

**LUISS**



**Department of Economics and Finance – Bachelor’s degree in**

**Economics and Business**

**Major in Finance**

**Course of: MICROECONOMICS**

**Young Graduates and Migration: Analyzing the Causes of Sicily's  
Talent Loss**

SUPERVISOR

Prof. Emanuele Tarantino

CANDIDATE

Gaetano Militello

289961

Academic Year 2023/2024

# Contents

Introduction	3
--------------	---

## CHAPTER I

### THE SCENARIO

1.1 Phenomenon overview: Young students are escaping Sicily	5
1.2 The economy of Sicily	6
1.3 Concept of Economic Success	9
1.4 Labor market	11

## CHAPTER II

### APPLIED ANALYSIS

2.1 Methodology	16
2.2 Regression Analysis	18
2.3 Industries Analysis	20

## CHAPTER III

### FINAL CONSIDERATIONS

3.1 Labor Productivity and SMEs	27
3.2 Analysis Conclusions	28
3.3 Quotes on exogenous factors	29
CONCLUSIONS	33
Appendices A, B, C, D	34

## INTRODUCTION

The Sicilian economy, characterized by a variety of structural and social challenges, is an emblematic case study in the Italian context. With a history marked by mass emigration and an often rigid and inefficient labor market, Sicily has seen many of its young people choose to leave the island in search of better opportunities elsewhere. This phenomenon, known as the “brain drain,” is not only a demographic concern but also an economic issue that significantly impacts regional development and the island's economic competitiveness.

In this thesis, we aim to explore the dynamics that drive young Sicilian graduates' decisions about whether to stay in Sicily or choose to migrate. This study focuses, in particular, on how the growth rate of labor productivity in different economic sectors may influence these decisions. Labor productivity is a crucial indicator of economic welfare, as it represents the ability of firms to generate value added per unit of labor.

The Sicilian context offers a unique opportunity to analyze these dynamics, as the island has a combination of structural factors, such as high youth unemployment, a segmented labor market, and a business fabric dominated by SMEs. These elements, together with a historical dependence on public transfers and a low level of competitiveness, create an environment in which the employment decisions of young graduates can provide important insights into the future prospects of the Sicilian economy.

The main objective of this study is, therefore to investigate whether there is a significant correlation between the growth rate of labor productivity and the likelihood that young graduates decide to stay and work in Sicily. To do this, a logistic regression model will be used to estimate the probability that an individual will choose to work in Sicily as a function of the productivity of the sector in which he or she intends to be employed.

This paper is structured as follows: in the first chapter, an overview of the Sicilian economic context will be provided, with a focus on labor market challenges and the main productive sectors. Next, the data and methodology used to conduct the empirical analysis will be described, followed by a discussion of the results obtained. Finally, conclusions will be drawn regarding the implications of the findings made for regional economic policies and future generations of Sicilian workers.

With this research, it is hoped to contribute to the understanding of the economic dynamics that influence the retention of young talent in Sicily and, more generally, to provide useful insights for the development of policies that can improve the island's economic competitiveness, making it a more attractive place for young graduates.

# CHAPTER 1

## THE SCENARIO

### 1.1 Phenomenon overview

The first section provides a context and a scenario analysis for interpreting the results obtained by studying the correlation between the probability a student decides whether to live and work in Sicily and the use of labor input. The context analysis aims at organically linking all the relevant facts featuring the Sicilian economy.

Let us introduce one fact that serves as a starting point for the research: 23%<sup>1</sup> of Sicily's population is currently resident abroad. The number is a proxy for the population value, representing the percentage of cancellations from the municipality records for residence. This is a clear net loss for Sicily in terms of human capital, as Sicily does not tap into other sources to compensate for its loss. In North and Central Italy, indeed, the balances are guaranteed by the stream of workers coming from the South.

This leads to several consequences, namely lack of specialization in the labor force, skill mismatch, resource mismanagement, and lack of development in most of the advanced sectors of the economy. While no single reason can be pinpointed, many are correlated with the phenomenon. Due to the complexity of the phenomenon, some of the possible reasons fall outside the field of economics. They involve fields like politics and sociology, which will not be analyzed here. Nonetheless, the facts related to politics and sociology will serve as corollaries.

The phenomenon has effects and interacts with different figures in the labor force, namely unskilled workers, skilled workers, university students, freelancers, and, to some extent, also entrepreneurs.

---

<sup>1</sup> ISTAT, *Report migrazioni*, 2021, in [https://www.istat.it/it/files/2023/02/REPORT\\_MIGRAZIONI\\_2021.pdf](https://www.istat.it/it/files/2023/02/REPORT_MIGRAZIONI_2021.pdf) (seen on 02/07/24).

Different challenges and reasons affect all these categories when they consider whether to move and what to seek.

Unskilled workers mostly leave Sicily because of low salaries and poor job conditions. In Sicily, especially within the unskilled labor market, dumping contracts are a reality that is far from uncommon. This creates job dissatisfaction and encourages some workers to emigrate for higher salaries and better job conditions.

Entrepreneurs do not find a business-friendly environment in Sicily because of the presence of organized crime, exhausting bureaucratic procedures, and low profitability margins.

Skilled workers have entered the market, taking advantage of past opportunities due to the scarcity of specialized personnel and the limited presence of university degrees in Sicily before the 21st century. They represent the least affected category.

University students, though falling in the category of skilled workers, do not face today the same context that their counterparty did. Bachelor's degrees are now more common, but job availability and wages remain unchanged. Given the difficulty for students to penetrate the market today and the misalignment of remunerations with the cost of living, the effort and resources invested in education become less worthwhile. It is also worth mentioning that most students who have grown up surrounded by uncertainty seem to prefer career alternatives not aligned with Sicilian market needs.

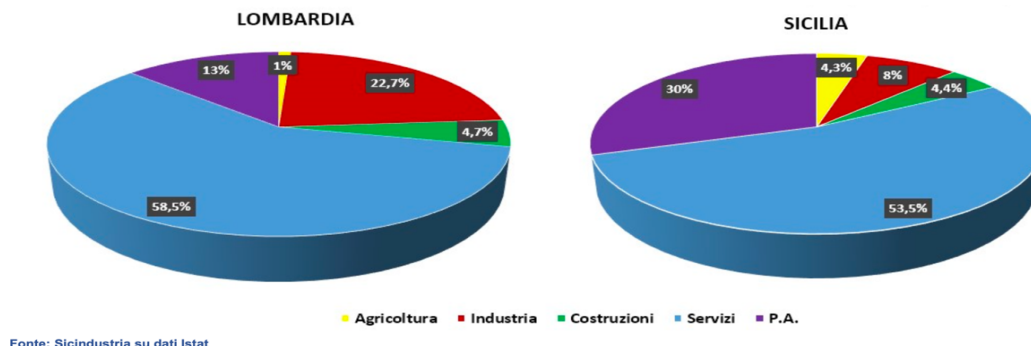
## **1.2 The economy of Sicily**

Sicily's GDP approximately accounts for 91 billion <sup>2</sup>euros and contributes to Italy's GDP of roughly 4,94%. Sicily's key production sectors are agriculture, industry, and tourism. Agriculture is well diversified, offering a great variety of products, namely wheat, olives, citrus fruits, almonds, and wine grapes. The region maintains a comparative advantage in the sector thanks to its fertile soil and favorable climate. Industry is another well-diversified production sector with a focus on food processing, chemicals, oil refining, fertilizers, textiles, and shipbuilding. Major industrial areas are Catania, Syracuse, and Enna. It is no surprise that tourism is mentioned here, considering Sicily's abundance of

---

<sup>2</sup> ISTAT, *Conti economici territoriali*, in <http://dati.istat.it/Index.aspx?QueryId=11455> (seen on 25/06/24)

UNESCO world heritage sites and stunning natural landscapes like the Stairs of the Turks and Mount Etna. With this in mind, we can now delve into the technical breakdown of the GDP composition. 3



This graph gives a perfect picture of the region’s GDP, and one might immediately infer some irregularities. Although agriculture, industry, and tourism are sectors in which the region has a comparative advantage, their combined GDP contributions fall short of the 30% that Public Administration represents. The actual composition shows a lack of dynamism and excessive dependence on external transfers, which translates into incapacity to manage the region’s resource endowments.

As a support to the above-discussed argument, a statement from a study about Italy’s TFP<sup>4</sup> in the manufacturing sector has been reported: “Using a micro-level longitudinal dataset of Italian manufacturing firms, I find that, in the hypothetical absence of distortions, aggregate TFP in manufacturing would be boosted by 58% in 1993, by 67% in 2006 and by 80% in 2011”<sup>5</sup>. Though the above-mentioned statement does not explicitly mention the Sicilian scenario, it discusses distortions, which are mostly present in areas that are excessively dependent on government transfer. Also, it is mentioned later that Sicily and South Italy experience the highest degrees of distortions in the country. The study provides evidence that the absence of distortions leads to a boost in TFP, which implies that distortions have a negative impact on resource management, productivity, and economic growth.

<sup>3</sup> SICINDUSTRIA, *Sicilia 2018-2022 Considerazioni e proposte per lo sviluppo*, p.8.

<sup>4</sup> TFP: Total factor productivity.

<sup>5</sup> S. CALLAGRIS, *Misallocation and TFP in Italy: Evidence from Firm-Level Data*, CEIS Tor Vergata, 2015, p.1.



However, it has been observed a decreasing trend in distortions over the 2000s as a direct consequence of several banking reforms of deregulation that occurred between the 80s and '90s. The interesting fact is that the process occurred at a higher-than-normal rate, evidencing how government presence, in this case through regulatory frameworks, was heavily correlated to the degree of distortion<sup>6</sup>.

It is worth mentioning that one possible side-effect of the shift towards financialization in areas featured by high government engagement is short-termism, i.e., focusing on short-term financial gains at the expense of long-term stability. The occurrence of this is a result of inadequate investment in key areas like research and development, as well as the disregard for broader social and economic objectives.

Having delved into Sicily's GDP composition, it is time to focus on competitiveness. A high degree of competitiveness is a good measure of an economy's well-being.

A competitive economic environment benefits from innovation, efficiency, and customer satisfaction through lower consumer prices. It encourages economic growth, dynamism, and resource management. The RCI, Regional Competitiveness Index, has ranked Sicily last among the regions in Italy, showing one simple fact: Sicily is not business-friendly. The critical elements that hinder economic growth based on factors productivity are weak financial structure and hardship in accessing credit capital. Second, the individualistic behavior of the average Sicilian entrepreneur makes it difficult to enlarge firms by raising equity capital. Last, Sicily's business fabric is mainly featured by SMEs, and most of them experience a low degree of technological intensity. Though this structure may allow in some contexts to achieve external economies of scale, the lack of established and large firms does not provide the market with transparent and updated information that might be used for innovation. These pieces of information are typically used as proxies for tracking market trends, and their absence causes uncertainty about changes, leading to increased market stagnation and the arisen of asymmetric information.

Considering that a weak capital structure is frequently identified as a factor contributing to operational inefficiencies, let us introduce the credit market in Sicily to obtain some insights. On the supply side, the criteria applied by banks to business loans have become more restrictive, with a reduction in the quantities offered. In a reality dominated by small

and medium-sized enterprises, often with limited financial resources, it becomes challenging to meet the stringent credit requirements imposed by banks. This creates a disincentive to innovate, leading businesses to continue operating with non-innovative business models that often become outdated.

Let us now shift our focus to the labor market, laying the groundwork for later analysis of employment and the labor environment. Sicily's labor market is deeply characterized by one problematic phenomenon that gives a start to all the others: skill mismatch. This is relevant to the analysis as Sicilian companies have reported a higher use of labor input. In order to ensure completeness, let us provide the definition of skill mismatch as stated in a study run by INAPP: "The mismatch generally identifies a situation of 'displacement' with often changing connotations within the same company, ranging from phenomena of skill shortage to phenomena of skill gap."<sup>7</sup>

The presence of the phenomenon has had various implications on the job market. Despite this, there has been an overall increase in the number of hires between 2021 and 2022. However, there has also been a rise in job terminations, which has contributed to a significant reduction in the net balance of employment. This indicates that while more people have been hired, there has also been a higher rate of job loss, resulting in a less stable job market. Furthermore, there has been an increase in both permanent and fixed-term contracts, suggesting that employers are opting for more flexible employment arrangements. These trends reflect the ongoing challenges and changes in the labor market, which will require further analysis to understand their long-term impact<sup>8</sup>

### **1.3 The concept of economic success**

A detailed analysis of Sicily's economic reality has been presented to set the stage for the upcoming correlation analysis. Nevertheless, once an individual grasps the scenario, the inquiry regarding the ultimate objective naturally emerges. The answer is simple: every economic action is aimed at achieving economic success, but the meaning of this concept

---

<sup>7</sup> E. CRISPOLTI, M. FRANCESCHETTI, A. ROMITO, *Il Sistema duale come risposta all'evoluzione dei fabbisogni di competenze del mercato del lavoro*, in *INAPP working paper*, 2021, 70, p.4.

<sup>8</sup> BANCA D'ITALIA, *L'economia della sicilia*, in *Economie Regionali*, 41, 2023, p.15.

is far from straightforward.

Here, some definitions of economic success from economic literature are going to be discussed and applied to the context of Sicily

For Paul Krugman<sup>9</sup>, economic success is not only about enhancing overall productivity but using economic activity as a means to reach good life standards. This perspective is particularly advocated by employees, as they understand the importance of fair wages and decent working conditions for a good quality of life. However, employers may only consider this approach if they perceive that the marginal gain in value added by hiring another worker is less than the marginal cost associated with it. The balancing act between productivity and the well-being of employees presents a complex decision-making process for employers. Joseph Stiglitz emphasizes that economic success should not solely focus on material wealth and production but also consider sustainability, equity, and intergenerational harmony in the use of resources. He advocates for a shift towards less material and energy-intensive growth that is more fair and sustainable<sup>10</sup>. The political class and new-generation entrepreneurs advocate for this formally, but Sicily's reality often does not follow suit. Entrepreneurs view this as a government issue and are hesitant to innovate their business model and strategy to better utilize resources. This reluctance stems from the uncertainty prevalent in the business sector. The political entourage claims to advocate for the concept, attracting young students to the public sector. However, they fail to follow through on their promises. Does the responsibility lie with them? The lack of interest in the political class is the real problem, not their direct engagement. The key is to ensure that business units pursue such goals willingly. Entrepreneurs display a lack of concern, while political entourages assume responsibility for actively pursuing objectives beyond their obligation to promote them, often with poor results. Finally, employees commonly perceive public employment as inherently

---

<sup>9</sup> C. COLFORD, *Productivity for prosperity: in the long run, it is almost everything*, in <https://blogs.worldbank.org/en/psd/productivity-prosperity-long-run-it-almost-everything#:~:text=%E2%80%9CProductivity%20isn't%20everything%2C,raise%20its%20output%20per%20worker.%E2%80%9D&text=Paul%20Krugman's%20conclusion%20about%20the.is%20widely%20shared%20among%20economists> (seen on 26/07/2024)

<sup>10</sup> JOSEPH E. STIGLITZ, *Inequality and Economic growth*, in M. JACOBS & M. MAZZUCATO, *Rethinking Capitalism*, Wiley-Blackwell, 2019, p.134

favorable and private employment as inherently unfavorable. Milton Friedman<sup>11</sup>'s definition of economic success is based on the belief that economic progress depends on legitimacy and faith in the economic system within society. He argues that the success of an economic system hinges on the society's belief in its ability to advance economic progress rapidly and successfully. The evidence from the previous discussion shows that competition and trust are not prioritized in business reality. The key message is that Sicilians consistently view economic success as a result of exogenous economic growth that primarily captures the attention of entrepreneurs, and it is the responsibility of the government to redistribute the benefits of this growth to the residents.

## **1.4 Labor market**

Proceeding with the analysis, it is time now to directly address the reason why the phenomenon occurs, so why do more students always leave Sicily after completing their studies?

The key determinants are unemployment, weak labor contracts, low competitive wages, market distortions, and lack of infrastructure.

As it is inferred from the data, Sicily has experienced high unemployment rates. The presence of skill mismatch and structural unemployment has contributed to the sustained nature of these rates, particularly in relation to youth unemployment, which constitutes the key area of focus in our analysis. Education outcome is the main source of structural unemployment among young students. The high school system is entirely knowledge-based, with close to zero connection to everyday life. Most universities lack a linkage with job reality, resulting in students' interests not being aligned with market needs.

Structural unemployment itself is long-lasting unemployment that comes about due to shifts in an economy. The reason behind this type of unemployment is the failure to develop a labor force that is market-driven. Consequently, workers do not find job proposals appealing, and, as a result, they most likely decide to pursue other career paths or to look for the same job position abroad, where they can find better proposals in terms

---

<sup>11</sup> ROBERT H. NELSON, *Why Economic Progress requires Economic Religion*, p.6.

of contracts, wages, and benefits. Since it is a well-consolidated phenomenon that has been occurring for many years, the difference between the opportunities they are likely to find outside of the region and the ones in the region must have grown as well.

It looks clear that unemployment, skill mismatch, and structural unemployment are the direct causes of the phenomenon, but why do they occur? To answer this question, the analysis must be split into two parts. The first will analyze why job proposals are not appealing, focusing on labor supply by individuals who care about wage and labor contracts, and the second will analyze the labor demand side, which is influenced by market distortions and lack of infrastructure and ultimately results in weak job proposals.

It is important to note that the presence of organized crime, the weak political class, and entrepreneurs' individualism also contribute to the influence of the labor market and its conditions, but this section and the rest of the analysis will be treated as exogenous factors.

The nature of labor contracts in Sicily is mainly influenced by precarious employment, informal employment, and rigid labor laws. Precarious employment refers to most labor contracts being temporary and part-time, which do not provide job security or benefits. Informal employment is also very common and neglects the worker of any legal protection. Lastly, we find rigid labor laws, though primarily aimed at protecting workers, most likely result in increasing the percentage of informal workers, given the high costs and difficulty of terminating contracts incurred by firms. Most workers who experience informal employment end up accepting such a condition due to the low bargaining power they have.

Another weak part of contracts is wages. Wages in the private sector are generally unattractive to students who have invested resources and time in studying. This is especially true when combined with minimal benefits, unpaid overtime, and unfavorable working conditions. The secure and most preferred path for this segment of the labor force becomes public employment. In Italy, public employment offers high benefits and legal protection, besides strong contracts that make it hard to fire someone. Public employment wages are nearly the same in all the countries, with just a few differences between the regions. This structure is often pleased by politicians, who share the idea that strict legal frameworks should dominate economic scenarios and correct inequalities. In reality, this

creates distortion because of the huge difference in costs of living between northern and southern regions. This distortion often brings disincentives for residents in northern Italy, who will prefer to work in the private sector, and incentives to southerners to look towards public employment. Since the public sector in Sicily has an excess of labor supply over labor demand, numerous students who intend to pursue this career path often engage with public employment in North Italy, where supply is lower, and then gradually return to the region after a few years, taking advantage of various legal benefits. To show how the choice occurs, a payoff matrix is provided, providing an idea of how public employment is preferred to private employment for the sample analyzed.

<sup>12</sup>	Public employment (North)	Private employment (North)
Public employment (South)	(5, 4)	(4,5)
Private employment (South)	(3,4)	(3,5)

The framework is defined as follows. Player 1 is an early graduate from Palermo University, and Player 2 is an early graduate from Milan University. It is important to note that both Palermo and Milan University have been chosen as generic proxies for the population of students in North and South Italy. Each student can play the strategies public employment and private employment. However, each strategy has different payoffs for the players, which have been derived from Almalaurea’s survey on early graduates in 2022. Based on the survey responses from students in Palermo, it was found that 69.9% expressed their interest in pursuing a career in the public sector, whereas 51.3% indicated their preference for the private sector. Given that the survey permitted respondents to provide multiple answers, we calculate the net value in the following manner:

---

<sup>12</sup> Payoff numbers serve an explicative purpose, they are not intended to show any real scale, the purpose of the model is to give a pragmatic look at the choice players face.

$$\text{Overlap} = P_{\text{public}} + P_{\text{private}} - 100\%$$

$$\text{Overlap} = 69,8\% + 51,3\% - 100\% = 21,1\%$$

$$\text{Public exclusive} = 69,8\% - 21,1\% = 48,7\%$$

$$\text{Private exclusive} = 51,3\% - 21,1\% = 30,2\%$$

Based on this approximation, it can be concluded that 48.7% of students in Palermo harbor an exclusive inclination towards pursuing a career in the public sector, with the remaining 30.2% leaning towards the private sector. By converting these percentages into a scale of 1 to 10, we can proceed with establishing the payoffs for Player 1. These payoffs are 5 for Public employment and 3 for Private employment. Regarding Player 2, there is no evidence indicating the possibility of providing two answers in the Milan-related survey. The percentages are 45.5% for the public sector and 53.2% for the private sector. The related payoff will be 4 for the public sector and 5 for the private one. The unique Nash equilibrium, as observed, involves public employment for students in Palermo and private employment for students in Milan, resulting in a payoff of (5, 5). The payoff matrix, though not accurate enough to draw conclusions, indicates that public employment is the preferred choice for students in Sicily. The high job security and stable benefits offered by public employment outweigh the potential career progression and higher wages of private employment, especially given the challenging economic conditions in the region. This leads to a brain drain as students seek better opportunities elsewhere, often returning to the region only after securing stable public sector positions in other parts of Italy.

Having deeply discussed recurring patterns in labor supply, let us now focus on labor demand. As stated above, labor demand in Sicily is mostly influenced by market distortions and a lack of infrastructure. We have already discussed in the labor supply side analysis one case of market distortions, but it is not the only one. The market in Sicily relies on public transfers, and this reduces the incentive for private sector growth. The presence of organized crime distorts the market by introducing the phenomenon of rackets, which increases the cost of running the business and the risk of unfair competition, especially when private enterprises are involved in government-run

auctions. Infrastructure deficiencies are a significant barrier to economic development in Sicily since the competitiveness of companies depends also on infrastructure quality. Given its geography, Sicily should have developed an advanced infrastructure system. According to information shared by Uniontrasporti, 86% of movements occur by road, 3% by ship transfers, 2,7% use national railways, and 0.6% uses air transport. Sicilian companies mostly operate in the regional market, with only 18% of them operating on a national basis and 2% in the international market. This is consistent with the region's business fabric being formed by SMEs and, therefore, explains why most of the transport occurs by road, and most operations are based in the regional market.<sup>13</sup> Businesses have rated the existing infrastructure in Sicily as mediocre to poor, more specifically, businesses operating in commerce, manufacturing, and the transport sector. The rating is still negative, also towards the secondary network. The airport system, instead, is considered excellent by most of the abovementioned businesses, whereas ports still get a mediocre rating of 38.6 % by Sicilian companies.<sup>14</sup>

---

<sup>13</sup> UNIONTRASPORTI, *Infrastrutture vicino il nuovo libro bianco in Sicilia*, in <https://www.uniontrasporti.it/2024/02/01/infrastrutture-vicino-il-nuovo-libro-bianco-in-sicilia-86-di-mobilita-e-su-strada/> (seen on 30/06/2024).

<sup>14</sup> UNIONTRASPORTI, *Infrastrutture vicino il nuovo libro bianco in Sicilia*, in <https://www.uniontrasporti.it/2024/02/01/infrastrutture-vicino-il-nuovo-libro-bianco-in-sicilia-86-di-mobilita-e-su-strada/> (seen on 30/06/2024).



## CHAPTER II

### APPLIED ANALYSIS AND OUTCOMES

#### 2.1 Methodology

After establishing a comprehensive understanding of the economic conditions in Sicily from the first chapter, one is now well-prepared to explore the research. A logistic regression model is at the core of the study, and it aims to estimate the correlation between the likelihood of a student choosing to work in Sicily and the growth rate of labor productivity in the analyzed sectors. The rationale behind choosing the labor productivity growth rate lies in its essential function of assessing the holistic well-being and dynamism of an economy. When productivity increases, it shows that firms are becoming more efficient, resulting in higher output per input unit. As a result, individuals often experience increased salaries, better career opportunities, and a greater focus on innovation. Higher productivity growth indicates a more vibrant and promising job market, which influences workers' decision to stay. Increasing productivity growth in the job market can indicate expanding companies that require additional skilled workers, leading to a higher demand for graduates. Labor productivity at the macroeconomic level is interconnected with the growth of GDP and the enhancement of living standards.

Let us now delve into the model structure, which consists of two variables. In our case, the dependent variable,  $Y$ , is a dummy variable and displays a student's choice to work or not in Sicily. The variable takes values 0 and 1. The independent variable,  $X$ , is the labor productivity growth rate of each sector. A survey<sup>15</sup> was administered to a sample of students from 4 Sicilian universities to create the dataset for the analysis. The total population of students in Sicily amounts to 115660, of which 38% study in Catania, 37% in Palermo, 4% in Enna, and finally 20% in Messina. The sample size was decided by considering a 90% confidence interval with a 5% margin of error. According to this, a sample size of about 270 observations is statistically consistent in estimating values for

---

<sup>15</sup> See appendices C and D

the population. Additionally, the observations were restricted in accordance with the distribution of students from the 4 universities. The survey consists of three questions, and participants can optionally choose to explain their answers, but these explanations will not be used in the analysis. The survey asks students if they intend to work in Sicily after graduation and which industries they are interested in for their future profession. Labor productivity is calculated by dividing the sector's value added by the number of workers in that sector<sup>16</sup>. The growth rate has been determined using a five-year time frame. The annual variation was calculated first using the following:

$$\Delta L.P = \frac{(L.P_t - L.P_{t-1})}{L.P_{t-1}}$$

The actual growth rate has been obtained using the CAGR formula<sup>17</sup>:

$$CAGR = \left( \frac{\Delta LP_{2021}}{\Delta LP_{2017}} \right)^{(1/n)} - 1$$

The regression analysis is aimed at confronting two hypotheses. H0 affirms that there is no correlation between x and y, and the observed phenomenon has a random origin. H1 affirms that a correlation between the two exists.

$$H_0: \beta_1 = 0$$

$$H_1: \beta_1 > 0$$

The model itself is instead modeled by the following equation:

$$\ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X + \varepsilon^{18}$$

---

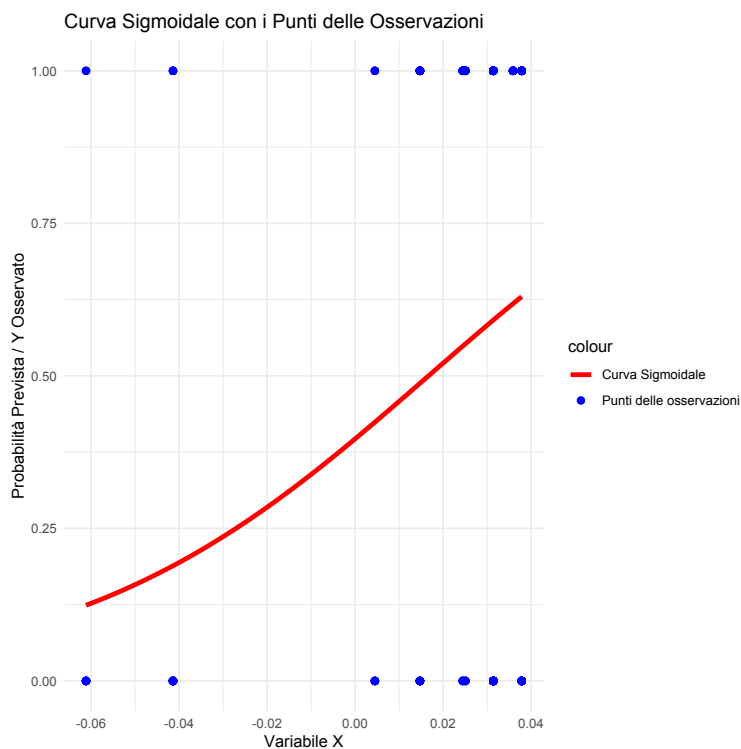
<sup>16</sup> See appendix A

<sup>17</sup> See appendix B

<sup>18</sup>  $Y = \ln\left(\frac{p}{1-p}\right)$ ;  $X =$  labor productivity growth rate

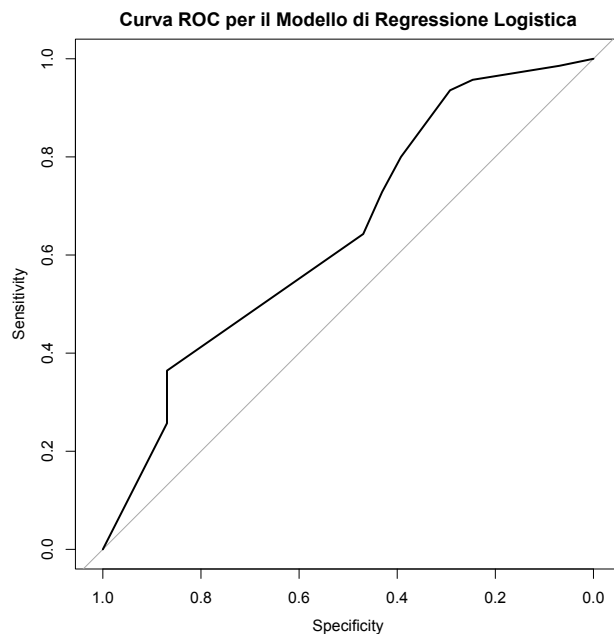
## 2.2 Regression Analysis

Upon conducting analysis on the collected dataset, the regression findings are reported below.



The intercept coefficient has a value of -0.419, which represents the log odds of obtaining the value 1 when the variable X is 0. The negative intercept suggests that, without any additional factors, the likelihood of a student selecting to work in Sicily is below 50 percent. The coefficient x has been calculated as 25.1191, meaning that an increase of one unit in X results in an increase in the likelihood of a student opting to work in Sicily. Both coefficients have been proven to be statistically significant. The p-value of the intercept is 0.019, which falls below the established threshold of 0.05. In practical terms, this indicates that even when the independent variable is held at 0, there is still a tendency to answer in the negative. The p-value corresponding to X is 7.59e-06. The low value signifies an exceptionally low probability of the observed effect of X on Y being random. If the p-value for a predictor variable is less than than the chosen significance level, set

at 0,05, the null hypothesis H0 is rejected. In order to evaluate the performance of the model, the confusion matrix associated with the regression and the ROC curve graph are shown. Based on the information provided by the confusion matrix, the model demonstrates accurate classification for 70% of the observations. The outcome aligns with the purely exploratory nature of the study. The model's accuracy is compromised by the use of a single independent variable, which is evidently incapable of encompassing all facets of this intricate phenomenon. The kappa coefficient of 0.3417 suggests moderate concordance between the model's predictions and the actual observations. Typically, an optimal agreement is characterized by values falling within the range of 0.4 to 0.5.



To delve into the accuracy of the model, we utilize the ROC curve to define the concepts of sensitivity and specificity. Sensitivity pertains to the probability of a true positive result in the presence of a positive, while Specificity pertains to the probability of a true negative in the presence of a negative. The value of sensitivity is 0.3619, whereas specificity has a value of 0.9456. This suggests that the model's performance in predicting the NO response is significantly superior to its performance in predicting the YES response. An examination of the dataset's responses may provide a potential explanation. The dataset suggests that sectors perceived as less desirable tend to be exclusively featured by negative answers.

By

contrast, this does not hold true for the more productive sectors, where the proportion of affirmative responses is not found to be the same. This observation indicates that the NO choice follows a more straightforward pattern than the YES choice. Visually, the ROC curve is positioned above the random line at a 45-degree angle. Although the curve does not exhibit uniform co-behavior, it is clear that the model consistently demonstrates superior decision-making abilities in comparison to a random model. Ultimately, the model demonstrates an overall accuracy of 68%, implying a moderate trade-off between sensitivity and specificity.

### 2.3 Industries Analysis

The model used the likelihood function to estimate the probability per sector that a student will respond affirmatively to the survey. The following probabilities per sector are listed in order: education at 63%, agriculture at 61%, professional activities at 59%, industry and trade at 55%, health care at 49%, transportation at 42%, tourism at 19%, and arts activities at 13%. The following analysis is proposed to provide context for these probabilities within the individual sectors. In Sicily, as well as in the rest of Italy, the agricultural sector exhibits a market structure that closely resembles perfect competition due to the abundance of both sellers and buyers. As a result, the price of the product is primarily determined by the equilibrium of supply and demand. In Sicily, farms typically operate as partnerships, and the region boasts approximately 69,000 of these partnerships. Furthermore, Sicily encompasses 1.3 million hectares of UAA<sup>19</sup>. Sicily, in addition to Puglia and Sardinia, displays the highest levels of UAA. Sicily allocates 336,000 hectares of land to the cultivation of woody crops, which account for 25.7 percent of its UAA. The UAA underscores the significance of crops like olives, vines, and citrus fruits in the agricultural economy of the region<sup>20</sup>. Based on the data, the agricultural sector exhibits a 4 % growth rate in labor productivity over a five-year period, along with an average annual value added of \$3,363,480. The agricultural industry ranks as the third largest sector in terms of value-added, following trade and manufacturing. The performance is

---

<sup>19</sup> UAA: Utilized Agricultural Area

<sup>20</sup> ISTAT, *Strutture e caratteristiche delle unità economiche del settore agricolo*, in *Statistiche report 2017*, p.3

evaluated as discrete, as it possesses significant appeal to individuals interested in this industry. The sector's performance in terms of productivity, target market, and value-added could be enhanced through an expansion in average firm size and a greater openness to digitization and innovation.

The manufacturing sector comprises 27,371 enterprises, spanning various industries such as food, apparel, wood, printing, and manufacturing. Out of these, the agribusiness industry holds the top position in terms of enterprise count. The agribusiness sector in Sicily serves as a prominent example for the entire country of Italy. In accordance with a study updated in 2017 by Unioncamere<sup>21</sup> and Infocamere<sup>22</sup>, it has been determined that Sicily holds the top position among all regions in Italy with respect to the quantity of certified organic companies, amounting to 9,444 out of a nationwide total of 59,46. Following closely behind are Calabria and Puglia. When examining the provinces, the top ten positions are dominated by southern regions, with four of them belonging to Sicily: Palermo (1,609), Trapani (1,429), Messina (1,239), and Catania (1,230). In recent years, numerous companies have demonstrated a strong commitment to growth and innovation. Their efforts have been directed towards enhancing product quality and safety, promoting environmental sustainability, establishing robust brands and effective marketing strategies, and streamlining operations to overcome limitations posed by their scale. These factors have contributed to the global recognition and appreciation of such enterprises. Regarding enterprises with high value-added, their concentration is primarily observed between Palermo and Catania. The Etna Valley science hub stands out for its inclusion of enterprises that specialize in ICT and biotechnology. The enterprises within the cluster were responsible for generating nearly two-thirds of the regional value added in the sector during the year 2021. The primary risks faced by the sector stem from its excessive reliance on a limited number of major companies, thereby exposing them to a

---

<sup>22</sup>UNIONCAMERE, INFOCAMERE, *Movimprese - Sempre più "Bio" sulla tavola degli italiani: 60mila le aziende certificate*, 4 January 2018 ,p.2

cascading risk of failure<sup>23</sup>. Additionally, the lack of innovative practices and limited access to credit significantly affects the industry.

The capital-intensive nature of high-value-added industrial sectors emphasizes the importance of acquiring strategic assets to optimize the production process, thereby driving business expansion. Despite being the second largest value-added sector in the region, this specific industry appears to have an average level of attractiveness. Based on the model's analysis, there is a 55 percent probability that a student will choose to work in Sicily, indicating just a moderate interest in this sector. From this, one infers that the level of interest in working in the sector does not correspond proportionally to its economic value. The underlying causes can be attributed to the unattractive nature of the job offers. By adopting an innovative business model and incorporating modern machinery, it would be feasible to enhance labor productivity while ensuring improved treatment of employees. The sector's labor productivity growth rate stands at 2.5 percent. Although the hotel tourism sector is a key sector for the development of the regional economy, it is surprising that almost all those interested in working in this sector do not want to work in Sicily. The likelihood of a positive response from a student aspiring to work in the sector is merely 18 percent. An industry brimming with untapped potential, making it unappealing. The sector is fragmented among various departments at the policy level, hindering the coordinated and effective management of sector-related policies. Seasonality poses the most significant challenge for Sicilian tourism at the operational level. The majority of tourist activity is focused during the summer months. The absence of a well-established business network hinders the promotion of a comprehensive and user-friendly tourism package. Consequently, the sector is categorized as both volatile and unappealing. The hotel tourism sector is not considered a high-value-added sector in itself. Nonetheless, due to its potential, it is expected to achieve more. Its average value added of 134015, which ranks it third from last in the region, is relatively low. The trade sector of Sicily has consistently played a crucial role in its economy, capitalizing on the advantageous geographical location of the island in the Mediterranean. Over the course of history, Sicily's economy relied predominantly on agricultural exports and trade routes

---

<sup>23</sup> BANCA D'ITALIA, *L'economia della sicilia*, in *Economie Regionali*, 41, 202, p.1.

that connected Europe to North Africa and the Middle East. However, the competitiveness of the sector has been adversely affected by the decline of conventional industries and heightened global competition. The rise of e-commerce and the process of digital transformation present Sicilian businesses with the chance to expand their reach to broader markets. However, the lack of digital infrastructure and technological skills has hindered the chances in adopting such elements. Tourism-focused retail has experienced growth in prominent cities like Palermo, Catania, and Taormina, where visitors are drawn to local and handcrafted merchandise. Consequently, there has been an increase in small businesses that meet this expanding demand. The sector exhibits notable strengths through its alignment with tourism and strong cultural identity. The combination of retail and tourism enhances the potential for revenue growth, particularly in regions that are often frequented by international tourists. Once more, the sector is confronted with deficiencies in infrastructure and challenges in obtaining credit. Nevertheless, an additional issue that emerges in this industry is the substantial prevalence of an informal economy. This phenomenon leads to a decrease in tax revenues and creates a lack of legal protections for workers and entrepreneurs. Regression analysis indicates that trade results in moderate productivity growth, although it is not enough to retain all the graduates. The absence of secure and high-paying employment opportunities within the industry compels skilled individuals to pursue prospects in regions characterized by more vibrant and well-organized economies. The likelihood of a student responding positively and expressing interest in working in the sector stands at 55 percent. Regarding value-added trade, it holds the top position in the region with a staggering 5,954,071.2. However, it is evident that the level of interest in working in this sector does not align with its significant role. Sicily's artistic heritage is deeply connected to its diverse cultural influences, encompassing Greek, Roman, Arab, and Norman elements. Throughout the course of history, Sicily has cultivated a rich heritage of art, architecture, and literature, establishing itself as a prominent cultural center in the Mediterranean. Palermo, Agrigento, and Syracuse are cities that abound in ancient art and architecture. Nevertheless, the arts sector is solely progressing in this aspect. There is a lack of evidence indicating progress in contemporary artistic fields such as fashion, film, and photography. Although there is a cultural appeal, the arts sector is not perceived as a secure professional trajectory for young individuals in Sicily. The findings of the regression analysis indicate that the



industry's reliance on tourism serves as a deterrent for students in their pursuit of long-term careers in the arts. The probability generated by the model is at its lowest, measuring 13%. Due to its strategic location in the Mediterranean, Sicily was ideally positioned to serve as a central hub for transportation and logistics. Nevertheless, a series of inadequate investments and inefficiencies within the bureaucracy have resulted in the region's transportation infrastructure falling behind the rest of Italy. However, the recent expansion of Sicily's primary airports has enhanced global connectivity, thus positively impacting both the tourism and trade sectors. Nevertheless, issues persist concerning internal connectivity and the transportation network as a whole. The European Union has allocated funding to enhance transportation infrastructure, with a particular emphasis on improving road and rail networks.<sup>24</sup> Nonetheless, there has been a lack of rapid advancement, and the complete benefits have yet to be attained. Trade and tourism heavily rely on the Sicilian ports. Ports like Palermo and Catania function as important entry points for both goods and passengers, linking Sicily to key maritime routes in the Mediterranean. The transportation industry, specifically air and maritime transportation, is closely interconnected with tourism, which continues to play a crucial role in driving the economy. The lack of integration between various transportation modes, such as road, rail, and sea, poses a hindrance to the overall efficiency of the transportation system. Regression analysis identifies the impact of insufficient transportation infrastructure on both the sector and the overall economy. It hampers job creation, impedes productivity growth, and ultimately undermines the retention of graduates in Sicily.

The healthcare system in Sicily is characterized by its reliance on public funding and a centralized structure, which aligns with the overall system in Italy. Despite this, the system has been burdened by unequal distribution and a chronic lack of funding. The public sector continues to exert significant control over the healthcare industry, with only a limited presence of private providers. As a result, extended waiting periods and reliance on Northern Italy for specialized medical services have ensued. The COVID-19 pandemic

---

<sup>24</sup> EUROPEAN COMMISSION, *InvestEU: €3.4 billion to modernise the Palermo-Catania railway line*, in: [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_23\\_1651](https://ec.europa.eu/commission/presscorner/detail/en/ip_23_1651), seen on 16/08/2024

has underscored the vulnerabilities of the healthcare system in Sicily, particularly in terms of infrastructure and staff capacity. The public sector offers stable employment in the field of health care, which makes it an appealing choice for job security, especially for those in the medical profession. The presence of an aging population and persistent public health needs contribute to an ongoing and steady demand for health services. Numerous hospitals and clinics are outdated and necessitate substantial investment to meet contemporary standards of care.

Although the healthcare sector ensures job stability, it lacks adequate avenues for professional advancement and progress. This is evident in the regression analysis, wherein some students still demonstrate a preference for moving to regions with superior healthcare infrastructure and professional prospects, regardless of the potential higher purchasing power of the salary in the region.

The third sector in Sicily comprises a combination of professional services, scientific activities, and public sector employment. The public sector, specifically, has historically served as a substantial employment provider due to the region's reliance on state transfers and the pivotal role of the regional administration. The excessive dependence on public-sector employment has hindered the growth and innovation of the private sector. A significant number of young professionals gravitate towards public sector employment due to the stability it provides despite the limited prospects for career advancement. Nevertheless, this particular sector continues to lag behind in terms of development when compared to other areas of Italy. The third sector plays a crucial role in delivering indispensable services that facilitate the operations of other industries, including education, law, and administration. The lack of innovation and productivity in the third sector is frequently subject to criticism. Public sector employment, despite its stability, has a minimal effect on driving economic growth. The professional services sector, particularly in fields like technology and engineering, is still in its nascent stage, thereby constraining avenues for highly skilled professionals. The allure of job security in the public sector is leading many to choose a career in the third sector, reducing the appeal of possible dynamic career prospects in the private side of the sector, as indicated by regression analysis results.

To address the challenges in these sectors and improve Sicily's economic prosperity, the following policy considerations are proposed. It is crucial to prioritize investments in

transportation and digital infrastructure in order to strengthen trade, improve connectivity, and enhance competitiveness. Foster innovation in the arts and professional services sectors by offering incentives to creative industries and professional enterprises to invest in state-of-the-art technologies and expand their global presence. The advancement of the healthcare industry requires investments in both healthcare infrastructure and workforce enhancement. The implementation of these measures is of utmost importance in order to retain medical professionals and improve service delivery in the region. Encourage enhanced collaboration between the public and private sectors in order to decrease reliance on public employment and promote the growth of the private sector. By intervening in these sectors, Sicily may have the opportunity to cultivate a stronger and more sustainable economy, ultimately improving the retention of talent and facilitating long-term economic growth.

## CHAPTER III

### FINAL CONSIDERATIONS

#### 3.1 Labor Productivity and SMEs

The labor productivity of large firms is evidently higher due to their ability to reduce costs, invest in production-optimized assets, and readily adopt innovative technologies. Typically, the attainment of economies of scale leads to cost reduction, while the implementation of quasi-autonomous machinery or assets decreases labor input and subsequently enhances labor productivity. Of all the sectors examined in Sicily, the education sector exhibits the highest rate of labor productivity growth. This finding is intriguing, as it does not belong to a sector that can provide an immediate, measurable economic benefit or leverage the region's distinct strengths. Hence, it becomes imperative to examine labor productivity and comprehend its determining factors. In technical terms, labor productivity is defined as the amount of real gross domestic product produced by one unit of labor.<sup>25</sup>

When considering labor productivity, there is typically a positive association with the size of the firm, although it is not the exclusive determining factor<sup>26</sup>. Moreover, the industry in which the company operates has an impact on labor productivity as well. In the manufacturing industry, the difference in productivity between large businesses and SMEs is usually more noticeable than in other sectors of the economy. This arises from the industry's requirement for significant financial investment. The business fabric of Sicily is mainly characterized by SMEs, which are primarily labor-intensive, lacking in digitalization, and lacking in innovation. Yet, this argument does not adequately justify the disparities noted when analyzing the economic data of Sicily. The analysis has so far focused on the limitations in productivity that arise from a business framework comprised of SMEs. However, it is important to recognize that there are also advantages. SMEs

---

<sup>25</sup> INVESTOPEDIA, Labor productivity: What it is, Calculation and How to improve it, in <https://www.investopedia.com/terms/l/labor-productivity.asp> (seen on 15/08/2024)

<sup>26</sup> Miller, E. M. (1978). *The Extent of Economies of Scale: The Effects of Firm Size on Labor Productivity and Wage Rates*. *Southern Economic Journal*, 44(3), 470–487. <https://doi.org/10.2307/1057204>

inherently exhibit enhanced flexibility, closer proximity to consumers, and experience a more expedited and streamlined decision-making process. Through optimizing the utilization of these advantages, it would result in an overall improved performance.

### **3.2 Analysis conclusions**

Based on the analysis and careful considerations, two conclusions were drawn. First, market needs are not prioritized or accommodated. Second, sectors in which Sicily owns a comparative advantage are not well exploited. The initial conclusion can be readily derived through a comparison of the sectors deemed more appealing and those with greater potential. Included in the former category are agriculture, education, and professional activities, while the latter comprises tourism-hotel, industry, and agriculture. The sole industry that occurs twice is agriculture. While both education and professional activities are essential components of a robust economic system, it is arguable that the education sector should not hold such a prominent position in the ranking. The excess labor supply in this particular industry results in a scarcity of skilled labor in alternative sectors, which can be attributed to the relative lack of attractiveness of those sectors. Regarding the professional activities sector, there are no explicit inconsistencies in its performance in a strict sense. The only noticeable irregularities are indirect and relate to the issues discussed in the first chapter about distortions caused by the nature of public employment. The truly surprising factor, on the other hand, arises when we compare its performance with that of other sectors that have the potential to stimulate the Sicilian economy but have achieved poor outcomes. The comparison of data from the Lombardy region reveals that the sectors exhibiting superior performance indicators are also the ones that maximize the region's potential. The sectors with the highest values, based on the consideration of value-added as data, are trade and industry, which have average values of 90638<sup>27</sup> and 71425<sup>28</sup>, respectively. As expected from a well-organized sector, the professional activities industry still maintains a high level of performance. However, it is secondary to the primary sectors of the Lombard economy. When it comes to the second conclusion, the sectors that are well-suited to tap into Sicily's potential include

---

<sup>27</sup> In billions of euros.

<sup>28</sup> In billions of euros.

agriculture, manufacturing, tourism, and trade. However, according to the evidence, only the manufacturing and agriculture sectors are capable of displaying modest performances. When it comes to trade and the hotel and tourism sector, the issues are significantly entrenched. Directly addressing them would necessitate substantial structural reforms aimed at bolstering businesses. Additionally, these actions should focus on streamlining bureaucratic processes and fostering business-to-business networking.

### **3.3 Quotes on exogenous factors**

As an attempt to provide a platform for data expression, there is an optional suggestion to present one's arguments in response to the survey. The subsequent discussion pertains to the most relevant responses and the factors that influence the decision. However, due to methodological concerns, they were regarded as exogenous to the analysis. The students' responses reveal a profound discontentment with the present condition of the job market in Sicily, characterized by insufficient salaries and restricted avenues for career advancement. Students directly experience the existence of broader systemic problems, including inadequate infrastructure, bureaucratic inefficiencies, and the continuous influence of organized crime. Numerous survey participants highlight the insufficient job opportunities in their preferred fields within the labor market of Sicily. Furthermore, if jobs do exist, they are frequently associated with unstable conditions. The presence of low wages, temporary contracts, and limited benefits fosters an environment where students perceive their skills and qualifications to be undervalued. According to one respondent, the primary factor for departing Sicily is the problem of unemployment. Additionally, the Sicilian economic terrain is incapable of providing competitive salaries that correspond to the cost of living. Frustration is being voiced by students due to the challenges they face in securing financially stable job opportunities. As per the statements of various interviewees, salaries in Sicily are deemed insufficient to cover essential expenses, compelling them to search for work in alternative regions of Italy or overseas. The absence of career advancement prospects amplifies discontentment regarding wage levels, as expressed by a participant who stated, "The insufficiency of growth opportunities in my preferred field and the inadequate wages that fail to align with the cost of living." Decision-making is greatly influenced not only by economic factors but also by social and cultural elements. The mindset commonly associated with Sicilians is

often viewed by students as a barrier to their personal and professional advancement. The conservative and insular nature of Sicilian society is considered to be a hindrance for young professionals who aspire for innovation and progress. This perception is evident in the way people describe Sicily as "archaic" and devoid of the energy found in other regions. Moreover, reasons for departure included instances of sexism, homophobia, and other types of discrimination. Notably, one participant highlighted that these issues are more prevalent in less progressive regions of Sicily. The inadequate provision of public services, especially in healthcare and transportation, further reduces the appeal of remaining in Sicily. Students observe that deficiencies in public infrastructure, such as insufficient public transportation and inadequate management of health care services, have a substantial influence on their quality of life. The statement, "The lack of job opportunities and inadequate transportation systems pose challenges to residing in Sicily," serves as an illustration. Many survey respondents have compared the healthcare systems in Sicily and northern Italy, pointing out a significant difference in service quality in the southern region. This difference further reinforces the idea that remaining in Sicily would mean sacrificing important aspects of one's well-being and quality of life. Numerous students have a strong desire to venture beyond Sicily, believing that other regions offer better opportunities for personal and professional growth. Interestingly, although numerous students express the intention of leaving Sicily in search of better prospects, there is also a noteworthy inclination to return to the island after acquiring experience elsewhere. Certain respondents express their desire to temporarily work abroad or in northern Italy, with the aspiration of returning to Sicily when circumstances become better. This sentiment underscores the profound emotional connection that numerous young Sicilians possess towards their homeland, notwithstanding its adversities. A single respondent concisely expressed, "Sicily is a remarkably stunning location that I have no desire to permanently depart from." I am optimistic that after a period of absence, I will be able to return and establish my presence here. The student interviews clearly display the obstacles and prospects encountered by Sicilian youth. By addressing the underlying factors that contribute to discontentment, it is possible to counteract the phenomenon and foster a more conducive environment for talent retention in Sicily. The Mafia still holds significant power in Sicily and greatly influences the region's economy, particularly in the underground or illegal sectors. According to

estimates, the Mafia's involvement in illicit activities and tax evasion significantly contributes to the region's GDP, with the underground economy representing as much as 15 percent of Sicily's GDP<sup>29</sup>. This exceeds the average for the entire nation, which suggests that organized crime has a significant impact on the local economy. The economic influence of the mafia is known for its complex and diverse nature. As an illustration, the mafia's influence over public contracts and construction endeavors in Sicily grants them the ability to divert public funds, frequently utilizing legal establishments for money laundering purposes. Furthermore, the mafia's participation in the clandestine economy is associated with extensive tax evasion and illicit labor practices. It is estimated that the contribution of illegal labor to the economy in Italy amounts to a total of €62.4 billion, a substantial portion of which is associated with mafia-related operations.<sup>30</sup> The illicit economy sustains poverty and inequality by undermining legitimate businesses and distorting market competition. The engagement in these activities, coupled with the Mafia's penetration into different sectors, including agriculture, construction, and healthcare, presents an enduring obstacle to both economic progress and the enforcement of law in Sicily.

---

<sup>29</sup> FISAC, *La mafia e l'economia sommersa "rubano" in Sicilia il 15% del PIL*, in <https://www.fisac-cgil.it/120349/la-mafia-e-leconomia-sommersa-rubano-in-sicilia-il-15-del-pil>, (seen on 17/08/2024)

<sup>30</sup> QUIFINANZA, *Mafia: quanti miliardi "fattura" ogni anno e in quali settori*, in <https://quifinanza.it/economia/video/mafia-quant-miliardi-fattura-settori/688347/>, (seen on 17/08/2024)



## CONCLUSIONS

This thesis explored the dynamics influencing the decision of young Sicilian graduates to stay or migrate elsewhere. Through the analysis of the data collected and the application of a logistic regression model, it emerged that labor productivity is a determining factor, although not the only one, in determining the job choices of young Sicilians. Other factors, such as the quality of infrastructure, the availability of adequate public services, and the perception of economic and political stability, play a determining role in migration decisions. The analysis revealed that traditionally strong sectors in Sicily, such as agriculture and tourism, are not perceived as attractive as one might expect. Despite the importance of these sectors in the regional economy, young graduates appear to be less likely to seek career opportunities in these areas. This could be due to a combination of factors, including the perception of limited opportunities for growth, relatively low wages, and the seasonality of the occupations offered. In contrast, fields such as education and professional activities, which may not have the same immediate economic impact, appear more attractive because of the stability and professional development opportunities they offer. In addition, Sicily faces the challenge of diversifying its economy, reducing dependence on low-growth sectors, and improving working conditions in those with high potential. This requires a concerted effort by the regional government, local businesses, and educational institutions to better align the skills of graduates with the needs of the local labor market. In conclusion, although Sicily faces significant challenges, the potential exists to retain young talent and promote sustainable economic development. Through an integrated approach that combines productivity improvement, infrastructure development, and a change in labor policies, the island may be able to retain a significant portion of its skilled workforce, thereby contributing to strengthening its economy and building a more prosperous future for generations to come.

## APPENDIX A

	VALUE ADDED					MEAN		LABOR FORCE				
industria manifatturiera	3759474	3530891	3491126	2922326	4621132	3664989,8	68570	67248	68554	70325	74472	
commercio all'ingrosso e al dettaglio, riparazione di autoveicoli e motocicli	5427173	5682616	6177546	5733033	6749988	5954071,2	125231	128088	130903	132708	138021	
trasporti e magazzinaggio	2833801	2704286	2915654	2470215	2965932	2777977,6	48797	47082	47302	46983	49938	
servizi di alloggio e di ristorazione	1486910	1559092	1623285	803193	1228270	1340150	55161	57255	58507	51995	56286	
attività professionali, scientifiche e tecniche, amministrazione e servizi di supporto	1672906	1724855	1647269	1700596	2157249	1780575	16213	15831	16023	16559	17911	
istruzione	121918	112699	139618	106603	139712	124110	6616	5819	6173	6097	6296	
sanità e assistenza sociale	2009691	2101163	2109068	2113946	2382999	2143373,4	43665	45106	44964	46447	48124	
attività artistiche, di intrattenimento e divertimento	359467	335168	325464	211280	257902	297856,2	7595	7757	7707	7250	7470	
agricoltura, silvicoltura e pesca	3279100	3238300	3285800	3308700	3705500	3363480	154321	153.652	148.986	146.773	146.191	
							2017	2018	2019	2020	2021	

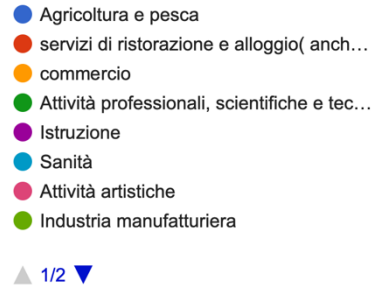
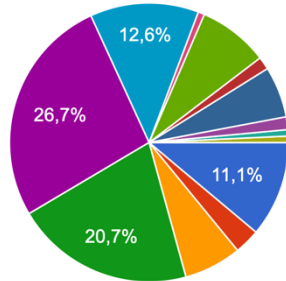
## APPENDIX B

LABOR PRODUCTIVITY					GROWTH RATE				CAGR
LP= value added/n.workers					$\Delta LP = (LP_{t-1} - LP_{t-2}) / LP_{t-2}$				$CAGR = (LP_{2021}/LP_{2017})^{(1/n)} - 1$
54,82680473	52,50551689	50,92519765	41,5545823	62,05193898	-0,04	-0,03	-0,18	0,49	0,025
43,33729668	44,36493661	47,19178323	43,20035718	48,90551438	0,02	0,06	-0,08	0,13	0,024
58,0732627	57,43778939	61,63912731	52,57678309	59,39228644	-0,01	0,07	-0,15	0,13	0,00
26,95582024	27,23066981	27,74514161	15,44750457	21,82194507	0,01	0,02	-0,44	0,41	-0,04
103,1830013	108,9542669	102,8065281	102,6991968	120,4426889	0,06	-0,06	0,00	0,17	0,03
18,42775091	19,36741708	22,61752794	17,48450057	22,1905972	0,05	0,17	-0,23	0,27	0,04
46,0252147	46,58278278	46,90570234	45,51307942	49,51789128	0,01	0,01	-0,03	0,09	0,01
47,32942725	43,20845688	42,22966135	29,14206897	34,52503347	-0,09	-0,02	-0,31	0,18	-0,06
21,2485663	21,07554734	22,05442122	22,54297453	25,34697758	-0,01	0,05	0,02	0,12	0,04
2017	2018	2019	2020	2021	2018	2019	2020	2021	

## APPENDIX C

Se sì, in che settore ?

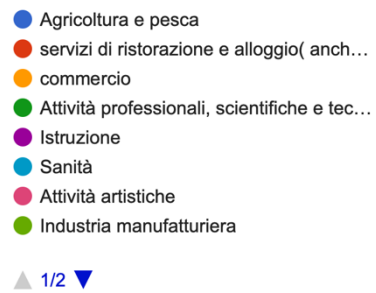
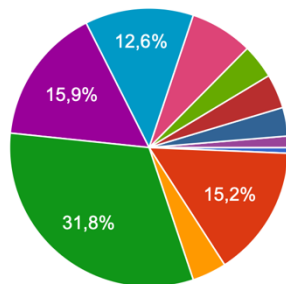
135 risposte



## APPENDIX D

Se no, in che settore ?

151 risposte



## Bibliography and sitography

1. ISTAT, *Report migrazioni*, 2021, in [https://www.istat.it/it/files/2023/02/REPORT\\_MIGRAZIONI\\_2021.pdf](https://www.istat.it/it/files/2023/02/REPORT_MIGRAZIONI_2021.pdf) (seen on 02/07/24).
2. ISTAT, *Conti economici territoriali*, in <http://dati.istat.it/Index.aspx?QueryId=11455> (seen on 25/06/24).
3. UNIONTRASPORTI, *Infrastrutture vicino il nuovo libro bianco in Sicilia*, in <https://www.uniontrasporti.it/2024/02/01/infrastrutture-vicino-il-nuovo-libro-bianco-in-sicilia-86-di-mobilita-e-su-strada/> (seen on 30/06/2024).
4. BANCA D'ITALIA, *L'economia della Sicilia*, in *Economie Regionali*, 41, 2023, p. 15.
5. SICINDUSTRIA, *Sicilia 2018-2022 Considerazioni e proposte per lo sviluppo*, p. 8.
6. S. Callagris, *Misallocation and TFP in Italy: Evidence from Firm-Level Data*, CEIS Tor Vergata, 2015, p. 1.
7. E. Crispolti, M. Franceschetti, A. Romito, *Il Sistema duale come risposta all'evoluzione dei fabbisogni di competenze del mercato del lavoro*, in INAPP working paper, 2021, 70, p. 4.

8. Joseph E. Stiglitz, *Inequality and Economic Growth*, in M. Jacobs & M. Mazzucato, *Rethinking Capitalism*, Wiley-Blackwell, 2019, p. 134.
9. QUIFINANZA, *Mafia: quanti miliardi fattura ogni anno e in quali settori*, in <https://quifinanza.it/economia/video/mafia-quanti-miliardi-fattura-settori/688347/> (seen on 17/08/2024).
10. Robert H. Nelson, *Why Economic Progress Requires Economic Religion*, p. 6.
11. Paul Krugman, *Productivity for Prosperity: In the Long Run, It Is Almost Everything*, in <https://blogs.worldbank.org/en/psd/productivity-prosperity-long-run-it-almost-everything> (seen on 26/07/2024).
12. INVESTOPEDIA, *Labor Productivity: What It Is, Calculation, and How to Improve It*, in <https://www.investopedia.com/terms/l/labor-productivity.asp> (seen on 15/08/2024).
13. FISAC, *La mafia e l'economia sommersa "rubano" in Sicilia il 15% del PIL*, in <https://www.fisac-cgil.it/120349/la-mafia-e-leconomia-sommersa-rubano-in-sicilia-il-15-del-pil> (seen on 17/08/2024).
14. UNIONCAMERE, INFOCAMERE, *Movimprese - Sempre più "Bio" sulla tavola degli italiani: 60mila le aziende certificate*, 4 January 2018 ,p.2