geographic zone
- Certificate of Origin of the product coherent to the declared zone
- Description of the procedures for obtaining the final product, the traditional methods (if present) that are used and the packaging system
- Any rule related to the labelling of the final product

1.3.3 Evaluation of the application

There are several necessary steps to follow for the evaluation of a DOP/IGP application. Initially the qualified Regional authority examines the application. In case of positive outcome of the analysis this is sent to the Ministry which will do a further examination and ask for eventual clarification within 90 days. If there is a notification of clarification, the applicant has to give proper response within 60 days, otherwise the application will be considered null. At the end, if there is a positive evaluation of all the documentation, the Ministry communicates to both the applicant and the Regional authority the approval of the product specifications.
The product specifications document is also published on the Official Gazzette of the Italian Republic in order to allow anyone with a legitimate interest and resident on national territory to raise eventual objections which have to be presented within 30 days from the publication. These objections, if present, have to be analysed within 45 days and sent to the applicant, who has 30 days for replying. After this process the Ministry sends the application to the European Commission.
The amount of time that is available for the Commission to evaluate the application is six months. Observations can also arise from this process. After this period there are three additional months available for any opposition. If none of these eventualities happens, the name is finally registered.

1.4 The DOP/IGP certification for Wine products

The request can be presented by any workers' union which includes all the winemakers involved into the process.

1.4.1 Filing of the demand

The demand has to be presented to the same entities involved in the agri-food products sector and must contain:

- The name to be protected
- Name and address of the applicant
- Constitutional act of the association or union
- List of involved winemakers and the relative participation in the production process
- The relation about product specifications from which is clearly understandable the bond with the production zone
- The documentation about the historical background
- The socio-economic impact analysis of the product
- The cartographic documentation in order to individuate properly the site of production
- The abstract containing the final synthesis of what specified above

1.4.2 Conditions on representativeness

Winemakers must respect certain parameters in terms of representativeness.

- In case of **DOC (Denominazione di Origine Controllata- Controlled Denomination of Origin)**, the winemakers must represent at least the 35% of the total number of winemakers interested in that product. The surface considered for the certification must be at least the 35% of the total exploited in the last two years.

- For the **DOCG** certification **(Denominazione di Origine Controllata e Garantita - Controlled and Granted Denomination of Origin)** the winemakers must represent at least the 51% of the total number of winemakers interested in that product. The surface considered for the certification must be at least the 51% of the total exploited in the last two years.
- In case of **IGP** the winemakers must represent at least the 20% of the total number of winemakers interested in that product. The surface considered for the certification must be at least the 20% of the total exploited in the last two years.

1.4.3 Product specifications document

For both DOP and IGP it is necessary to specify:

- The name to be protected
- The description of physical, chemical, microbiological and organoleptic characteristics
- Definition and description of the geographic zone
- The maximum yield of grape per hectare and the concerning fraction of wine produced measured in $\frac{Litres}{Hectar}$
- Indication on the varieties of grapes and wines obtained
- Description of the procedures for obtaining the final product
- The enological practices which are used
- The name and address of the control body
- Any rule related to the labelling of the final product

1.4.4 Evaluation of the application

Similarly to what happens with the agri-food sector, the application is firstly evaluated by the Regional authority and within 90 days it is verified the compliance of the documents with both national and European legislations. After this step, the documents pass to the Ministry which, within 60 days from the reception, calls for a public reunion with the applicant. After the

approval of the product specifications document, this is published into the Official Gazzette of the Italian Republic. Hence, within 60 days, there is space for eventual counter-deductions to eventually modify the application and send it back to the applicant.
The final passage is of competence of the European Commission which analyses the application and the compliance with the European requirements. There is hence a time span of two months for eventual oppositions. Finally, the Italian Ministry of Agricultural, Food and Forestry Policies publishes the whole documentation in the Official Gazzette of the Italian Republic.

1.5 The strategic role of certifications

The strategy for enhancing DOP and IGP production and distribution depends on the dimension of markets.
In markets with small offer volumes, the productions are generally low as the companies are tendentially small with very few human and financial resources and insufficient competencies for facing new markets. All these reasons make the perspective of growth very difficult to reach. In this scenario, the offer satisfies a local demand made by occasional customers (tourists, visitors, online buyers) who relate themselves to the product thanks to the value and image of the territory. In addition to this, the market does not present particular barriers to entry for DOP and IGP products even with high prices. However, in order to realize a strong competitive advantage, companies cannot ignore the necessity of verifying multiple aspects like the positioning of the product and the effects on customer choice.
For markets with high offer volumes the main difficulties are related to the high pressure based on price-wars between competitors. This dynamic is typical of GDO channels in which the offer of products, both certified and not, is wide. This does not mean that requests of high quality are absent, but the importance of final price is heavy. In order to make consumers willing to pay a premium price, important marketing strategies have to be applied, so that the certified product can be perceived as the one with **highest utility**.

1.5.1 Consumer theory

As we know, the choices of a consumer are affected by a series of reasons like the perceived value of the product and his budget constraints. The quantity

of goods purchased with a given income depends on their price.
The **Budget Line** is a straight line that slopes downwards and consists of all the possible combinations of the two goods which a consumer can buy at a given market price by allocating all his/her income. We assume that the consumer allocates his income only on two goods, X and Y, and we do not consider savings.
The Equation of the Budget Line is:
$P_x * Q_x + P_y * Q_y = M$
Where,

- P_x is the price for goods X;
- Q_x is the quantity for goods X;
- P_y is the price for goods Y;
- Q_y is the quantity for goods Y;
- M is the total income of consumer.

To be clear, let's make an example with the following data:

- $P_x = 10$
- $P_y = 5$
- $M = 50$

Combination	Q_x	Q_y
A	5	0
B	4	2
C	3	4
D	2	6
E	1	8
F	0	10

Table 1.1: Example of bundle of products X and Y

In *Figure 1.4* we can have a look at what the budget line could be.

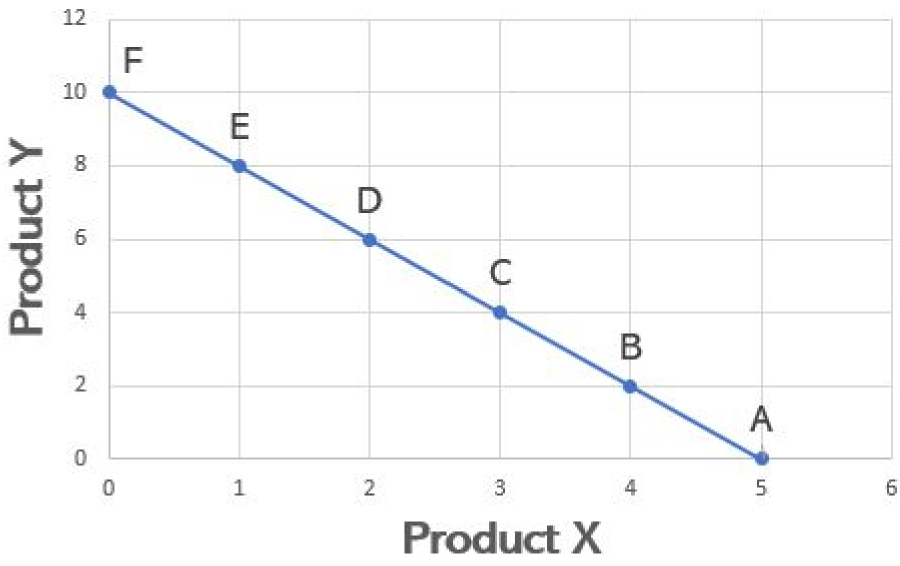

Figure 1.4: Budget Line

As consumption moves along the budget line, the consumer spends less on one item and more on the other one. Baskets located above the budget line are not affordable and the ones below do not exhaust the budget.
Points A and F correspond to the intercepts of goods X and Y, that is the maximum amount of good X or Y that can be bought with that income.
The budget constraint allows consumers to buy baskets on and inside the budget line. In mathematical terms:

$$P_x \times Q_x + P_y \times Q_y \leq M$$

The location of the budget line depends on the level of income and on the prices of the goods that a consumer purchases.
As incomes and prices change, there are changes in budget lines. In cases of income change, the budget line shifts outward, parallel to the original line (holding prices constant), hence more of both goods can be bought.
If the price of one good increases, less of its quantity can be bought, making the budget line rotate inward, pivoting from the other good's intercept.

Having clear in mind the concept of Budget Line we can now go deeply into the explanation of **Consumer Choice** into the context of geographic indications.

If we assume that a consumer makes purchasing decisions rationally and we know his/her preferences and budget constraints, we can determine the optimal choice.
The maximizing market basket must satisfy two conditions:

- It must be located on the budget line. All income must be spent. *More is better*, but no more than that.
- It must give the consumer the most preferred combination of goods and services.

As mentioned before, the choice of the customer is affected by **Utility**, the maximum satisfaction that a consumer has in purchasing a determined good or service. Generally, the optimal choice for a consumer is hence expressed as

$maxU(x, y)$
subject to:

$P_x \times Q_x + P_y \times Q_y \leq M$
At the optimum all the income will be spent, hence $P_x \times Q_x + P_y \times Q_y = M$.

In the market of food and wine, one of the main issues which regard customers is represented by the **Information Asymmetry** related to the products.
In particular in the case of differentiated products, the information related to the goods are very dispersive and do not allow customers to understand the real value and the utility of certain categories of goods.

The role of certified producers is hence that of communicating and transmitting the higher quality of their products in order to be more attractive and make the customers willing to pay a price premium for these goods. If the quality perceived is higher, hence the utility can rise and the income spent will be higher.

Nowadays agri-food firms and have great expectations on the positive effects that denominations can exert on international markets. However these effects are strongly influenced by structural elements both of agri–food firms and the production system, such as the specificity of DOP or IGP product itself, the existence of a critical mass (in particular to penetrate commercial channels as large retailers) and consumers' perception of DOP or IGP

symbol. For what concerns this last aspect, it is important to stress that on long–distance markets consumers can consider DOP and IGP as **guarantee tools** (and in this sense reduce information asymmetries) or **quality cues**, as intrinsic attribute of products.
DOP and IGP labels may act as a "key" to open long distance commercial channels (for example, export channels): in fact, amongst potential effects that certifications may have on markets there are:

- The exclusion of non-authentic origin products
- The creation process of reputation and visibility for labelled products
- The access to modern and/or long commercial channels (especially those which show higher informative gaps)

In addition, DOPs and IGPs can become an important competitive lever for agri-food firms which want to penetrate new long-distance markets which present a higher level of information asymmetry.

Denominations can also raise some issues of competitiveness. The risk is related to the possibility of anticompetitive practices and cartellization. Big players of the market represented by important producers' unions can have a strong influence on prices, raising barriers to entry. In the presence of these dynamics, the overall welfare (the sum of consumers' surplus and producers' surplus) may be strongly influenced.

1.5.2 The difficulties in the evaluation of DOP and IGP effects

The high number of DOP and IGP which have has registered in the last years can be seen as an example of the high expectations which these denominations represent to the eyes of entrepreneurs.
The effects of geographical denominations regard several aspects such as:

- Management of new market sector of high quality products
- Relationship with the territory
- Relationship with European and Italian Government
- Roles of different players through the production chain

As it will be shown in the following chapter, there is an extremely diversified situation in terms of performances, where few big players get the lion share of the market (i.e. Grana Padano DOP and Parmigiano Reggiano DOP or Prosciutto di Parma DOP and Prosciutto San Daniele DOP).
There is a phenomenon of co-presence of small companies and extremely big ones in the same market: this causes from one side enormous difficulties in developing commercial strategies and from the other the necessity of associating with other members of the market to develop communication and marketing strategies.
Another characteristic in the panorama of denominations concerns the "geographical extension" of the DOP/IGP products. More specifically, there are products which are produced just in one Italian region and others which involve different regions. As a consequence to this, the number of operators working on the goods is extremely unbalanced.
Big products are mostly sold through GDO channels, on the contrary, small ones are relegated to traditional and local channels. This happens because of the lack of means and economic resources for many operators. In *Table 1.2* we can see the main costs and benefits for companies that work with DOP and IGP products.

Costs	**Benefits**
Preliminary costs	Price Premium
Direct Costs on controls	Possibility of growth of sold quantities
Indirect Costs for organization and structure adjustment	Stability of commercial relationship
Eventual costs of non conformity of products	Opening of new selling channels
	New quality systems adopted
	Reputation Effect

Table 1.2: Cost and Benefits of DOP/IGP denominations

Finally, a very interesting phenomenon is the **Spillover Effect** of the denomination: the best product in terms of reputation can be taken as an example by other players in the market to establish a new direction for their products in order to take advantage of these positive effects.

Chapter 2

DOP Economy

2.1 The Italian perspective

In this part of the analysis, our focus will be on the influence of certifications on the Italian Economy. These have a dual role as from one side they are the main driver of the Dop Economy which bonds perfectly with the Italian food industry, from the other one the Geographical Indications leads to the diffusion of quality inside the national and European territory.
The Geographical Indications represent not only a tourism driver but also an all-around economic engine for big and small players of food industry.

2.1.1 Performance Indicator

In order to understand the value of Italian certified products it's important to define some **Key Performance Indicators**. These instruments have been used by ISMEA in its last report about the Italian agri-food market of 2019. The institute is the main source of information and research centre present in Italy and collaborates directly with MIPAAF (Ministero delle politiche agricole alimentari e forestali, *Minister of Agricultural, Food and Forestry Policies*).

- **Number of operators**
  The numerical data are provided by **ISTAT**(Istututo Nazionale di Statistica - *National Institute of Statistics*) and **ISMEA** (Istituto di Servizi per il Mercato Agricolo Alimentare - *Institute of Services for Agri-Food Market*). If one subject is involved in different DOP and IGP products related to different regions, it is counted as unique operator for each

region. The operators which are both transformers and producers are counted just one time.
This data is fundamental to understand the presence of work force in the various food categories and wine. The number of workers reflects directly on the importance that each good has on the certified products' economy.

- **Production Value**
  This value is calculated considering the quantity of the entire certified production of the category at the average national production price. The price is given by the analysis of the agri-food unions of the specified category or wine ones.

- **Consumption Value**
  This value is calculated considering the quantity of the entire certified production of the category at the average national consumption price. The price is given by the analysis of the agri-food unions of the specified category or wine ones. It may also be given by the ISMEA Observatory on agri-food products selling.

- **Value on Export**
  This value is calculated considering the quantity of certified production destined to the foreign market. The price considered is the average price of export, which is given by agri-food unions of the specified category or wine ones.

2.1.2 The Italian Panorama

Through the following table we can have a look at the actual (last update: 2018) declared certifications for food and wine.

2.1.3 Italy and the World

According to **ISMEA** (Istituto di Servizi per il Mercato Agricolo Alimentare - *Institute of Services for Agri-Food Market*) Report of 2019, Italy is the first nation in the world for number of certifications with 824 DOP, IGP and STG in both food and wine sectors. Compared to the rest of the world (3,071 certifications) Italy hence represents the 27% of the whole scenario.
In the year 2018, the number of IG kept growing with a +31 in Europe, which is the main continent, and a +1 for extra-UE countries.

FOOD DOP IGP STG Italy	
Number of products	300
Value at Production	7.26 Bln€
Value at Consumption	14.4 Bln€
Value on Export	3.6 Bln€
Number of workers	80,255

Table 2.1: Main performance indicators of food sector in Italy

WINE DOP IGP Italy	
Number of products	526
Number of produced bottles	3.07 Bln
Value at Production	8.93 Bln€
Value on Export	5.44 Bln€
Number of workers	102,450

Table 2.2: Main performance indicators of wine sector in Italy

2.2 Food sector

In the following section the focus shifts on all the elements and characters which are the core of the complex environment of food certifications.

2.2.1 Operators

The first important element of the environment is represented by the **operators**.
They are defined as "any person which is involved in one or more phases of the production process of Wine or Food".
An operator may fall into two categories, or both of them:

- **Producer**: operator which exercises production activities on raw materials destined to become DOP or IGP products.

- **Transformer**: operator which elaborates or transforms raw materials into final products.

DOP, IGP and STG in Europe		
Nation	**Food**	**Wine**
Italy	300	524
France	251	435
Spain	198	138
Greece	109	147
Portugal	139	40

Table 2.3: Top five countries for presence of certifications in Europe

Operators and Categories	
Cheese	28,801
Meat products	4,018
Fruit and Vegetables	20,060
Balsamic Vinegar	681
Olive Oil	21,698
Fresh meat	10,370
Other categories	1,136
Total operators	80,255

Table 2.4: Number of Operators for food category in Italy

In the table above, and as specified at the beginning, the operators which are both transformers and producers are counted just one time.
The operators represent a fundamental resource in the field of agri-food production and according to this it's important to analyse how different is the impact and the numerical presence of them on the Italian territory.

The weight is calculated as the percentage of the number of workers for each region over the total number in Italy.

Region	Number of Operators	Weight
Abruzzo	983	1.2%
Basilicata	176	0.2%
Calabria	1,248	1.5%
Campania	3,492	4.2%
Emilia-Romagna	6,675	8.1%
Friuli-Venezia Giulia	701	0.9%
Lazio	2,789	3.4%
Liguria	1,179	1.4%
Lombardia	6,569	8.0%
Marche	968	1.2%
Molise	216	0.3%
Piemonte	4,264	5.2%
Puglia	4,272	5.2%
Sardinia	13,484	16.4%
Sicilia	4,394	5.3%
Toscana	12,368	15.0%
Trentino-Alto Adige	11,430	13.9%
Umbria	2,058	2.5%
Valle d'Aosta	688	0.8%
Veneto	4,312	5.2%
Total	84,266	

Table 2.5: Number of Operators for Region in Italy

2.2.2 Cheese products

Cheese represents the most produced food category and hence it is the one with the highest production value among all. More specifically, it represents the 57% of the Production Value of the whole panorama and the 50% of the Export.
In Emilia-Romagna and Lombardia we have the 67% of the overall value an it has to be said that the former preserves the highest value products with

Cheese	
Products	53
Certified Production	544,000 Tons
Production Value	4,099 Mln€
Consumption Value	7,156 Mln€
Export Value	1,777 Mln€

Table 2.6: DOP and IGP Cheese data in Italy

outstanding numbers if compared to the rest of the National Territory. In fact, as we can see on the *Table 2.7* the most valuable product, Parmigiano Reggiano DOP and Grana Padano DOP are both produced between Emilia-Romagna and Lombardia. These two regions have respectively a value on production of 1,4 Bln€ and 1,3 Bln€.
In order to better understand how outstanding the production of these two cheeses is, we can have a look on the value of the following products, which falls on 410 Mln€, around a-third of the top ones.

	Production (Tons)	**Production Value (Mln€)**	**Consumption Value (Mln€)**	**Export Value (Mln€)**
Parmigiano Reggiano DOP	144,020	1,434	2,443	598
Grana Padano DOP	190,558	1,277	2,193	711
Mozzarella di Bufala Campana DOP	43,393	410	766	136
Gorgonzola DOP	58,192	332	582	129
Pecorino Romano DOP	34,183	234	425	129
Asiago DOP	20,805	100	170	9
Montasio DOP	6,449	44	66	4
Taleggio DOP	8,801	40	106	33
Provolone Valpadana DOP	6,281	35	77	1.6
Pecorino Toscano DOP	3,344	28	60	8.1

Table 2.7: Top Performances of Italian DOP Cheese (2018)

In year 2019, Grana Padano has been the most sold cheese in Italy. As confirmed by IRi (Information Resources, Inc.), around 1,6 Mln of units have been commercialized, over the total of 3,3 units. Parmigiano Reggiano follows it with around a million of units. An important business driving factor relies on the fact that both of them consider the GDO as the main channel of distribution with the 70% of their units destined to it.

According to CLAL (Dairy, Agriculture and Pig sectors consultancy com-

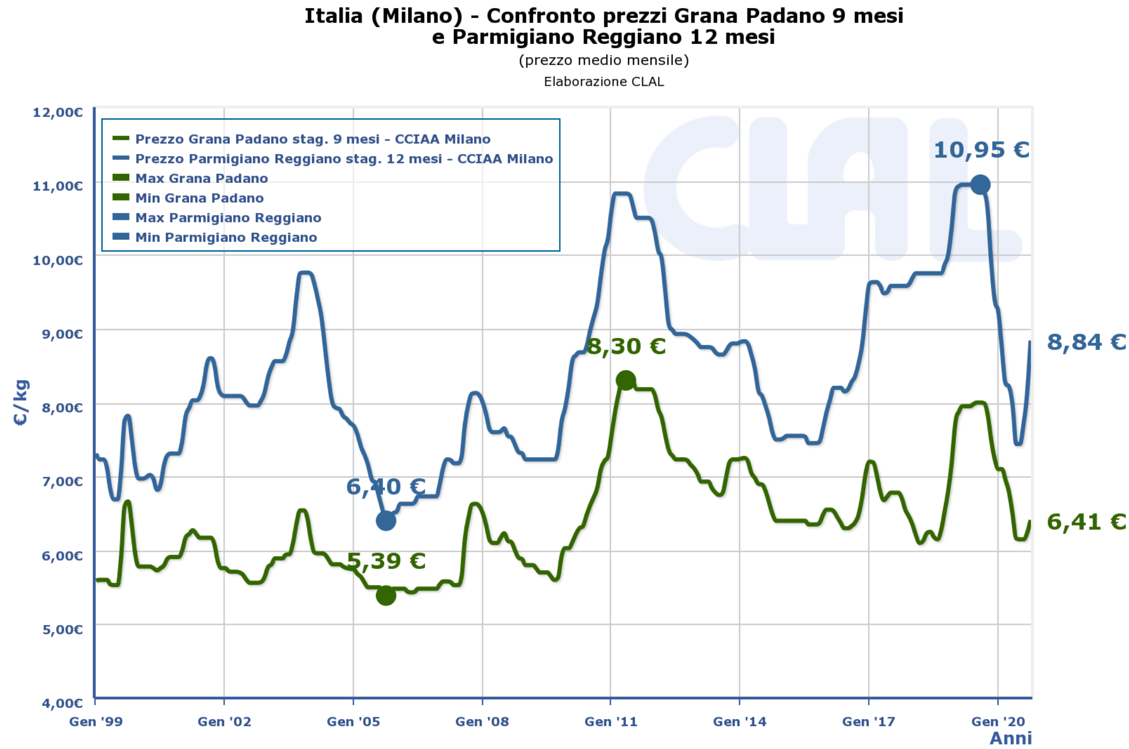

Figure 2.1: Price trend of Grana Padano and Parmigiano Reggiano (Source: CLAL.it)

pany), the maximum wholesale price for Grana Padano DOP in 2019 reached 8 €/Kg. For what concerns Parmigiano Reggiano DOP, it reached a price of 10.95€/Kg (As shown in *Figure 2.1*).

The prices have been calculated by the company with the participation of Milan CCIA (Chamber of Commerce), and have this level of difference due to the following reasons:

- Parmigiano Reggiano is produced in a narrow area if compared to Grana Padano, hence, the quantity is less.
- The alimentation of the animals for Parmigiano Reggiano includes only

dry feed; for the Grana Padano, on the contrary, animals are fed also with silage.

2.2.3 Meat products

Meat products	
Products	43
Certified Production	204,000 Tons
Production Value	2,022 Mln€
Consumption Value	4,811 Mln€
Export Value	569 Mln€

Table 2.8: DOP and IGP Meat products data in Italy

This category represent the 28% of the overall Production Value, the 33% of the Consumption Value and the 16% of the Export.
In this situation, Emilia-Romagna represents again a context of excellence in Italy: with its two main products, Prosciutto di Parma DOP and Mortadella Bologna IGP it generates the 57% of the economic value of the whole nation, corresponding to 2.8 Bln€.
The other leading product, which collocates between the two already mentioned is the Prosciutto San Daniele DOP, produced in Friuli-Venezia Giulia, which covers the 16.5% of the Consumption Value, around 800 Mln€.

Going deeply into the performance of Prosciutto di Parma DOP and Prosciutto di San Daniele DOP, which as we can see on *Table 2.9* are the best overall products, we must state some interesting characteristics. First of all, it is fundamental to underline that, once again, the main selling channel is the great distribution (GDO), with the 74% of the total units dedicated to it.
In 2019 it has been registered a production of 2.6 million units of Prosciutto San Daniele and of 8.92 million units of Prosciutto di Parma.
According to the Consortium of Prosciutto di Parma, the average price from producer to retailer is around 12.18€/kg but it reaches in average the value of 31.80 €/kg when it comes to the GDO's shelves, with a rise of almost 62%.
For what concerns Prosciutto di San Daniele, the numbers are pretty similar as it usually reaches prices of around 32 €/Kg.
These dynamics of price rise are typical of the great distribution, a channel

	Production (Tons)	Production Value (Mln€)	Consumption Value (Mln€)	Export Value (Mln€)
Prosciutto di Parma DOP	85,400	824	2,349	266
Prosciutto di San Daniele DOP	26,249	307	796	70
Mortadella Bologna IGP	36,995	296	396	105
Bresaola della Valtellina IGP	13,405	232	469	24
Speck Alto Adige IGP	12,866	109	262	43
Prosciutto di Norcia IGP	4,014	37	90	0
Prosciutto Toscano DOP	3,537	35	97	11
Salame Felino IGP	3,293	30	63	14
Salamini Italiani alla Cacciatora IGP	2,021	23	31	12
Coppa di Parma IGP	1,808	16	34	8

Table 2.9: Top Performances of Italian DOP IGP Meat Products (2018)

that is becoming less and less attractive for medium-small producers who can't guarantee enough units of their high-quality products and participate to this kind of distribution.

In the *Figure 2.2* we can have a look at the rising of price in the last seven years of the two mentioned products compared to generic ones and other high-quality kind of hams.

2.2.4 Fruit and Vegetables

The Fruit and Vegetables category counts the highest number of DOP and IGP products and this is thanks to the extremely diverse offer that the Italian territory has. The category constitutes the 5% of the overall Consumption Value, the 4% of the Production and the 6% of the Export. These values may look very low if compared to the previous categories. According to ISMEA report, Fruit and Vegetables felt big variations from 2017 to 2018, in particular:

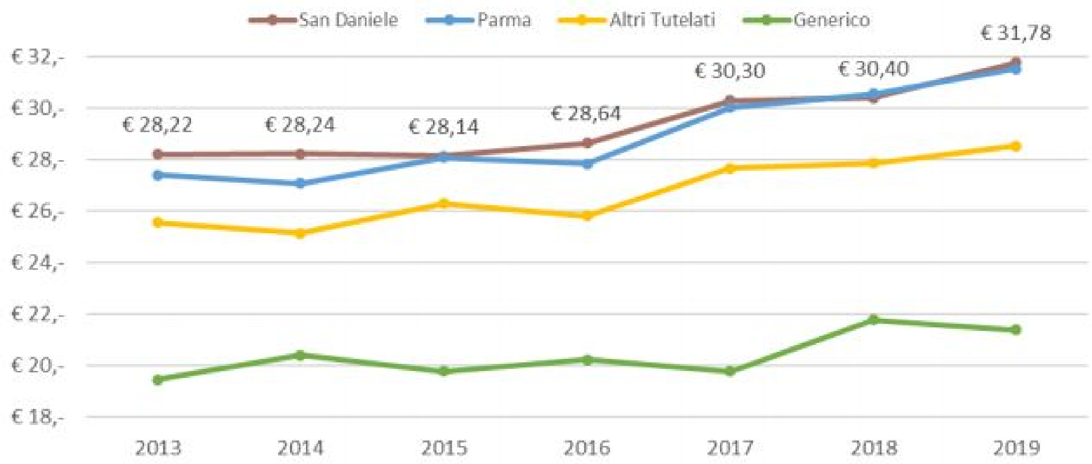

Figure 2.2: Price trend of hams in the last seven years (Source: prosciuttosandaniele.it)

Fruit and Vegetables	
Products	112
Certified Production	382,092 Tons
Production Value	324 Mln€
Consumption Value	714 Mln€
Export Value	223 Mln€

Table 2.10: DOP and IGP Fruit and Vegetables products data in Italy

- -31,9% on Quantity Produced
- +8% on Production Value
- -17,2% on Consumption Value
- +35,8% on Export

Comparing these data and the *Table 2.11*, we can understand at first sight that the Export growth is not distributed equally on all the products, indeed as we can see the peaks of exportations are represented by Mela alto Adige IGP and Arancia Rossa di Sicilia IGP, with a huge difference between them two, and even more compared to the other products.

	Production (Tons)	Production Value (Mln€)	Consumption Value (Mln€)	Export Value (Mln€)
Mela Alto Adige IGP	175,011	114	191	192
Nocciola del Piemonte IGP	8,094	29	62	0
Mela Val di Non DOP	47,497	28	71	8
Pistacchio Verde di Bronte DOP	338	13	15	0
Melannurca Campana IGP	6,249	12.4	24	2.4
Basilico Genovese DOP	6,167	10.7	15	0
Pomodoro di Pachino IGP	7,854	10.2	32	1.2
Melone Mantovano IGP	6,556	9.9	17	0
Cipolla Rossa di Tropea Calabria IGP	18,108	9.1	58	0
Arancia Rossa di Sicilia IGP	17,208	6.9	43	15.5

Table 2.11: Top Performances of Italian DOP IGP Fruit and Vegetables Products (2018)

This is an interesting point of analysis which suggests the need of new means of distribution for the market. The huge decrease of the quantity derives from the climate crisis that hit the Alpine zone in 2018.

The **citrus** sub-sector represents a particular case of excellence located specifically in South Italy. The bond between these products and the territory is extremely strong and the particular climate of Sicily, Calabria and Campania favours the growth and diffusion of them.
Arancia Rossa di Sicilia IGP represents the 42% of the whole production of citrus in Italy, followed by Arancia di Ribera DOP (18%) and Limone di Siracusa IGP (16%). Excellences can be found, as said, also with Clementine di Calabria IGP (15%) and Limone Costa d'Amalfi IGP (5%).

2.2.5 Balsamic Vinegar

Balsamic Vinegar	
Products	3
Certified Production	90,714 Thousands of Litres
Production Value	369 Mln€
Consumption Value	930 Mln€
Export Value	843 Mln€

Table 2.12: DOP and IGP Balsamic Vinegar products data in Italy

The Balsamic Vinegar market is a clear example of monopoly. There is one predominant region in Italy, Emilia-Romagna, which leads the market in the production and commercialization of the leading product, which is Aceto Balsamico di Modena IGP.
As we can see from *Table 2.12* the value of export for the category is extremely high, in fact it classifies right behind the one of Cheese products. This data finds roots on the fact that the 92% of the production of Balsamic Vinegar is dedicated to exportations. Another interesting aspect is the fact that more than the 50% of the export of Aceto Balsamico di Modena IGP is dedicated to Extra-EU countries like South Korea, Canada and US.
The two provinces of Modena and Reggio dell'Emilia are absolute protagonists of this market with a product which, considering both DOP and IGP, has a value of more than 900 Mln€ on consumption and represents the 24% of total export of IG Food sector.

	Production (Tons)	Production Value (Mln€)	Consumption Value (Mln€)	Export Value (Mln€)
Aceto Balsamico di Modena IGP	90,701	363	907	834
Aceto Balsamico Tradizionale di Modena DOP	11.2	5.1	22.4	8.6
Aceto Balsamico Tradizionale di Reggio Emilia DOP	1.6	0.7	1.0	0.3

Table 2.13: Top Performances of Italian DOP IGP Balsamic Vinegar Products (2018)

2.2.6 Olive Oil

Olive Oil	
Products	47
Certified Production	12,506 Tons
Production Value	86 Mln€
Consumption Value	144 Mln€
Export Value	62 Mln€

Table 2.14: Olive Oil data in Italy

This sector is characterized from a growth in terms of export, in fact following ISMEA data, we can state an overall growth of 11% between 2017 and 2018.
The Regions which are more involved into the market are: Puglia with a Production Value of 24.6 Mln€, Tuscany with 24.5 Mln€ and Sicily with 13.8 Mln€. In terms of products, in line to what just said, we can notice the huge impact on export that has the Toscano IGP - Olio Evo which represents more than the 50% of the overall Export Value of the category.
Looking at Consumption Value instead, the top result is reached by Terra di Bari DOP - Olio EVO with 41.4 Mln€. This data is reflected by the Production Quantity which is equal to more than 4,000 Tons.

	Production (Tons)	Production Value (Mln€)	Consumption Value (Mln€)	Export Value (Mln€)
Toscano IGP - Olio EVO	2,511	22.6	37.7	31.6
Terra di Bari DOP - Olio EVO	4,830	22.5	41.4	19.1
Val di Mazara DOP - Olio EVO	1,166	6.6	10.7	2.3
Riviera Ligure DOP - Olio EVO	475	5.7	8.6	0.4
Umbria DOP - Olio EVO	462	4.6	6.3	1.4
Garda DOP - Olio EVO	267	3.7	8.0	1.9
Sicilia IGP - Olio EVO	571	3.3	5.1	0
Veneto DOP - Olio EVO	123	1.9	2.2	0.7
Sabina DOP - Olio EVO	175	1.7	3.3	1.0
Monti Iblei DOP - Olio EVO	247	1.6	2.0	1.1

Table 2.15: Top Performances of Italian DOP IGP Olive Oil Products (2018)

Looking at *Table 2.15* we can notice a familiar event: the difference between the top two products and the others is very high, letting us suggest the presence of a sort of duopoly in the IG market for Olive Oil.

2.2.7 Fresh Meat

This category of product is mostly involved in the national market, with very few cases of exportations. In fact, the only example that we have in this direction is represented by Agnello di Sardegna IGP thanks to its presence into international fairs and its innovative packaging system which allows expeditions to EU and Extra-EU countries.
The most active region in Italy is hence Sardinia with a Production Value of 26,8 Mln€, followed by Tuscany with 18,9 Mln€ and Lazio with 11,7 Mln€. These last two regions are involved in the production of Vitellone Bianco

Fresh Meat	
Products	6
Certified Production	14,178 Tons
Production Value	91 Mln€
Consumption Value	195 Mln€
Export Value	10 Mln€

Table 2.16: Fresh Meat data in Italy

dell'Appennino Centrale IGP too which is the product with the highest values in terms of consumption, production and quantity.

	Production (Tons)	**Production Value (Mln€)**	**Consumption Value (Mln€)**	**Export Value (Mln€)**
Vitellone Bianco dell'Appennino Centrale IGP	7455	47.7	130	0
Agnello di Sardegna IGP	4,115	26.8	35.0	7.7
Abbacchio Romano IGP	1,402	9.8	15.4	2.1
Agnello del Centro Italia IGP	690	4.5	6.0	0
Cinta Senese DOP	515	2.4	8.0	0

Table 2.17: Top Performances of Italian DOP IGP Fresh Meat Products (2018)

2.3 Wine sector

Looking at *Table 2.18* we can have a complete overview of the value and numbers describing the high-quality Wine Sector in Italy. Going in detail into data, we must state that:

- The production is divided into 408 DOP products and 118 IGP ones
- In terms of Certified Production there are 16.4 Mln hl of DOP wine and

Wine	
Number of Denominations	526
Certified Production	24,7 Mln hl
Production	3,07 Bln bottles
Production Value	8,93 Bln€
Export Value	5,44 Bln€

Table 2.18: Overview of Wine Sector in Italy

8.3 Mln hl of IGP

- Regarding the Production Value, DOP products give back 7.30 Bln€, hence IGP ones value 1.63 Bln€

This business involves 102,450 DOP and IGP operators which may fall in three categories or in all of them:

- **Winegrower**: operator who is involved into the farming of grapes as an economic activity. In this case grapes are certified with a geographical indication DOP or IGP.
- **Winemaker**: operator who is involved into the transformation of grapes into wine.
- **Bottler**: operator dedicated to the bottling of the wine.

The specialization of the national production orientation towards products with a geographical denomination is strongly preferred for structural reasons and for the distribution of the volumes.
Looking at *Figure 2.4* we can see how the three types of grape, DOP, IGP and Table Grapes ("Uva da Tavola") are distributed for each region.

As we can observe from the inventory of production of our country, considering a total of almost 655,000 hectares of planted area, we can see the clear predominance assumed by investments in vineyards suitable for the production of wines with a designation of origin (DOP), which with little less than 315,000 hectares constitutes 48% of the total Italian panorama. Less consistent and more territorially concentrated is the area for IGP wines with 177,000 hectares for a further 27% of the composition of the national vineyard.

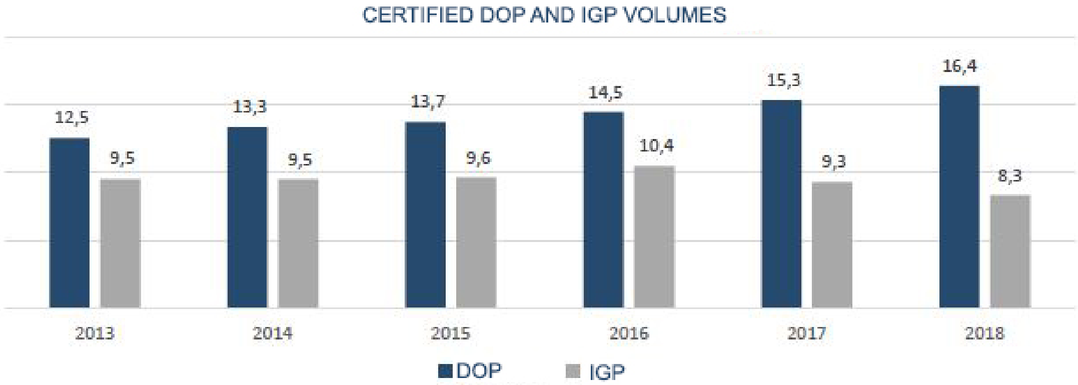

Figure 2.3: Volumes of certified wines in the period 2013-2018 (hectolitres) (source: ISMEA)

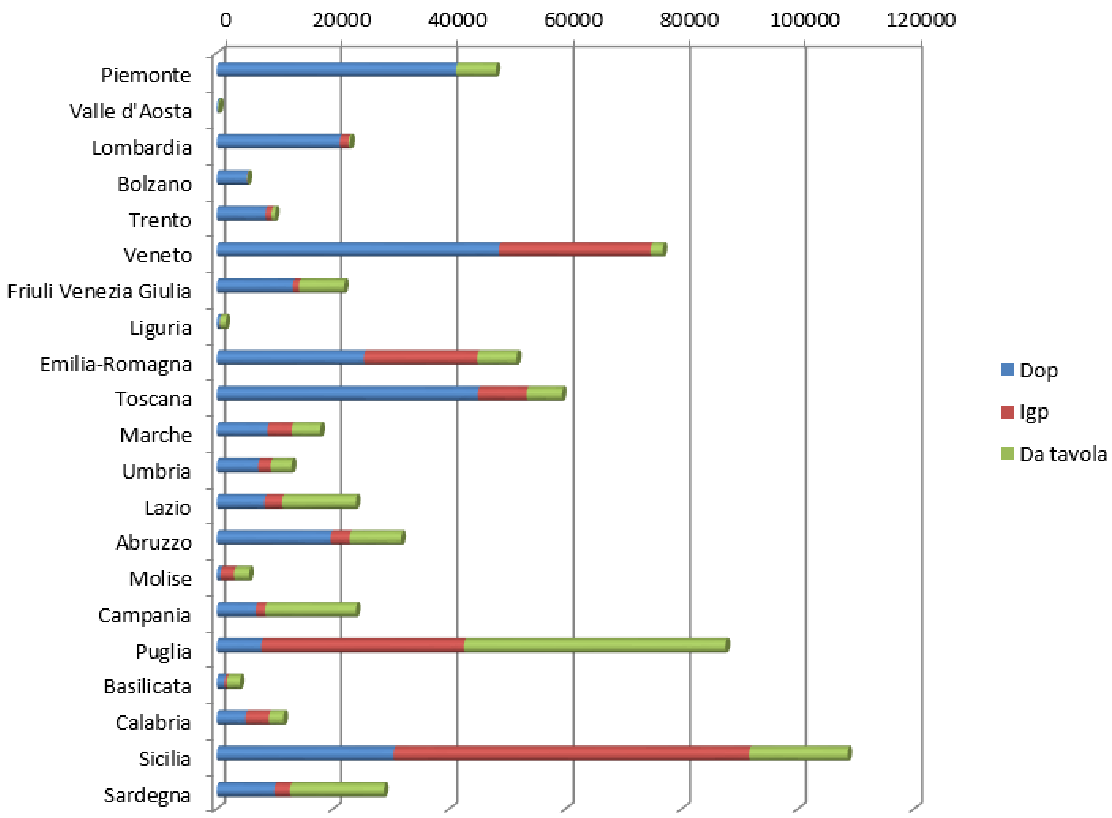

Figure 2.4: Regional distribution of grapes filtered by quality (source: agriregionieuropa.univpm.it)

The same data observed at a regional level of detail gives an extremely differentiated panorama of the composition of the vineyard. In fact, the widespread presence of a "mixed" production orientation is highlighted in a fairly large group of regions, located mainly in the south of the country, within which wine grapes still play an important role.

What just said tells us once again how much is fundamental the Wine sector and, more specifically, the geographic designations of the wine for the Italian economy.
Going deeply into our analysis, it is important to understand which are the performances for each region in Italy, understand the models of excellence and the reasons which lead to success. In order to do this, the *Table 2.19* illustrates the regional impact of DOP and IGP wines.

Italy is the first country in the world for what concerns Wine denominations (526) and is also the first in terms of quantity produced with around 49 million hectolitres which corresponds to the 19% of the total worldwide production. It is straightly followed by France with 42 million hectolitres (17%); then we have Spain with 34 million hectolitres (14%) and USA with 24 million hectolitres (10%).
As said, Italy exports certified Wine for a value higher than 5.4 Bln€. The main destination of our product is represented by USA, with a quantity of 1.35 Bln€, followed by Germany with 827 Mln€ and United Kingdom with 744 Mln€. The other countries involved in these movements are Switzerland, Canada, Sweden, France, Japan, Netherlands, Denmark, Belgium and China but if compared to the three mentioned at the beginning the quantities are almost equal to the half or less going from 300 Mln€ to 100 Mln€ more or less. Detailed data are present on *Table 2.20*.
A particular phenomenon of this market is that DOP and IGP wines do not feel variability in terms of price. This happens thanks to the superior quality typical of these products if compared to common wines. It is necessary to mention also the huge presence of these products into international markets, where as we said Italy is in a position of absolute advantage: this last point makes Italian products resistant, in terms of price, to the influence of competitor countries.

What just said finds confirmation in the analysis made by ISMEA in May 2020 and is shown in *Figure 2.5*.

Region	Production Value (Mln€)
Veneto	3,501
Tuscany	961
Piedmont	921
Friuli-Venezia Giulia	560
Trentino-Alto Adige	560
Sicilia	522
Lombardia	416
Emilia-Romagna	394
Puglia	359
Abruzzo	231
Sardinia	137
Campania	100
Marche	97
Umbria	56
Lazio	55
Liguria	20
Calabria	19
Basilicata	12
Valle d'Aosta	8
Molise	4

Table 2.19: Regional Impact of DOP and IGP Wines (2018)

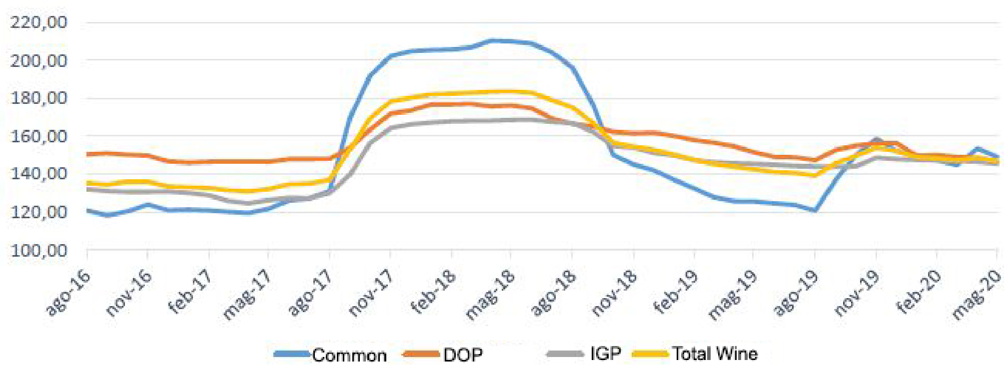

Figure 2.5: Variation of prices basing on kind of wine (source: ISMEA)

Nation of destination	Export Value (Mln€)
USA	1,353
Germany	827
United Kingdom	744
Switzerland	343
Canada	317
Sweden	157
France	148
Japan	136
Netherlands	136
Denmark	126
Belgium	118
China	97

Table 2.20: DOP and IGP Wine Export Value for Italy (2018)

2.4 The Effects of COVID-19 Pandemic

In order to go deeply into the effects that the Pandemic is having on the Food and Wine sector of our country, it is possible to refer to the report "Italian Industry over Covid-19"(L'Industria Italiana oltre il Covid-19) presented on 24 September 2020 from Nomisma (a strategic consultancy company) which made a survey involving a hundred companies of the sector. The picture is extremely dark as the 62% of food and wine companies will close with negative revenues for year 2020. The total amount of loss is forecasted to be of around eight billion euros.

For 38 enterprises over 100 it will be a decrease higher than the -15%, for 16 over 100 between 5% and 15%. Only 20 companies preview a growth at the end of the year.
More specifically, the losses have been distributed over the year in this way: -9,5% in April 2020 (if compared to the same month of 2019), -5,8% in May and -1,1% in June and July.
For 37% of companies, the most critical problems will be on the Italian market, where the growth of sales in supermarkets and shops has not compensated for the steep decline in catering, which is in absolute stalemate.
Foreign markets have been identified as the first criticality by 17% of the sample. Exportations have been directly attacked by pandemic because of restriction and difficulties of movements.
In the next 2 years, 52% of the enterprises previews a reduction of the number of restaurants and bars active and the decrease of the gastronomic tourism.
The 43% forecasts a total reduction of the consumptions outside house.
According to the 41% of the companies there will be an increase of the online sales.
If only the 31% of those who had planned investments in 2020 will support them anyway (especially those for systems, machinery and digital), 31% has postponed them, and the 38% has remodulated them, reducing budgets or reviewing projects.
New technologies and structures are needed in order to face properly this situation, together with European and national intervention, remembering the important value of DOP and IGP products inside the economic panorama.

Chapter 3

The Sicilian perspective

Sicily is widely known as one of the most active regions in Italy for what concerns the agri-food sector and the wine sector.
The climate is mild the whole year with a high level of biodiversity and wide geological and morphological variety. All these aspects, have always favoured an important presence of the agricultural sector in the economic fabric of the island.
There are several reasons for which Sicily can be addressed to as probably the most interesting Italian Region for agri-food and wine sectors.

- A first performance indicator which confirms this idea is represented by the percentage of agricultural land used, called **SAU (Superficie Agricola Utilizzata)**. This percentage includes all the arable land, meadows, grasslands, agricultural woody crops (crops of wood producing agricultural products, excluding forests and forest products) and land maintained in good agricultural and environmental conditions (according to the EU normative of 2003).
  This value, according to CORERAS (Consorzio Regionale per la Ricerca Applicata e la Sperimentazione, *Regional Union for Applied Research and Experimentation*), which is one of the most important national observatories for agriculture, is around 11% and is the higher in Italy.
- Another important data regards the work days applied in agriculture. Also in this case, Sicily registers a top value with more than 26 million working days (only Puglia has more).
- In some product sectors Sicily has leading roles, as it happens with citrus fruit, where the island is leader and represents more than the 50%

of total cultivated areas.

- Sicily is the second producer of cheese products in Italy, straight after Sardinia.
- With 7,321 companies, Sicily represents the 12% of the total number of agricultural companies in Italy.

3.1 High Quality Production in Sicily

As said before, the denominations of origin are synonym with high quality, and according to this Sicily represents one of the most important regions under many aspects. The particular environment favours the production of Oil Products and the cultivation of Citrus Fruits, but there's also a particular attention on Cheese productions through the whole region.

Figure 3.1: Infographic of Sicilian DOP and IGP production (source: ISMEA)

Looking at *Figure 3.1* we have a graphical resume of what reported in the ISMEA Report of 2019 concerning the Sicilian Panorama of certified agri-food and wine productions. As it's possible to see, the presence of DOP and

IGP products is distributed through all the region. Hence, in the *Table 3.1* we can have a look at the performances by Province measured through the Production Value.

Province	**Food (Mln€)**	**Wine (Mln€)**	**Total (Mln€)**
Trapani	4.4	283	257.4
Agrigento	9.7	101.3	110.9
Palermo	3.6	65.8	69.4
Catania	19.2	20.9	40.1
Siracusa	16.1	11.0	27.2
Caltanissetta	0.1	22.0	22.1
Ragusa	5.3	6.5	11.8
Messina	1.6	9.8	11.3
Enna	1.4	1.3	2.7

Table 3.1: Sicilian Provinces' performances

3.1.1 Food Excellence in Sicily

In *Table 3.2* we can have a look at the distribution and results of food products in the Sicilian territory.

As it's possible to see, all the provinces on the territory are involved in the production or farming of products. Unfortunately for the analysis, many data about food profits are unavailable. This phenomenon happens because of a lack of communication between producers (which prefer to keep private these data) and unions and hence observatories.
By the way, it's possible to have an idea of the Consumption Value (considerable as Profit) for each category of food products as shown in *Figure 3.2.*

Fruits, Vegetables and Cereals represent the most valuable food products with more than 129 Mln€ of Consumption Value. If we cross this data with the one of the Table 3.1 we can see that these products are also the most present in the Sicilian food panorama with 17 certifications.
The most profitable product is Arancia Rossa di Sicilia IGP, with 43 Mln€ of Consumption Value. This astonishing result finds confirmation if we consider that the 85% of the units of Arancia Rossa are sold through GDO,

Food DOP/IGP	Production Zone	Consumption Value (Mln€)
Arancia di Ribera DOP	Agrigento	N/A
Arancia Rossa di Sicilia IGP	Enna, Catania, Siracusa	43
Cappero delle Isole Eolie DOP	Aeolian Islands	N/A
La Carota Novella di Ispica IGP	Ragusa, Siracusa, Catania, Caltanissetta	N/A
Ciliegia dell'Etna DOP	Catania	N/A
Cioccolato di Modica IGP	Ragusa	N/A
Cappero di Pantelleria IGP	Trapani	N/A
Ficodindia dell'Etna DOP	Catania	N/A
Ficodindia di San Cono DOP	Catania, Enna, Caltanissetta	N/A
Limone dell'Etna IGP	Catania	N/A
Limone di Siracusa IGP	Siracusa	N/A
Limone Interdonato di Messina IGP	Messina	N/A
Monte Etna DOP- Olio Evo	Catania, Enna, Messina	0.21
Monti Iblei DOP- Olio Evo	Siracusa, Ragusa, Catania	1.7
Nocellara del Belice DOP	Trapani	0.38
Pagnotta del Dittaino DOP	Enna, Catania	N/A
Pecorino Siciliano DOP	Sicily	0.37
Pesca di Leonforte IGP	Enna	N/A
Pescabivona IGP	Agrigento, Palermo	N/A
Piacentinu Ennese DOP	Enna	0.48
Pistacchio Verde di Bronte DOP	Catania	15
Pomodoro di Pachino IGP	Siracusa, Ragusa	32
Provola dei Nebrodi DOP	Catania, Enna, Messina	N/A
Ragusano DOP	Ragusa, Siracusa	1
Salame S. Angelo IGP	Messina	0.95
Sale Marino di Trapani IGP	Trapani	N/A
Sicilia IGP – Olio EVO	Sicily	5.1
Uva da Tavola di Canicattì IGP	Agrigento, Caltanissetta	N/A
Uva da Tavola di Mazzarrone IGP	Catania, Ragusa	N/A
Val di Mazara DOP – Olio EVO	Palermo, Agrigento	9.8
Valdemone DOP – Olio EVO	Messina	0.02
Valle del Belice DOP – Olio EVO	Trapani	0.76
Valli Trapanesi DOP – Olio EVO	Trapani	1.8
Vastedda della Valle del Belìce DOP	Agrigento, Trapani, Palermo	0.28

Table 3.2: DOP and IGP Food Products in Sicily

a channel which guarantees high prices and distributes huge quantities of product. This product is also one of the most exported of the category, with an Export Value of 15.5 Mln€ having Germany and North Europe as main destinations.

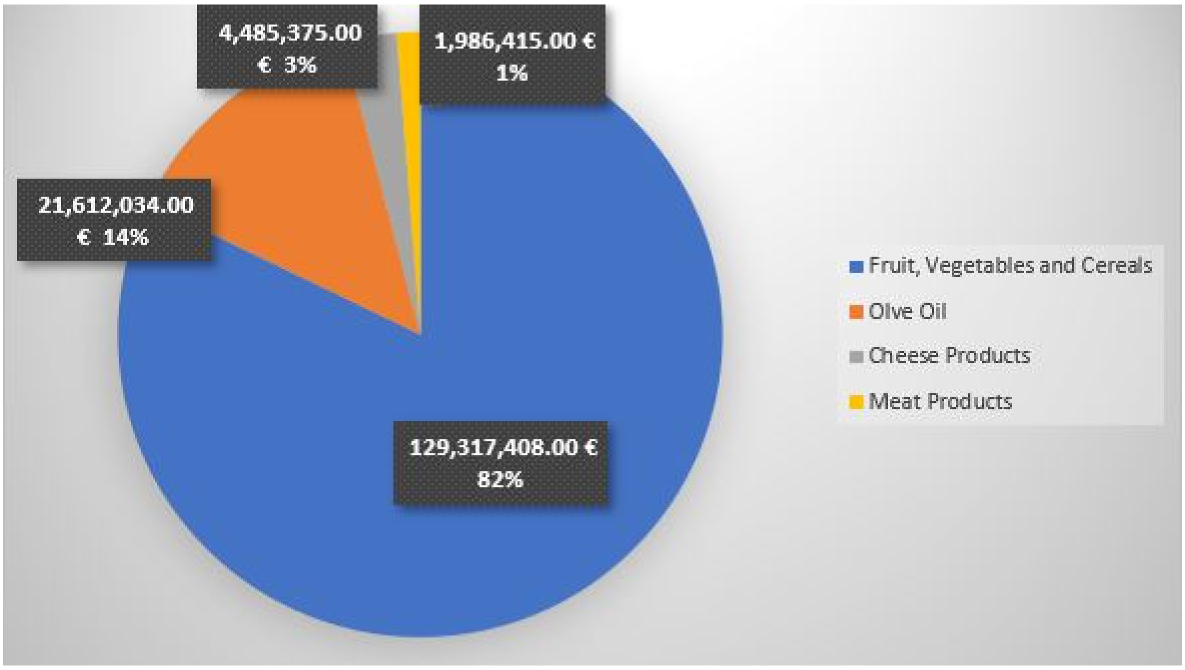

Figure 3.2: Consumption Value of Sicilian DOP and IGP production categories (data source: ISMEA)

Great results are reached also by Pomodoro di Pachino IGP, with a Consumption Value of 32 Mln€ and more than 60% of the production dedicated to GDO channel.
It's important to mention also Pistacchio Verde di Bronte DOP which although the smaller Quantity Produced registers high performances with 15 Mln€ of Consumption Value.

3.1.2 Historical Cheeses in Sicily

Thanks to the extreme high biodiversity of Sicilian territory, there are sixteen varieties of historical cheeses which are produced in the island. These goods are studied from the CoRFiLaC (Consorzio per la Ricerca nel settore della Filiera Lattiero Casearia) in Ragusa, with the goal of protecting and promoting the production of them in line with the tradition.
The geographical environment of Sicily combines both natural factors (climate, environmental characteristics) and human factors (production techniques handed down over time, craftsmanship, know-how) making it possible to obtain a product which is not imitable outside specific production areas.

CoRFiLaC is the designed association for the certification of two products, Ragusano DOP and Pecorino Siciliano DOP, which are going to be analysed in the following sections. Another product, Piacentinu Ennese, which is part of the category of historical cheeses is going to be analysed because of its peculiarities and importance in the Sicilian economy.

3.1.3 Pecorino Siciliano DOP

The origins of Pecorino Siciliano, or picurinu, as it is called in Sicily, go back to the classical period, in fact there is already mention of sheep's milk cheeses in works of Greek authors (such as Homer, Odyssey book nine, X-IX sec. BC). Even Pliny the Elder who for the first time in his Naturalis Historia classified the national and foreign cheeses of the Classic Era, talking about the Sicilian cheese, defined it as one of the best cheeses of the time. Pecorino Siciliano PDO is produced with a traditional method, whose remote origin makes it one of the oldest cheeses produced in Italy.
The product is marketed throughout the year in the type "Pecorino Siciliano DOP". It can be sold as a unique piece, sliced or portioned forms; it is vacuum packed and must bear on the label the logo of the Consortium, the DOP, the EC number of the production plant and the expiration date.

As we can see from *Figure 3.3*, although it is not yet a definitive value, the amount of production of 2020 is lower by 50% if compared to year 2019. This phenomenon can be associated to the impact of COVID-19 on the market, which caused an inflection of productions on food industry and less orders in the Ho.Re.Ca. sector which could not perform its activities regularly.
In order to analyse properly the performances of Pecorino Siciliano DOP it is important to define some KPIs (Key Performance Indicators).

- **Value/Operator**: This is an average value on consumption for each operator working on the production or distribution of the good in the national market. It represents the fragmentation of production.

- **Value/Kg**: It is the price applied on the internal market and represents the perception of the product of national consumers.

- **Export/Kg**: It is the price applied on the foreign market and represents the perception of the product of foreign consumers.

Figure 3.3: Yearly production of Pecorino Siciliano DOP 2002-2020 (source: Consorzio Pecorino Siciliano DOP)

- **AVG Value/Operator PEC**: This indicator represents the average $Value/Operator$ for all the products under the name "Pecorino".
- **AVG Export/Kg PEC**: This indicator represents the average $Export/Kg$ for all the products under the name "Pecorino".
- **AVG Export PEC**: This indicator represents the average Export Quantity for all the products under the name "Pecorino".

These indicators have been calculated through the construction of a database (in attachment to this work) which has been created starting from official ISMEA data about the cheese sector.
For this kind of products, the values have a huge variance: considering for instance the Consumption Value on national territory, the lowest value is reached by Pecorino di Picinisco DOP with 19,000€ and the highest arrives to 424.5 Mln€, proper of the absolute market leader which is Pecorino Romano DOP.

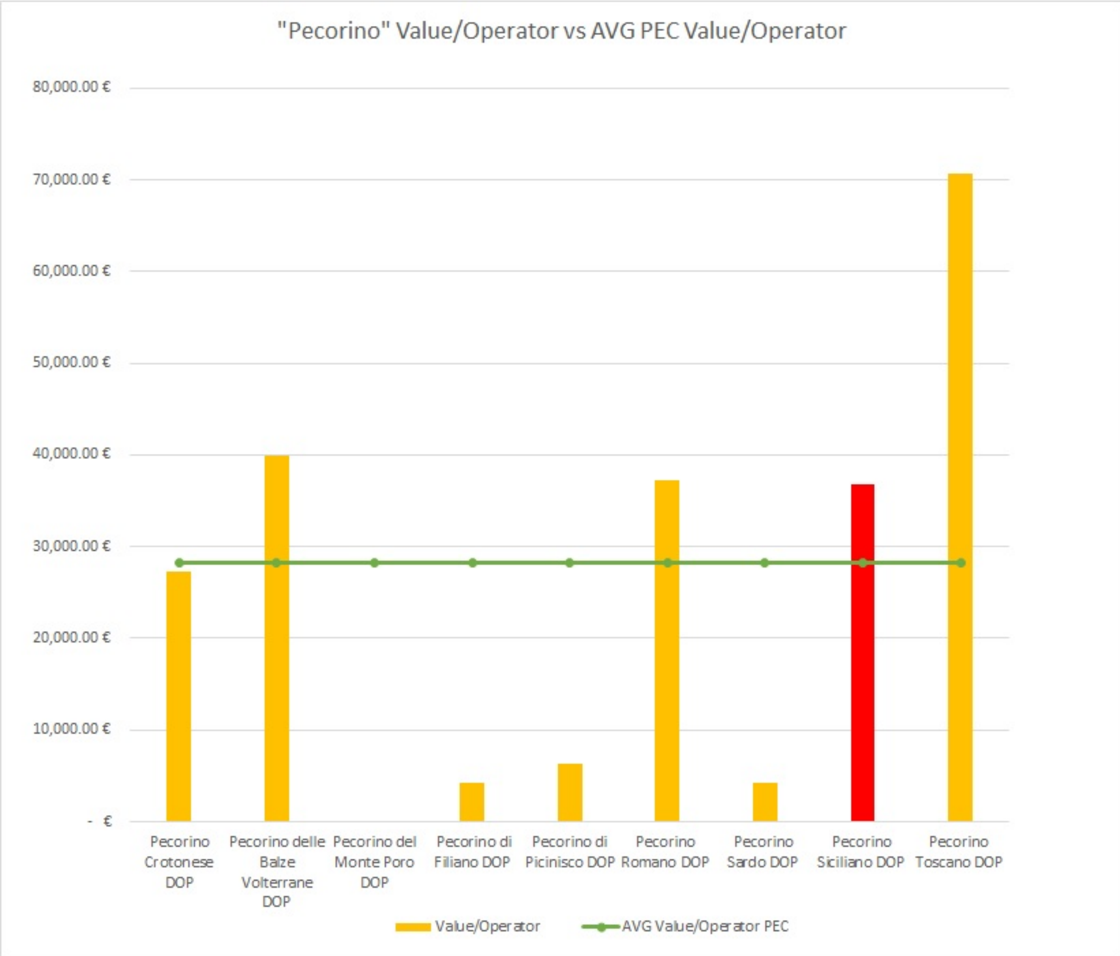

Figure 3.4: Confrontation of Pecorino Siciliano Consumption Value/Operator vs Average of the category

The performances of Pecorino products can be resumed from the excel extract in *Figure 3.7* and *Figure 3.8*.
In particular, for what concerns Pecorino Siciliano DOP, the results are shown on *Table 3.3*.
Several important points can be taken by looking at the Figures:

- In terms of value generated in the national market by each operator, the product has values above the average if compared to its direct competitors. Although the relatively low number of operators, these are able to generate a Consumption Value (and hence, profits) equal more or less to a million euros.
  However, it's important to remember that the performances of these

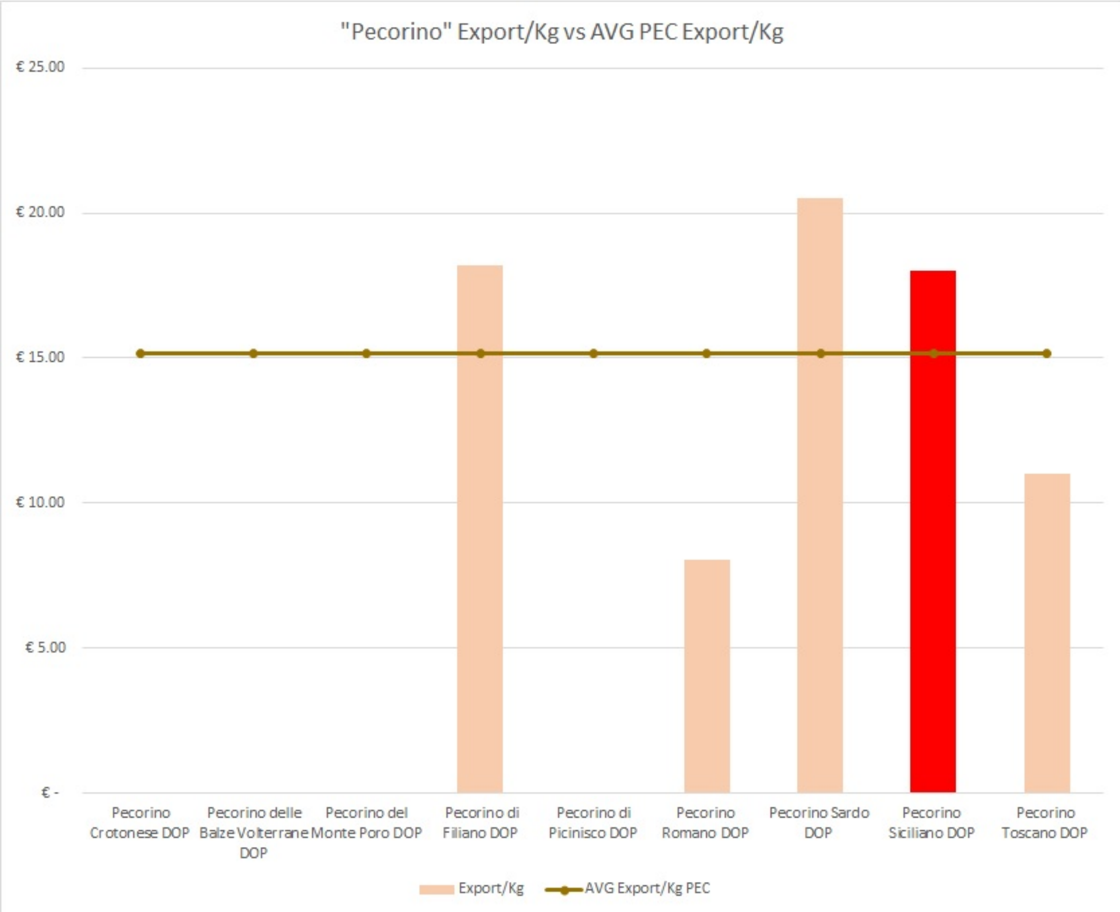

Figure 3.5: Confrontation of Pecorino Siciliano Export Value/Kilograms Exported vs Average of the category

products are very different from each other.

- For what concerns the Export Value for Kilogram, as we can see from *Figure 3.5*, this is clearly above the average. Although the relatively small quantity exported if compared to big players (see *Figure 3.6*), Pecorino Siciliano DOP is able to generate a high value on its foreign activities.

- Another interesting point derives from the confrontation of Export/Kg and Value/Kg. As we can see from *Table 3.3*, the former is higher than the latter. This means that Pecorino Siciliano DOP is able to generate a higher value from the Kilograms sold in foreign markets compared to the internal one.

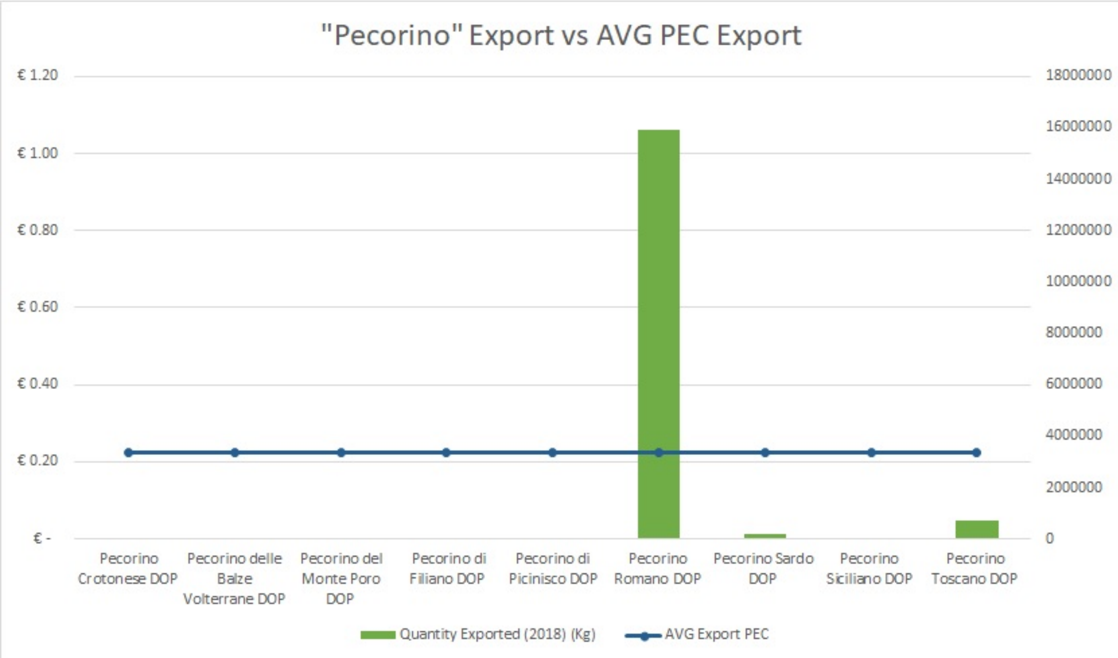

Figure 3.6: Confrontation of Pecorino Siciliano Export Quantity vs Average of the category

Consumption Value (Mln€)	1.029
Number of Operators	28
Quantity Produced (Kg)	60,631
Value/Operator (Mln€)	0.367
Price/Kg (€)	16.98
Quantity Exported (Kg)	6,000
Export Value (Mln€)	0.108
Export/Kg (€)	18.00
Average Value/Operator "Pecorino" (Mln€)	0.283
Average Export/Kg "Pecorino" (€)	15.15
Average Export "Pecorino" (Kg)	3,375,858

Table 3.3: Performances of Pecorino Siciliano DOP

This analysis suggests us that the presence in foreign markets is a priority and an opportunity.
The consequences of the pandemic have been critical in the industry and

	Consumption Value	Number of Operators	Quantity Produced (2018)	Value/Operator	Price/Kg	Quantity Exported (2018) (Kg)	Export Value	Export/Kg
Pecorino Crotonese DOP	€ 925,600.00	34	61710	27,223.53 €	€ 15.00	0	€ -	€ -
Pecorino delle Balze Volterrane DOP	€ 478,100.00	12	25160	39,841.67 €	€ 19.00	0	€ -	€ -
Pecorino del Monte Poro DOP	€ -	0	0	- €	€ -	0	€ -	€ -
Pecorino di Filiano DOP	€ 38,200.00	9	3020	4,244.44 €	€ 12.65	605	€ 11,000.00	€ 18.18
Pecorino di Picinisco DOP	€ 19,000.00	3	910	6,333.33 €	€ 20.88	0	€ -	€ -
Pecorino Romano DOP	€ 424,556,500.00	11424	34183290	37,163.56 €	€ 12.42	15937000	€ 128,611,600.00	€ 8.07
Pecorino Sardo DOP	€ 30,989,900.00	7181	1825690	4,315.54 €	€ 16.97	199999.97	€ 4,099,400.00	€ 20.50
Pecorino Siciliano DOP	€ 1,029,300.00	28	60631	36,760.71 €	€ 16.98	6000	€ 108,000.00	€ 18.00
Pecorino Toscano DOP	€ 60,192,400.00	852	3344020	70,648.36 €	€ 18.00	735685	€ 8,092,500.00	€ 11.00

Figure 3.7: Pecorino performances

AVG Value/Operator PEC	AVG Export/Kg PEC	AVG Export PEC
28,316.39 €	€ 15.15	3375857.994

Figure 3.8: Pecorino average KPIs

new solutions are necessary for the producers in order to allow the product to survive.
To be present in big markets, it is often necessary to have sufficient quantities of products, and this may represent a problem for some small producers that because of high production costs, packaging costs and distribution costs are able to offer their products only to local or regional markets.

3.1.4 Ragusano DOP

Ragusano DOP is one of the oldest cheeses in Sicily, around which a flourishing trade was born that exceeded the borders of the island since the sixteenth

century. There are several historical sources that document the importance of this cheese, such as the work of 1515 "From Ferdinand the Catholic to Charles V (the Sicilian experience 1475-1525)", by Carmelo Trasselli, which reports the exemption of duties on "caciocavallo" cheese, so called probably because of the particular method of seasoning, precisely "on the horseback" of some supports.
The product is marketed throughout the year in the type "Ragusano DOP". It is marketed as a unique piece, sliced, portioned or packaged forms. It must bear on its shape the production logo and the initials DOP, which may be followed by the word "affumicato"(smoked) in case it has been subjected to smoking.
As said, Ragusano DOP enters into the category of "caciocavallo" cheese, and in the panorama of denominations there is only one competitor which is Caciocavallo Silano DOP.
Both cheeses are relatively "young" as both denominations have been stated on 01/07/1996, but the panorama of both cheeses are extremely different.

- Caciocavallo Silano DOP is produced through four provinces of Calabria (Crotone, Vibo Valentia, Catanzaro and Cosenza), four zones part of Campania (Avellino, Benevento, Caserta and Napoli) two provinces of Molise (Isernia and Campobasso), three important provinces of Puglia (Bari, Taranto and Brindisi) and two of Basilicata (Matera and Potenza) for a total of fifteen zones of production. This is reflected in the total number of operators, equal to 187, against the 44 of Ragusano DOP, produced only in the two provinces of Ragusa and Siracusa.

- As it is possible to deduce from the previous point, in terms of quantity produced we have also huge differences. In fact, Caciocavallo Silano DOP counts 858,540 Kg of production with 12.8 Mln€ of Consumption Value against the 2.5 Mln€ of Ragusano DOP and its 162,850 Kg of Quantity Produced.
  As visible on *Table 3.4*, the *Value/Operator* for the Sicilian Cheese is of around 0.057 Mln€ against the 0.069 Mln€ for Caciocavallo Silano DOP.

- The absence of export for Ragusano DOP is index of the difficulty in bringing the product outside of national borders. This cheese is sold mostly inside Sicily with few exceptions in high quality food shops. On the contrary, Caciocavallo Silano DOP counts 0.72 Mln€ of Export Value from 39,154 Kg of product.

What said before, suggests the necessity of a greater involvement of operators inside the production of Ragusano DOP. The product has several potentialities:

- **Unsaturated market**.
  Ragusano DOP is only the second Caciocavallo Cheese into the denomination panorama in Italy.

- **Strong entrepreneurial culture in the city**.
  At the end of October, the PIL(GDP) of the whole province, raised for almost 16%. The entire area counts more than 24,000 enterprises (The only zone with a positive growth in Sicily together with Siracusa). Although the uncertainties related to the pandemic, the historical background of the province could be surely helpful for the promotion of the product.

- **National Recognition**.
  The Slow Food Committee, the Italian association for high quality food, considers the Ragusano DOP one of the most interesting products to promote. This was proved by the reunion of the commission which took place in Ragusa on 8 October 2020 and enhanced the value of the product in the regional and national perspective.

As said before, Ragusano DOP faces several difficulties in crossing the borders of Sicily. The problem regards the quantities which are produced. Every year, around 16 tons of cheese come out from the dairies, which are transformed into 14,000 units more or less. This quantity is not sufficient to satisfy the stock requests of GDO channel: if we consider just one of the big Italian GDO chains, this would require at least 9,000 units per year.
Another important critical point regards the organization of the selling network. Right now, in order to sell the product, it is necessary to turn directly to the producer. This makes the process very difficult and does not grant an adequate organization for retailers and eventual GDO channels.
The presence of a distribution channel, hence, is crucial, and the Association of Ragusano DOP producers is working on it. In a recent interview, the director Vincenzo Cavallo said:
"We are working on the planning and organization of production in order to commercialize the product properly. [...] Long-period programs are now easier to do if compared to the past because the number of dairies which produce

Ragusano DOP is higher, but it is important to remember that this cheese is extremely seasonal and feels the consequences of many factors both internal and external to the market."

It becomes extremely important to involve small milk producers together with big ones. At the same time, new generations of producers need to be involved into the market with interventions from the administrations.

Consumption Value (Mln€)	2.507
Number of Operators	44
Quantity Produced (Kg)	162,850
Value/Operator (Mln€)	0.056
Price/Kg (€)	15.40
Quantity Exported (Kg)	0
Export Value (Mln€)	0
Export/Kg (€)	0

Table 3.4: Performances of Ragusano DOP

	Consumption Value	Number of Operators	Quantity Produced (2018) (Kg)	Value/Operator	Price/Kg	Quantity Exported (2018) (Kg)	Export Value	Export/Kg
Caciocavallo Silano DOP	€ 12,878,100.00	187	858540	68,866.84 €	€ 15.00	39153.59	€ 724,300.00	€ 18.50
Ragusano DOP	€ 2,507,900.00	44	162850	56,997.73 €	€ 15.40	0	€ -	€ -

Figure 3.9: Caciocavallo performances

We can affirm that, at the end, Ragusano DOP lives a situation of shortage. Although the work of CoRFiLaC in the territory, the presence of young entrepreneurs is extremely low. The presence of new producers may modernize the instruments of commercialization of the product bringing many positive effects at regional level. A way for authorities, governments and administrations to make the sector more attractive could be by applying some **subsidies** dedicated to young entrepreneurs that can be helpful to face fixed costs.

The subsidy is a payment made to companies or consumers designed to encourage an increase in output. In this case the subsidy would be made in

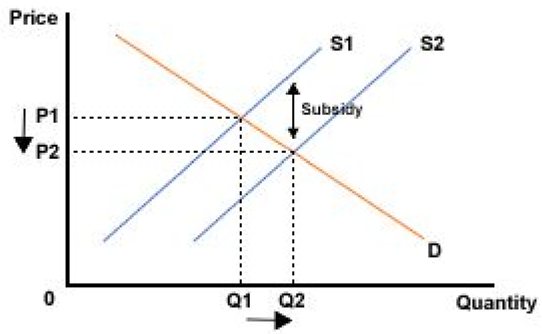

Figure 3.10: Impact of subsidy part 1 (source: http://www.sanandres.esc.edu.ar/)

favour of already present firms and new companies (preferably with a high presence of young entrepreneurs) that want to enhance or start the production of Ragusano DOP. This intervention will shift the supply curve to the right and therefore lower the equilibrium price in a market, as shown in *Figure 3.10* in which we see the passage from P1 to P2.
The aim of the subsidy is to encourage production of the cheese and it has the effect of making the quantity grow, moving hence from Q1 to Q2.

The amount of the subsidy is shown by the gap between supply curves. This subsidy will cost the government money which may be recovered in the following years. The benefit that the subsidy can give will be of course lower than the cost which will be felt, so it may require years for the administrations to recover the expense.
The payback time will depend on the "quantity goal" which will be set when applying the plan.
The total subsidy expenditure will be the subsidy per unit (the vertical gap between the supply curves) multiplied by the number of units that are commercialized in the market.

This maneuver will increase both Consumer Surplus (measure of the additional benefit that consumers receive because of paying less for something than what they were willing to pay) and Producer Surplus (difference between how much a producer would be willing to accept for given quantity of a good versus how much they can receive by selling the good at the market price).

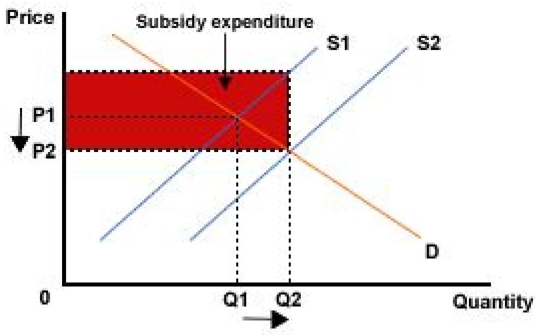

Figure 3.11: Impact of subsidy part 2 (source: http://www.sanandres.esc.edu.ar/)

Welfare is the sum of Consumer Surplus and Producer Surplus, we can hence deduce that this quantity will grow as well.

3.1.5 Piacentinu Ennese DOP

The origin of the production of Piacentinu Ennese DOP is linked both to the dairy activity of sheep milk, already widespread in ancient times, and to the cultivation of saffron. Legend says that the addition of saffron to milk in the production phase comes from the period of Norman domination (XI century). The story tells that Roger the Norman, in order to heal his wife Adelasia which was suffering from a severe depression and was at the same time a cheese lover, made a cheese with revitalizing qualities. Saffron has always been famous for its energizing properties.
The product is marketed throughout the year in the type "Piacentinu Ennese DOP". It is marketed in single pieces.

The issues regarding this cheese are essentially three:

- Piacentinu Ennese is a high level product, with very high costs in terms of raw materials and process.
  The process is similar to the one of Pecorino, but the addition of saffron makes the product extremely different in terms of taste and quality. This peculiarity makes Piacentinu a new product and not a competitor of other cheeses part of the Pecorino category. Saffron is cultivated in the same zones of production of the cheese and cannot be substituted by any other kind coming from other zones of Sicily.

Consumption Value (Mln€)	0.487
Number of Operators	22
Quantity Produced (Kg)	31,490
Value/Operator (Mln€)	0.022
Price/Kg (€)	15.49
Quantity Exported (Kg)	3,148.83
Export Value (Mln€)	0.057
Export/Kg (€)	18.20

Table 3.5: Performances of Piacentinu Ennese DOP

- Also in this case, the presence in GDO is almost impossible because of the strictly contracts with companies which aim to the underpricing of the product. As it happens with the Ragusano DOP case, the commercialization of Piacentinu is made directly by producers. This slows the whole process and makes it difficult to cross the regional borders.
- Export is still a work in progress even if the quantities registered are rising. The association is working at the moment with some entrepreneurs from Russia and Japan in order to export some quantities of the product.

3.1.6 Conclusions on the Food sector

The food sector in Sicily is an absolute excellence although, as we can see, it suffers from some serious issues. The goods produced in the island have to cohabit with the others of Italy and hence, with the big players which are present on the territory.
What is possible to deduce from the picture which has been delineated is that for what concerns most of the cheese products in Sicily there is a lack of cooperation between research unions for the certifications and producers. The Cheese category hides important potentialities that with the actual system of management of distribution cannot be expressed to the best. The problem of this system is that there is not a structure which organizes the commercialization. Encouraging distribution companies to invest in the territory could be a crucial issue for the times to come, especially now, in a situation in which Ho.Re.Ca. sector will close the year with huge losses.
Ho.Re.Ca. is the main channel for small producers, which bond themselves to local restaurants or high level food boutiques which following the mission

of their activities can afford the certified products without altering or forcing the production.
Selling to GDO implies the conversion of the traditional processes in favour of more industry-oriented ones. These dynamics derive from the necessity of granting sufficient quantity of production and can be a cause of counterfeiting of goods which can vulgarly still have the DOP or IGP denomination (because of the provenance from a certified big company) but be the result of a process which is completely far from the original one.
In light of what stated, it is fundamental to maintain the delicate equilibrium of distribution and tradition.
Another issue which has been underlined is the absence or low level of exportations for Sicilian cheeses that need to penetrate new markets in order to be competitive at national level.
A solution may be represented by the development of an **e-commerce** channel specific for the high quality food products. As it is known, these goods needs to have short conservation times and this is a very critical issue in order to develop such a system. This channel could gather a part of the production of medium and small producers and distribute them to private users and representatives of Ho.Re.Ca. who in a **make-to-order** view can have access to the best products which Sicily can offer in short times.

3.1.7 Wine Excellence in Sicily

The sector of Wine leads the high quality production in terms of value with 522 Mln€ of Production Value, with a growth of 23% between 2017 and 2018.
Sicily is one of the regions of the oldest wine-growing tradition as evidenced by the numerous archaeological finds (amphorae for wine use, coins with Dionysian and uvicole figures) and the many Greek and Latin literary sources that tell stories about the renowned Sicilian wines.
Since the time of the Phoenicians (IX-IV century BC) the trade of oil and wine is evidenced by the presence of amphorae used for transport and other types of ceramics, such as two-legged jugs and keeled cups, which constituted the "instruments" normally used for wine consumption.
Recent archaeological researches also show that the Phoenicians also dealt with agri-pastoral activities, as well as marketing.
The vineyards had great fashion during the colonization of the Greeks (VIII-III century BC), who introduced some vines such as the Grecanico, still in use today. There are representations of wine scenes on coins as evidence of

the developed economic activity of the region linked to the production of wine.
During the dominion of the Romans (III century BC-V century AD), in particular in the Caesarean age, in Gaul is attested the presence of Sicilian wine. The famous Roman philosopher Pliny quoted the *Mamertino of the Messinese*, when Caesar toasted at the feast for his triumph at the third consulate. During the decline of the Romans, in Sicily the class of the great landowners was established, as evidenced by the presence of large rustic villas such as the Casale di Piazza Armerina, whose mosaics depict scenes of harvest, as evidence of the cultivation of vineyards in the territory. Subsequently, the continuous invasions of the barbarians in the countryside led to the abandonment of these, so the cultivation of the vine fell into decline.
Despite the Qur'an ban on drinking alcohol, during the dominion of the Muslims (827-1061) table grapes were cultivated and in Pantelleria the grape variety "Zebib" was introduced (today *Zibibbo* or Muscat of Alexandria), taken from Cape Zebib in Africa, in front of the island of Pantelleria (B. Pastena 1970).
The vine and the olive tree resumed their expansion during the period of the domination of the Normans; later, during the Aragonese dominion, the Sicilian wine reached great fame, event which was attested by the constitution of numerous wine sales companies, as reported by the Cougnet in his "Historiae de la table".
During the domination of the Spanish (1512-1713), in the internal territories the vineyards, the olive groves and the almond trees increased in number, and where there was abundance of water also gardens and vegetable cultivations had a growth. In the sixteenth century, the historian Tommaso Fazello, in his "De rebus Siculis", mentions the territory of Aci, the countryside of Messina, the plain at the foot of Mount Etna, the Val di Mazara and the plain of Palermo.
The naturalist Bacci, in his famous "Naturali vinorum historia", mentions the vineyards at the foot of Mount Erice, those of the territory of Palermo and the island of Lipari, scattered with fertile hills. The importance of wine production in this period is attested by the establishment of the artisans of Salemi in 1683 and Palermo.
During the subsequent domination of the Piedmontese and Austrians, viticulture experienced a period of crisis from which it rose again in the Bourbon era, as attested by the traveller from Lucca G.A. Arnolfini, in his "Travel Journal" of 1776, where he speaks of Sicilian wine that is produced in abundance in all parts of the island. The English merchant John Woodhouse

opened a wine factory in Marsala, developing the trade of Marsala wines with England; Benjamin Ingham also opens several factories in Marsala and Mazara; to exalt the development of the trade of Marsala the foundation of a factory by the entrepreneur Vincenzo Florio contributed in a preponderant way.
In 1862, Garibaldi returned to Sicily and visited the Florio factory, drank and praised the sweet Marsala that from then on was called "sweet Garibaldi".
In the second half of the nineteenth century, the invasion of phylloxera destroyed most of the vineyards of the island and the vine is supplanted by other crops.
At the beginning of the XX century the technique of grafting on American vine resistant to phylloxera spread and the vine began to green again.
The economic crisis resulting from phylloxera and the commercial war with France marked the end of the production of high-grade and intense colour wines, which were exported to France as blending wines, and increased the production of meal wines to a more moderate alcoholic content, fragrant and fresh.
It is towards the end of the 80s and the early 90s that we can indicate the beginning of the modern history of Sicilian wine. We associate the ability of Sicily to produce quality white wines both with native vines such as *Inzolia*, *Catarratto*, *Grillo*, and with foreign vines, such as Chardonnay, Muller Turgau and Sauvignon. In the nineties the experimentation and production of high quality red wines with the autochthonous grape variety *Nero d'Avola* and the allochthonous Cabernet, Merlot, Syrah, Petit Verdot and Pinot Noir began.
The undisputed protagonist of this new course is Nero d'Avola, which, even in blending with other international grape varieties, is able to characterize and mark the wine itself, not only for its chromatic aspect, but above all because it gives the wine a typical character recalling the Mediterranean flavours.

Coming back to the values, the sector is lead by Terre Siciliane IGP with 82,4 Mln€ of Consumption Value. Under this name there are red, white, Rosè varieties and also sparkling wine. Hence, the presence of products under this name is very wide and this peculiarity causes the presence in both GDO and Ho.Re.Ca. channels.
Straight after we have Marsala DOP, Pantelleria DOP and Etna DOP, with a growth of 23% in average on annual basis.
The top performing provinces are Trapani with 283 Mln€ of Consumption Value, Agrigento with 101 Mln€ and Palermo with 66 Mln€.

Wine DOP/IGP	Production Zone	Consumption Value (Mln€)
Alcamo DOP	Trapani, Palermo	0.9
Avola IGP	Siracusa	N/A
Camarro IGP	Trapani	N/A
Cerasuolo di Vittoria DOP	Ragusa, Caltanissetta, Catania	0.69
Contea di Sclafani DOP	Palermo, Caltanissetta, Agrigento	0.14
Contessa Entellina DOP	Palermo	0.09
Delia Nivolelli DOP	Trapani	0.02
Eloro DOP	Siracusa, Ragusa	0.13
Erice DOP	Trapani	0.19
Etna DOP	Catania	3.19
Faro DOP	Messina	0.04
Fontanarossa di Cerda IGP	Palermo	N/A
Malvasia delle Lipari DOP	Messina	0.36
Mamertino di Milazzo DOP	Messina	0.06
Marsala DOP	Trapani	10.7
Menfi DOP	Agrigento, Trapani	0.29
Monreale DOP	Palermo	0.03
Noto DOP	Siracusa	0.27
Pantelleria DOP	Trapani	9.53
Riesi DOP	Caltanissetta	0.04
Salaparuta DOP	Trapani	0.07
Salemi IGP	Trapani	N/A
Salina IGP	Messina	0.06
Sambuca di Sicilia DOP	Agrigento	N/A
Santa Margherita di Belice DOP	Agrigento	N/A
Sciacca DOP	Agrigento	N/A
Sicilia DOP	Sicily	16.2
Siracusa DOP	Siracusa	0.02
Terre Siciliane IGP	Sicily	82.4
Valle Belice IGP	Agrigento, Palermo	N/A
Vittoria DOP	Ragusa, Caltanissetta, Catania	0.27

Table 3.6: DOP and IGP Wine Products in Sicily

In the last years, the sector of wine came up with big changes in terms of commercialization, with a lot of changes, one above all the choice of e-commercializing the products.

In order to do a proper analysis of the performances of Sicily in the context of wine, is important to consider three parameters:

- **Annual DOP production** in thousands of hectolitres filtered by region and year
- **Annual IGP production** in thousands of hectolitres filtered by region and year
- **Annual vineyard area** in thousand of hectares filtered by region and year

Through ISTAT data it has been possible to realize a database about these parameters.
For what concerns the first point, comparing the Sicilian Annual DOP production with the Average Annual DOP production in Italy, we can see that starting from year 2015, the islander production is above the average. Sicily hence locates itself as one of the best regions in Italy in terms of production. This dynamic is visible in *Figure 3.15*, where Sicily has been compared to the top six regions in Italy in terms of production: Abruzzo, Emilia Romagna, Piemonte, Toscana, Trentino Alto Adige and of course, Veneto.
As it is possible to see from the table in *Figure 3.12*, the absolute leader

(hl/1000)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Abruzzo	1077.00	1075.00	1068.00	1084.00	978.00	1035.00	1035.00	952.00	952.00	845.00
Basilicata	21.00	19.00	40.00	38.00	20.00	30.00	30.00	27.00	27.00	32.00
Calabria	56.00	56.00	167.00	131.00	115.00	67.00	54.00	44.00	45.00	40.00
Campania	300.00	266.00	274.00	279.00	219.00	276.00	238.00	224.00	255.00	252.00
EmiliaRomagna	1674.00	1604.00	1451.00	1517.00	1363.00	1436.00	1739.00	1363.00	1599.00	1270.00
FriuliVeneziaGiulia	572.00	546.00	1161.00	973.00	681.00	654.00	645.00	599.00	618.00	610.00
Lazio	476.00	439.00	724.00	795.00	658.00	855.00	773.00	577.00	708.00	720.00
Liguria	35.00	42.00	35.00	34.00	45.00	43.00	34.00	32.00	43.00	45.00
Lombardia	809.00	810.00	678.00	719.00	728.00	786.00	781.00	623.00	892.00	681.00
Marche	352.00	282.00	326.00	346.00	328.00	348.00	347.00	314.00	321.00	342.00
Molise	159.00	150.00	188.00	188.00	174.00	19.00	20.00	19.00	33.00	25.00
Piemonte	2479.00	2262.00	2048.00	2374.00	2150.00	2104.00	2120.00	1827.00	2478.00	2405.00
Puglia	1010.00	907.00	877.00	990.00	792.00	647.00	674.00	609.00	684.00	649.00
Sardegna	135.00	135.00	405.00	177.00	507.00	552.00	548.00	316.00	581.00	423.00
Sicilia	170.00	149.00	164.00	226.00	445.00	1334.00	1331.00	1260.00	1595.00	1219.00
Toscana	1778.00	1412.00	1474.00	1867.00	1779.00	1756.00	1950.00	1245.00	1718.00	1661.00
TrentinoAltoAdige	964.00	924.00	992.00	1108.00	876.00	1096.00	1098.00	928.00	1172.00	1066.00
Umbria	303.00	290.00	215.00	258.00	289.00	355.00	341.00	290.00	304.00	307.00
Valledaosta	18.00	17.00	16.00	-	14.00	12.00	17.00	8.00	15.00	14.00
Veneto	3354.00	3677.00	3723.00	4218.00	4213.00	5548.00	5733.00	6188.00	8831.00	7842.00
AVG/Year	787.10	753.10	801.30	911.68	818.70	947.65	975.40	872.25	1143.55	1022.40

Figure 3.12: DOP wine production in Italy

in the market of DOP wines, is Veneto, with results that are way far from the performances of Sicily. The northern region counts 43 DOP-denominated wines, against the 24 of the island.
Although starting from 2018 there has been a slight decrease, Veneto is an absolute outlier, on the contrary the other five regions and Sicily compete in terms of production.

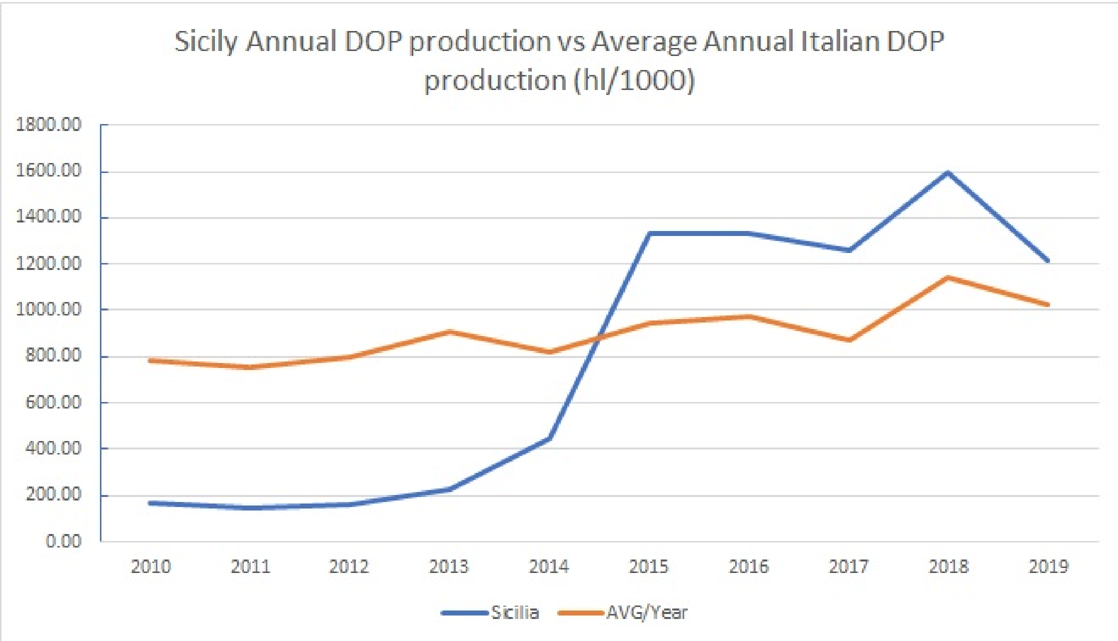

Figure 3.13: DOP production trend of Sicily vs Average in Italy

For what concerns the IGP production, the situation is very different. Since 2010 Sicily, Emilia Romagna and Veneto have alternated as most productive regions, with the first two that reached almost the same level at the end of 2019 (Figure 3.19).
In terms of production, Veneto is still the leader with 3,021,800 hectolitres and Sicily follows with 2,740,600 hectolitres (Figure 3.16).
Sicily is of course over the average Italian level in terms of production (*Figure 3.17*).
The last important factor to consider is the Vineyard Area. Data suggests that Sicily is the region in Italy which dedicates the highest amount of territory to the cultivation of grape for wine with 109,530 hectares. (Figure 3.19). Veneto is soon after with 77,860, almost the 30% less than the island. In addition to this if we consider the Production Value of both regions for DOP/IGP

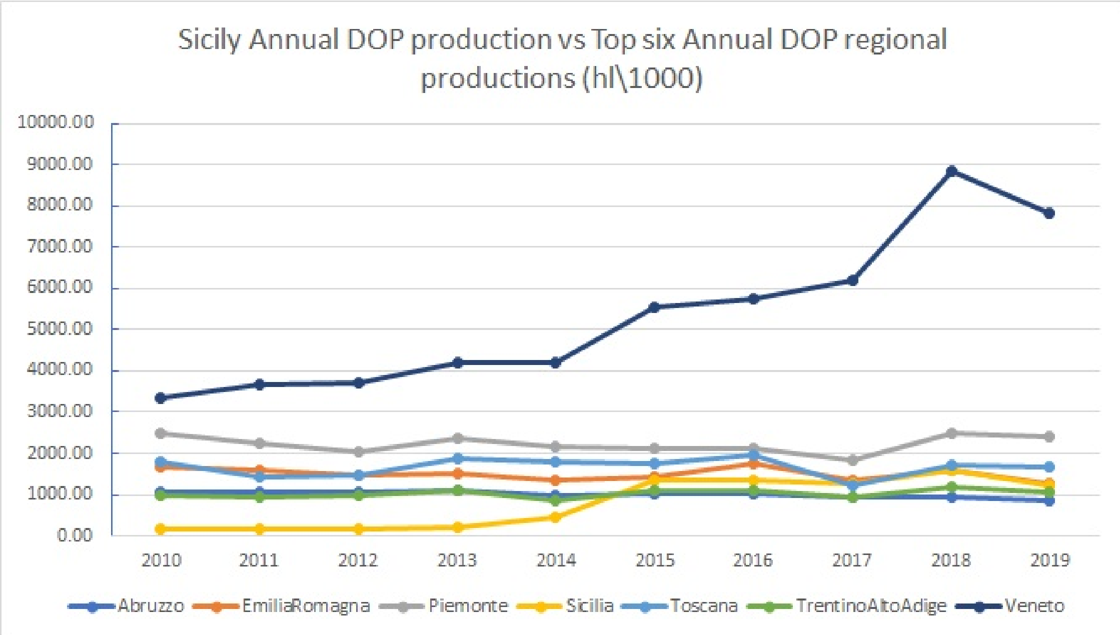

Figure 3.14: DOP production trend of Sicily vs Top six Italian regions

(hl/1000)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	AVG/region
Abruzzo	270.00	237.00	255.00	283.00	285.00	345.00	387.00	316.00	316.00	293.00	298.70
Basilicata	16.00	14.00	30.00	28.00	19.00	27.00	27.00	25.00	26.00	26.00	23.80
Calabria	36.00	36.00	28.00	38.00	37.00	40.00	108.00	86.00	92.00	93.00	59.40
Campania	206.00	182.00	178.00	187.00	150.00	191.00	125.00	115.00	118.00	125.00	157.70
EmiliaRomagna	2483.00	2365.00	2392.00	2821.00	2735.00	2899.00	3055.00	2312.00	2945.00	2354.00	2636.10
FriuliVeneziaGiuli	762.00	163.00	116.00	97.00	535.00	722.00	722.00	610.00	623.00	469.00	481.90
Lazio	214.00	206.00	258.00	300.00	260.00	434.00	438.00	312.00	333.00	390.00	314.50
Liguria	6.00	5.00	6.00	6.00	9.00	24.00	6.00	14.00	8.00	9.00	9.30
Lombardia	309.00	301.00	351.00	403.00	526.00	461.00	535.00	419.00	658.00	489.00	445.20
Marche	420.00	336.00	193.00	203.00	169.00	174.00	174.00	158.00	156.00	173.00	215.60
Molise	-	-	-	-	-	41.00	42.00	41.00	55.00	53.00	46.40
Piemonte	-	-	-	-	-	-	-	-	-	-	0.00
Puglia	1972.00	2090.00	1925.00	1984.00	1576.00	2422.00	1988.00	2050.00	2197.00	1786.00	1999.00
Sardegna	107.00	107.00	0.00	141.00	113.00	108.00	116.00	67.00	123.00	92.00	97.40
Sicilia	2366.00	2385.00	3027.00	4206.00	2237.00	2921.00	2904.00	2510.00	2552.00	2298.00	2740.60
Toscana	718.00	638.00	512.00	648.00	872.00	775.00	800.00	464.00	597.00	665.00	668.90
TrentinoAltoAdige	186.00	178.00	202.00	237.00	146.00	129.00	106.00	79.00	165.00	68.00	149.60
Umbria	324.00	350.00	256.00	341.00	294.00	312.00	306.00	260.00	273.00	276.00	299.20
Valledaosta	-	-	-	-	-	-	-	-	-	-	0.00
Veneto	3559.00	3439.00	2818.00	3866.00	3488.00	3399.00	3508.00	1951.00	2224.00	1966.00	3021.80
AVG/Year	820.82	766.59	738.06	928.76	791.24	856.89	852.61	654.94	747.83	645.83	

Figure 3.15: IGP wine production in Italy

wines, we have to remember that Veneto has 3,501 Mln€ and Sicily only 522 Mln€.
What is possible to deduce from this analysis, at the end, is that Sicily lives

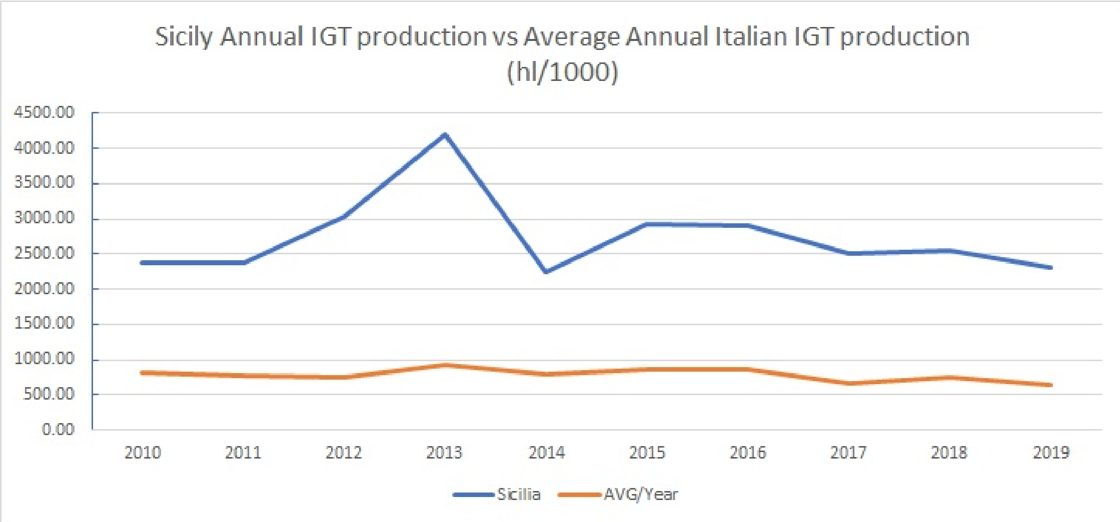

Figure 3.16: IGP production trend of Sicily vs Average in Italy

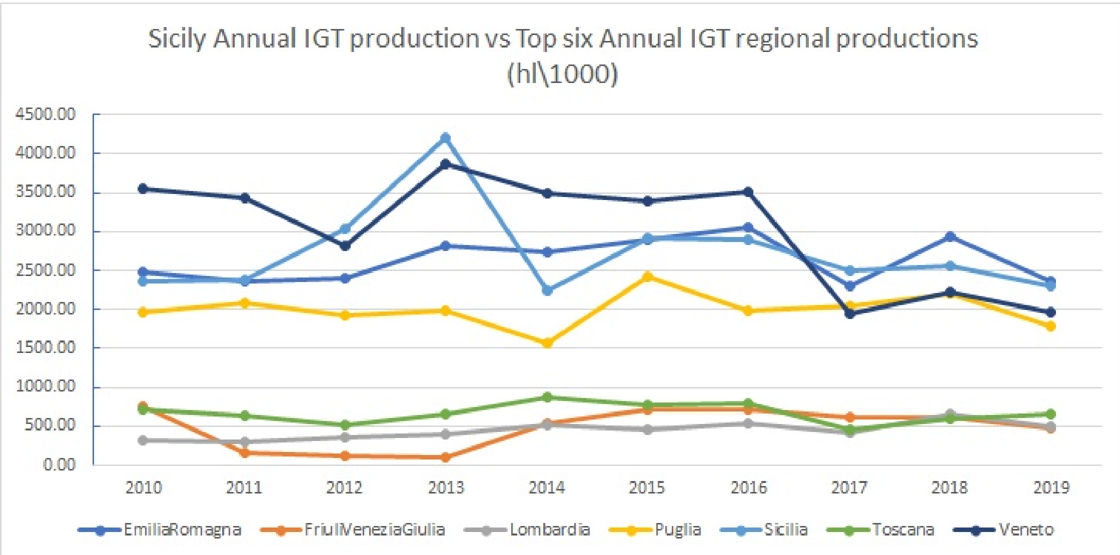

Figure 3.17: IGP production trend of Sicily vs Top six Italian regions

some struggles in terms of converting the forces applied in the production of DOP/IGP wine into Production Value (it has to be specified that Sicily is the biggest region of Italy).

Considering DOP and IGP average values of production and average area applied (*Figure 3.20*), we have the results of *Table 3.7*. After the confrontation, the most worrying data for Sicily is surely the money extracted from

	Sicily	**Veneto**
Hectolitre/Hectare	32.23	107.30
Euro/Hectare	4,765.94	44,963.22
Euro/Litre	1.48	4.19

Table 3.7: Sicily and Veneto Wine Confrontation

each litre of production, that is only € 1.48 against the € 4.19 of Veneto.

(ha/1000)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	AVG/region
Abruzzo	32.80	32.50	32.00	32.00	31.80	31.90	32.40	31.00	33.00	29.30	29.30	31.64
Basilicata	4.50	4.50	4.70	4.70	4.70	4.70	1.90	1.80	2.00	2.00	1.90	3.40
Calabria	13.40	13.20	13.40	11.10	10.20	10.00	10.10	8.70	8.70	8.80	9.30	10.63
Campania	29.80	29.80	29.00	25.90	29.40	25.40	25.30	24.30	24.30	24.60	24.70	26.59
Emilia-Romagna	55.20	53.50	52.00	52.00	51.20	51.10	50.50	49.60	50.10	49.80	50.10	51.37
Friuli-VeneziaGiuli	20.00	19.80	19.70	19.90	19.80	19.80	22.90	22.90	22.90	23.90	24.10	21.43
Lazio	26.80	26.20	26.50	23.40	23.70	21.20	21.90	20.10	20.30	19.90	20.40	22.76
Liguria	2.30	2.20	1.70	1.40	1.50	1.60	1.60	1.70	1.80	1.60	1.90	1.75
Lombardia	21.70	21.50	21.30	20.90	21.50	21.50	21.30	21.20	21.40	21.60	21.60	21.41
Marche	17.20	17.20	17.40	16.60	15.70	15.80	15.40	15.40	15.30	15.60	15.10	16.06
Molise	6.00	5.90	6.00	6.00	6.00	6.00	5.50	5.50	5.50	5.50	5.60	5.77
Piemonte	52.70	48.40	52.70	46.90	49.80	43.50	42.80	42.20	42.30	41.40	40.40	45.74
Puglia	100.00	97.60	85.10	84.60	84.40	84.50	84.00	84.90	85.50	84.80	86.20	87.42
Sardegna	31.70	28.20	31.50	31.10	29.90	27.20	26.40	26.60	26.70	26.60	25.70	28.33
Sicilia	124.90	107.20	106.20	115.40	112.50	110.40	106.60	107.10	106.60	106.20	101.70	109.53
Toscana	59.50	59.60	57.40	55.70	57.20	56.70	54.00	53.60	55.40	53.70	55.20	56.18
TrentinoAltoAdige	14.60	14.70	15.00	15.10	15.10	15.10	14.70	14.70	15.10	14.80	15.10	14.91
Umbria	17.80	17.60	17.80	18.00	13.30	13.30	13.00	13.10	12.20	11.90	12.20	14.56
Valled'aosta	0.50	0.50	0.50	0.50	0.40	0.40	0.30	0.40	0.40	0.40	0.40	0.43
Veneto	70.80	70.20	71.80	71.70	78.20	77.60	75.50	77.00	84.70	87.00	92.00	77.86
AVG/Year	35.11	33.52	33.09	32.65	32.82	31.89	31.31	31.09	31.71	31.47	31.65	

Figure 3.18: Italian Vineyard area dedicated to Wine sector

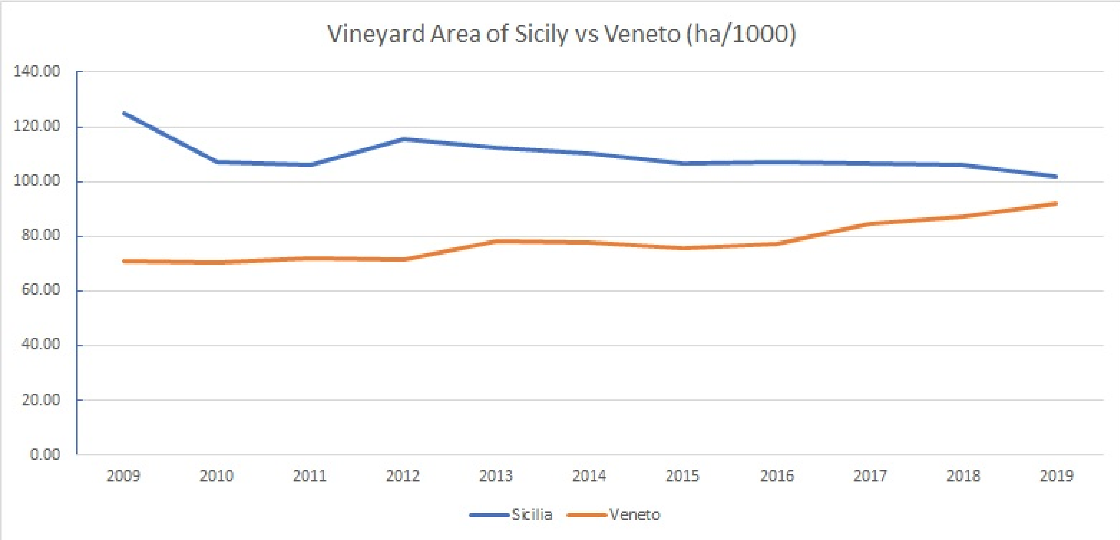

Figure 3.19: Sicilian Vineyard area dedicated to Wine sector vs Veneto

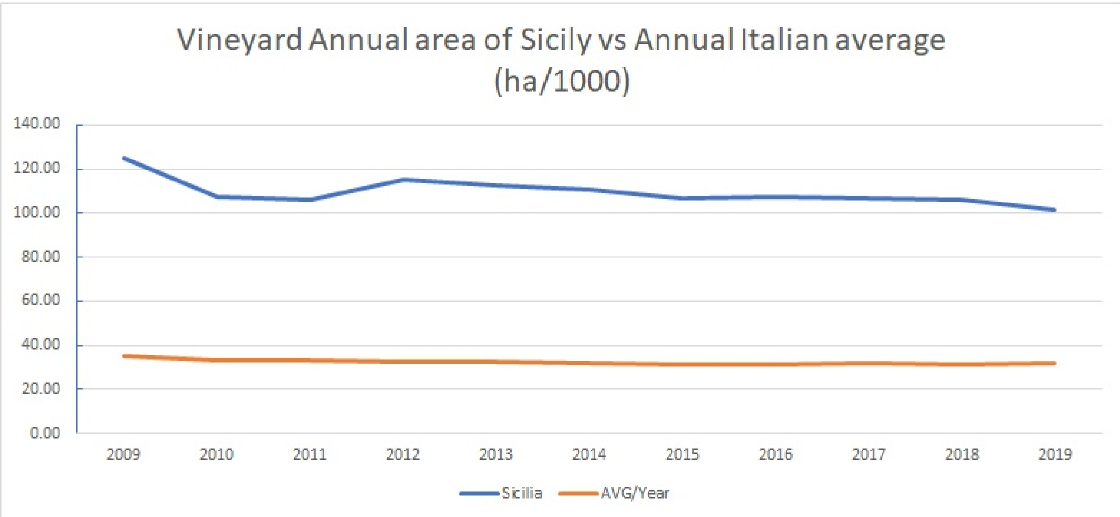

Figure 3.20: Sicilian Vineyard area dedicated to Wine sector vs Italian annual average

Chapter 4

The Importance of e-commerce

The evolution of markets and the day-by-day changes of our society imply the development of new channels for distribution of goods. This dynamic is typical, between the others, of the Food and Wine sector. The impact of Coronavirus has changed the daily life of consumers and businesses and, of course, the demand and offer of goods.

4.1 The Tannico Case

Tannico is not only a reseller of Wine products, but a real Wine Cellar with more than 16,000 different etiquettes from 2,500 producers.
Apart from the B2C platform, the company offers three different B2B services:

- **Tannico Intelligence**: this platform informs the producers that choose to participate to Tannico about variations of price, client profiling and performances of own products.
  In this way, producers can perform marketing and strategical choices for enhancing the results of their etiquettes.

- **Wine Platform**: Tannico gives also a support in terms of logistics and technology. Producers outsource this part of their work to Tannico, including picking, packing and customer care.

Tannico gets the 15% as commission from sales and has a control on-site of the bottles in their warehouse in Arese (MI). The company gives constant feedbacks to the producers for all of their products.

- **Ho.Re.Ca. service**: for all the owners of restaurants, catering services, hotels and bars, Tannico offers an exclusive selection of their bottles without a minimum quantity of orders.
  The system includes consulting services and special price offers.

Tannico closed 2019 with 20.3 Mln€ in revenue, marking an annual growth of revenues of 36%. Last year, through its platform, more than 1.5 million bottles were delivered and more than 100 thousand customers worldwide were served. A boost to sales was given by the international business, which represents 10% of the total and which in 2019 grew by 40% compared to 2018. In addition, purchases via mobile devices have also increased, from 20% to 40% in three years.
The website attracted investments for more than 8 Mln€.
During the first trimester of 2020, Tannico registered a growth of 100% in terms of sold volumes with a +10% of buying frequency and a +5% of number of bottles per order.
During the COVID-19 lockdown in Italy, there have also been some changes in the demand of the website which turned in favour of medium-priced bottles. More specifically, there has been a growth of 50% in sales for Terre Siciliane DOP red and a +100% for the white variety. Sparkling Wine and Champagne had a decrease of 30% together with other high-price wines like Barolo and Brunello (-70%).
These changes had a different impact depending on the zones of Italy.
Tannico registered an explosion in sales especially in the areas which suffered most like Lombardia (+100%), Piemonte (+90%), Emilia-Romagna (+85%) and Veneto (+82%). For the less-involved areas of that trimester there has been a more contained growth, as it happened in Sicily (+40%), Puglia (+30%) and Calabria (+20%).

In *Figure 4.1* we can have a look at how the demand intensified in Italy during the first lockdown. The darker becomes the region, higher is the demand of wine from Tannico.
The most important takeaway from this analysis is the correlation between the reduction of mobility per region and the growth of sales.
Wine has been considered a first-necessity good during the pandemic, the increase in the frequency of purchase and the number of bottles requested

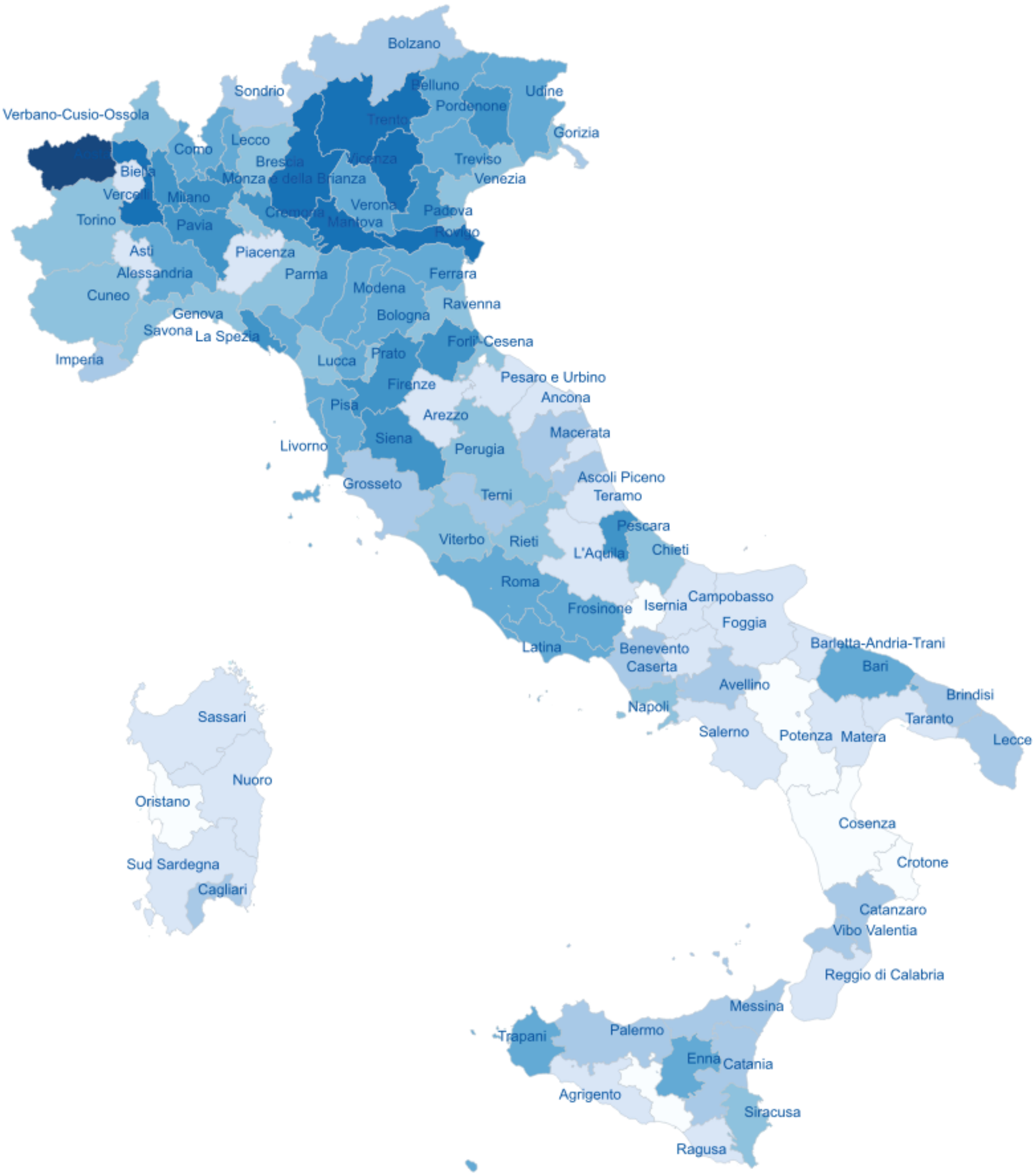

Figure 4.1: Infographic of Tannico sales changes through the Italian territory

by the individual customer, together with the selection of average cheaper bottles, highlight the intent to stock up in order to always have on the table a good wine especially in these hard weeks.

4.2 What about food?

What described in the previous chapters, opens to the suggestion of a new solution for certified food commercialization.
Tannico represent an example of modernization of sales for high quality products. In the light of this, in the sector of denominated food there is not the possibility for all the kind of producers to enjoy of an online channel of distribution.
An important player of a similar project may be Slow Food Committee, a no-profit associations which has the goal of promoting the value of high quality product that derive from the Italian tradition. The Committee is involved in activities of cultural promotion. In particular, through the project Mercati della Terra (Land's Market), Slow Food acts in many ways:

- Ensures the availability in the markets of short-chain, proximity and seasonal products. These goods are made respecting the environment and workers' rights;
- It creates market outlets for small-scale producers, normally excluded from conventional commercial channels;
- It facilitates the meeting between producers and consumers;

Today, Earth Markets are present in more than 24 countries and are an expression of places and people from the most diverse cultures.

Due to the recent necessities and the strong presence on the Italian territory, and recalling what just said, it may be the right time for Slow Food to be involved in a new commercial project.
Focusing on the perspective of small producers, who are present in Sicily and in other parts of Italy as well, a new idea of e-commerce can be built. This service should be structured through some points.

- The platform should work in both B2B and B2C perspectives and should be mainly focused on small producers of certified products. Most of times these businesses have to look for some distributor by attending at some fairs, but due to the minimum quantities requirements it could be extremely difficult to reach an agreement. In fact, the platform should not stress producers in terms of quantities, they could place a portion of their production which depends on their capacity.

- The producers who choose to participate to the platform, will outsource completely the logistics, giving back to the platform a commission on sales, as it happens with Tannico.
- Ho.Re.Ca. users could set some agreements through the platform with some specific producers, in order to build business relationships. This may represent the biggest opportunity for small producers to expand their sales panorama. Owners of restaurants, hotels or catering service could also enjoy of some consultancies from producers, for example in terms of retention times and conservation methods.

E-commerce platforms, apart from being the natural response to COVID-19 to promote sales, are a must-have system for high quality producers. Right now because of the low generational change which takes place in regions like Sicily, it is extremely difficult to build a culture which is in line to these new solutions; hence, the participation of research unions (like CoRFiLaC in Ragusa) that already know who are the long-time producers which may benefit from an e-commerce opportunity is fundamental.
This system may be the real game-changer for what concerns the Sicilian prestige for the food-sector and it might finally build a concrete future for this sector.

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