

**POLITECNICO DI MILANO**

**Master of Science in Management Engineering  
Dipartimento di Ingegneria Gestionale**



**THE FUNCTIONAL DIFFERENTIATION BETWEEN MASTER  
AND BACHELOR DEGREES.**

Relatore: Giancarlo Vecchi.

*Controrelatore: Tommaso Agasisti.*

Tesi di Laurea di:

*Arturo Alessandro Luyando Colombo, matricola 836959*

*Anno Accademico 2017-2018*

## INTRODUCTION

This research document researches the reforms and policies engaged by management officials to generate what is known as the European Higher Education Area (EHEA) which is an envisioned model that allows citizen from participating countries to move and enroll freely to any university, increasing the pool of available universities to citizens and promoting diversity.

The purpose is to identify if the policies are functional or not, we follow a **negativistic approach in which we try to disprove the hypothesis**, therefore the hypothesis is to verify that the policies are not functional, and therefore cosmetic, this term will refer exclusively to the opposite of functional, to the definition of the dictionary as something superficial that is used to cover a deficiency or defect.

If the research can find sufficient evidence sustaining the functionality of the university policies, the main hypothesis would be disproved evidencing the functional part of the policy. Therefore, we seek sufficient evidence to disprove the main hypothesis and prove beyond reasonable doubt that the reforms were functional.

On May 2016 on a presentation by a municipality, the public officials expressed that they make decisions based on the urgency perceived and the available resources. Although the process is by far more complex than that, there is a political pressure on the creation of public policy linked to do what the population feels, giving some projects the sense of urgency, this is known as the process to create a public agenda.

When creating a public agenda, the prioritization of projects works under speculative conditions regarding the public value generation, and often projects with a stronger sense of urgency take priority over projects that generate better results. We can see that the process of creating a public agenda is strongly correlated with public perceptions and political goals.

Social and economic development pressure the public officials to give urgency to projects such as building border between countries like (e.g. USA and Mexico, Austria and Italy or UK and France), standardization of economic currency (the EURO) and higher education systems (the EHEA). With a strong sense of urgency, the public value that these proposals generate is at least not well measured before their implementation and have severe consequences in the long term.

This research seeks to identify policies implemented by high level educational institutions universities in Italy and Spain, that have a measurable effect in the enrollment, graduation, employability and efficiency of the management within the European context because of the implementation of the EHEA.

Europe is particular, in the sense that a relative small mass of land contains many different cultures languages, unique dialect, food and manners and even goals, but they have engaged in a policy making process that tries to homologize their objectives in economic and social terms, in this research we focus exclusively in the higher education model that has been designed by the European commission. This model allows European citizens to perform part

or the totally of their studies in different countries with the same processes of enrollment and progression that would follow on their home country, the model is aims to have reduced complexity and ease of homologation without removing the individual characteristics of the education in the participating countries.

The European Union had previously pioneered in policies of social cooperation or integration, with policies like the Schengen Area that to allows free transit of people and merchandises through Europe, including some countries that operate in the European market sphere without being part of the European Union.

This research is made with interest of analyzing of the evolution of the education system within the European Union, to provide a feedback that could be used for developing further policies. To this goal we follow an analysis that seeks to understand what led to the creation of an EHEA model from the different organizational levels.

The research follows a narrative process that is guided through a **Process-Tracing-Outcome-explaining methodology to understand the causal mechanisms** presented in selected cases of analysis from two polytechnic universities, one being the UPC (Universitat Politècnica de Catalunya) the other POLIMI (Politecnico di Milano).

Both institutes are top public universities specialized in technological, industrial and applied sciences operating in the economic hearth of countries that can be compared through a **relativistic analysis that seeks to understand the context separated from each other**, both universities are well represented in international rankings (details of the rankings are provided at the begging of each case).

We analyze actors, the environment and their interactions to provide a comprehensive analysis the policies implemented to fit the EHEA model. To properly analyze the policies, **we provide a narrative for each of the different levels of network complexity**, utilizing those must common in policy analysis, we start from the more complex network and move towards the more simplistic, reducing complexity of the interactions and number of actors but adding details as we proceed. **By order of complexity the levels are; International, Domestic and Individual.**

In the international environment we study only the Bologna process which is the triggering event for the creation of the EHEA. We study its mission, definition, and proceed to later deduce the casual mechanisms that took place during the implementation through the Process-Tracing-Outcome-explaining methodology.

At domestic level, we analyze the environment in which the Bologna process was implemented, the different environment and reactions that the governments of Italy and Spain had, and the influence of the consequential policies in the academic staff of the universities mandatory for implementation. We study the development of tertiary level degree students, their performance in the market labor, population levels and gross enrollment ratios.

Unlike the previous levels, the individual requires a different approach for data gathering and analysis, we analyze the interactions between the defined key actors (students, academic

staff and labor market), and we focus on the specific experiences of each of the individual actor within the context build in the previous levels.

We approached directly the academic staff in charge of coordinating specific courses and shared their experiences and perceptions of the reforming process, the evolution of the international environment within the universities and their vision for future policies. The staff approached are from comparable courses design, homologous in credits and similar in design and scope.

Students at the individual level were also approach as individuals using surveys, specifically designed to be fast to fill and to provide a specific input on the student perception of the education received, value of the degree in the labor market and economic expectations post-graduation. Because this data is more qualitative and statistically variable, this data is confronted with the official information publish by the universities in their own surveys, which serves us to define an evidence-based confidence level in the data gathered (we use a standard 5% confidence level to define whether the measurement we took is accurate).

The methodology requires that once all data needed has been collected before we can begin an analysis. The changes between interactions of the actors, the causal mechanisms will become self-evident as we present the data and move through the development and evolution of the policies. We will identify the causal mechanism that and understand if the reforms were functional in relation to the actors and their interactions, providing an answer to our hypothesis.

Once we had drawn conclusions, we interviewed Alejandro Medina Giopp an expert, who often works in projects of social value generation for the WorldBank and asked him to provide us with an objective feedback of the analysis of the causal mechanisms, and to point out anything that our analysis might have waived.

In the end, we find out, that because only the demand side of the labor market was reformed (the offer of qualified workers), the reforms did not have the functional result that would expected from a policy that changed the operation of the academic staff and interaction of students in a now international environment (as proxy to our cases of analysis).

Although countries have socially adopted an international EHEA model, and universities modified their internal functional and operation models, the labor market are very different between countries, the markets have not adopted international models, nor have they adapted the changes from the EHEA reforms, so the results are specifics of the countries confirming the need for the relative approach.

We found out see that because there is no economic differentiation in the POLIMI case, the degrees, and because of the cultural inertia, still pushes students towards a 5 years degree (bachelor and master), and thus there is a market devaluation of qualified workers, in which the degrees does not signal the quality of the graduate to the labor market, and the market is overcrowded with workers with higher competences than those the market require.

We saw that in Italy to have a functional differentiation between master and bachelor's degree graduates would mean that the labor market is able to effectively differentiate the

graduates from each degree, while in the UPC case shows that the market can efficiently differentiate both degrees because the changes incurred were in the managerial model and not in the design, therefore the reforms were not relatable with changes in the labor market.

This document is made to concludes pointing out the many applications that this research could have in future researches and encourages its analysis in policy making studies, suggesting that we only touch a small percentage of what is beneath this subject and make the analogy with an iceberg where only a small percentage of its mass has become visible through this research.

## INDEX

<b>1. Hypothesis and Method</b> .....	<b>Page</b>	<b>7 to 19</b>
1.1. Hypothesis	Page	7
1.2. Method	Page	7 to 19
<b>2. International level</b> .....	<b>Page</b>	<b>20 to 26</b>
2.1. The European Commission	Page	20 to 23
2.2. The Bologna Accords.	Page	23 to 26
<b>3. Domestic level</b> .....	<b>Page</b>	<b>27 to 47</b>
3.1. Italy	Page	27 to 40
3.2. Spain	Page	41 to 47
<b>4. Individual level</b> .....	<b>Page</b>	<b>48 to 94</b>
4.1. POLIMI	Page	48 to 72
4.2. UPC	Page	73 to 94
<b>5. Analysis.</b>	<b>Page</b>	<b>95 to 110</b>
5.1. Causal mechanisms.....	Page	95 to 101
5.2. Positive analysis	Page	101 to 105
5.3. Negative analysis.	Page	106 to 110
5.4. Researcher conclusions.....	Page	111 to 117
5.5. An expert's opinion.	Page	115 to 118
5.6. Best practices.	Page	116
5.7. Tip of the iceberg.	Page	117
<i>References</i>	<i>Page</i>	<i>118-121</i>

# 1. HYPOTHESIS AND METHOD.

## 1.1 HYPOTHESIS.

This research project has the purpose of identifying **if the implementation of the policies promoting the EHEA, that separated the Master and Bachelor degrees were only cosmetic for the purpose of identification and homologation of studies** in a European context. The analysis considers two countries (Italy and Spain, in proof of the experience from two polytechnic universities.

**Commented [GV1]:** The analysis considers two countries, Italy and Spain, and in proof the experience of two polytechnic universities.

**To prove this hypothesis, we will engage in a negativistic scientific approach, following the propositional logical of double negation,** we will try to prove that the reforms are not cosmetic. Starting from the premise and original hypothesis that the reforms had only a cosmetic effect, any proof that they are not only cosmetic should provide sufficient evidence to negate the hypothesis and therefore prove the alternative hypothesis. The alternate hypothesis implies that the reforms served for other purpose beside the homologation of studies, but instead if we are unable to find sufficient evidence that the reform and changed incurred by the universities are not cosmetic, then original hypothesis would remain, and the research will have provided evidence to support the hypothesis.

**Cosmetic means that the reforms modified** only the appearances, a superficial approach and/or perception of the educational system **without having any functional** measurable changes. **The measurable changes are expected to be shown in any of the three key areas chosen for our analysis; The management and academic staff, the students and the labor market.**

The policies that the university applied to adapt to the reforms for the Single European Higher Education Area (European Commission, 2017) must be measurable and evident in nature to provide sufficiently evidence to leave no doubt that the polytechnics have go beyond the previous definition of cosmetic.

## 1.2 METHOD.

To research for confirmation, or the negation of our original hypothesis we need to define specific objectives that will help us reach this goal, and in the process, determine the methodology that best suits the study that we have engaged in.

We need to understand the purpose and the trigger of the reforming process that lead to the creation of the Single European Higher Education Area (EHEA) which took place simultaneously across Europe.

We used a narrative method in which we select a key event and develop a narrative to focus on the behavior of some key variables of the process, otherwise it would be impossible to

reconstruct the complexity of the interactions between actions, time and context (Ragin, 1987).

This will provide the investigator and the reader with a comprehensive understanding of the social and political environment, it will seek to justify the purpose and objectives of the policy that started reforming process (Barzelay, 2004).

A second analytic method is centered in specific observable independent variables that will be required to find a cause-effect relationship between the variables. The process of explaining their relationship can be extrapolated from the units under study and their similarity with known causal mechanisms.

The aim is not to build or test more general theories but to craft a (minimally) sufficient explanation of the outcome of the case where the ambitions are more case-centric than theory-oriented. (Beach, 2013)

Process tracing is a tool for identifying a causation when correlation has been found. It is useful to distinguish when there is correlation and causation between variables and an outcome. Correlation does not always imply causation, "*Spurious correlations*" from [www.tylervigen.com](http://www.tylervigen.com) clearly demonstrates in a variety of extreme examples.

Process tracing has three variants, each is a tool for researches with different kind of inquiries:

- 1 **Theory-testing:** This first tool of analysis consists on identifying and testing whether a specific causal mechanism is present or the absent within cases where correlation has been found, thus giving sustenance for the assumption of causation through a comparison analysis with the theoretical know causal mechanisms.
- 2 **Theory-building:** This second tool consist on the gathering as much information as possible concerning cases where a plausible explanation of a link between variable X and scenario B. The purpose is to have enough information to be able to put in evidence the effects of variable X in developing the scenario B, thus building the sufficient theoretical structure to support the hypothesis of causation.
- 3 **Explaining-outcome:** This last variant is not focused on the developing of a causal mechanisms theory. It is the analysis of a case study, from a historical point of view, in which we understand a context and how variables evolved, utilizing known causal mechanisms to explain the develop and the changes that lead to the creation of scenario B from the scenario A, providing historical evidence and a minimally sufficient explanation.

Theory-testing and Theory-building start from one or several causal mechanisms that are going to be proven throughout the scientific method and the case of study, this research is focused on analyzing the cases of study with the use of causal mechanisms that have yet to be identified. Therefore, the purpose of this research does not focus on verifying the presence of a specific causal mechanism, but rather on extracting the mechanisms presents on the case of the study, useful for explain the outcome. **Explaining-outcome** is thus the best method to use in this research.



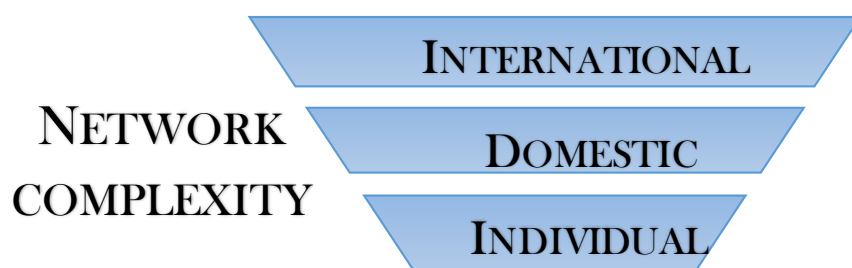
The process-tracing outcome-explaining tools, is meant to help us understand what is in unknown between a starting scenario and an outcome by analyzing what changed within the process and giving a minimal sufficient explanation (Beach, 2013).

We seek to study the linkages of the variables, meaning characteristic, numbers, or quantities that increases or decreases or takes different values over time in different situations, those that remain constant are not considered in an outcome-explaining process.

The variable selection process in which the research identifies the key independent variables for analysis, was designed to go through a strategy-based design for simplification and clarification of the interactions between the variables.

The strategy aimed to filter the level at which the analysis should take place and identify the presence of the independent variables at each level with the purpose of gathering as much data as possible to build knowledge-based conclusions.

We start from the more complex and broader levels of interactions, and we move towards the more simplistic and individual levels. The design is like an inverse pyramid, simple to understand and use.



The three levels of variable analysis that are generally found in policy analysis literature were chosen; The International, domestic (or national) and the individual. The strategy was designed to increase the level detail as the we close in the individual.

### 1.2.1 International level:

A system wide level that includes all states, international systems and their interrelationship. At this level, we are interested to actors and the resources that promote an international education policy such as the Bologna Accord, the interactions and the methods used to enforce or promote their policy and the resources they can mobilize.

For purposes of this research which is European centric, the scope that is set on higher level education institutions, both on their definition and policy design. For this research, the international level referrers exclusively to the European Commission. Although briefly we will analyze and describe design of the Single European Higher Education Area (EHEA) and the convolved policies and mechanism in place.

### 1.2.2 Domestic or national level:

In this section, we have gathered the data that describes the reform process that took Italy and Spain to adapt their educational system into a system that is compatible with the Bologna Accords and the EHEA.

The purpose of this section is not to draw conclusions but to obtain data relevant to the history of the policy making and reveal changes that affected by both the Italian and Spanish educational system since before the university reforms took place in both countries to our current situation at a domestic (or national) level.

Each country had different circumstances in which tertiary education reforms took place, and both had very different policies and mechanisms to attempt to obtain a similar result however, to the reform the tertiary level of education, means the recognition of changes in the system by the main actors:

- **The Academic Staff** oversee the design of courses to promote the development of the different competences and base of knowledge for each of the degrees and areas, thus creating the figure for the qualifications that is recognized by the title of earn by the graduates. This variable is unique for each institution as it involves the management and design of courses. At the national level, this variable considers only the national definition and objectives of the degree as guidelines for the universities.
- **The Students** are the investors and clients of the educations. They invest time and economical resources in obtaining a degree that will recognize them as a qualified workforce, they expect a return on their investment, and decide on which level of education to exit such an investment, for example: Students that engage in a the 5 years should be expecting a bigger return on their investment on education than that of those engaged only on the 3 years, otherwise there is no logical economic reason to justify the expenses of extra years in the university (time, money and effort).
- **The Labor Market actors, that should** recognize the skills and competences of the graduates, it should be able to identify them for fit its needs and assume the different qualifications of the workforce available in the market for its manpower. Often aiming for those within the workforce that can differentiate themselves as qualified workers. The success or failure of a given degree and plan of studies is measured in the ability of the graduates to join the labor market.

Even though the governments of Italy and Spain were among the first to adopt the process of Bologna, not all the variables were flexible. To recognize the changes of the reforms we will extract the following independent variables after the analysis of the available data:

- **The exit strategy of the investment on education:** Utilizing concepts from finance and accounting. This variable refers to the choices made by the first level degree graduate, specifically the viability of the bachelor degree as a viable exit strategy for their investment on education.  
An exit strategy is a contingency plan that is executed by an investor to liquidate an asset, once certain predetermined criteria has been met or exceeded.  
Regardless of the type of investment, an effective exit strategy is planned for every positive and negative contingency. This planning should be an integral part of

determining the risk associated with the investment, trade or business venture. (Investopedia, LLC., 2017).

- **The unemployment rate:** is the number of unemployed people as a percentage of the labor force, where the labor force consists of the unemployed plus those in paid or self-employment. Unemployed people are those who report that they are without work, that they are available for work and that they have taken active steps to find work in the last four weeks. When unemployment is high, some people become discouraged and stop looking for work; they are then excluded from the labor force. This implies that the unemployment rate may fall, or stop rising, even though there has been no underlying improvement in the labor market. (OECD, 2016)  
The unemployment rate of master's level degree and first level degree graduates reveals the labor market acceptance and the working environment of the graduates.
- **The wages:** The master requires a larger investment of resources (time and effort). The graduates are certified with higher skills and competences. Therefore, master's degree first earnings in a market that can differentiate both degrees should be higher. Education is an investment, an asset that is purchased with the hope that it will generate income or will appreciate in the future. In an economic sense, it is the purchase of a good that will not be consumed today but is used in the future to create wealth.  
This variable reveals the degree of differentiation of the degrees in the labor market and the short-term expected return on investment.
- **Cultural Inertia:** Using the definition in physics, inertia is property of matter by which it retains its state of rest or its velocity along a straight line so long as it is not acted upon by an external force.  
It refers to the resistance to change and cultural factors that guide a certain outcome where no other force is present. This variable aims to identify the disposition of the environment to adopt the reform. It serves to identify if the market has suffered from forces outside the market control (an education market failure) and the degree in which the reform has been accepted by the actors in the environment and identifies those areas where change has not occurred in outcome regardless changes in the environment.  
Inside this variable we also consider the flow of students, where are they coming from and where are going to, utilizing macro-economic principles for the sustainability of the student population within a country.

The following are important variables that were not consider for the model:

- **Household incomes:** This variable was waived because it is not of relevance in Italy due to the Right of Study (diritto allo studio in Italian).  
The Right of Study is a constitutional right written in the article 34 of the Italian constitution and the laws #80 of 1963 and #162 of 1969 (establishing the rules for allowance of university studies). Unlike in many European countries, Italy guarantees

the right any capable and worthy person to engage in higher level studies even when lacking the economic resources.

To guarantee the Right to Study, the state sets a spectrum of application and tuition fees to limit the amount students must pay for the education in accordance to their declaration of household earnings (*fascia di reddito* in Italian). Universities, despite enjoying financial and management autonomy, must respect the enrollment and tuition fees.

Meanwhile, Spain has also recognized the right to education since 1983 with the modifications to the LRU, which guarantees the right of education and the full inclusion of the tertiary education into the Spanish public education system. The Spanish state has established regulations to ensure that any willing and capable individual can enroll to the public universities. (this will be explained further in section 3.2 Spain).

Because both governments of the countries in analysis have established mechanisms to support students in their studies, the household income do not provide a blocking barrier for students who decide to engage in tertiary studies.

- **Educational inflation:** Is the effect in which the requirements for formal qualifications or certification for jobs increases. Because the university reform in Italy introduces a new degree with less requirements, it is important to identify the national level of adoption of this degree to build a model, but it escapes the scope of this research to investigate the cause and effect of international phenomena in the educational system.

Educational inflation has led to the inflation of required certifications (also known as credential creep, academic inflation or degree inflation), **it is the process of inflation of the minimum credentials required for a given job and the simultaneous devaluation of the value of diplomas and degrees.** These trends are also associated with grade inflation, a tendency to award progressively higher academic grades for work that would have received lower grades in the past (Assaad, 2015).

### 1.2.3 Individual.

When we engage on the individual level, we refer to the Polytechnic universities that are at the core of the research. We deepen on the analysis of the performance variables selected in the domestic level, and how they perform within the Polytechnic universities. We take a relativistic approach which suggest that every case is unique and bounded to the complex circumstances of the environment and thus must be analyze within its own the domestic context. We analyze the policies and the mechanisms implemented by the university to adapt to the ever changing international and national environment and from the collected data, we deduce the causal mechanisms in place and the consequences of such policies. We also deepen on the analysis of the actors, their participation and interaction in the following ways:

#### *1.2.3.1 Management and Academic staff:*

Starting from the management, we identify two similar programs of study between the Polytechnics a compare the organization and design of the degree. From this starting point we consider the academic staff as actor, that constitute an important part of the management

in the university, and through interviews with the coordinators of the programs we seek to understand the importance of their interactions and their perceptions on the objective and future of the policies. It is important to consider the future of the policies, because it provides and input on the long-term objective. Change is a process that require time, try and error as well as the commitment of the management to see that the implementation is completed successfully, often policies implemented to not provide the intended results and must be modified, but understanding what the university is planning and how they plan to reach it, provides an important input on the intension and method used.

The management also takes an active role when it becomes responsible of implemented the changes designed and imposed by the domestic level, especially when it comes to generating value to the university and public value. To gather data, we will have direct interviews with the coordinators (or responsible) of the degrees.

The interviews will address the following topics:

- **The organizational model:** Aims to understand what organizational changes were applied in the university, for it to adapt to the series of reform and international scope.
- **The design of the programs.** Tries to build a relation between the credits, the teaching method and the specific development of skill and competences for each degree.
- **The boundaries and objective of each degree.** What are the definitions and objective of each degree and their relationship with the labor market.
- **The evolution of the policies.** The acceptance of the reform changes from part of the academic staff and the vision and mission for further working on the directions engaged by the reforms.

We will then compare the objectives and input received from the professors with the results and changes in the university, to understand the consequences and the evolution of the mechanisms.

#### *1.2.3.2 Students:*

We will approach directly the student community through a sample of surveys per degree level and university. This should provide us with quantitative and qualitative input on the student's perception of the education received, their labor market awareness and expectations (how they define the course they are studying).

It also provides us with correlations between National and International students in the local student community inside the university and help understand the students in terms of their qualification (working experiences) and preferences (willingness to remain in the university and country).

For the UPC the means to deliver the surveys through a google form that was shared social medias and through the pamphlets community containing the links and QR-Codes that allowed students who wanted to participate to quickly access the survey. Because the survey in the UPC is dependent of the willing of students to actively participate in the survey, it is expected that the population surveyed is not as accurate representing the population as the

survey of the POLIMI was, the physical forms could not be delivered to provide a randomized sample (and example of the pamphlets is available in the attachment section).

The surveys shared to the student population had 9 questions of multiple choice divided in two sections, one where students were asked to select only one of the given answers, containing questions of yes or no and to select a level of agreement with a statement with a range moving from “Totally agree” to “Totally disagree” presented in a subjective way so that students felt free to express their perceptions.

The second section, contains multiple choice answers where students could select all the statements that they feel fit with the definition and objective of a degree. Each question is presented to provide a defined input to a given variable.

The surveys were made in such a way that students were free to choose between an official language of the region in which the university operates and English for reference to the international language, this is a tacit input that provides important outputs for the policy management of the universities.

The questions were translated not literally but in a comprehensive manner so that the concept remains the same regardless of the idiomatic differences, variance in the questions can be found syntactically and structurally in different versions of the surveys that remain available as evidence of the research. The responses, the available answers and the questions provide the same measurable output regardless of these differences.

The methods for delivering the surveys were different for the Polytechnic universities. Though the completion of the surveys were always through consent and altruistic assistance towards this research, in POLIMI the surveys were shared through social media and physical paper forms share at different dates and times as well in the different campus of the POLIMI (Bovisa La Masa and Durando). The physical paper forms represent 21% of the surveys for the master and 95% for Bachelor.

**The first section** is designed the following 6 questions, with its respective possible answers:

**1. ARE YOU ENROLLED IN:**

- a. <UNIVERSITY NAME> for the whole duration of the degree.
- b. Another university and temporally in <UNIVERSITY NAME>.

This first question allows to identify the students are belonging part of foreign study programs like the Erasmus program. Although they are often part of the international community this question allows us to catalog their perceptions of the education inside the university in a unique section.

**2. REGARDLESS OF YOUR CITIZENSHIP, ARE YOU A:**

- a. <NATIONAL> student.
- b. International student.

The question was delivered with the explicit note that explained that you should select **<NATIONAL> student** if you have completed the previous degree within the educational system of the country in which the university operates. Though it sounds repetitive with the

first question, this allows us to catalog the answers of the students enrolled for the whole duration in the university in either the national or international community, this catalog would later serve us to identify differences between the national and international community in terms of preparation, perceptions and choices made.

**3. HOW LIKELY ARE YOU TO STAY IN <COUNTRY> AFTER YOU FINISH YOUR STUDIES?**

- a. Very likely.
- b. Likely.
- c. Unknown.
- d. Unlikely.
- e. Not at all.

In this question, we can see the students reflect their willingness to remain in the countries, either because the labor conditions or the perception that their university experience has granted them. It is a key question where the National and International communities provide a very different input since it is based on relative perceptions of the employment, educational and cultural characteristics of their experience.

In the national community, we identify the willingness to remain of students in the sample and compare it with the results of larger surveys performed at national level by other researches, in order to provide an evidence-based assumption of the national community that plans or at least intends to leave or remain in the country.

In the international community, we identify the success of integration policies and the experience that the students engaged in, positive experiences will often provide results to this question, but only international students that were enrolled for the whole duration will be considered, as transfer students often have a different more superficial experience that will not be considered in this analysis.

To give a measurable value, each of the options are given a numerical value, being option e) Not at all." a 0 and "very likely" a 4. If the surveys are performed on 100 students it would mean that 400 would be a 100% or willingness to remain in the country, and the lower the total sum is, the more likely is for the student community to go abroad after their studies.

**4. HOW WOULD YOU DEFINE <UNIVERSITY NAME> IN TERMS OF PREPARING YOU FOR THE LABOR MARKET?**

- a. I am sure to find a job after I graduate.
- b. I think I have better chances than graduates from other schools.
- c. Average.
- d. Not good.
- e. I doubt it helps at all.

A thoroughly direct question for the student to value the usefulness that they give to the knowledge obtained in the university for task of joining the labor market. Systems and mechanics put in place by the university to help students get a job along with the statistics

of unemployment of graduated students should provide sufficient evidence to determine the success of the universities introduction of capable, skilled workers to the labor market.

A key point in analysis of this question is the viability of students to join the labor market at the different degrees, results are expected to be very different for master and bachelor degree students.

**5. IF POSSIBLE, WOULD YOU CHANGE TO ANOTHER SCHOOL?**

- a. Yes.
- b. No.

Simple question to identify the university approval rating from the student's point of view, key when considering exchange students and the international community that could shift or provide undesirable feedback of the university policy system in an open boarder education policy.

The question is made to asked was if students would change to another university, not if they regret to study to have enrolled into a master's degree, leaving as only variable their experience in the university.

The next question is stated differently for master's and Bachelor's degree, in the master's form they would read:

**6. DID YOU HAVE ANY PROFESSIONAL EXPERIENCE BEFORE ENROLLING TO THE MASTER?**

While the bachelor's form would be read as:

**6. ARE YOU PLANNING ON STUDYING A MASTER BEFORE GAINING PROFESSIONAL EXPERIENCE?**

- a. Yes.
- b. No.

Granting us sight into the student's perception of the bachelor's and master's degree viability as valid exit points in the educational investment. Master student's responses would identify if themselves had any professional experience before enrolling into the master (which is a valuable characteristic for the universities), and whether they consider that the Bachelor degree is a valid point to conclude their education.

For Bachelor degree students, this question provides us an input on the cultural inertia (especially in the Italian case) that displays the forces pushing to devalue the bachelor degree into a non-viable option for students upon which to finish their studies.

**The second section** is made of 3 questions, each of which contains statements that encourage the students to select all the statements that seem accurate to them.

The first question is different for the master and bachelor degrees form, both in the statement of the questions and the



**1. DO YOU BELIEVE THAT A GRADUATE FROM BACHELOR SHOULD BE ABLE TO:**

- Earn a fair wage.
- Be competitive in the labor market.
- Have good chances of finding a job.
- Choose where to go for work or study.

**1. DO YOU BELIEVE THAT A GRADUATE FROM A MASTER'S DEGREE SHOULD BE ABLE TO:**

- Earn significantly more than a bachelor's degree graduate.
- Have better chances of finding a Job than a Bachelor.
- Choose where to work or study
- Find the job of their preference.

This question provides additional inputs in the cultural inertia that leads students to decide when to exit school and join the labor market. Though purely based on perceptions the statements available are all designed according to the definitions of the degree that they are directed, and all should be selected by the candidates should the system operate perfectly.

**2. WHY DID YOU ENROLL TO THIS DEGREE?**

- Because of family and friends that influenced my decision.
- For economic reasons (to earn more).
- For professional development (to do what I enjoy doing).
- To be competitive in the labor market.

To understand the reasons that carried the students to engage in the investment that their studies represent, we require the previous question. IT identifies the primarily factors on analysis in this research and tries to create a causation to their engagement on the given study.

**3. HOW MUCH ARE YOU EXPECTING TO EARN AFTER YOU GRADUATE? (IN EUROS PER MONTH).**

- Less than 700.
- More than 700 but less than 1100.
- More than 1100 but less than 1300.
- More than 1300 but less than 1500.
- More than 1500 but less than 2000.
- More than 2000.

Finally, the last question aims to create a measurable range of wages that neo-graduates expect as the immediate reward for the conclusion of the studies. We shall compare this information with the career services offered by the universities and in the local market through a benchmark with the labor market offers in sites like Monster.it.

It should reveal the level of market awareness that graduates of the university have. It is also logical to assume that Master degree graduates should have a higher expectancy than Bachelor as a natural consequence of their extra investment on education.

After the analysis of the data collected on the surveys, the data will be compared, wherever possible, to the information published by the university to give a range of error on our sample, and to create accurate deductions.

#### 1.2.3.3 Labor Market.

Focused on obtaining information regarding the university relationship with the labor market, it analyzes how the universities prepare students for the labor market, how they engage in the development of opportunities for their students and how they match the labor market with the new education policies.

This section includes a deep swim in the universities career services that aims to help students introduce themselves in the labor market, and the local labor market by obtaining a random sample of job offers for manager engineers in the city in which the university operates. The most important part of this section is the degree on which the graduates of the university can join the labor market and what percentage of the population stops at each level.

We will also take a quick look to the earnings of graduates on their first job after the graduation compared to the average earning per month in the area where the university performs its activities.

### 1.2.4 The Analysis.

With all the data gathered we proceed to create a logical trend, through a narrative that aims to explain:

- a) The interactions between the actors and the causations and correlations of the actions implemented by the universities.
- b) The causal mechanisms present in the cases of study, how they guided the development of the policies, and their participation in generating outcomes.
- c) A list of best practices, to be deduced from the research.

The policies and development of each Polytechnic university will be analyzed separately and once the causal mechanisms that have been identified, they will be compared with each other to provide a feedback that allows the researcher to understand if the policies created in the reforms for differentiation and homologation of the tertiary degrees are cosmetic or not with the purpose of proving or denying our original hypothesis.

#### 1.2.4.1 The Causal Mechanisms.

In accordance with the Process-Tracing: Outcome Explaining methodology, the first analysis studies the causal mechanisms present throughout the processes reconstructed by the research. We identify and explain the mechanisms from a theoretical point of view, presented in the context of the research. How they interact with the actors and how they evolved.

#### 1.2.4.2 The Positive case.

Two cases providing two different examples with the same sampling methodology will be developed. A positive case will be stated where the original hypothesis will go through

**Commented [GV2]:** Before you wrote that you are interested in outcomes and not in causal mech... return back to the first chapter and solve this contradiction

scrutiny with the intrinsic suggestion that the evolution of the policies has been functional and not cosmetic. Thus, this case aims to disproving original hypothesis and accepting the alternate hypothesis.

The positive case that will follow, evidences the cosmetic nature of the policies of their development. It presents the case as if the alternate hypothesis is proved to be truth, whenever possible, and reaches conclusions that assumes that the mechanisms in place are set for this purpose.

#### *1.2.4.3 The Negative case.*

The second case is a negative case, which aims to prove that the original hypothesis is true, and accurate in stating that the policies, and the mechanisms behind the implementation are cosmetic and not functional.

This analysis operates under the premise that the changes have not modified the outcome, and therefore, do not have a functional development. It justifies the changes on a natural process of evolution of the policies, suggesting that the changes that occurred are not related to the reform and would occur in the long term in an environment without such reforms.

Though both cases present the same evidence they follow two different paths of analysis, which may or may not be accurate, since both are developed with an intended result. They serve the purpose of defending and providing sustenance for the hypothesis, and allows the reader to reach its own conclusions, promoting a scientific approach to the final conclusions.

### **1.2.5 Research conclusions.**

The researcher will present its own conclusions, after both cases have been stated. It will be based deductions and the premises presented in two cases presented before. the narrative will therefore promote a single version of reality that aim to make logical, accurate interpretation that can minimally sufficient prove or disprove the hypothesis.

The objective at this point will be to extract the from the analysis, good practices that could explain the creation of an outcome for future implementation on similar projects.

#### *1.2.5.1 Expert conclusions.*

While the conclusions and analysis of the subject will follow a scientific approach, a final section of conclusions will be accompanied by the opinion of an expert in public management. Doctor Alejandro Medina Giopp of the World Bank Group, gave us an interview in which we analyze the conclusions and provide us feedback from someone.

#### *1.2.4.6 Tip of the Iceberg.*

After the conclusions, there will be a final section that stablishes the principle of the tip of the iceberg. **This principle suggests that the analysis we provide is only a small portion of the analysis that can be made of this topic, suggesting that a broader data gathering that concerns more countries in the EU and that looks more deeply into the national and international relationship and the mechanisms involved in the development of international policies.**

## 2. THE INTERNATIONAL LEVEL

### 2.1 THE EUROPEAN COMMISSION.

The European Commission has been pushing for policies in universities across Europe to adopt a system of tertiary level education that includes a first level and master's degree.

The EU does not have a central government, it closely works with policy-makers across Europe through the European Commission.

The European Commission is the most relevant of factors in the international level within the European environment and is intended to provide support for the development of higher education policies defined in the Education and Training framework known as Education and Training 2020 (ET 2020).

Although each EU country is responsible for its own education and training systems, to ensure the successful implementation of ET 2020, Working Groups composed of experts nominated by member countries and other key stakeholders work on common EU-level tools and policy guidance. (European Commission, 2017)

Working Groups are designed to benefit the Member States in the work of furthering policy development through mutual learning and the identification of good practices, as well as understand what works in education. Following their mandate, Working Groups must deliver outputs directly linked to the objectives of ET2020 and contribute to Europe 2020.

Though policies are ever growing in complexity and structuration, it has also added specific, defined, and identifiable objectives that are trying to create the EHEA.

The policies regarding education have not changed their focus nor approach since 1988. As such the European Commission might seem as constant not a variable. However, it is key as it triggers the reforms at the domestic level and consequent policy changes in the educational institutions.

Regardless the EU through the European Commission not having interactions with the changes incurred by the educational institutions or its consequences. The specific shifts in the evolution of the educational system of the nations is directly linked towards the EU objectives, by trying to achieve the same result in different countries with different educational systems (e.g. the Italian change from a 5 year to the 2 + 3 system, the Spanish quick adaptation due to an unstable system still being defined, or the German adaptation to international students).

Like the levels of programming levels of computer science, the higher-level instructions must first be translated to policies that are applicable at the lower levels. The relative simplicity of object-oriented programs is only available using translators at the different levels at which a computer works.

What might seem like a simple instruction to us, like an “open Microsoft Word” in high-end programming levels like C#, Java or Android, are first translated to Assembly language that transform our instruction into something more basic and understandable to the computer at this level like a “MOV” or “ADD” instruction, which is then translated to the machine level into binary patterns (e.g. 01001) to perform operations and control the hardware.

The definition of a standards to create a Single European Higher Education Area (EHEA) must first be translated to a national level that can be understood. Even if the instruction from the international level remains constant, there are still an infinite variety of ways in which countries may implement it, and even more so when the policies must be translated to the institutional level of policymaking, so that at the end of the chain, the users can benefit or even feel the consequence from such a change.

The forces that allow policy implementation flow downstream and it is through the proper translation, persistence and compliance of every level of governance that an instruction into the policy can be executed (Kelman, 2005).

The international level oversees the definition of the top layer design of the educational system, by establishing a criterion that must be met by all participants, this research focus on the study of the changes caused by the Bologna Process in the creation of a criteria for the standardization of the first stage of tertiary education, as defined by the International Standard Classification of Education (ISCED) in 1997, as such only changes on this level will be analyzed.

The ISCED is the international classification for organizing education programs and the related qualifications by levels and fields. The first stage of tertiary education dimension, was defined as a single level.

The level 5 that cross-classifies two ISCED 5-A and 5-B qualifications, though part of a single level of education, they were differentiated in subcategories also referred as dimensions, based by their position in the national qualification structure for tertiary education.

*“The main reason the national degree and qualification structure is included as a separate dimension is that the timing of these awards mark important educational and labor market transition points within countries. For example, in country X a student who completes a three year Bachelor’s degree program will have access to a wide range of occupations and opportunities for further education, whereas the same student studying in country Y (which does not distinguish between a first and second university degree) will only obtain a labor market relevant qualification after the completion of a full four or five year degree program, even though the content may be similar to that of a second (Master’s) degree program in country X.” (UNESCO, 1997)*

The ISCED definition of the first stage of the tertiary education was updated in 2011, to properly separate the previous level 5 into 3 new levels; Short-cycle tertiary education (the analysis of this level escapes the scope of the research), Bachelors or equivalent and Master or equivalent (UNESCO, 2011).

Bachelor's or equivalent (level 6 in the ISCED of 2011) was redefined as follows:

- Are often designed to provide participants with intermediate academic and/or professional knowledge, skills and competencies, leading to a first degree or equivalent qualification. Programs at this level are typically theoretically-based but may include practical components and are informed by state of the art research and/or best professional practice. They are traditionally offered by universities and equivalent tertiary educational institutions.
- First degree programs at this level typically have a duration of three to four years of full-time study at the tertiary level. For systems in which degrees are awarded by credit accumulation, a comparable amount of time and intensity would be required.
- Upon completion of ISCED level 6 programs, individuals may continue their education at ISCED level 7 (Master's or equivalent level), although not all ISCED level 6 programs provide access to ISCED level 7.

Master's or equivalent (level 7 in the ISCED 2011) was redefined as follows:

- Are often designed to provide participants with advanced academic and/or professional knowledge, skills and competencies, leading to a second degree or equivalent qualification. Programs at this level may have a substantial research component but do not yet lead to the award of a doctoral qualification. Typically, programs at this level are theoretically-based but may include practical components and are informed by state of the art research and/or best professional practice. They are traditionally offered by universities and other tertiary educational institutions.
- Programs of at least five years' duration preparing for a long first degree/qualification are included at this level if they are equivalent to Master's-level programs in terms of their complexity of content. Such programs usually involve the preparation of a substantive thesis or dissertation. In this case, the degree/qualification awarded gives direct access to ISCED level 8 or the program is equivalent to a second or further degree program already classified at the ISCED 7 level.

The EU uses the European Qualification Framework (EQF), that can be identified as a parallel to the ISCED, containing the same 8 levels but provides different descriptors for each level (or cycle) on the bases of the knowledge, skills and competences that are to be provided by each of the education levels.

The descriptor for the first cycle in the Framework for Qualifications of the EHEA corresponds to the learning outcomes for EQF level 6 (European Commission, 2017):

- Knowledge: Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles.
- Skills: Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialized field of work or study.
- Competence: Manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts; take responsibility for managing professional development of individuals and groups.

The descriptor for the second cycle in the Framework for Qualifications of the EHEA corresponds to the learning outcomes for EQF level 7:

- Knowledge: Highly specialized knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research. Critical awareness of knowledge issues in a field and at the interface between different fields
- Skills: Specialized problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields
- Competence: Manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches; take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams.

The EQF does not provide an objective or purpose for each level, as it is to be expected in the international sphere, the purpose is not to define the benefits of consequences that the individual nation aims to obtain from their educational system, the European Commission seeks only to create a classifying criterion, boxes of labels that fits the educational systems to define a framework of compatibility and comparativeness between members of the international community.

## 2.2 THE BOLOGNA ACCORDS.

The first efforts of Europe to coordinate the creation of a Single Higher Education Area (EHEA) date to 1987, with the creation of the Erasmus project. The Erasmus project had the intention of allowing citizens from any of the European nations to spend at least one semester abroad, it was innovative and unique opportunity for students to form part of and international experience, that above all strengthen their curriculum, professional skills and broaden the possibilities in their career. The Erasmus project can be considered as success in the sense that it is still project that has survived, with a budget of 14.4 billions Euro for the financing period 2014-2020 from European Investment Bank and the support of the European commission, it is expected to provide over 4 million Europeans the opportunity to gain knowledge, training and work experience abroad (*Education and Investment Plan for Europe Factsheet 2016*).

The Erasmus project focuses on the individual student, because of this, the selection process is a very rigorous one, and only a limited minority population of the student population can benefit from it. The Erasmus project does not propose standards for higher education institutions and is limited to the compatibility level of the education programs of the universities.

On 1997, when the European Union while discussing the recognition convention of Lisbon, proposed the first an initiative to promote the EHEA through compromises on the management of education, but it was not until May 25th of the year 1998 in Paris, the Sorbonne, when education ministers from France, Germany, Italy and the United Kingdom banded together to propose a formal adaptation to the education system. The scope of the meeting was to state that the European Union should also be a collective effort in terms of knowledge and education (EHEA, 1998).

The Sorbonne Joint Declaration (joint declaration of harmonization of the architecture of the European higher education system), was a compromise from the participant's nations to encourage students to travel between nations during the duration of their studies, expecting that a significant amount of the students would be able to spend at least a semester in another country. The governments would seek to increase the pool of universities and programs available to students, granting them ease of access to their universities and consequently facilitating their employability across Europe.

There was a need to validate the students credit from one country to another, this was meant to be reached through the use an ECTS (1) scheme. ECTS would reflect the outcomes of the learning process with respect to the time invested in the university (2).

*(1) The European Credit Transfer and Accumulation Systems is the standard for transfer and accumulation of credits used in Europe. It was designed to make it easier for university students to move between countries. Students can transfer their earned ECTS between universities allowing for a student-centered system which aims to make national systems more compatible and allow students to plan their studies.*

*(2) 60 credits represent a year of studies. For this research, it is critical to separate between the types of studies, First Cycle degree (which is comparable to the bachelor's degree) consists of 180 or 250 credits which is*

Commented [GV3]: Sorbonne



*representative of 3 or 5 years of studies, Second Cycle or Master's degree consist of 90 or 120 credits (representative of 1.5 or 2 years of studies).*

One year later, in 1998 Bologna, Italy. The education policy management took a bigger step, involving 29 European countries utilizing ECTS as base to standardize the EHEA, and create a collective effort from universities, public authorities, stakeholder associations and international institutions like the European Commission to ensure and promote the compatibility and the quality of the education systems.

It opened the door to further governmental meetings (Prague 2001, Berlin 2003, Bergen 2005, London 2007, and Leuven 2009) and for foreign countries (not limited to the EU) to be participants. Now a day, these accords have been signed by 48 countries from Russia and Kazakhstan to Greenland and Iceland. (European Commission, 2017)

The accords are intended to;

- Create a system of equivalences through which the individual program configuration can be compared to others, allowing education to keep its local uniqueness but providing ways of certification in other countries.
- Promote the mobility among different nations, institutions and programs. Increasing the pool of available institutions, programs and fields of study by creating the EHEA are meant to lure more potential students and the willingness to study abroad.
- Increase the competition on for high education workers, thus improving the quality

The Bologna accords are neither specify nor mandatory in the following regards (Loades, 2005);

- The subjects of study of the academic staff to focus on. This would be negative since the reasoning behind this policy is to increase the fields of studies, not reduce them.
- The roles of the management in the institutions. Allowing for individuality and differentiation in the pool of available institution, would grant the potential candidates a variety of options to which apply.
- The enrollment processes. Each institution can choose its own enrollment policy, students who may not be fit for a university are welcome to join another in the pool.

Some educational institutions and even nations, have engaged themselves in a policy making process, to enforce academic staff to perform their activities in English (DE'VITO, 2012), as it is the language of the globalization, on the bases of the global (mostly European) view of education originated with the Bologna accords. The language barrier has been one of the strongest filters preventing students from all over the world from starting the enrollment process.

This policy has also created a series of externalities, which are to be analyzed case by case, but there are statistical evidences of surges in the enrollment process of people coming from developing countries that are currently not participating in the Bologna accords such as the case of Mexico, Nigeria and Sudan. Citizens from these countries are receiving a high-level education present in developed countries such as Italy, Spain and even Germany. It also

seems to have improve the rates in which citizens born and raised in foreign countries are returning to the country of their forefathers.

Education is fundamental for the development and growth of countries, and one of the best ways to reduce the poverty, promote economic development, strengthen the social bounds between the citizens and reduce the social and economic disparity. The human mind makes possible all development achievements, from health advances and agricultural innovations to efficient public administration and private sector growth. For countries to reap these benefits fully, they need to unleash the potential of the human mind. And there is no better tool for doing so than education (King, 2011).

## 3. THE DOMESTIC LEVEL

### 3.1 ITALY

Italy used to have a 5 years system that included that is now known as the first level (three-years) and the master's degree (plus two years).

Before the Bologna process, in Italy 1998. The Italian education system now known as "Vecchio ordinamento" (meaning "old order or rules" in English), was a system based on years of studies as measurement. It required the validation through yearly (or half-yearly) exams for a total that varied from 19 to 58 exams per career, and would usually take from 4 to 6 years, again depending on the course of studies. After the implementation on what is now commonly known as university reform of 1999 (which takes place in the November 3th, 1999 decree number 509), when Italy decides to uphold the principles and engage in the Bologna Process.

The reforms stated the change in the measurement of the studies from yearly to a system of credits best explained in section 1 and the degrees that universities can grant students, as a consequence of replacing the 5 years course of studies into two different kinds of the degrees, The three years degree (known in Italy as "Laurea" o "Laurea Triennale" -L-) and it was designed to provide the theoretical and methodological knowledge and skills of the students, in the technical-operative environment, with a requirement of 180 credits to obtain the degree (approximately 60 credits per year). And the specialist degree (known in Italy as "Laurea Specialistia" -LS-) was planned to provide an advance high-level formation of the professional competences to graduates of the three years degree with an additional requirement of 120 credits (for a total of 300 credits).

From the year 2008 to 2011, a second reform of the higher educational system took place in Italy, modifying the general contribution of CFU with relation to the course and methodologies, with a focus was on the structuring of the credits. In the first two years of the three years degree all the degrees would have 60 degrees in common and the credits in the specialist degree would be discontinuous from the three years degree, to allow for students to select a course of study not directly related to the first one, having as consequence the reduction of the number of exams to 20 for the three years degree and 12 for the specialist degree and the renaming of the degrees. The three years degree would now be referred as first level degree ("Laurea di primo livello" in Italian) and the specialist degree would now be called master degree (or "laurea magistrale" in Italian).

Commented [GV4]: livello

It is evident that domestic reforms that serve an international objective, often carry consequences that are non-obvious. Italy had to divide a 5 years degree into two, a 3 year and a plus 2 years degree obtainable after finishing the previous. The 5 years degree is equivalent to the plus 2 years degree, there is an implicit need in the reform to create recognition for the new 3 years degree.

As part of the reforms, there is a constant push for flexibility. The separation of a single 5 years course of studies into two (3 + 2) is intended to allow students the selection of a path

with more than one branch. By selecting specific courses through the credits systems and breaking the system into two different education levels, students can choose whether to follow a different path for the remaining +2 after finishing the +3.

### 3.1.1 Management.

Italy divides the educational system in programs are separated according to the level of the degree obtain after the studies which can be either first (level 6 in the EQF) or second cycle (level 7 in the EQF).

This separation allows for Italy to offer 4 different kinds of studies. However, we are only analyzing 3 since the Master di primo livello (first level master) is a Master-like degree obtainable with only 60 credits that does not allow access to the next level of education, we are only considering degrees that are conclusive in terms of advancing to the next level in the EQF.

Italy university system offers the Bachelor degree also known as First Level Degree and First Cycle degree (known in Italian as “Primo Ciclo”) that is recognized as level 6 degree in the EQF. This course is designed to last 3 years of study after obtaining 180 credits. The objective of this degree is provided by the Italian Ministry of the Instruction of the University and Research (MIUR, 2004) is *“To provide the student with an adequate mastery of general scientific methods and content, even if they are geared towards the acquisition of specific professional knowledge”*.

For the Second Cycle or Master degree Italy offers two degrees that are recognized as level 7 degree in the EQF, the first being the Laurea Magistrale that is designed to last 2 years and consists of 120 credits, to enroll in this degree students require a previous 180 credits obtained through a Bachelor-like degree (as required in the Bologna Accords). The MIUR (MIUR, 2004) defines that the objective of this degree is to *“Provide the student with advanced level training for the pursuit of high qualification activities in specific areas”*.

The second degree that qualifies as a level 7 degree in the EQF is known as Laurea Magistrale a Ciclo Unico, it is a peculiarity of the few states that still offer it such as Italy and Greece, it is designed to last 5 years and consists on at least 300 credits (180 of a Bachelor-like degree plus 120 of the Master-like degree), it is basically the ghost of the vecchio ordinamento (system before the first reform in 1999), it grants a level 7 degree in the EQF without first granting the bachelor or level 6 degree, though it is compatible with the Bologna Process it is a degree that does not fit the purposes of the later reforms and the evolution of the education system. The MIUR (2010) defines that the objective of this degree is to *“Provide the student with advanced level training in the pursuit of high qualification activities in specific areas governed by European directives (medicine, dentistry, veterinary medicine, pharmacy, architecture) or access to legal professions”*.

There is thus the need to highlight the internal political, cultural and conflict and resistance to change between the reforms of a system that intended to update the education system and the forces that reject the acceptance of a bachelor degree as a valid degree of study.

### 3.1.2 The Students

The Bologna Process requested the modification of the education system to allowing graduates to move more freely through European countries, be it for partial or complete duration of their studies and their later jobs, allowing Italians the possibility of moving into other labor markets.

As of today (2017), Italy has a 2.9 outbound mobility ratio versus a 4.7 inbound mobility rate for tertiary student population (UNESCO, 2017), meaning that there is a 1.8 percent surplus of students with respect to the total tertiary enrolment population.

*Outbound mobility ratio: Number of students from a given country studying abroad, expressed as a percentage of total tertiary enrolment in that country (UNESCO, 2017).*

*Inbound mobility rate: Number of students from abroad studying in each country, expressed as a percentage of total tertiary enrolment in that country. (UNESCO, 2017).*

More students are coming to Italy than those that are leaving, the opposite is true for example in the case of Greece, where the difference is negative, with a 5.3 outbound versus a 4.2 inbound, Greece is losing 1.1 percent of the total tertiary enrolment population.

Though the use of this metric doesn't not explain the condition of the labor market or the decisions engaged by the students, it reflects the willingness of the student community to move in and out of the country. The difference between the inbound minus the outbound is proportional to the willingness from the population to move abroad.

When analyzing the inbounds within the students flow in Italy we notice that more than 40% of students coming to Italy are from countries not involved with the Bologna Process. Inversely, the outbound is significantly related to the Bologna Process as more than 90 percent of student are flowing toward countries participating in the Bologna Process. Meaning that Italy is losing European students through the Bologna Process but sustaining its student population through the enrollment of foreign students.

THE FOLLOWING TABLE SHOWS THE TOP 10 COUNTRIES FOR THE INBOUND AND OUTBOUND (RESPECTIVELY) THAT CONTRIBUTE TO THE STUDENT POPULATION IN ITALY.

INBOUND	
COUNTRY OF ORIGIN	STUDENT POPULATION
China	12,581
Albania	11,460
Romania	7,630
Iran, Islamic Republic	3,495
Greece	2,984
Cameroon	2,753
Ukraine	2,367
Republic of Moldova	2,302
Peru	2,230
Russian	2,178
Participating Countries	57.87%
Outside Countries	42.13%

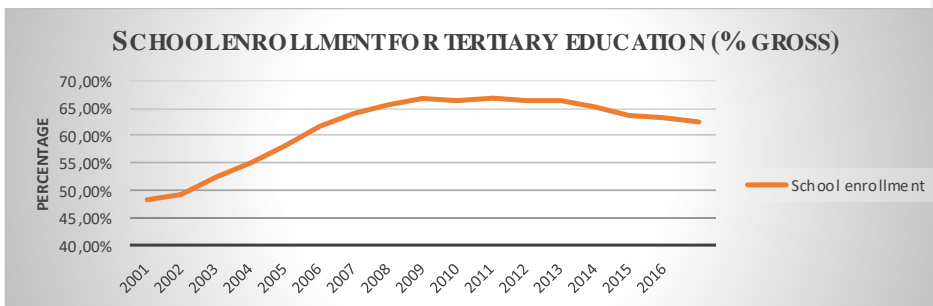
OUTBOUND	
DESTINATION COUNTRY	STUDENT POPULATION
United Kingdom	9,499
Austria	8,064
France	6,729
Germany	5,657
Switzerland	4,826
Spain	4,752
United States	4,208
Netherlands	2,401
Romania	1,192
Denmark	1,804
European Outbound	91.44%
Outside Countries	8.56%

INSTITUTE OF STATISTICS, GLOBAL FLOW OF TERTIARY-LEVEL STUDENTS. (UNESCO, 2017)

The current trends of growth on the gross enrollment ratio provided by the WorldBank suggest that the student population on the tertiary level in Italy is stabilizing in between 60 and 70 percent.

*Gross enrollment ratio: Total enrollment in tertiary education (ISCED 5 to 8), regardless of age, expressed as a percentage of the total population of the five-year age group following on from secondary school leaving. (worldbank.org indicators).*

THE FOLLOWING TABLE SHOWS THE GROSS ENROLLMENT RATIO IN ITALY EXPRESSED IN PERCENTAGE. THE GRAPH SHOWS THE RANGE FROM 40 TO 70 PERCENT ENSURING THAT THE CHANGES IN THE GROSS ENROLLMENT RATIO ARE VISIBLE TO THE READER.

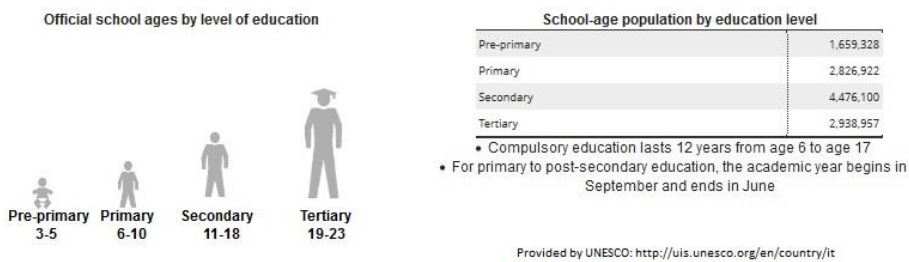


GROSS ENROLMENT RATIO, TERTIARY, BOTH SEXES, PERCENTAGE. (The World Bank Group, 2017)

Both, the Gross Enrollment Ratio and the student flow are indicators, independent to the population of the official school ages by level of education. However, the population of the school-age is an indicator that provides an expectancy for the number of students from each of the education levels.

The UNESCO Institute for Statistics defines the official age for tertiary-level education in Italy to be from 19 to 23 years old. Because the ISTAT (the Italian national institute of statistics) provides a yearly census on the of the population by age on January 1<sup>st</sup>. We take the ISTAT census with one-year lag (from 20 to 24 years old) to see the expected tertiary student population from the year and the trend it follows.

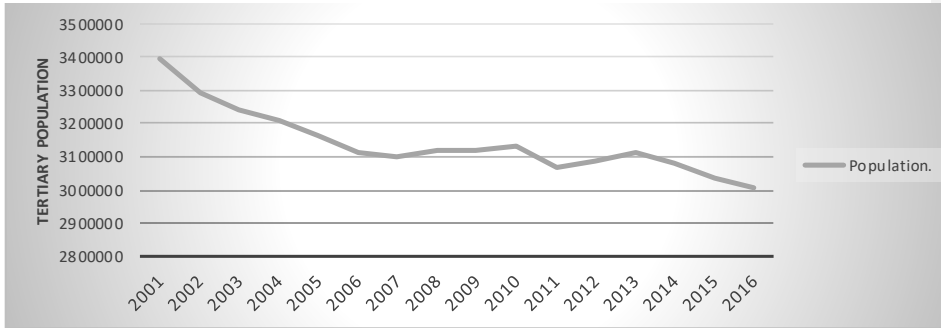
THE FOLLOWING IMAGE DISPLAYS THE OFFICIAL SCHOOL AGE BY LEVEL OF EDUCATION IN ITALY.



INSTITUTE OF STATISTICS, EDUCATION AND LITERACY, EDUCATION SYSTEM. (UNESCO, 2017)

The Italian school-age population for tertiary education level is in continuous decline, so because of the significant foreign student inbound mobility ratio and the school-age population decrease, university policy for international student management becomes more important, understanding the behind that cause this decline escapes the scope of this research.

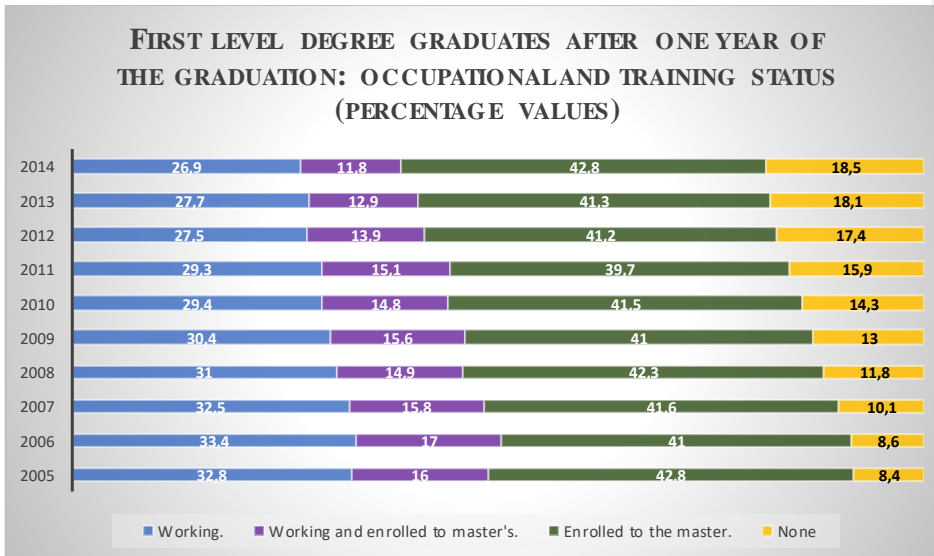
THE FOLLOWING GRAPHIC DISPLAYS THE SCHOOL-AGE POPULATION OF TERTIARY LEVEL. THE POPULATION DISPLAYED AT ANY GIVEN YEAR IS IN PRESENTED WITH A YEAR MINUS 1 (E.G. THE 2001 DATA IS THE DATA FROM THE SURVEY PERFORMED BY THE ISTAT THE 1ST JANUARY 2000).



FROM 1ST JANUARY, (ISTAT, 2017).

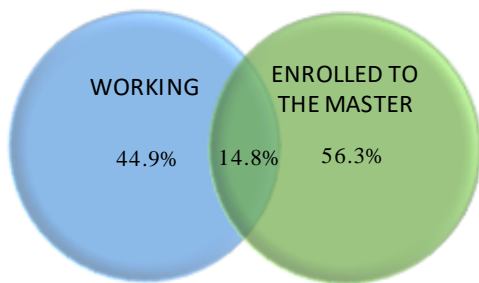
The rate of inscription to the master’s degree from first level degree graduates is very high compared to the population that can find a job after the first level degree. On average **56.3** percent of the students that graduate from the first level degree also enroll to the master’s degree while only 44.9 percent can join the labor force.

THE FOLLOWING GRAPHIC REPRESENTS IN PERCENTAGE, THE OCCUPATIONAL AND TRAINING STATUS OF STUDENTS GRADUATES OF THE INTERVIEWED ONE YEAR AFTER FINISHING THE FIRST LEVEL DEGREE. EACH YEAR HAS A TOTAL OF 100.00 REPRESENTING THE TOTAL AMOUNT OF THE STUDENTS INTERVIEWED.



(AlmaLaurea, 2015), XVIII INDAGINE CONDIZIONE OCCUPAZIONALE DEI LAUREATI. PAGE 62. GRAFICO DI LAUREATI DI PRIMO LIVELLO INTERVISTATI AD UN ANNO: CONDIZIONE OCCUPAZIONALE E FORMATIVE A CONFRONTO (VALORI PERCENTUALI)



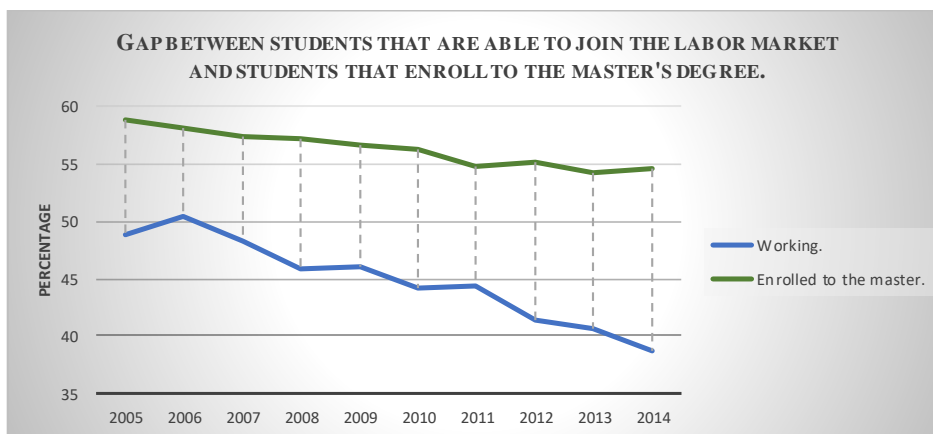


Taking the first level degree graduates as reference with the information on the previous table we obtain the percentage of graduates working by the summing the percentage in blue (working) and the percentage in purple (working and enrolled to the master). We can also obtain the percentage of graduates enrolled to the master by summing the percentage in green (Enrolled to the master) and the percentage in purple. The Venn diagram to the left is

useful to simplify the data.

When we analyze the trends, we notice that not only the rate of first level graduate inscription to the master is larger than the rate in which first level graduates are able to find jobs, but that the gap between graduates of the to grow over time.

THE FOLLOWING GRAPHIC DISPLAYS THE CHOICES OF THE FIRST LEVEL DEGREE GRADUATES THAT ARE WORKING AND/OR ENROLLED TO THE MASTER DEGREE, MEANING THAT GRADUATES PERFORMING BOTH ACTIVITIES ARE ADDED TO BOTH PERCENTAGES AS THEY ARE NOT MUTUALLY EXCLUSIVE. SUMMING BOTH PERCENTAGE MAY EXCEED THE VALUE OF 100.00.



(AlmaLaurea, 2015), XVIII INDAGINE CONDIZIONE OCCUPAZIONALE DEI LAUREATI.

The data shows that students continue to enroll to the master degree in a constant ratio with a 95% confidence level, while graduates from the first level degree are less likely to find a job. The importance of a decreasing market for first level degree graduates is an important indicator to measure the impact of the Bologna Process in Italy. The importance of the previous data is related to the one year after the first level degree graduation, as it

demonstrates that more than a 50 percent of the graduates enroll to the master without pausing their studies and more than 40 percent study a master without any professional experience.

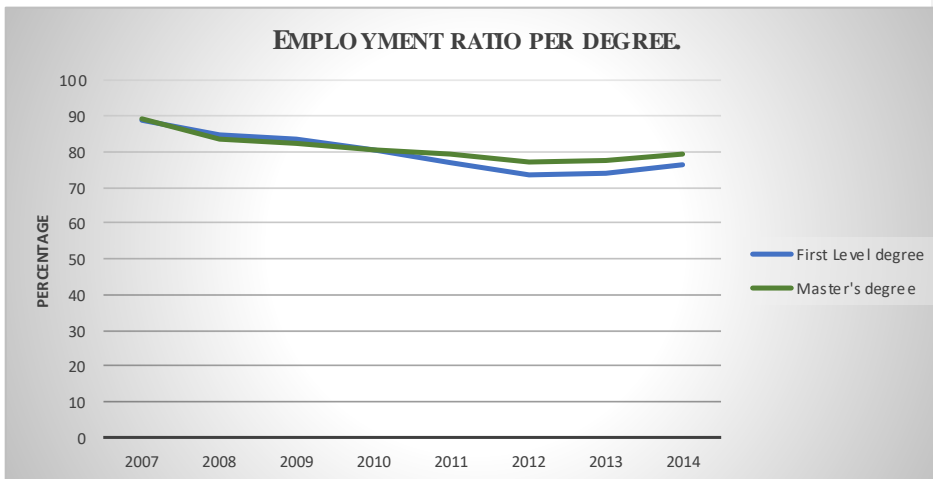
Thus, the population working after graduating from the bachelor degree becomes a measurement for the adoption of the degree, and the percentage of graduates enrolled to the master as the resistance or rejection to considering the bachelor degree as a (viable exit strategy for the investment on education). From this approach, students are self-selecting themselves into the master's degree (3+2).

Commented [AL5]: It could or maybe should be rephrased

### 3.1.3 The Labor market

The basic concept to grasp when talking about the labor market is the likelihood of graduates to join. The unemployment rate separated by degree directly shows how likely graduates from each degree are to not join the labor market, and the consequent acceptance of the degree in the labor market, and vice versa, the employment rate show how likely graduates are to join the labor market.

THE FOLLOWING GRAPHIC DISPLAYS THE EMPLOYMENT RATES OBTAINED FROM THE UNEMPLOYMENT RATIO FROM GRADUATES INTERVIEWED ONE YEAR AFTER GRADUATION. SUBTRACTING THE UNEMPLOYMENT RATIO FROM THE 100%, REPRESENTING THE TOTAL POPULATION OF GRADUATES. UNITS IN THE GRAPHIC ARE IN PERCENTAGE FROM 0 TO 100.



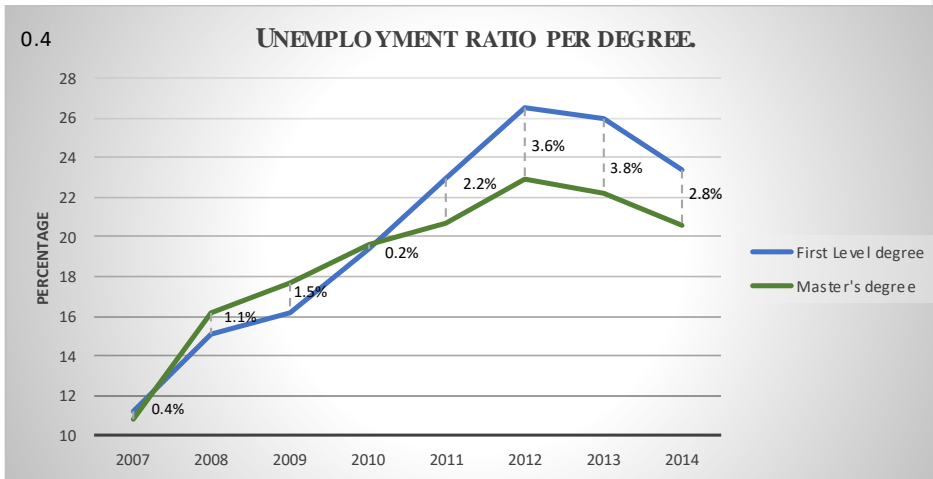
THE DATA USED IN THE TABLE WAS OBTAINED FROM (AlmaLaurea, 2015), XVIII INDAGINE CONDIZIONE OCCUPAZIONALE DEI LAUREATI, PAGE 34. WITH THE MODIFICATIONS MENTIONED ABOVE.

Note: The First level degree trend, shows only the graduates that are not enrolled into a master's.

The employment ratio above shows that both degrees can find employment with a year of their graduation. The data show no radical rejection of either degree and no difference between the degrees employment ratio with a level of significance larger than 5%.

When we take a closer look to the unemployment rates, we can clearly see that there is less than a 5% difference between each degree, stating that with a standard confidence level of 5% both trends are indistinguishable from each other.

THE FOLLOWING GRAPHIC DISPLAYS THE UNEMPLOYMENT RATES AS-IS IN THE ALMA LAUREA 2015 REPORT. THE LABELS SHOWS THE ABSOLUTE VALUE OF THE DIFFERENCE BETWEEN BOTH TRENDS.



(AlmaLaurea, 2015), XVIII INDAGINE CONDIZIONE OCCUPAZIONALE DEI LAUREATI. PAGE 34.

NOTE: THE FIRST LEVEL DEGREE TREND, SHOWS ONLY THE GRADUATES THAT ARE NOT ENROLLED INTO A

BASIC STATISTICS FOR FIRST LEVEL	BASIC STATISTICS FOR MASTER
Mean = 20.09	Mean = 18.84
Standard Deviation = 5.53	Standard Deviation = 3.92
Minimum = 11.2	Minimum = 10.80
Maximum = 26.50	Maximum = 22.90

MASTER'S.

The level of unemployment was slightly lower for the first level degree than for the master's degree until 2011. It correlates with the implementation of the second reform, and from this point we can see up to a 3.8% (in 2013) difference, however we can see that in the descriptive statistics above, the unemployment rate of the first level displays a bigger larger standard deviation that suggests that the first level degree is slightly more susceptible to the negative changes in the labor environment.

The market does not recognize between a recent master's degree and a first level degree graduate. The level of adoption does not imply that the market is able to recognize them. To say that the market properly recognizes both degrees, there should be a visible difference between the earnings of both degrees in favor of the master degree.

From the statistical evidence, we can infer a positive change in the trends from the 2011 correlated with the implementation of the latest reform, positive meaning that the trends are moving towards the expected outcome of the Bologna Process. The difference between the wages of the degrees is not significant enough to confirm that the market recognizes the different on the quality of the workers.

What we see in the data is that; until 2011 first level degree graduates used to earn in average more than master degree graduate. Again, correlating with the implementation of the second reform, but still the difference is narrow.

THE FOLLOWING GRAPHIC DISPLAYS THE AVERAGE EARNING PER MONTH OF BOTH DEGREES, AFTER BEING EMPLOYED FOR TWO YEARS.



(AlmaLaurea, 2015), XVIII INDAGINE CONDIZIONE OCCUPAZIONALE DEI LAUREATI, PAGE 37.

NOTE: THE FIRST LEVEL TREND, SHOWS ONLY THE GRADUATES THAT ARE NOT ENROLLED INTO A MASTER'S.

We had previously noticed that first level degree has a larger variance and consequently suffers more from negative changes in the labor market. Both trends show that the average monthly earnings are being reduced, thus the relative increase on the Master trend could be explain for its resistance to the labor crisis since it has not exceeded the 5 percent of our confidence level.

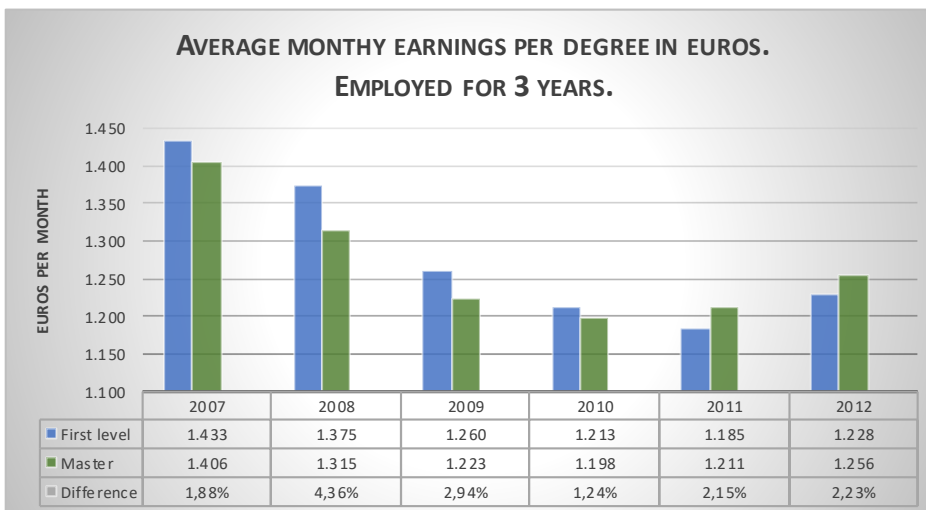
There is a peak in 2008 and 2009 that exceeds our confidence level of 5 percent, showing that during these the labor market had a problem of information asymmetries, in which the market hired first level graduates and payed them more than the more prepared graduate (better product). **The market was unable to recognize the value of graduates.**

The earnings per month represents what the market is willing to pay for a product, and although this implies a market failure to recognize the better product, we do not see this

product being driven out of the market but the opposite, **the level of enrollment to the master remains constant regardless of the lack of an economic incentive.**

Let us not forget that the previous data was taken from a sample of graduates that have been active in the labor market for the short duration of one year, suggesting that the benefits of the master level of education might be seen on a longer time frame. Because the implementation of the process of Bologna started 17 years ago there are only about 10 generations of graduates for study and the sample becomes smaller when considering larger time frames. The AlmaLaurea research on the occupational condition of 2015 (AlmaLaurea XVIII Indagine Condizione occupazionale dei Laureati, Rapporto 2015) contains data of graduates that have been employed for 1 year (presented in the previous graph), 3 and 5 years (presented in the following graphs).

THE FOLLOWING GRAPHIC DISPLAYS THE AVERAGE EARNING PER MONTH OF BOTH DEGREES, AFTER BEING EMPLOYED FOR THREE YEARS.



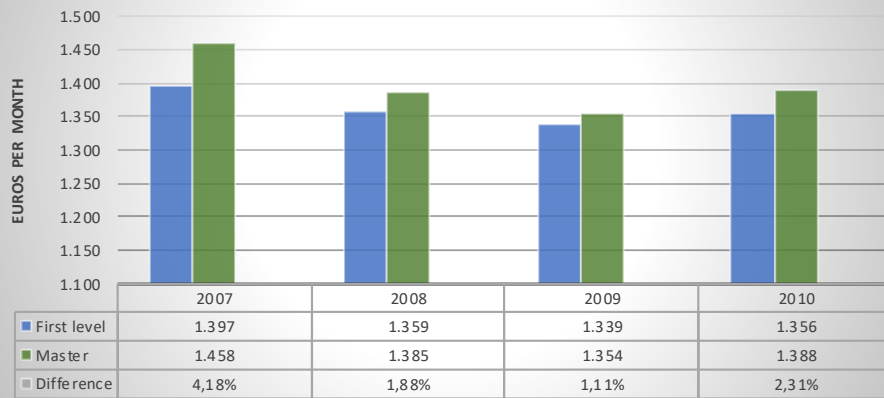
(AlmaLaurea), XVIII INDAGINE CONDIZIONE OCCUPAZIONALE DEI LAUREATI, RAPPORTO 2015. PAGE 44.

NOTE: THE FIRST LEVEL DEGREE TREND, SHOWS ONLY THE GRADUATES THAT ARE NOT ENROLLED INTO A MASTER'S.

The data concerning graduates' employer for three show a similar trend to that presented in the first year but with less differences in the earnings.

THE FOLLOWING GRAPHIC DISPLAYS THE AVERAGE EARNING PER MONTH OF BOTH DEGREES, AFTER BEING EMPLOYED FOR FIVE YEARS.

**AVERAGE MONTHLY EARNINGS PER DEGREE IN EUROS.  
EMPLOYED FOR 5 YEARS.**



(AlmaLaurea, 2015), XVIII INDAGINE CONDIZIONE OCCUPAZIONALE DEI LAUREATI, RAPPORTO 2015. PAGE 45.

NOTE: THE FIRST LEVEL DEGREE TREND, SHOWS ONLY THE GRADUATES THAT ARE NOT ENROLLED INTO A MASTER'S.

The data concerning the graduates employed for five years, displays that regardless of the reform the master's degree graduates earn consistently more, though not significantly enough to disprove the information asymmetry in the labor market. In fact, **as time increases, the more analogous become the trends earnings of both graduates.**

**Within a 95% confidence, the market is not able to differentiate between a master and a first level degree graduate.** As previously stated, the time frames available to us at this moment in time prevents us from obtaining conclusive data with higher certainty.

The AlmaLaurea research on the occupational condition of 2015, defines a different narrative for this market issue, suggestion that because of the economic crisis, salaries in general are low and therefore, the average is rounded around a similar average, they expect that an improvement on the economic environment would be reflected on the earning of the graduates accordingly to their degrees. Regardless of this narrative when looking at equality of outcome the result is the same.

If we are to consider the market as unable to properly recognize graduates from different degrees, then first level graduates interested on participating in the labor market should have little or no economical motivation to invest in extra 2 years. However, parting from the premise that the labor market is not properly regulated or established to recognize the graduates, it is like that enrolled students themselves and the actors intervening in their decision are not aware either.

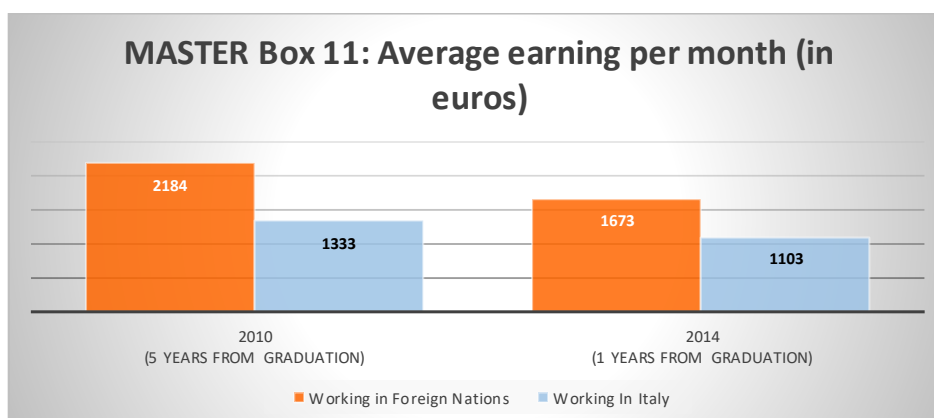
There is no economic correlation for justifying the student's pursuit of a master's degree after the first degree has been achieved (at least not that could justify more than 50 percent of the graduates making this choice). There is an environment that fails to distinguish the benefits of a master's degree graduate and fails to share knowledge about the purpose and benefits of the first level degree, suggesting once again the premise of information asymmetries at a market level.

When looking at the earnings of master's degree graduates in an international environment, we see that there is an economic incentive to leave the country and look search for jobs abroad. Italian graduates earn more when employed in foreign countries when compared to those that remain and work in Italy.

The average monthly earnings of Italian master degree graduates working in foreign countries is larger than the local average earnings by 51.68 percent from one year after the graduation, and 63.84 percent on those graduated 5 years ago.

Not only do graduates that go abroad earn more but they also have a larger growth rate in their earnings. While in Italy a master degree graduated 5 years ago tends to earn in average 20.85 percent more than those graduated one year ago, in foreign the difference is of 30.54 percent.

MONTHLY NET EARNINGS OF MASTER DEGREE 1 AND 5 YEARS FROM GRADUATION IN ITALY AND IN FOREIGN NATIONS. ONLY ITALIAN CITIZENS ARE CONSIDERED FOR THIS DATA.



(AlmaLaurea, 2015), XVIII INDAGINE CONDIZIONE OCCUPAZIONALE DEI LAUREATI. PAGE 223.

We can see that there is a constant economic benefit for Italians who decide to go abroad to participate in the international labor market (51% in 2014 and 63% in 2010), yet independently of the demographics only 5% of the employed post-reform graduates in Italy are working abroad (AlmaLaurea, 2015), suggesting that there is undervaluation of master degree students in Italy when compared to the international environment.

It is important to highlight that Italy has very permissive laws when it comes to internship programs and apprenticeships. Enterprises can have employees working for up to 6 months

(which is also the usual duration) that can be applied only after the first 12 months after the graduation.

The apprenticeship is another mean for enterprises to introduce graduates to the labor market available only to recent graduates with a purpose of preparing the candidates to operate in a given enterprise. The apprenticeships in Italy have been known to last up to four years (LavoroImpresa, 2013).



### 3.2 SPAIN

Spain has a relative young educational system, it was until 1970 that the Law for General Education (LGE for the Spanish acronym of Ley General de Educación) that regulated and structured the Spanish education system was first enacted. It tried to overcome the contradictions in the system due to the inabilities of the state to respond to the social and economic changes happening in Spain during that time. The LGE is a unitary and flexible system that first divided education into four levels; preschool, basic school, middle school and university.

The dictatorship in Spain came to an end in 1975 with the demise of Francisco Franco. Shortly after in 1978, with the implementation of democracy and the following constitution of 1978, Spain begins a period of law making and reforms, mostly with the purpose of organizing the educational system (Sampedro Requena, 2006):

<b>1978</b>	<b>CONSTITUCIÓN ESPAÑOLA</b>	<i>Spanish constitution that established the fundamental rights of the education.</i>
<b>1983</b>	<b>LEY DE REFORMA UNIVERSITARIA (LRU)</b>	<i>Was designed to restructure the university education.</i>
<b>1985</b>	<b>LEY REGULADORA DEL DERECHO A LA EDUCACIÓN (LODE).</b>	<i>Was designed to establish the public and private education centers.</i>
<b>1990</b>	<b>LEY DE ORDENACIÓN DEL SISTEMA EDUCATIVO (LOGSE).</b>	<i>Regulated the infant, basic and middle school.</i>
<b>1995</b>	<b>LEY ORGÁNICA DE LA PARTICIPACIÓN, LA EVALUACIÓN Y EL GOBIERNO (LOPEG).</b>	<i>Regulated the management and established the evaluation system of the educative centers.</i>
<b>2001</b>	<b>LEY ORGÁNICA DE UNIVERSIDADES (LRU).</b>	<i>Was designed to adapt the university studies to the European single education zone promoted by the Bologna process.</i>

On the 25th of August 1983, the Law of University Reform (LRU for the Spanish acronym of Ley de Reforma Universitaria) was placed in action by royal decree of the king Juan Carlos I. This reform regulated and structured the Spanish university, it changed the management from a centralized rectory created under the dictatorship of Francisco Franco to an autonomous management. It was also the starting point where the government of Spain would refer to the university education as a public service accessible to all willing and capable the citizens (Gobierno de España, Boletín Oficial del Estado, 1983)

15 years later, on 1998 Spain, alongside Italy, Germany and the UK, join the Bologna Process, engaging in a compromise to standardize the tertiary level of education to push for the single education zone (known in Spain as EEES).

Unlike Italy, Spain was relatively new to developing its own educational management systems, and it was still in the process of organizing, regulating and designing an education for its own when the Bologna accords were signed. The process starts in 1999 with the modification of the LRU with reforms in 2001 and 2006 through royal decrees.

Although Spain faces a tough political environment that makes it difficult to implement the policies, the Bologna Process and its implementation the royal decree helps with the definition of the university system to implement. Therefore, Spain does not have the risk of having a cosmetically implementation as there is not a clear body that can be identified before the reform, there is however, there is a risk of a poor implementation due to an incompatibility caused by issues in the international validation of the study programs of the Spanish universities.

The tertiary education level in Spain has now the same configuration as the one in Italy, consisting of a first level degree (known only as “Grado” which means “degree” in Spanish but refers to first level degree) of 180 to 240 ECTS, a master of 60 to 120 ECTS and the PHDs (which scope the scope of this research), showing the relative success of the European policies across different nations.

### 3.2.1 Management

The Ministry of Education, Culture and Sport (MECD) in Spain offers the bachelor degree in accordance with the Bologna Accords as a level 6 degree in the EQF. Often, the degree is designed to last 4 years and consist on 240 credits for its conclusion. The MECD defines that *“the aim of the Degree is the achievement by students of general training, in one or several disciplines, aimed at acquiring the necessary skills to practice a particular profession”*. It is intended to prepare the students with all the knowledge and skills that are necessary to practice a profession, and as we will later see, it is often the desired degree to join the labor market.

The MECD offers the Master degree program in accordance with the Bologna Accords as a level 7 degree in the EQF. The degree is designed to last from 1 to 2 years providing from 60 to 120 credits. Diversely from Italy, this degree is not considered as necessary but since the students often own 60 extra credits from an extra year in the bachelor, it is common practice that students may decide to engage into one-year master of university to complete the Master degree certification with 300 credits. The MECD defines that *“The Master program provides students with advanced, multidisciplinary or specialized training, oriented to professional or academic specialization, or to promote research tasks”*. It is also important to highlight that the Master in Spain possess in its culture, a bigger similarity to a research degree (such as a PHD) than a in Italy and students can leap from the bachelor to a level 8 degree in the EQF by prolonging their permanence in the university by 2 years (which would be a master’s requirement on Italy). (MECD, 2017)

### 3.2.2 The Students

The language is an advantage that Spain has for sustaining the student population that other countries like Italy does not possess. Because Spanish is the second language with more native speakers in the world with 399 million speakers across the world (only following Mandarin Chinese that has 848 million speakers).

The language barrier allows for a large bound of inbound students from either Spanish speaking countries (often developing countries that look up to Spain as developed country, at least on terms of education) to enroll in Spanish universities.

THE FOLLOWING TABLE SHOWS THE TOP 10 COUNTRIES FOR THE INBOUND AND OUTBOUND (RESPECTIVELY) THAT CONTRIBUTE TO THE STUDENT POPULATION IN SPAIN.

INBOUND	
COUNTRY OF ORIGIN	STUDENT POPULATION
Colombia	5754
Italy	4752
Peru	3490
Ecuador	3439
Morocco	3071
France	2801
Mexico	2470
Romania	2152
Venezuela	1980
Portugal	1776
Participating Countries	36.23%
Outside Countries	63.77%

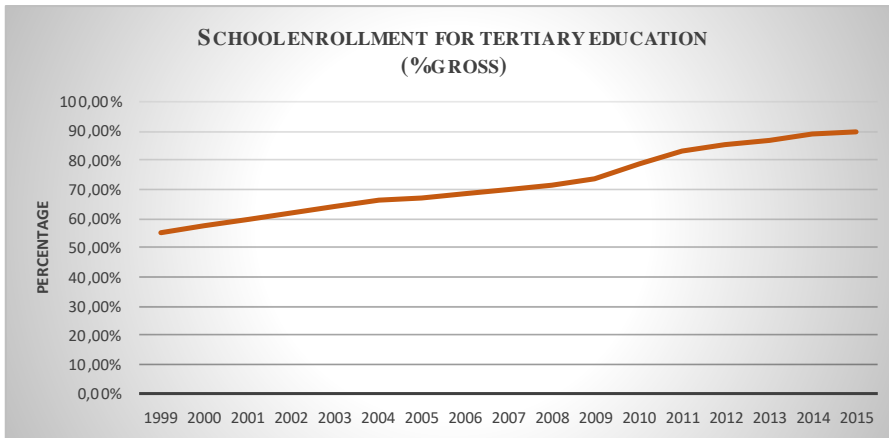
OUTBOUND	
DESTINATION COUNTRY	STUDENT POPULATION
UK	6531
Germany	5138
United States	4864
France	4638
Netherlands	1531
Poland	1046
Denmark	1026
Switzerland	922
Italy	831
Portugal	823
European Outbound	82.22%
Outside Countries	17.78%

INSTITUTE OF STATISTICS, GLOBAL FLOW OF TERTIARY-LEVEL STUDENTS. (UNESCO, 2017)

The data provided by the UNESCO shows that a clear majority of the inbound population comes from countries outside the Bologna Accords and that a 54.07% comes from Latin-America. In the outbound we can see that Spanish outbound students do take a clear advantage of the Bologna Accords moving mostly through European countries. It is obvious that Spain has a deficit in students inside the single higher education European zone.

The gross enrollment for tertiary education has been growing steadily since the beginning of the Bologna Process, with a growth of 34.56% moving from 55.11% in 1999 to an 89.67%, in 2015.

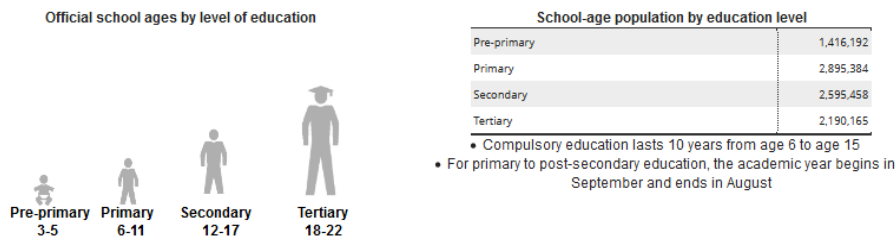
THE FOLLOWING TABLE SHOWS THE GROSS ENROLLMENT RATIO IN SPAIN EXPRESSED IN PERCENTAGE.



GROSS ENROLLMENT RATIO, TERTIARY, BOTH SEXES, PERCENTAGE. (The World Bank Group, 2017)

One of the peculiarities of the Bologna Process is that since it only seeks to standardize the tertiary level, disparities in the school-age can be found in countries participating in the Bologna Accords due to differences in the previous degrees. In Spain, the school-age of tertiary education goes from the 18 years old when the school starts to the completion on 22 years old, which is one year younger than in Italy.

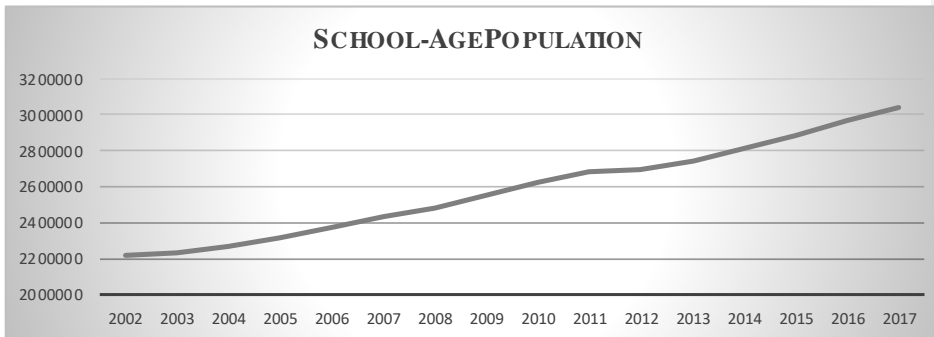
The following image displays the Official school age by level of education in Spain.



INSTITUTE OF STATISTICS, EDUCATION AND LITERACY, EDUCATION SYSTEM. (UNESCO, 2017)

The constant increase in the gross enrollment ratio is of a higher significant when considering the growth in the School-age population, as complexity, costs and managements becomes more difficult as the absolute number of students grows by the product of the two variables.

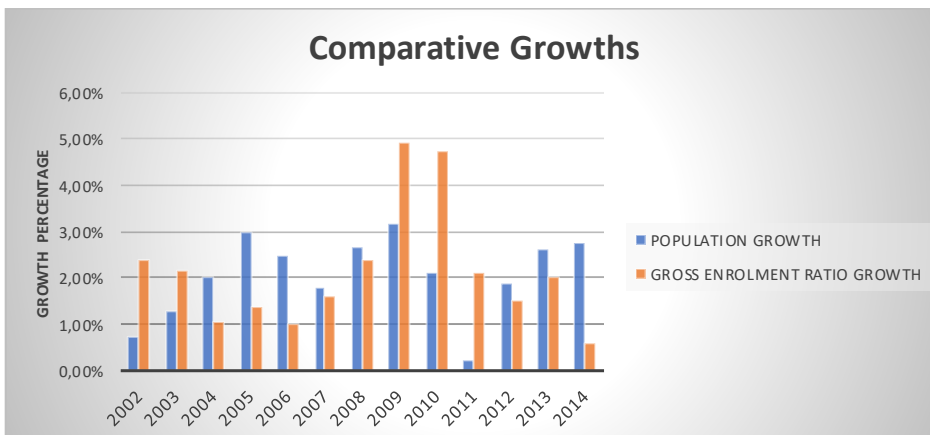
The following graphic displays the school-age population of tertiary level. The population displayed at any given year is presented with a Year minus 1 (e.g. The population in 2002 are one year older than school-age population showing the population that was enrolled in 2001).



(INE, 2017) INSTITUTO NACIONAL DE ESTADÍSTICA, POBLACIÓN RESIDENTE POR FECHA, SEXO Y EDAD.

It is interesting to analyze both, the growth rate of the population and the growth of the gross enrollment rate to understand the evolution of the environment. On average, we can see that the Population has grown yearly since 2002 by an average of 2.06% while the gross enrollment has grown a 2.1%.

THE FOLLOWING GRAPHIC DISPLAYS THE GROWTH IN THE SCHOOL-AGE POPULATION OF TERTIARY LEVEL AND THE GROWTH IN THE GROSS ENROLLMENT RATIO.



USING THE DATA FROM THE (INE, 2017) INSTITUTO NACIONAL DE ESTADÍSTICA AND (The World Bank Group, 2017).

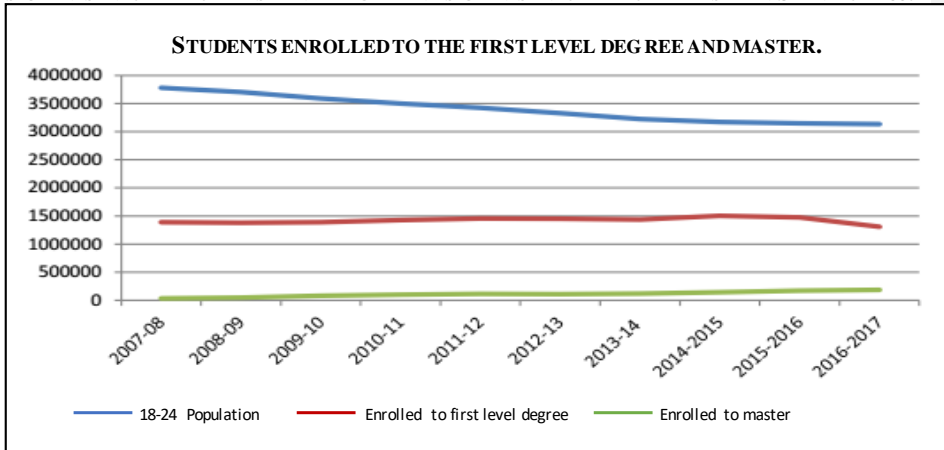
Let's keep in mind that if the population grows and the gross enrolment ratio remains constant, it would mean that more students are assisting to a tertiary level education in absolute numbers, thus the significance on the growth becomes the product of both variables.

Another detail that we must highlight is that the of the School-Age for tertiary education in Spain is one year smaller because the duration of the master is not considered, the statistic provided by the

UNESCO highlights that in Spain the tertiary education usually concludes after the bachelor, meaning that it is the preferred exit point of the investment on the education.

Spanish student's community is displayed in accordance to the previous statement, showing that a significant majority of students consider the first level degree as an exit point on their investment in education and only a relatively small percentage of students continues to procure a master's degree.

THE FOLLOWING GRAPHIC SHOWS THE ABSOLUTE NUMBERS OF THE STUDENT-AGE POPULATION +2 YEARS AFTER, STUDENTS ENROLLED TO A FIRST LEVEL DEGREE AND STUDENTS ENROLLED TO THE MASTER IN SPAIN FROM 2007

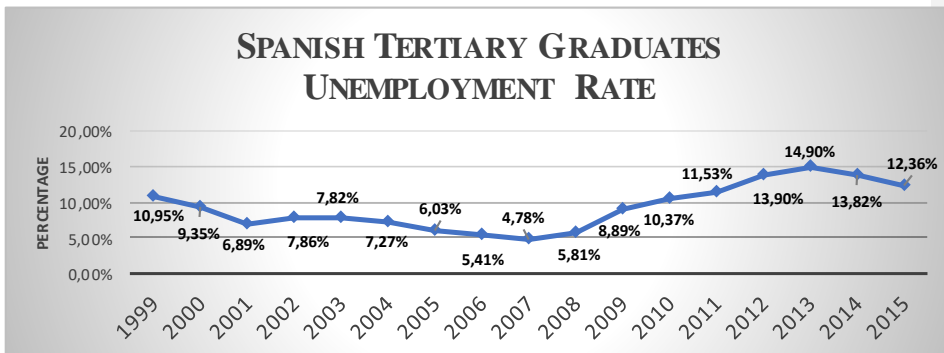


(MECD, 2017) MINISTERIO DE EDUCACIÓN, CULTURA Y DEPORTE. AVANCE DE LA ESTADÍSTICA DE ESTUDIANTES.

### 3.2.3 The Labor Market

In Spain we see an improvement on the unemployment in the rate of tertiary graduates from 1999 to 2007, moving from a 11.06 percent to the lowest point at 4.8, but since then has suffer a rapid increase.

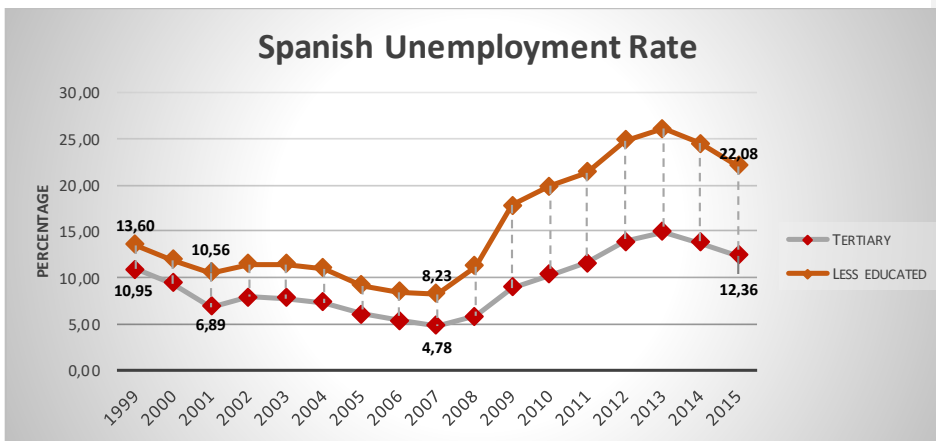
THE FOLLOWING DATA DISPLAYS THE UNEMPLOYMENT OF TERTIARY DEGREES GRADUATES AS PRESENTED BY THE OECD.



(OECD, 2016) UNEMPLOYMENT RATES BY EDUCATION LEVEL.

Spain has one of the highest unemployment rates (12.36% - ranks second among OECD countries only after the Greece with 19%) for tertiary-educated individuals, almost three times the OECD average of 4.83% or the EU21, but less than half the unemployment rates among the less educated individuals in Spain.

THE FOLLOWING DATA DISPLAYS THE UNEMPLOYMENT OF TERTIARY DEGREES GRADUATES AGAINST THE HARMONIZED POPULATION.



(OECD, 2016) UNEMPLOYMENT RATES BY EDUCATION LEVEL.

To provide a relative perspective, the unemployment rates in Spain are twice as those in Italy. While Italy presents a 6.82 percent unemployment on tertiary educated population and a 11.89 in its harmonized population, Spain presents a 12.36 percent unemployment on tertiary educated population and a 22.08 percent in its harmonized population.

*Harmonized unemployment rate (HUR): Harmonized unemployment rates define the unemployed as people of working age who are without work, are available for work, and have taken specific steps to find work. The uniform application of this definition results in estimates of unemployment rates that are more internationally comparable than estimates based on national definitions of unemployment. This indicator is measured in numbers of unemployed people as a percentage of the labor force and it is seasonally adjusted. The labor force is defined as the total number of unemployed people plus those in civilian employment. (data.oecd.org).*

The previous unemployment statistics and the Spanish political evolution of tertiary education policies, provide a background to the Spanish labor market that suggests a clear advantage for studying a tertiary and the viability of such as an exit point for the investment on education, however little information is obtainable on the economic advantages between the master and the bachelor due to the low number of master graduates in the country.

## 4. THE INDIVIDUAL LEVEL

### 4.1 POLITECNICO DI MILANO

POLIMI (Politecnico di Milan) founded the 29th November 1863 by Francesco Brioschi, was one of the firsts university in Italy to implement the university reform system as it proudly states on its website:

*Politecnico was one of the first Italian universities to implement the reform of the university system, which led to the "three plus two" education structure with Bachelor of Science and Master of Science programs.*

*Beginning with the academic year 2000-2001 bachelor's programs were grouped into schools, based on their areas of interest. Each year Politecnico offers numerous Master Degrees (first and second level) and PhD research courses on a wide range of subject areas and disciplines in the fields of Engineering, Architecture and Design. (POLIMI, 2017)*

School design the study programs and courses to fit the standards dictated by the principal direction, such as the delimitation on the duration of the studies (3 + 2 years), the measurement (Credits known as CFU in Italian are the ECTS) and validation of studies (coherence and integrity of the studies as well as comparability with similar studies abroad).

Schools within POLIMI follow a decision-making process that goes through a board of professors that define the scope and competences that each study program must have. Professors, members of the school, get together and select which will be provided courses to build graduates with the specific knowledge and capabilities that best define the profile they have designed for the graduate. This is the same process for Master as for Bachelor with the only difference being the scope or profile that the degree is meant to create.

According to Giovanni Azzone (Svalduz, 2015), in 2015 there were 24 thousand bachelor students and 17 thousand master degree students, showing that the POLIMI has a capacity to allow only 70.8% of the population of the bachelor into the master, of which 6 thousand are foreign students, mostly coming from Brazil, Russia, India and China, of which China and Russia appear in the top flow of 10 inbound students in section 3.1.3.

#### 4.1.1 The Academic Staff:

Within the board of professor's team leaders have been selected to take on the responsibility of coordinating the different schools and the take the compromise of reaching the expected outcome for each degree, However, the team leaders own no higher hierarchy within the organizational model nor have they suffered changes in the definition of their roles and participation on the design of both the master's and bachelor's degree

To create a profile of the graduate, the board of professors consider the labor market needs (with the help of enterprises partner of the university), to define which skills and knowledge



are to best match the demand. Although, some enterprises are hesitant to provide their vision of the Bachelor degree graduate and limit themselves to the employment of Master degree graduates without logical justification.

It was until 2014 that the university changed the approach to the master's degree. The courses were to be design in such a way that students of Master degrees would be able to obtain a basis of knowledge that was given previously exclusively to the Bachelor in the specific stream. This way the master would be detached from the Bachelor degree.

Detaching the Master from the Bachelor degree allows for more flexibility in the enrollment process. A compatible Bachelor is no longer a filter for enrollment which creates positive externalities for the university while profiting from the benefits of the Bologna Process. The International student community can now be accepted regardless of owning a Bachelor like degree form a different area and school.

Though POLIMI has engaged on a policy that enhances the benefits from the international policy and enhances enrollment to the master's degree, but the Bachelor degree is still designed to provide a basic base of knowledge that will be seen again on the master, and although the program is constantly being redesigned to adapt to such changes, the university **has not yet adapted this degree to make it profitable for the labor market or that can identify as a useful asset to society. Meaning that the profile of the Bachelor degree graduate is still ambiguous in its design and inconclusive in the studies and preparation for the labor market.**

The Bachelor for POLIMI, is intended to be conclusive in terms of skills and competences, at least as objectives goes, it is meant to allow a graduate to efficiently perform in the labor market. To POLIMI management, a Bachelor degree graduate must have a complete base of knowledge and should not require additional studies to join the labor market competitively however, previous program design and changes has not been yet achieved the intended outcome and thus changes are to be expected in the nearby future.

From the POLIMI point of view we see a double approach to the reform; **the master degree is intended to be detached from the Bachelor, and the bachelor is intended to become conclusive.** The quality of the master would benefit if students enrolled to this degree after having professional experience. The fact that students enroll directly from the bachelor prevents them transforming the lessons and the knowledge provided into skills and competences that are intended in the program.

POLIMI is required to designs programs of study to meet standards that internationally certify the skills of the degrees, but it also engages with its partners to gather information about labor market requirements and provide them with awareness of the capabilities and the labor offer to meet their demand, the latter being a measurement for the success of the university.

When POLIMI engages in such activities, it becomes participant in influencing the internal employment process of enterprises. It solves any potential issues caused by misinformation and ensures an adequate supply for the specific demand of key partners.

It is a known issue for the management of the university that some partners that are actively recruiting in the labor market refuse to provide an input to design the bachelor figure as their hiring process is limited to master degree graduates. Stating that not because actors inside the university or state understand and acknowledge that the different degrees are desirable for certain roles, does it mean that the labor market recognize the same difference and the market self-adjusts when knowledge is provided.

The cultural inertia in Italy that seems to push the bachelor degree out of competitiveness, if partners of a university refuse to hire bachelor graduates, what can be expected from the rest of the national market? (this will be addressed more deeply in the labor market section of the POLIMI analysis).

POLIMI is also planning to provide Bachelor students with additional competences known as soft-skills (AlmaLaurea) to help them be qualified to join the labor market. It is believed that often qualified students with developed soft-skills are more likely to find jobs.

*Soft-Skills are important personal competences for any given job, that in some way influence the way we deal with the demands of the working environment. Some of these skills are; adaptability, attention to details, autonomy, flexibility, planning capacity, precision, self-confidence, stress resistance, et al.* (AlmaLaurea)

Commented [GV6]: Is this a quotation?

The organizational changes engaged by the university, are not related to the reform in terms of content of the policy. When separating the enrollment and graduation process, from the design and management of the areas, we notice that the management has not change in terms of the new division of the new degree.

#### 4.1.1.1 The interview with the coordinator:

In the years following the implementation of the reform, there was not a differentiation of the product, the bachelor and the master were managed as a single degree, but in recent years, the POLIMI has introduced entities responsible for providing support to each of the degree programs.

From the point of view of the Academic Staff, there is not a real differentiation, professors that are assigned to give courses to a master program may also be assigning to give courses in a bachelor program, the selection of the professor is in base of the competences of the professors, meaning that the professor that is consider having the best qualifications for a given course is assign to it, regardless of the degree.

From the point of view of the services provided to the students there is no difference, the same services are available to both degrees. But because there is an international population that speaks only English, the division in the supporting services for the student is base of the language. There is a team assign to provide supporting to the English speakers and there is another team assign to provide the same services to Italian speakers.

The changes incurred by the POLIMI were made in concern to the evolution of the departments, not so much in terms of the reforms like the policy to enforce the English

language on the master. Although there is have been regional policy attempts to incentivize the development of study plans in English, the government allows for the universities and professors to perform their activities in their mother tongue, in this case Italian. Thus, it was the management of the POLIMI that decided to take engage in the mandatory English language for masters, while allowing the professors the freedom to teach in their mother tongue in the bachelor.

The purpose for enforcing this policy, was to attempt to lure the international student community outside the Erasmus groups, providing the national student community an international experience in their master degree, and satisfying the international requirements of the labor market.

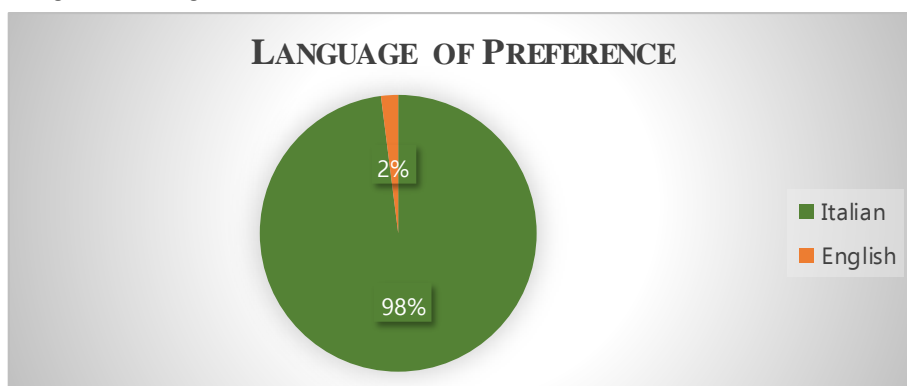
POLIMI has followed two main policies, the first includes the separation between master and bachelor and the second the English as official language for masters. The separation of master and bachelor are independent to the implementation of the English language, but it is an enabler policy. Without the differentiation between a master and bachelor degree the program design and introduction attraction of international students would not have been possible, however the reasons for the implementation of the separation of the degree are different.

POLIMI tries to obtain value from the degrees it offers, by having communication with key partners in the labor market, POLIMI can orient the design of programs to fit the market needs. The reason for the implementation of the English language as mandatory for the master, is a result of the analysis of such needs.

#### 4.1.2 The Students:

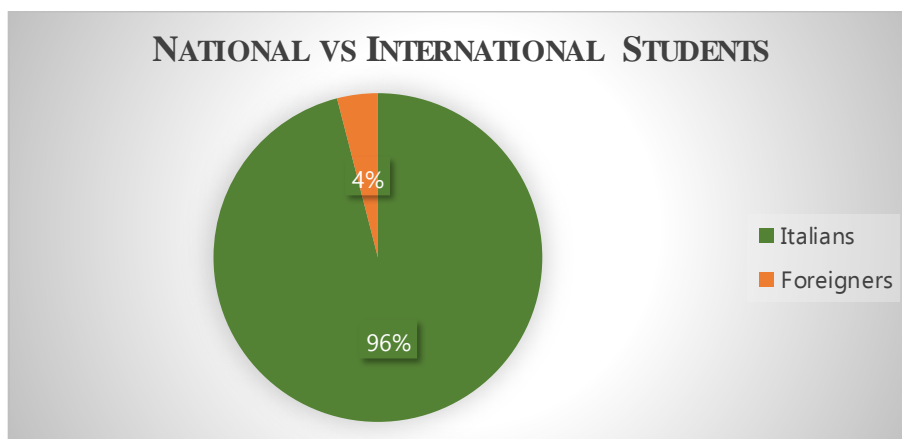
##### 4.1.2.1 POLIMI BACHELOR STUDENT SURVEY.

The bachelor degree in POLIMI is in current going through design changes as explained in the previous section. The courses are given in Italian, but international programs of transfer and international students are available, however certain organisms of the POLIMI have not been designed to manage the Bachelor level such as the career service.

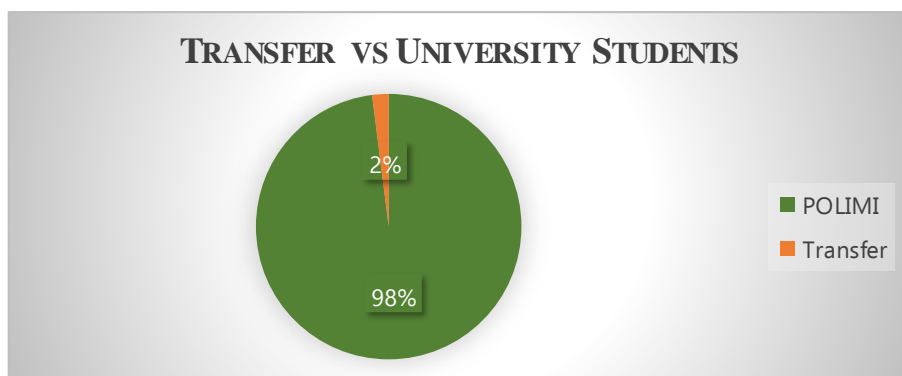


The section of the language of preference in this case is inconsequential because courses are given only in Italian, although we did find a small portion of the population that speaks fluently English, the language barrier is not present until the master level. Still, it is worth mentioning that an 8% of the students surveyed preferred to do the survey in English. Considering that only 4% of the population represents the international community and that only 2% of the surveyed population was foreign which will be explained in the following graphics.

There the total population surveyed, only 4% were outsiders to the Italian education system, of which a 2% corresponds to students in transfer programs.

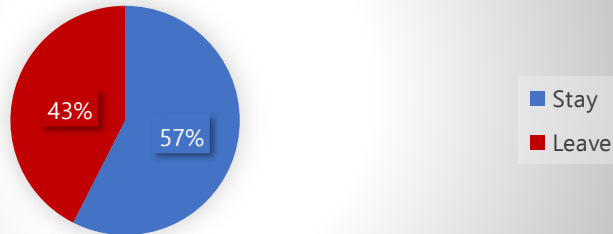


The survey reveals an overwhelming presence of nationals, and a minority of foreigners that because they are so few, statistics in bases of their sample cannot be performed, although it sends a signal that the same number of international students found in transfer programs were also fund through enrollment into the university.



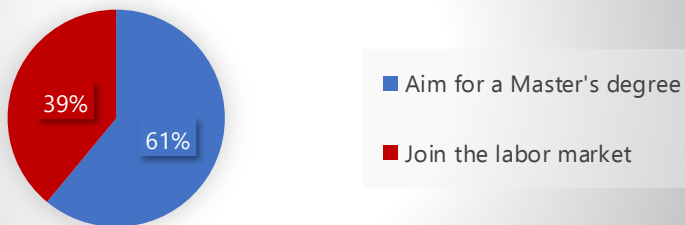
There is near half of the student community survey that are willing to leave the country, suggesting that they might be willing to continue their studies, if they so desire, outside Italy. This is an opportunity that is given to students through the EHEA and the Bologna process.

### WILLINGNESS TO STAY IN ITALY



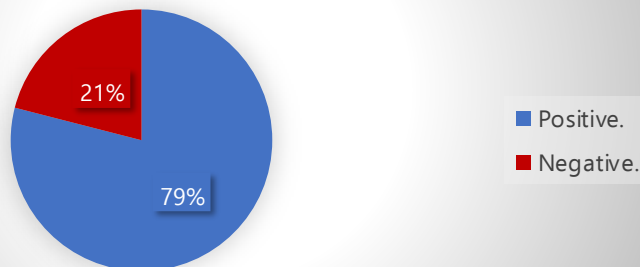
Which lead us to try to understand if the students are considering on joining the labor market or enrolling directly into the master. This is one of the key subjects of this research, as explained in section 3.1, the Bachelor degree in Italy was born with the EHEA and the Bologna process, so there is a strong cultural inertia for students to go into the master without joining the labor market.

### STUDENT POPULATION WILLING TO STUDY A MASTER WITHOUT PROFESSIONAL EXPERIENCE.

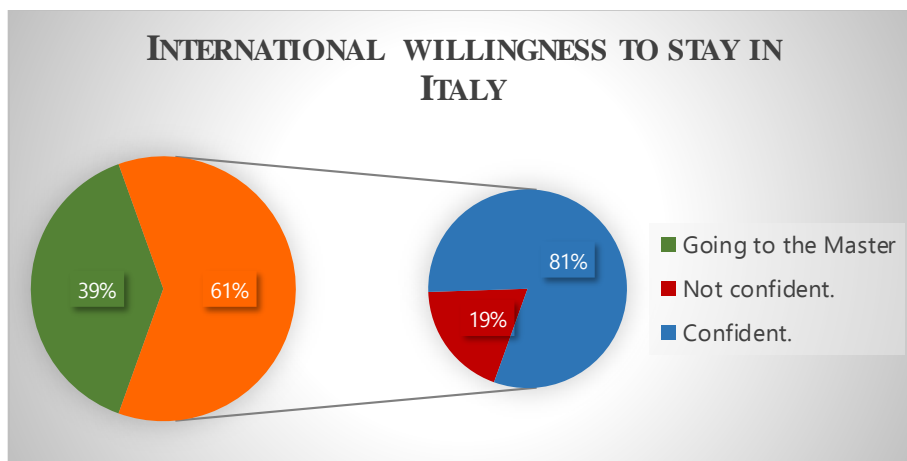


Going from the fact that this survey may only reveal the opinion of the Italian community, the percentage of students that want to join the labor is almost 1 out of 5, which is significantly low when compared to other countries, but significant when considering the evolution of the Italian education policy.

### PERCEPTION OF AN EFFECTIVE LABOR MARKET PREPARATION.



A significant majority (80%) of the student population believes that the POLIMI is giving them a proper education for joining the labor market. They consider that their investment on education within the POLIMI is well placed, however, since only 39% of the population is interested in looking for a job after successfully concluding the Bachelor degree, then we should take an interest on the perception of the quality of education that has the section of the population that will be looking for a job.

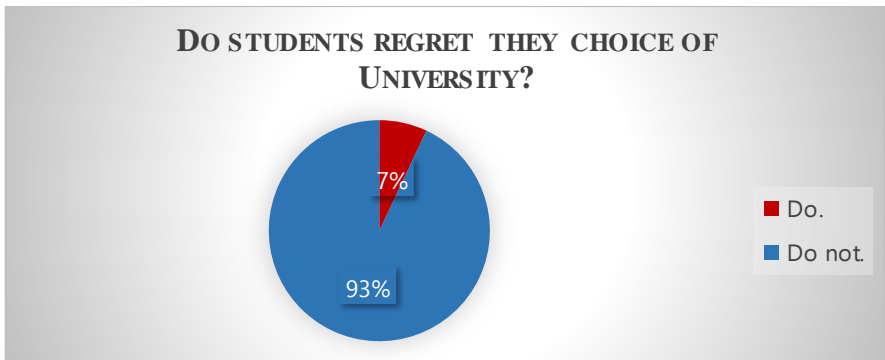


THE GRAPHIC ABOVE DISPLAYS THE CONFIDENCE IN THE POLIMI PREPARATION FOR THE LABOR MARKET HELD BY STUDENTS WHO WILL BE LOOKING FOR A JOB AFTER THE BACHELOR.

Though the value is similar enough to the general perception of the preparation provided by the POLIMI to join the labor is not significant enough to provide an additional input, it is important to remove from the data those students that provide their input on the bases of their expectations after they the master degree.

We are working under the assumptions that students that are self-selecting themselves in the master degree without considering joining the labor market, will provide an input from the expectations and that they held on what they consider the exit on their investment on education, meaning when they exit the educational system.

Though this research does not extend to consider the specific provinces or regions where the students originally came from, it is important that students now have a very broad series of options of universities to enroll, even without considering the international spectrum that is open with the EHEA and the Bologna process.

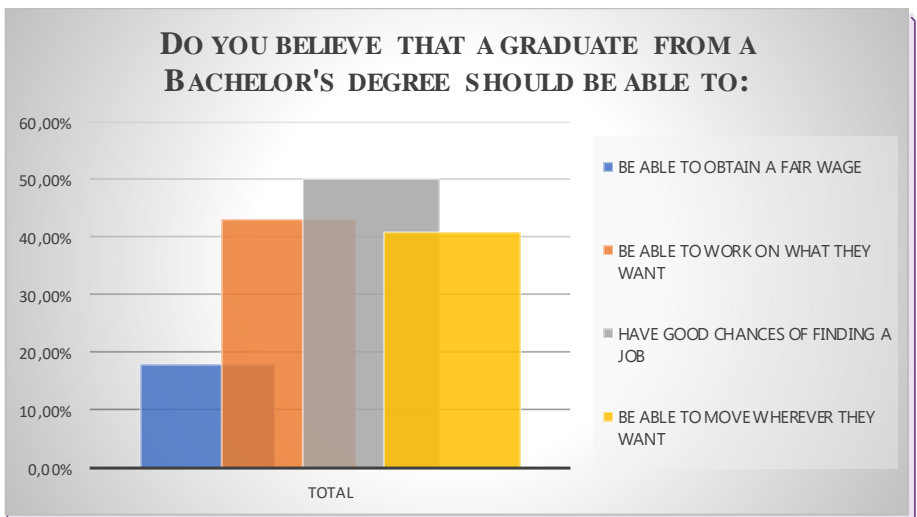


THE GRAPHIC ABOVE DISPLAYS THE PERCENTAGE OF STUDENTS THAT REGRET THEIR DECISION OF INVESTING ON POLIMI FOR THEIR BACHELOR DEGREE.

There is an absolute majority of students that believe they made the right choice when they enrolled into the POLIMI, though it is a subjective criterion, students feel that their time and resources are well spent in this university for the Bachelor degree.

The previous graphic concludes the first section of the surveys, displaying the general statistics of the surveyed population with previous professional experience that were used to find correlations and to compare in previous graphics.

As explained in section 1.2.3.2, the following section display the perceptions that are referred in the EQT as basic capabilities of the bachelor. The surveyed individuals should select those that they feel match their perceptions.



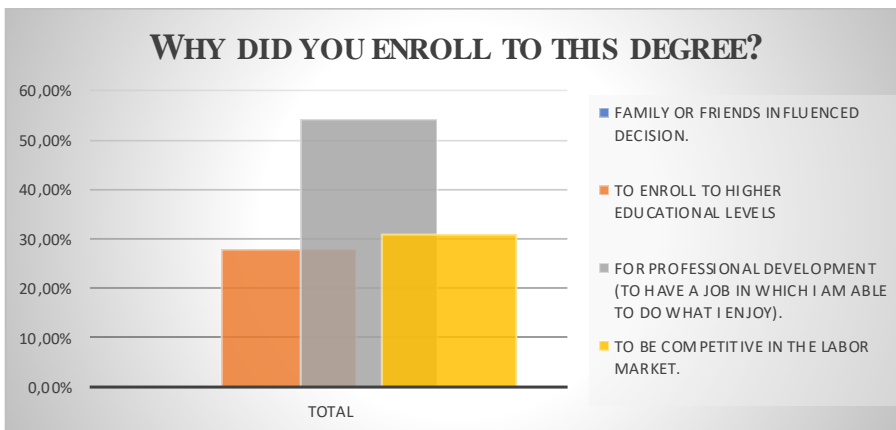
**Commented [u7]:** No, this table is about bachelor degree, I messed up the labels.

The most important part of the responses to this question is that the surveyed student population, believes that a Bachelor's graduate will obtain a fair wage in less percentage than any of the other options. Their perception of the bachelor degree is (7%) higher than any

**Commented [GV8]:** The graphic is about Master; you here a describing Bachelor. Is it correct?

other options the opportunity of getting a job. Thus, we can infer that students believe that it is more possible to get the job they want and even to move to the location they prefer than to get a fair wage on that job.

It is logical to assume that the reforms have tackled many obstacles for moving to study or even work outside lo local community, and that there are several options available to the students, but there has been little or no change to the labor market from their perspective, they believe that a bachelor is not enough to raise to high wages.



The graphic above attempts to identify the main reason why they engage into the study of a master, which is clearly shown to be identified with their professional development, which is in accordance to the previous graphic.

The reason why they enrolled into this degree is not congruent with the percentage of the population that is willing to go through a master without professional experience, unless we see the bachelor as means to an end.

If we see the bachelor as an independent step in the professional development of the students that must be fulfilled to reach the point in which students will decide to exit their investment on education. It is important highlight that from such point of view the perceptions that students have of the bachelor degree is that of a process that gives them value, and not simply a way into the next level.

The last question told us that the expected mean wage that bachelor students gave in this survey is 1.509,7 euros per month, this number is 3.2% bigger than the expected mean wage of graduates from the master degree.

*4.1.2.2 Comparison with Official data.*

Knowing that the POLIMI has only capacity for 70% percent of the bachelor population into the master, and that the master is where there is the must presence of foreign students, the 61% of students that desire to continue their studies until the master will face a competitive environment to continue their studies, but it is a plausible statement.

**Commented [u9]:** Several labels were wrong on the subtitles and the graphics, my apologies.



Of the remaining 39 percent of students that aim to joining the labor market, the data of the new employment survey perform by the POLIMI, indicates that 87.3% of the graduates find a job 6 month after the graduation, of which a 38.3% is already employed the day of the graduation. (POLIMI, 2017).

The AlmaLaurea research shows that up to 2011 wages from master and bachelor graduates in Italy were indistinguishable (refer to section 3.1.3). It is perhaps too soon to expect to see a significant difference between both degrees in terms of economical expectations, especially when it comes to the first job.

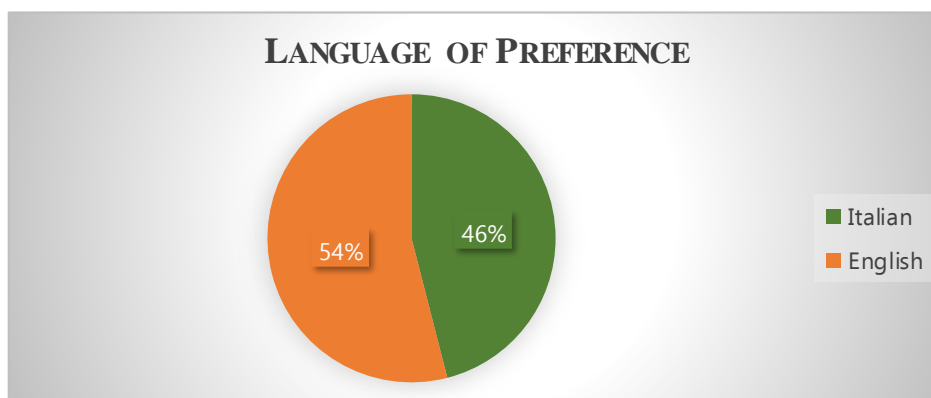
#### 4.1.2.3 POLIMI master student *survey*

**Commented [GV10]:** Remember, write always how many questionnaire/respondents are you analyzing

POLIMI has implemented a policy which the language of the master courses is mandatory in English. Students since 2014 have taken the courses and examinations in English, adding to the requirements of English proficiency for students looking to enroll into the POLIMI.

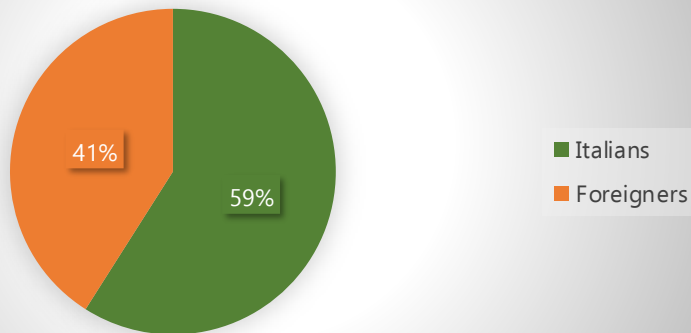
This policy is aimed to promote the international nature of the university newest policies an increase the proficiency in English of POLIMI of students. It is a policy that has been discussed and fought by students and academic staff alike (Coughlan, 2012).

This first question provides an input on the students that have adopted the language. The following graphic represents the language in which the surveys were answered, it is noticeable that there is a near a 50% division with a small tendency (4 %) towards English.



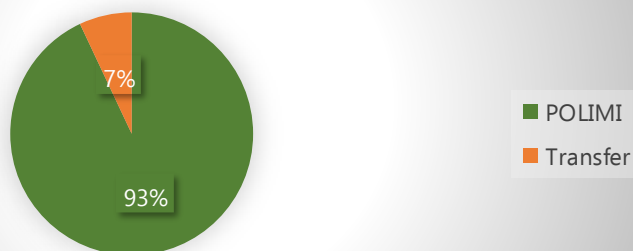
An important input from this data, is its relationship to the first question that can be seen in the next graphic. There is a 54% of the students surveyed that preferred to take the survey in English, and when 59% of the students are from the Italian educational system, it means that at least a 5% of Italian population surveyed preferred to answer in English since the form is offered in both languages.

## NATIONAL VS INTERNATIONAL STUDENTS



The surveys revealed that a significant population is foreign to the Italian educational system, though it was not originally intended, it is useful to provide comparable statistics between national and international students. It also reveals a positive outcome of the university openness and international policy,

## TRANSFER VS UNIVERSITY STUDENTS



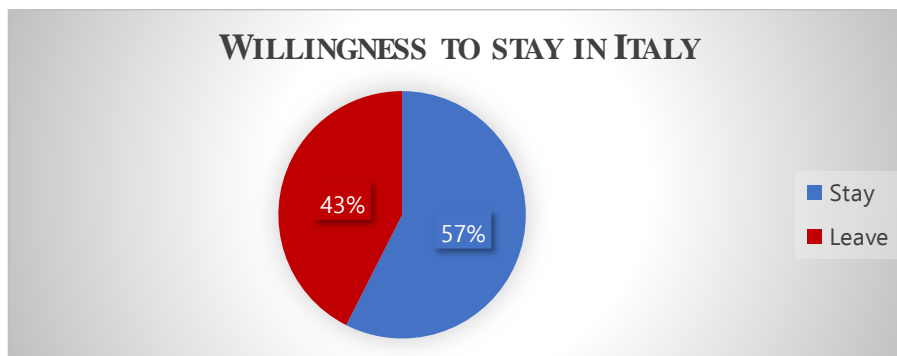
The surveys also revealed the presence of the transfer students that are in the institution temporally and will not finish their studies in the university. Because the sample of this is small, it becomes insufficient for an analysis their responses as a subgroup however, it allows us to visualize a symbolical outcome of the international exchange programs as a percentage of the total population, when compared with the international students that are enrolled for the whole duration of their studies. From a random sample of 100 students, 7 are in campus through transfers while 34 (41 international minus 7 from transfers) are enrolled in the university for the whole duration of the studies, which is almost 5 times larger. Thus, it becomes clear that foreign students are more prompt to enroll in POLIMI for the whole duration of their studies abroad than to participate in transfer programs such as Erasmus.

The environment in which it operates is critical for the outputs and perceptions of students about the university and vice versa. The experience and environment in the university is key

to define whether the students and graduates would rather stay in the country or leave. There is an Spanish saying that translated to English would say “*Everyone talks about the fair as they fared on it*” (Centro Virtual Cervantes, 2017), those who would like to stay in Italy are likely to have had a gratifying experience and those others, who would prefer to go elsewhere are likely to have had experiences that have not fulfilled their expectations.

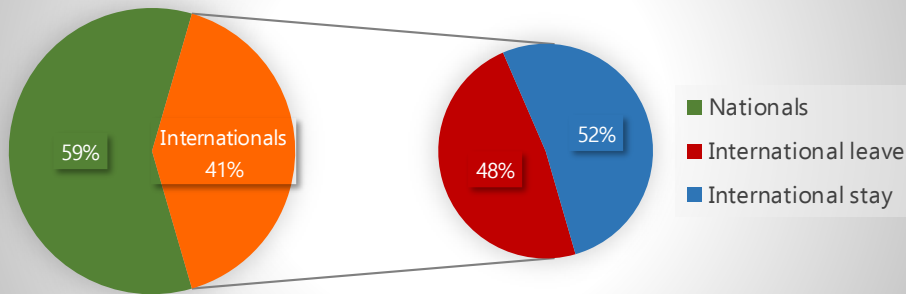
Italians have a better, arguably more informed and accurate understanding of the labor environment, live expectancy in their country, and probably a heritage that would make them less influential by the experience on the university. While foreign students are faced with homesickness and nostalgia which is likely to propel negative response towards staying in Italy.

The experience and perceptions of a country, from a foreign student’s perspective is mostly a consequence of their experience in the university, it is the experience with greater significance that is linked to its willingness to stay in the country.



The graphic on top shows the general results that includes the international and national students as a single group, in which we can see that a significant majority of students would prefer to stay in Italy. This is insufficient for analysis, as international and national students are very likely to have different opinions in the matter, so we have divided the population into foreign and nationals.

## INTERNATIONAL WILLINGNESS TO STAY IN ITALY



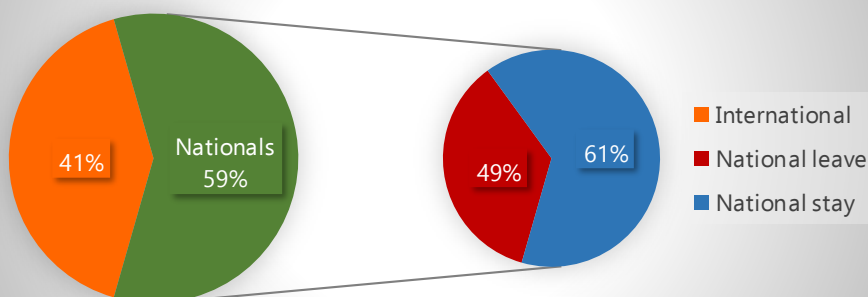
THE GRAPHIC ABOVE DISPLAYS THE WILLINGNESS OF INTERNATIONAL STUDENTS TO STAY IN ITALY, THE METHOD TO ASSIGN A NUMERICAL VALUE IS EXPLAINED FURTHER ON SECTION ONE.

The feedback received displays the average perception of students, which they do not display any significant preference towards staying or leaving.

We must consider that international students are engaging in an educational system different from theirs, a different culture and even language, and are likely to have incentives for returning to their home country.

Given that international students have incentives to return home, the signaling given by this survey suggest a positive feedback from the international community in the POLIMI.

## NATIONAL WILLINGNESS TO STAY IN ITALY

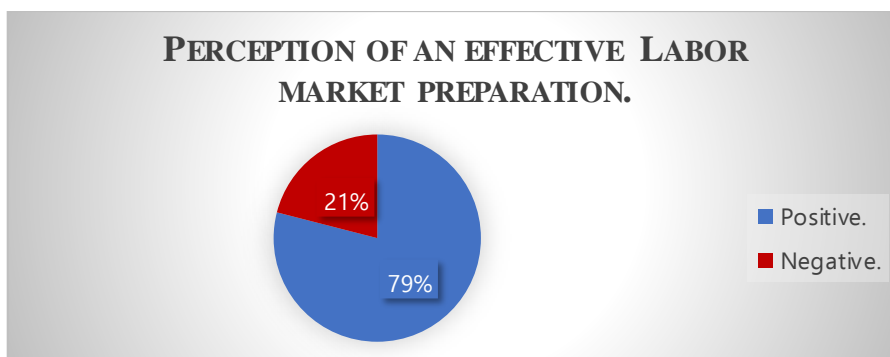


THE GRAPHIC ABOVE DISPLAYS THE WILLINGNESS OF NATIONAL STUDENTS TO STAY IN ITALY, THE METHOD TO ASSIGN A NUMERICAL VALUE IS EXPLAINED FURTHER ON SECTION ONE.

On the national side, students are significantly more interested in remaining in the country. This could be link their culture, family or even comfort in a status quo. Regardless of the reasons, the graphics provide specificity on the student experience and their perceptions of the national environment.

A 49% of student's willingness to leave Italy indicates, if nothing else, a basic need for students to be prepared for a global competitive labor market, highlighting the need for policies that challenge their capacities and promotes the development of skills and competences that would be needed outside the country.

The following graphic regards the perceptions of students, regarding specifically the preparation received in the university for the labor market, while we do investigate the forces that might affect their perception later in this chapter, this graphic highlight only the expectations that students have. Keep in mind that this question is made for the student to valuate his expectations of finding a job immediately after their graduation as consequences of their studies in the POLIMI.

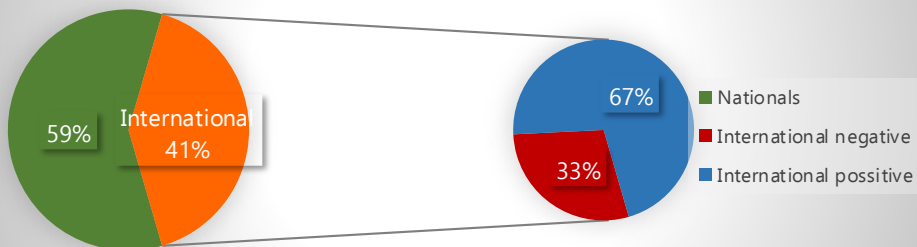


THE GRAPHIC ABOVE DISPLAYS THE PERCEPTION OF STUDENTS REGARDING THE LABOR MARKET, LINKED TO THE ROLE OF THE UNIVERSITY. THE METHOD TO ASSIGN A NUMERICAL VALUE IS EXPLAINED ON SECTION ONE.

The feedback is an outstanding positive result, only a 21% believe that their studies in POLIMI will not help them in their quest to join the labor market. Though this percentage is not ignorable it is expected, students are confident that graduating from POLIMI will help them find a job in the future, thus students believe that their investment on education is better served when it is invested on POLIMI.

We will need to breakdown this statistic as we previously did to verify if the perception is the same for both, national and international students. As previous data have shown, the international community is more skeptical about remaining in Italy and as we will later see in this section, it is also the part of the population that has had the most percentage of labor market experience.

**PERCEPTION OF AN EFFECTIVE LABOR MARKET PREPARATION.  
BY ORIGIN: INTERNATIONAL.**

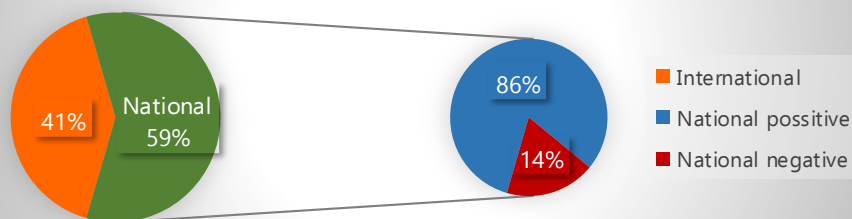


THE GRAPHIC ABOVE DISPLAYS THE PERCEPTION OF INTERNATIONAL STUDENTS REGARDING THE LABOR MARKET, LINKED TO THE ROLE OF THE UNIVERSITY. THE METHOD TO ASSIGN A NUMERICAL VALUE IS EXPLAINED ON SECTION ONE.

Though the valuation from the international community is between high and average, which is significantly lower to the valuation when the national community takes part in valuation, however, it is still positive, so the international community also values as a significant advantage to have placed their investment on education on POLIMI.

The data shown in the National graphic (bellow), shows an 86 percent approval rating, which would place it between the highest possible and a high ranking. This measurement clearly modifies the general statistics, but it shows that the Italian community has a much higher expectation on their return on the investment made in POLIMI.

**PERCEPTION OF AN EFFECTIVE LABOR MARKET PREPARATION.  
BY ORIGIN: NATIONAL.**



THE GRAPHIC ABOVE DISPLAYS THE PERCEPTION OF NATIONAL STUDENTS REGARDING THE LABOR MARKET, LINKED TO THE ROLE OF THE UNIVERSITY. THE METHOD TO ASSIGN A NUMERICAL VALUE IS EXPLAINED ON SECTION ONE.

For this data, we check for a second correlation (besides national and international). We take an interest on the perception of an effective labor market preparation from the students that have had previous working experience. This perception helps us appreciate the value given to the education provided from a more market-oriented perspective.



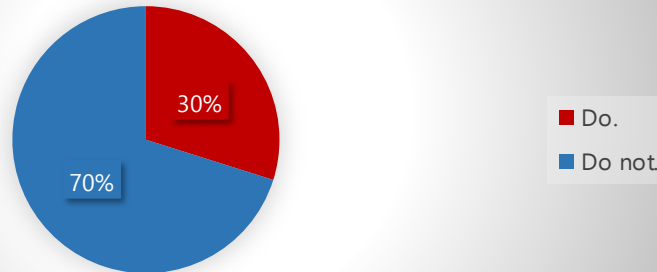
THE GRAPHIC ABOVE DISPLAYS THE PERCEPTION OF NATIONAL STUDENTS REGARDING THE LABOR MARKET, LINKED TO THE ROLE OF THE UNIVERSITY. THE METHOD TO ASSIGN A NUMERICAL VALUE IS EXPLAINED ON SECTION ONE.

The approval rating remained close to the high ratings, and in the middle of the national and international perception. This graphic reveal that the community with professional perceive a high professional usefulness for the knowledge acquired in the university.

If we use the statistics of the students with previous professional experience as an indicator to which compare the perception of the usefulness of skills and capabilities provided by the university, we arrive at the conclusion that international students undervalue the usefulness of the competences received by a 3% which is below the minimal 5% confidence level to become significant, although this is affected by the presence of a significant population of students with professional experience in the international section of the population. The national students on the other side overvalue the usefulness of the competences received by a 16, although being a significant difference, it is likely affected by the lack of population with professional experience.

The next graphic aims to answer if the students would make the same choice twice when it came down to choosing the university. It is a measurement of satisfaction of the students with the decision made, although the analysis several factors that may influence this level of satisfaction escape the scope of this research, it is useful to understand if the students surveyed believe they made the right choice when they chose POLIMI to invest on education. The results on this graphic should be closely correlated with the labor market perception, as economic reasons are later shown to be one of their biggest motivators for the surveyed population to enroll into a master degree.

## DO STUDENTS REGRET THEIR CHOICE OF UNIVERSITY?



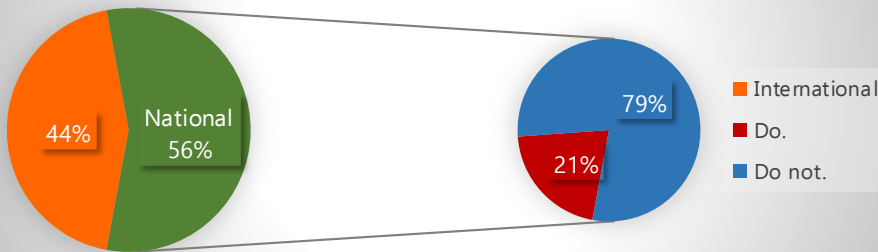
THE GRAPHIC ABOVE DISPLAYS THE PERCENTAGE OF STUDENTS THAT SELECTED THEY WOULD CHANGE TO ANOTHER SCHOOL IF POSSIBLE.

In general, 3 out of 10 students surveyed regret enrolling to POLIMI. Students may have this perception because they are struggling with school grades or because they are looking at different alternatives that they may not have valued before, there are also conflict of expectations versus reality, etc. The reasons could be as many as the number of individuals surveyed and for this reason, there could be many causations for explaining their perception, however, the linkages with the perception of the labor market preparation is undeniably tight as they are both near high but in the range between high and average (highest, high, average, low and lowest are measurements based on the valuation given by the surveyed population, for more details please refer to section one of this research), deepening on the subject escapes the scope of this research.

The graphic only displays the perception of the student population surveyed, suggesting that a 70% percent of the student population are satisfied with the choice they made. To verify the causation and correlation with the labor market perception of the students we proceed to device the student population as previously made, separating national, international and students with professional experience.



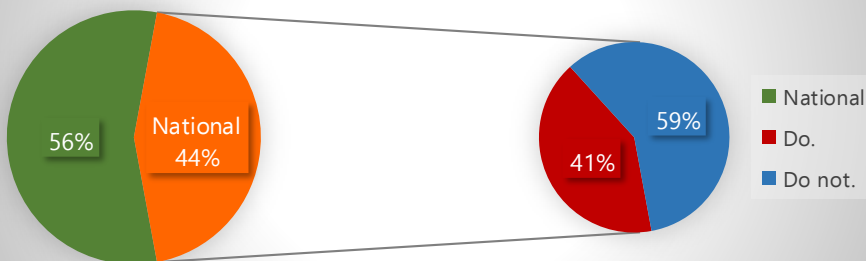
**DO STUDENTS REGRET THEY CHOICE OF UNIVERSITY?  
BY ORIGIN: NATIONAL.**



The graphic above displays the percentage of national students that selected they would change to a nother school if possible.

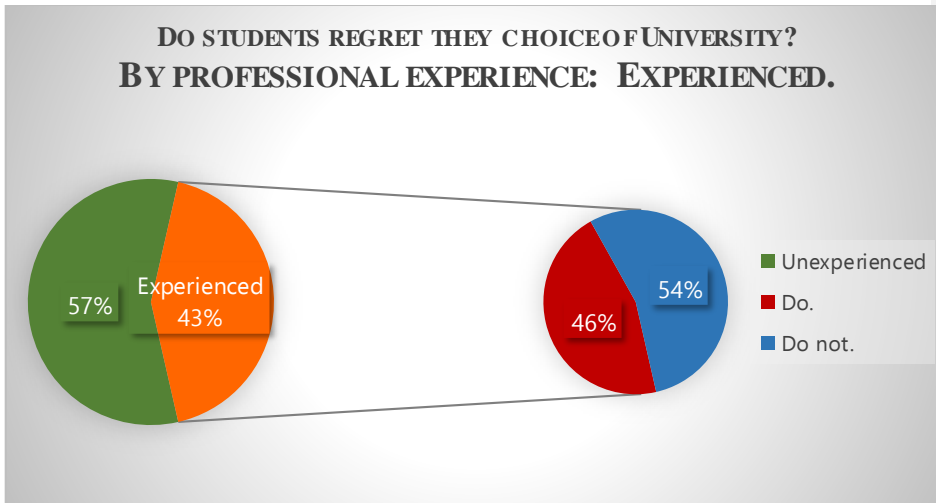
Because of the importance of the international policies of POLIMI, the following graphic is important to understand the international community perception of students as for their university choice however, keep in mind that international students had a broader range of universities since they passed through every kind of barrier that prevents the national community from leaving the country, while national students for any given reason are inside their own community and did not pass through these barriers, having as base the theory that the more alternatives an individual has, the easier it is to regret from the path chosen.

**DO STUDENTS REGRET THEY CHOICE OF UNIVERSITY?  
BY ORIGIN: INTERNATIONAL.**



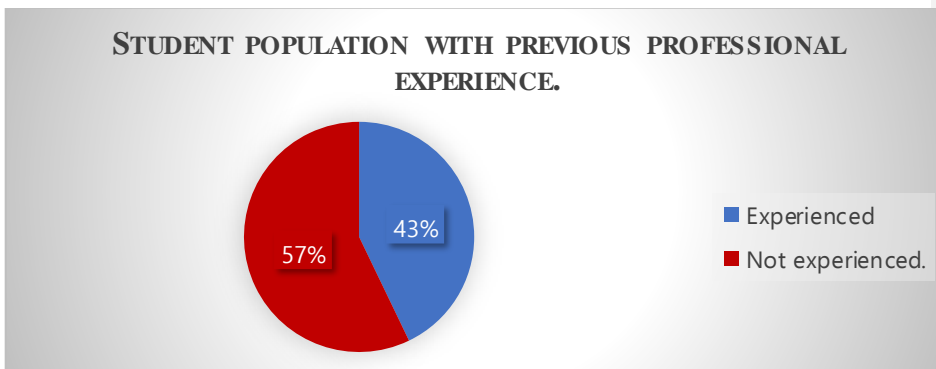
The graphic above displays the percentage of international students that selected they would change to a nother school if possible.

Regardless of their reasons, 2 out of 5 international students have regrets about choosing POLIMI as their investment on education for a master degree, compared with the national population that of 1 out of each 4 students, the international is almost twice as large. If we are to consider the perception of students that were previously active in the labor market, the percentage of regret increases even beyond the international percentage.



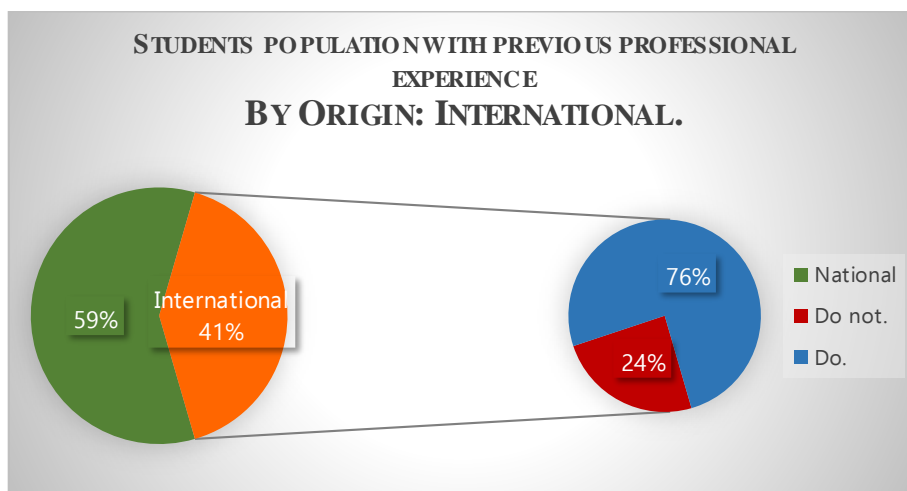
The graphic above displays the percentage of students with professional experience that selected they would change to another school if possible.

Although the student community with previous professional experience seems to appreciate more the skills and competences obtain in the university, they also seem to regret in a larger percentage the choice of POLIMI as their university, which lead us to consider the opportunity costs of being in the labor market against the expected return on the investment on education.



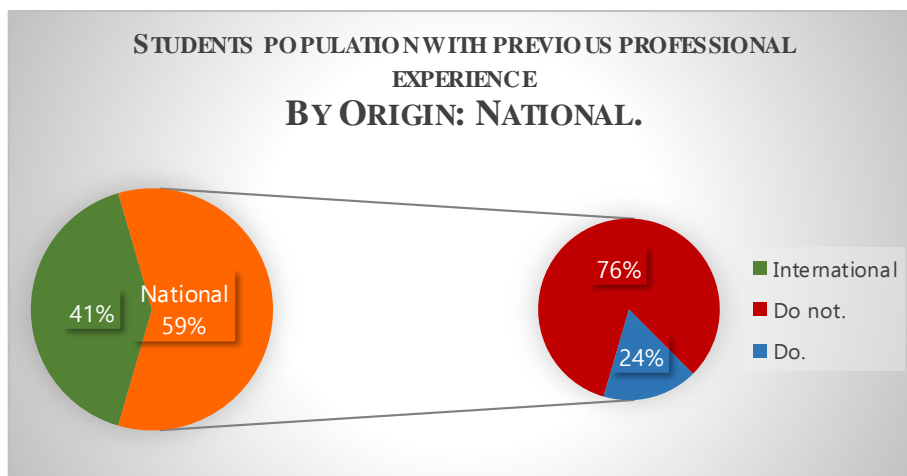
The graphic above displays the percentage of students with professional experience that selected they would change to another school if possible.

The previous graphic concludes the first section of the surveys, displaying the general statistics of the surveyed population with previous professional experience that were used to find correlations and to compare in previous graphics.



The graphic above displays the percentage of international students with professional experience.

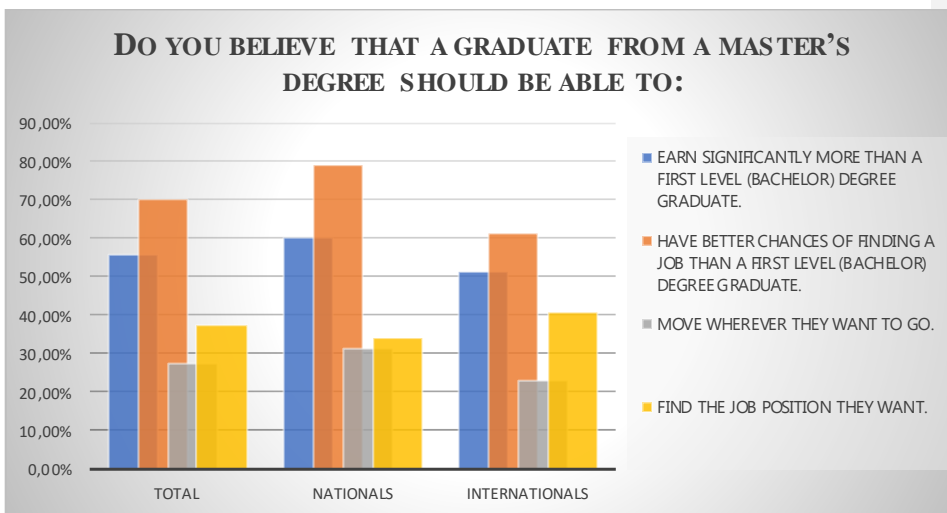
It is clear by looking at the Student population with previous professional experience separated by origin, that the international population has had significantly more experience within the labor market than the national population.



The graphic above displays the percentage of national students with professional experience.

This second section of the surveys are in more explicit, the questions are more obvious, and the results are visible. The graphics are divided by origin and provide a percentage of the population that belongs to each group.

As explained in section 1.2.3.2, all the answers in this section are correct, there is no reason why students should believe that any of the propositions bellow are not accurate, although some are less evident or less appealing through the eyes of a student. It is important to highlight that in case of Italy the unemployment on tertiary level graduates is not as significant as it is Spain to discard any of the statements as explained in section 3.

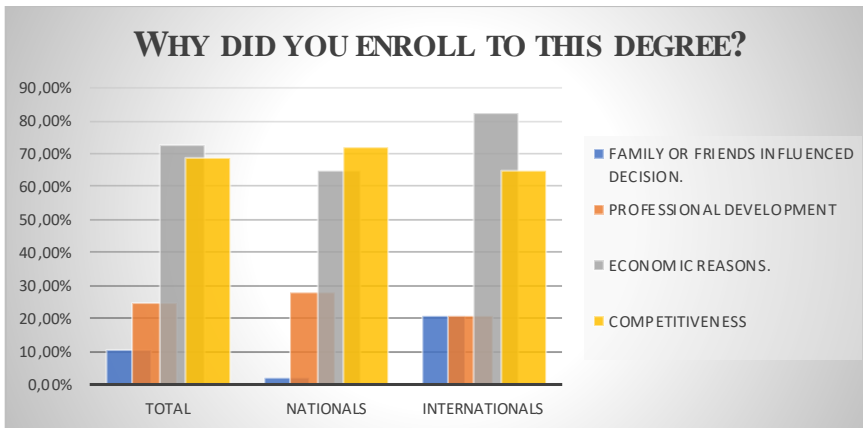


The charts show a clear prioritization in the minds of the students suggesting their reasons for enrolling in a master. Regardless of the origin they believe that a master will increase their chances of finding a job. More than half of the students also believe that a master will help them earn more.

The job position and location seem to be less important in general to them, rounded to a 60 percent of students do not believe that a master degree graduate has the ability chose what they will work on. In the later chapters, we will analyze this concept more deeply with references to the labor market and school academic staff, but at first sight it is a concerning subject that POLIMI students don't believe they can chose what they will work on, they are only concerned on getting a job.

Last but not least, students do not believe that they can chose the "WHERE" they will work, keep in mind that one of the objective of the Bologna Accords is to allow graduates from European Countries to move around the European nations for their studies and their latter occupation, though more than 70% (in average) of the students do not believe this to be a reality.

The next graphic aims to provide an input on basic drivers of the student community to study a master.



We notice a difference between the nationals and the internationals. Nationals have as primary motivator the market competitiveness of the master with 6.97% difference from the second largest reason, though this correlates with the information obtained at the Italian domestic level suggesting that Italian students don't feel capable of joining the labor market until the master has been completed.

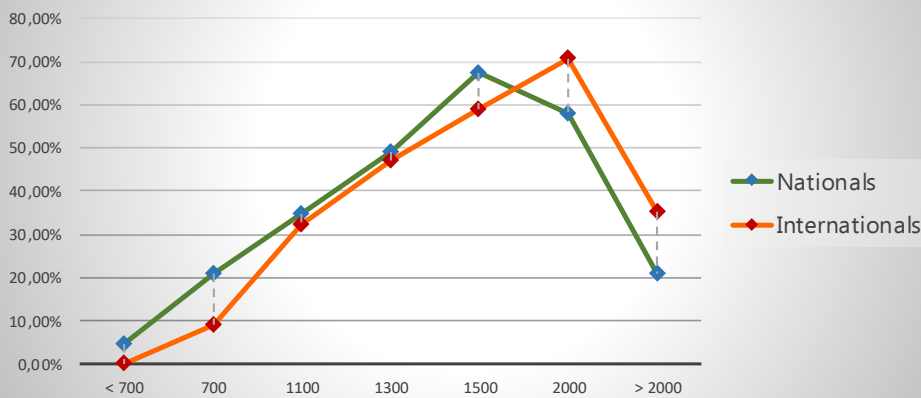
On the other side internationals believe, that the first motivator is the increase earnings because of their investment on education, this is given a high importance by the national community as well but there is a 17.23 % difference between the importance given by the internationals when compared with the national that cannot be ignored.

Though quite tragic, there is little interest from either community on studying a master to reach professional development, there seems to be a disconnection in the cause-effect relationships on the student's development of their professional live and how it is can be rendered profitable and competitive.

Results to suggest that the influence of family or friends is a not significant in the Italian population at master level, this option was put in place to determine the strength of the cultural inertia in the student Italian student population, it is a more significant factor in the international student community that will not be studied further.

The last statistic provided by the survey is the expectation of profit after the conclusion of the studies, it is meant to create a range in between which the students would be able to identify their expectations for monthly incomes.

### EXPECTANCY OF EARNINGS AFTER GRADUATION? (€/MONTH)



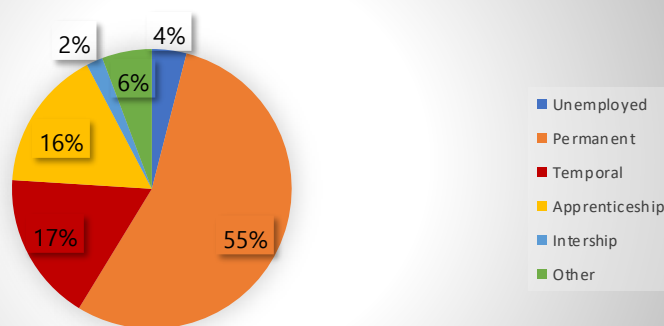
A clear majority of either group found between 1500 and 2000 euros per month. An important highlight is that nationals have a larger tail when it comes to lower incomes, international students expect to earn slightly more in average than the national students.

This last input displays a higher expected income than that suggested in the AlmaLaurea research, suggesting that students might be expecting a slightly higher income than the average mastergraduate.

#### 4.1.2.4 Comparison with Official data.

POLIMI publishes general results that we can use to compare the data from the survey on the Career Service site (Career Service, 2017). We have obtained the results from all engineering's and created an average to compare the data from our survey.

### EMPLOYMENT RATE



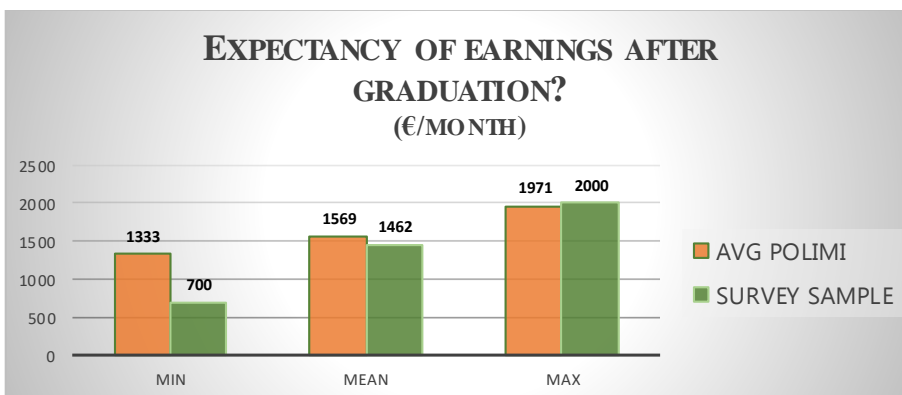
The graphic above displays mean of the statistics between all engineering programs provided by the POLIMI career service. (Career Service, 2017)

Out of 2.933 students graduated in 2014, 2.173 were surveyed in 2017 (74%). POLIMI displays in engineering a 96% of success rate in introducing master degree graduates into the labor market, though it cannot be directly compared to any of our measurements, we can state that the high positive response to the perception of an effective labor market preparation from the POLIMI which stands at 76% is well earned.

However, only 55% have managed to obtain permanent jobs and a 18% is going through an apprenticeship or internship program. According to what was stated at the end of section 3.1.3, we see that graduates from 3 years ago continue in stage programs, this is an abnormality that can only be found when graduates have not been able to join the labor market. So too does an apprenticeship mean that the enterprise does not consider the candidate ready for the labor market. When these facts are considered, we can observe that only a 78% of the population surveyed by the university has been successful in joining the labor market, which is closely related to the 76% of the perception of the students with a 2% margin of error which is below the usual significance level of 5%.

One of the important parts of the reforms, the process of Bologna and of the EHEA is the openness of the international labor market. We see in the survey performed by us to the student community that a 43% of the general population is willing to leave the country. Italian newspaper has declared that 61.1% of the youth is ready and willing to be transferred to foreign countries (Repubblica, 2015). However, the statistics from AlmaLaurea show that only 5% of the employed post-reform graduates in Italy are working abroad (as explained in section 3.1.3) and the statistics The POLIMI survey shows that only 7.5% of graduates of engineering are working abroad, which is 2.5% larger than the national average, although it is not significant enough to pass our significance level, it does suggest a successful introduction of students into the international labor market.

Therefore, we have to keep two things in mind, first that the statistics from the POLIMI are exclusive of its student and do not reflect the national, and second, the willingness is not representative of the outcome. This suggests that the data in our survey may accurately portray the willingness of the with an 18.1 range of error from the national statistic but is not significant to the actual outcome.



The last piece of information that we can use to compare our data, is the average earnings of the POLIMI survey. Though the Min and Max numbers on the survey we perform are artificial since options were given to students to choose from for simplification their choice, the mean is 6.8% different from the data provided by the POLIMI, suggesting a 2% margin of error above the confidence level.

We also need to take the information of the earnings of the graduates in their local context. Using the NUMBEO© database, of 282 contributors (Numbeo, 2017), the average monthly net salary of a person in Milan is 1,542. Only 27 euros lower than the average of the POLIMI master graduates, 3 years from graduation.

According to the OECD the average GDP per capita in Italy is 33,621 euro per year, which would be 1920 monthly net euros, which is almost 19% higher than the POLIMI graduate earnings 3 years from graduation.



## 4.2 UNIVERSITAT POLITÈCNICA DE CATALUNYA

The UPC is the Catalan acronym for Polytechnic University of Catalonia. Founded in 1971 as the Polytechnic University of Barcelona, after the technical research institutions in the region consolidated in a single institution. The UPC was founded one year after the General Law of Education and the Educative reform of the Financing in 1970. These reforms were the first attempt in the Spanish education to reform the management of education from a centralized government held during the dictatorship of Francisco Franco to a local autonomous system.

The university is relative young and has been recognized as the best Polytechnic University of Spain and the number 77 in the ranking of engineering and technologies universities across the world by the QS World University.

The university is the best performing public Polytechnic University performing in the economic hearth of Spain, which makes it the best match of comparison for the POLIMI in Spain.

### 4.2.1 The Academic Staff.

The UPC holds 7 campuses across Catalonia, from Manresa, Igualada and Vilanova I la Geltrú to Barcelona. The courses are separated by areas of research and by level. The management of the masters is completely detaching in every scene from the bachelor. Master coordinators are assign per course and not by area, the bachelor does not have a unique identifiable coordinator, but a complex of management that is assign to each area.

The UPC offers a broad range of 12 bachelor areas, each with an average of careers to choose from, some of which are offered in English language. The UPC also offers 13 areas with an average of 6 careers per area, each with an identifiable coordinator.

Each career plan is designed independently from others, some careers may only be available in English while others may only be available in the official local language.

#### *4.2.1.1 Interview with the coordinator.*

From an interview with professor Vicenç Fernández Alarcón, academic coordinator of the Master in Technology and Engineering Management of the Polytechnic of Catalonia (UPC), we've an input on how the master is developed and the perceptions that it has from the academic staff.

From the first minutes of this interview we learn something new. Even though the reforms are enforced by the European Commission, they are a foreseeable change in the international trend as the UPC was already engaging in some of the changes included in the reforms, while not mandatory, the management of universities should be preparing themselves for changes that are foreseeable in the future.

However, when face with what gives the UPC a competitive advantage in the international environment, two subjects appear, the location of the university and the competitiveness of the academic staff. Though in this section we focus only on gathering data, we need to separate what is useful for the analysis and what is not. There is the proposition, that a

universities in touristic places, with warm weather are prompt to receive more students, this proposition is not convincing as the evidence points otherwise. Data from the student section of both, the Italian and Spanish analysis suggests that students move to countries they perceive to be more developed. The UK, Germany, the Netherlands and France are above warm Mediterranean countries in both cases. Although the appeal of a touristic destination is a welcome sight for international mobility, it is not a characteristic that can be confirmed by the data nor does it propose a subject for analysis of University management, the competitiveness of the academic staff on the other hand is.

Competitiveness of the academic staff is a deterministic characteristic of worldwide known universities, universities like Harvard own such prestige due to the renowned quality of their staff (Medina Giopp, s.d.). The UPC uses an external agency to evaluate the professors before they are assumed, ensuring that it is through the merits that professors are assigned to their research and teaching activities. This change though foreseeable, was not implemented until after the Bologna process had started in Spain.

In Spain, the educational system has relatively changed very little with the accords, unlike Italy. The courses have the same duration as they previously did, Masters are detached from the bachelor meaning that students are able to enroll to whichever master after the bachelor, and the bachelor keeps being their basic choice as exit point on the investment on education, even though there are more than 200 masters, only about a 7.5% of bachelor graduates enroll to the master (Students enrolled to the first level degree and master, Spain, domestic level analysis). The bachelor in Spain last approximately 4 years and provide 240 ECTS, it is considered generic but conclusive in its nature, and to be detached from the master in subjects of study and management.

The master is shorter in Spain, usually with a duration of 1 year and 60 ECTS but depending on the career it can last up to 2 years and 120 ECTS. It is considered as a deepening in the specificity of the subjects, and necessary for professional growth.

The UPC has a unique particularity, because of the culture of the region, because both Spanish and Catalan are official languages in the university, professors have the freedom to use whichever language they prefer, giving an incentive for mobility students of Spanish speaking languages (Spain itself included) not to enroll in this university. Although the UPC provide courses in English where the language is forcibly in English, most of the classes are still given in the official local language. This policy provides a valuable input, as it is opposed to the POLIMI policy of only English courses, what universities do with this policy determines the targeted population of its educational activities.

The pace of the Bologna process is taking its toll on the Spanish educational system, with a bachelor that last longer and masters that are shorter than the average, the university and country are reevaluating their system, with a trend towards shorting the bachelor and prolonging the master.

To conclude this academic point of view, the consequences and efficiency of these policies will be measured on the actions taken by the individual universities and their ability of profiting from such policies. Universities that have a positive response to their policy will have

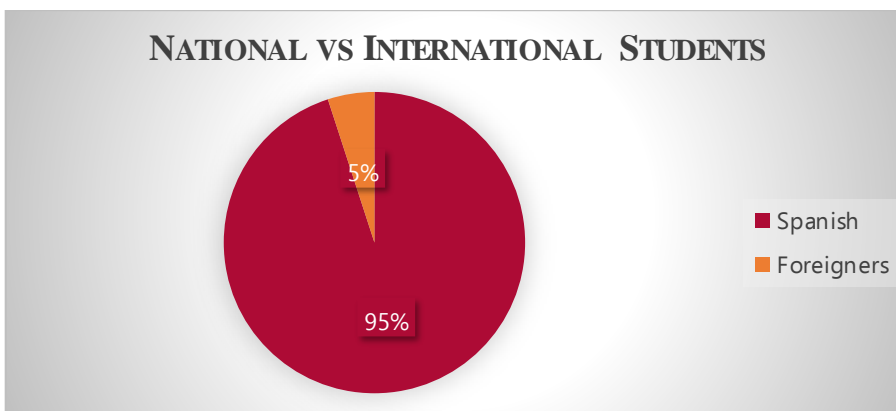
an advantage in the market and the educational system throughout Europe will adapt by mimicking their success.

As mentioned in section 3.2. In Spain and the UPC, the bachelor is the default exit on investment on education, country wise, only 7% of the population is enroll to a master, which is why the section of the analysis is larger for the bachelor section in Spain than in Italy.

The forms delivered to students in Barcelona for the bachelor were all filled in Spanish regardless of them being available in English. Only in the master do we find forms filled in English (for more information about the details of the survey, please check section 1.2.3). Regardless of the language, there as a small number of international students found in the survey.

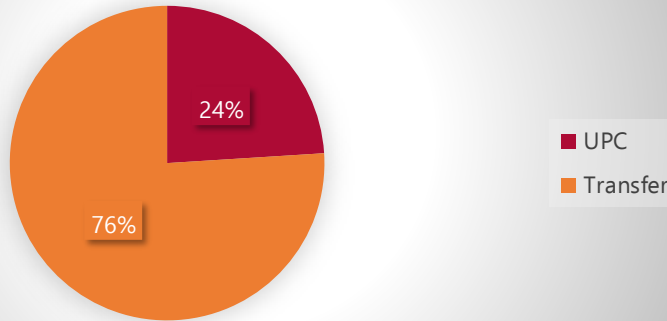
#### 4.1.2 The Students:

##### 4.2.2.1 UPC BACHELOR STUDENT SURVEY.



Because this sample of foreign students is too small, no deep analysis of the data can be made. It is worth mentioning, that even though 95% of students are from the Spanish educational system, a significant amount come from other parts of Spain. The percentage of transfer students is 20% higher than the international, revealing the presence of a significant Spanish population that comes from outside Catalunya in the UPC.

## TRANSFER VS UNIVERSITY STUDENTS

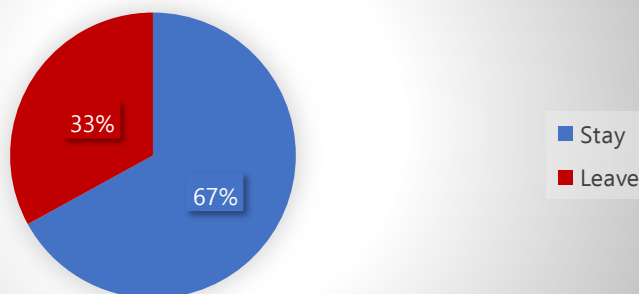


This distinction in POLIMI is omitted as the study of the region of origin of the students provide no relevant data for the research. In the case of the UPC it is significant for the topic of the language barrier. Where POLIMI has only one official language, Italian, the UPC has Catalan and Spanish. Professors are not required to organize or give the courses in a specific language. They are free to do it, as long as it is in either Spanish or Catalan.

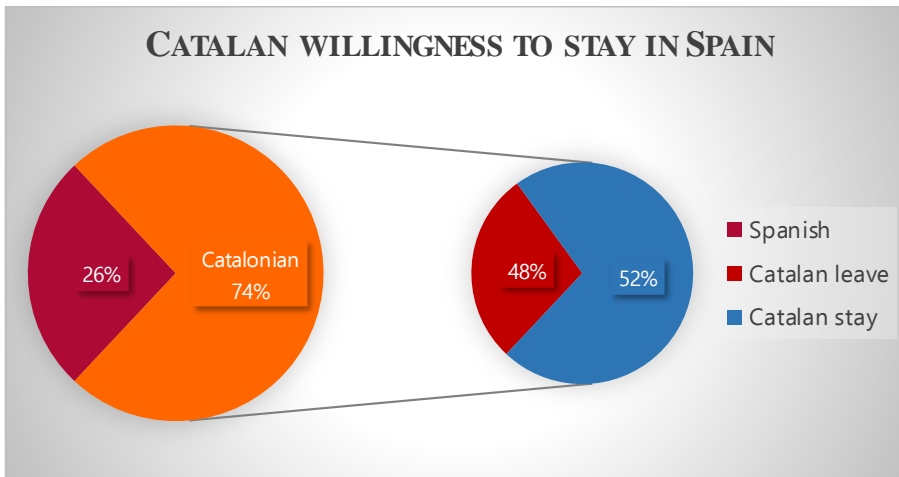
This is a subject of analysis as Catalan is a language that is spoken only in the region of Catalonia, like Italian that is only spoken in Italy. Thus, the number of students that could enroll to the university is limited by the available pool of the population that speaks the language, opposite to the all English master policy in POLIMI which opens the enrollment process to a larger population pool. Regardless of the language barrier, there is  $\frac{1}{4}$  of the surveyed population from other regions of Spain. Because of this, we can analyze two groups in the population separately and attempt to find correlations for in the responses.

Starting from the willingness to stay in Spain. We see that the population surveyed is more willing to stay in Spain than in Italy, the average stands in a 67 percent when the percentage in POLIMI was around 57%.

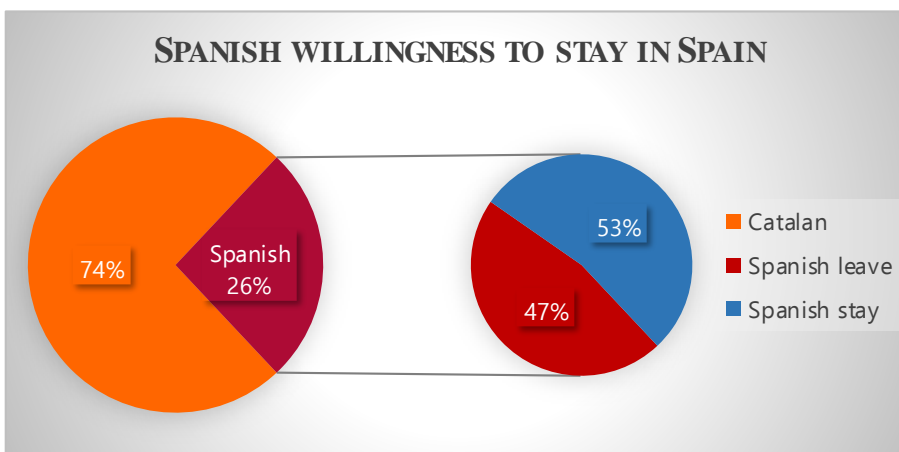
## WILLINGNESS TO STAY IN SPAIN



When we look at the Catalonia students we see an increase of 5% in average, but since the Catalan population is about 74% of the surveyed, the general graphic is strongly influenced by the Catalan population.

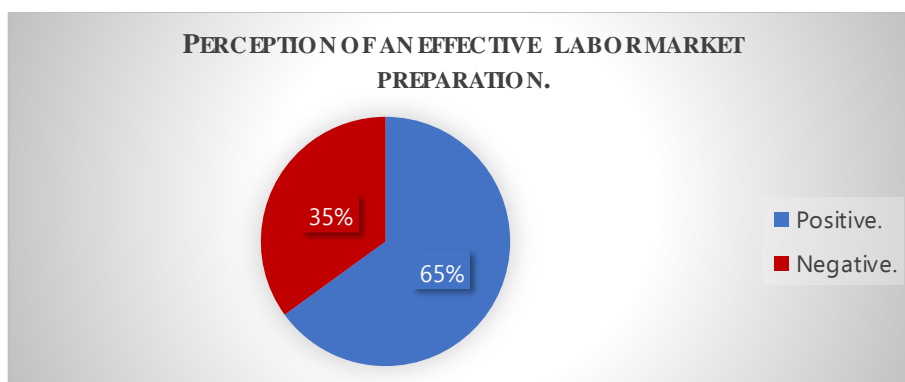


The two subgroups, appear with a tag that was selected for the simplicity of the identification. The first is called “Catalan”, and as previously mentioned, it refers to students of the UPC surveyed that are neither in a transfer program nor international, suggesting that they most likely have their origins in the region of Catalonia. The second group is Spanish, and although Catalonia is part of Spain, this label refers to all the students surveyed that are Spanish but are in the UPC either in a transfer program. Because they identify as Spanish students but are not enrolled for the whole duration of the studies, they can be identified as foreign to the region of Catalonia.



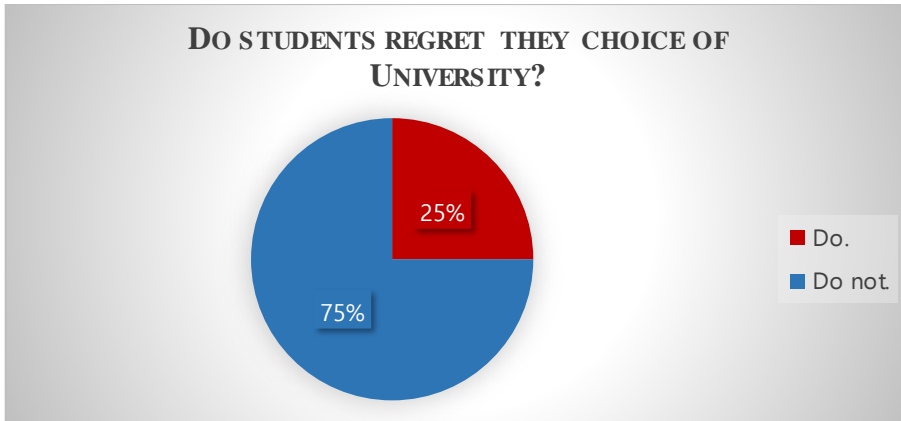
This is the lowest measurement of willingness to stay in the country in all the surveys. In section 4.1.2.3, we explain why this measurement is linked to the experience of the students within the university. In this section however, we add to the logical deduction process that lead us to believe this correlation, the fact that Catalonia is the economic core of Spain.

On section 4.2.1.1, Professor Vincenc Fernandez explained to us, that there is a touristic interest in Catalonia that drives students to the UPC, but we also analyzed how the student mobility is related to the countries with better economic performance. With these assumptions in mind, we should consider that the Spanish population influenced by both variables will have higher expectations and harder judgement on the experience and their expectations with in the country.

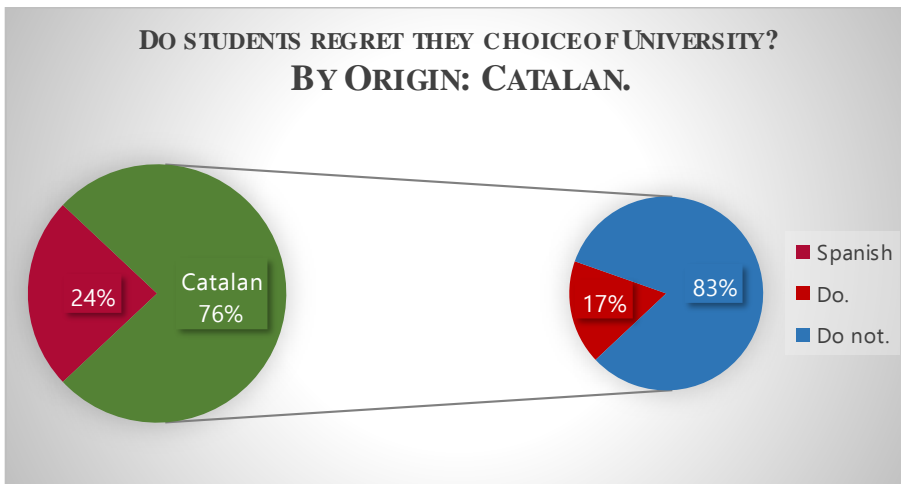


The student gave a positive review of the preparation they received for the labor market, though in the metric used, it is in the middle between a high (75%) and the average (50%). Keep in mind that, in general terms, bachelor students in Spain consider joining the labor market immediately after their graduation to be the right choice, opposite to Italians that prefer to keep their investment until after the master.

Because UPC students of bachelor level, are unlikely to have had professional experience relevant to their degree of studies, and it is not asked in the bachelor form, their perception is based purely on their expectations for their introduction into the labor market.



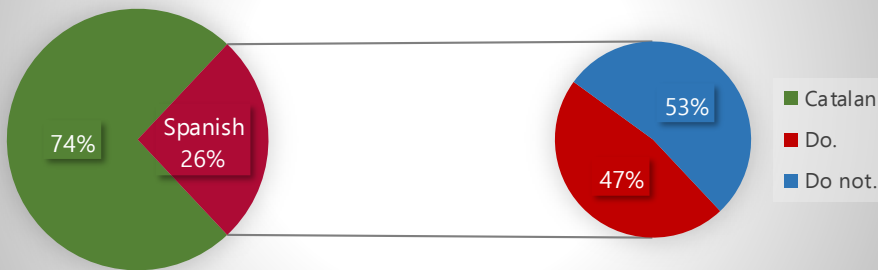
The percentage of students who would not change school, meaning that they do not regret their investment in UPC, is relatively similar to the results obtained for POLIMI. It reaches the definition of high acceptance for the university. However, we seek to find a correlation between the origin of the students, utilizing the subgroups previously used of Catalan and Spanish.



THE GRAPHIC ABOVE DISPLAYS THE PERCENTAGE OF STUDENTS SURVEYED WITHIN THE CATALAN SUBGROUP OF THE UPC SURVEY THAT INDICATED, THEY WOULD CHANGE TO ANOTHER SCHOOL IF POSSIBLE.

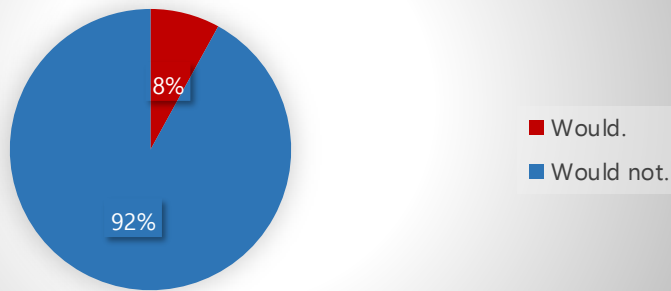
We can see that the students that are within Catalan subgroup are confident by almost 8% more than the average. The premise is that students that are from Catalonia are in the highest confidence in choice of investing in the UPC for a degree, which is comparable to the case in POLIMI (master, section 4.1.1.3) where Italian students display more confidence than international students.

**DO STUDENTS REGRET THEY CHOICE OF UNIVERSITY?  
BY ORIGIN: SPANISH.**



While the perception of the Catalan subgroup is high and positive, the perception of the Spanish subgroup is in the average, almost 1 out of 2 Spanish students regret their decision of university. The evaluation is not negative, it is with in the margin of average, although it points out that Spanish students have a low satisfaction level with their studies.

**WOULD STUDYA MASTER WITHOUT PROFESSIONAL EXPERIENCE?**

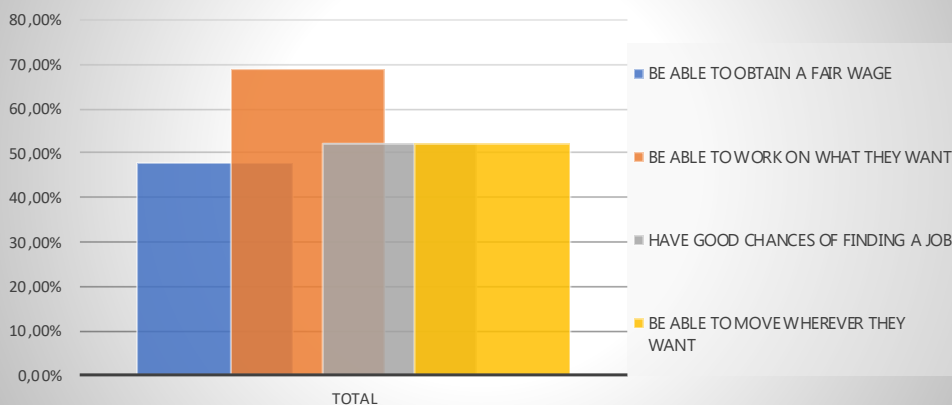


Students in UPC provided a response that is meaningful when compared to the results obtained in POLIMI. It is the absolute majority of students that want to join the labor market as soon as they graduate for the bachelor. They believe that the best moment for exit their investment on education is after the bachelor, not after the master, and so they want to do not consider the master a requirement. Dividing this data in the subgroup becomes unnecessary due to the absolute response obtained in the subject.

We now try to understand what is the process that guides the Spanish students to study a bachelor degree. The responses are relevant when taking in context the responses received in POLIMI, (refer to section 4.1.2.1)



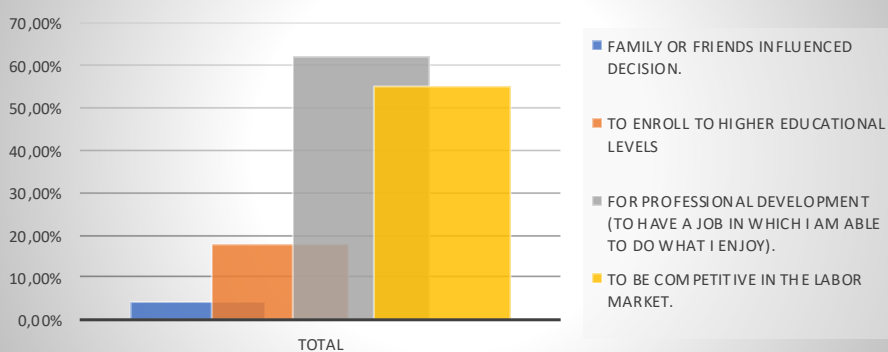
### 1-DO YOU BELIEVE THAT A GRADUATE FROM A BACHELOR'S DEGREE SHOULD BE ABLE TO:



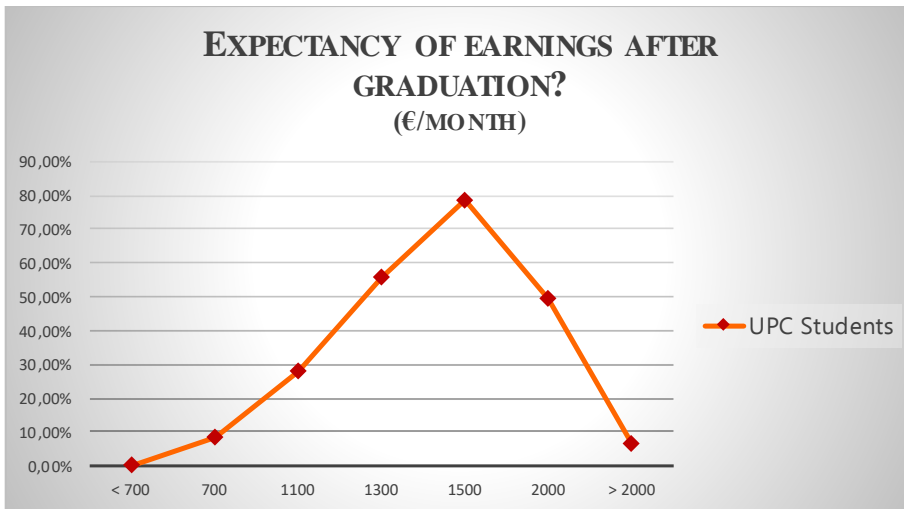
To the UPC population, a bachelor level graduate should be able to obtain a fair wage (48%, in POLIMI it was 18%). Though all the statements are accurate to the EQF definition of competences for the bachelor level, the survey reveals that for Spain, students do feel that this degree provides the intended response from the market.

The only measurement that is above the others, is the capability of the students “to work on what they want”. Though simple in its presentation, it is not always believed that a degree will give the students the opportunity to work on the areas of their preferences.

### WHY DID YOU ENROLL TO THIS DEGREE?



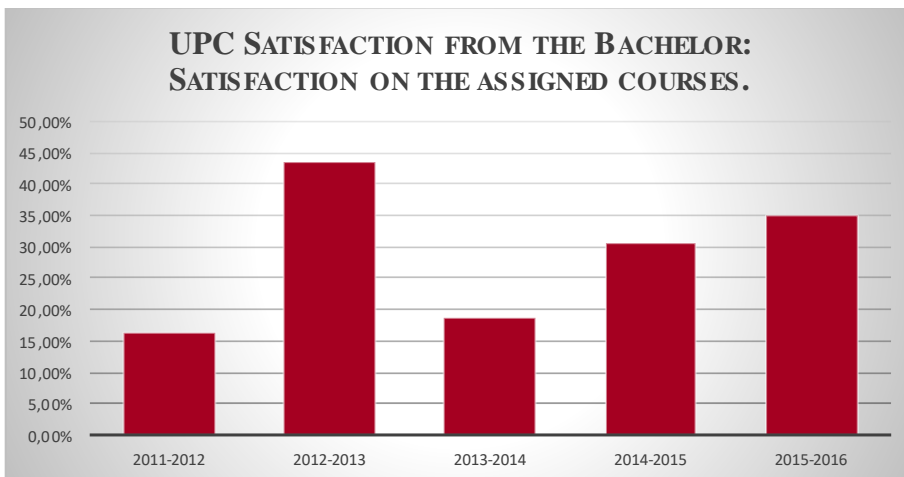
The raise of the perception of “to be competitive in the labor market” choice from the UPC is community, when compared to the POLIMI (57% in UPC and 30% in POLIMI), is again a confirmation that the bachelor degree is not perceived as a valid exit on the investment of education. In the context of our previous results, a significant majority of students in the UPC believe that the bachelor will be sufficient and then they intent to avoid the master degree.



We lastly see that the economic expectations for bachelor students in the UPC is between 1300 and 2000 euros per month. This data is significant for bachelor degree graduates in the UPC, as it is the degree with the largest number of graduates, meaning that it is the most influential variable in the average wages.

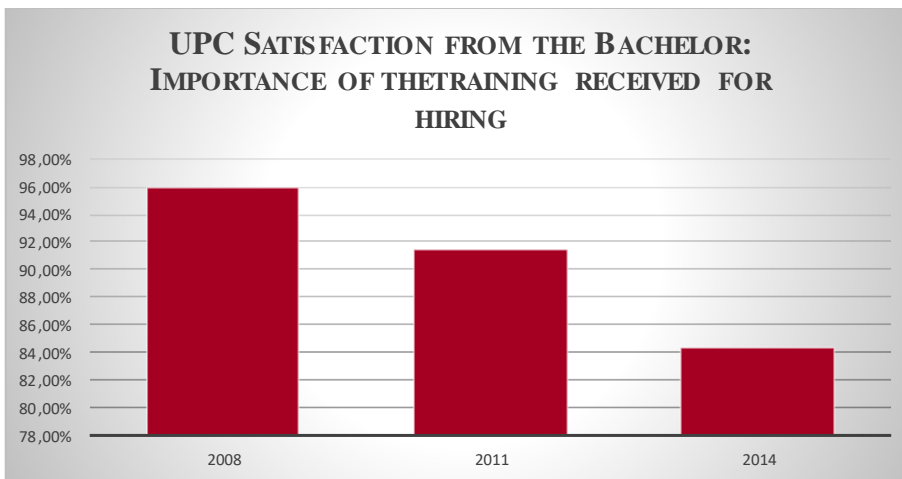
#### 4.2.2.2 COMPARISON WITH OFFICIAL DATA.

The UPC uploads two public files specific of each degree with information relevant to the perception of students, and the key indicators that they use for the degree, of which we consider; The population for comparative analysis with the master degree, the percentage of satisfaction of the students to measure and identify the difference with the measurements from our survey, and we will consider the average wages of UPC graduates to measure our result and provide an official data to which compare and analyze trends.



Using the data for Management and Industrial Engineering (Ingenieria industrial) students to whom our research was directed. We see the student's satisfaction with the courses to be relative similar to the ones results in our survey. Though student satisfaction is at 52% on our research, we see that the average if the pattern keeps growing like in the two previous years the satisfaction on the courses is expected to be between 35 and 40 percent, leaving a large margin of error of approximately 12%.

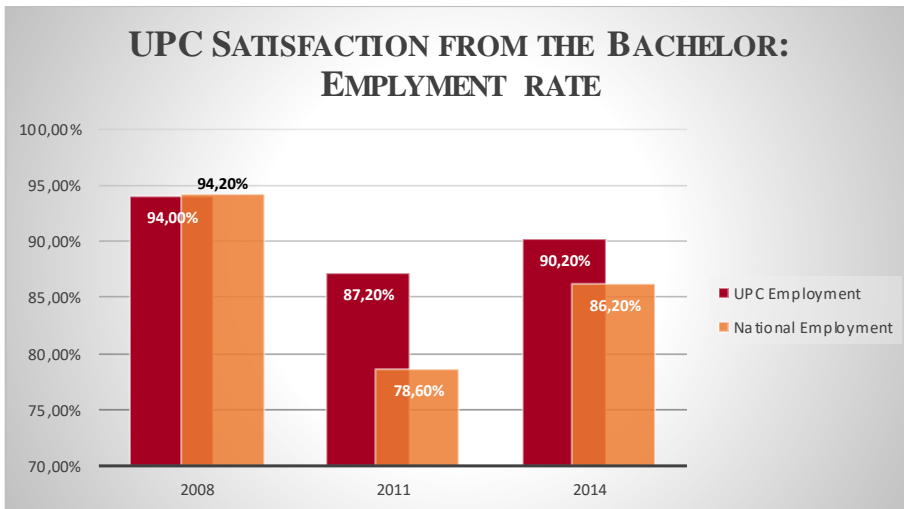
There is another measurement that we can use to measure the results in our survey since it is the same question as the one we asked: "The importance perceived of the training received for hiring". The following data is taken by the UPC survey from students graduated 4 years from the moment the survey is made.



Our measurement for this question was in average a 64% of satisfaction which is bellow almost 20% the measurement taken in the 2014 evaluation.

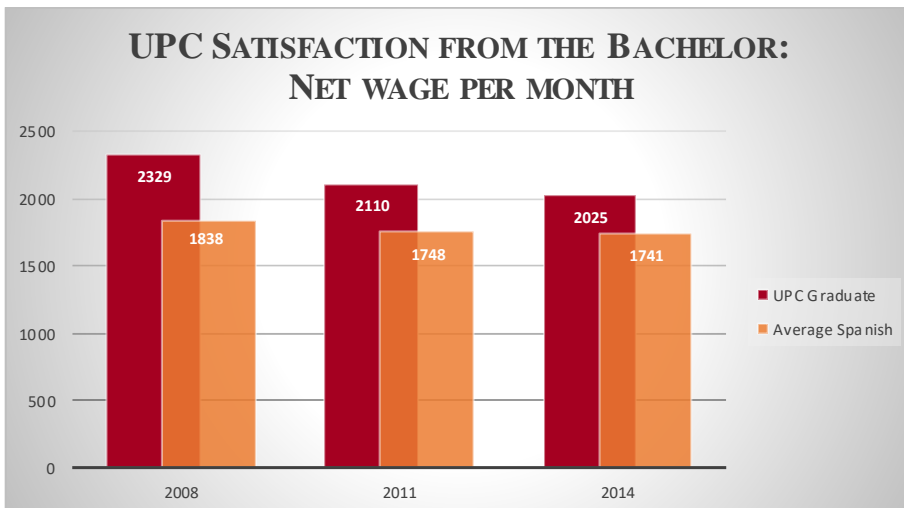
Though these measurement is very qualitative, and subjective to a variety of variables at the moment of measurements. We also consider from the satisfaction document, the percentage of occupation to provide a more qualitative date for analysis.

Though we don't actually have a measurement for the unemployment rate, we can compare it to the national average that we were using in section 3.2.3



Though the students' valuation of the studies is lower than expected, the results of the university are positive, so there is no causation that could link the disapproval rate of the university with its performance in the labor market.

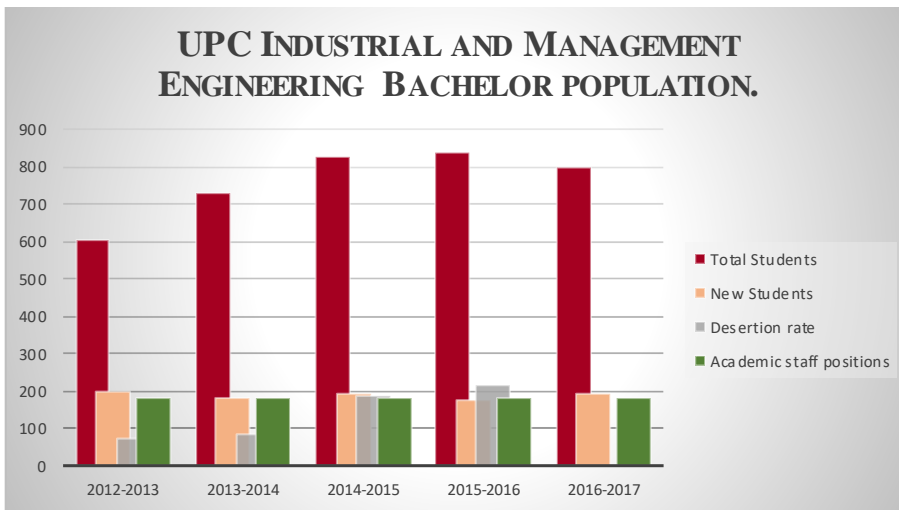
Because the bachelor is the most prominent degree of study for the tertiary level in Spain, we also take the average earnings of graduates, measured by the UPC to compare the performance of graduates in the labor market.



This data was calculated with the GDP per capita provided by (Expansión, 2016) and a calculation tool to deduce taxes provided by (Cinco Días, 2017).

There is an average difference of 21.25% between the national average wage and the wage of a UPC graduate after 4 years, which is sufficient to support the validity of investing on the UPC for tertiary studies.

Finally, the last data is the number of students enrolling to the UPC bachelor program. Keep in mind that this data is from the Industrial and Management Bachelor Engineering program from the UPC and the actual number of bachelor students is much higher.

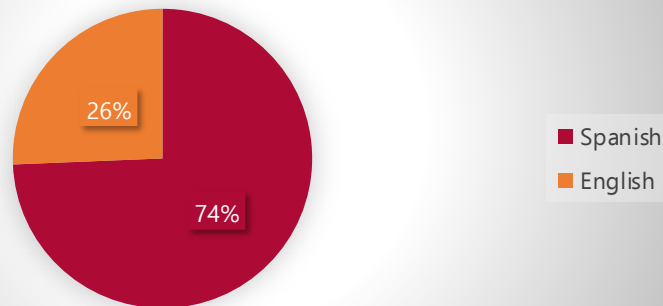


We see that the bachelor population is stable in new students, total students and academic staff, suggesting that there is no significant grow or abandon on the degree.

**4.2.2.3 UPC MASTER STUDENT SURVEY.**

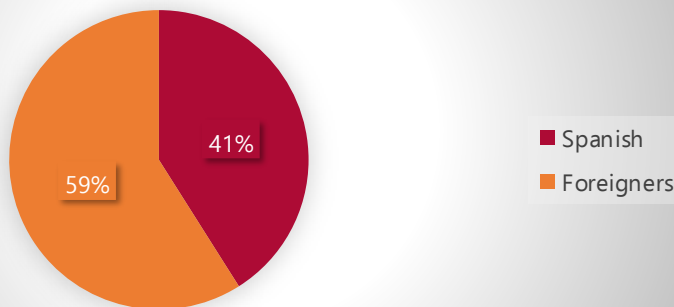
In the survey realized for the master degree in the UPC we provided two types surveys, one written in Spanish and one in English, just like in every previous survey, this was made with the intention of allowing any willing participant in our survey to take the survey. In this case we found a significant population of English speakers.

### ENGLISH VS SPANISH SPEAKING STUDENTS



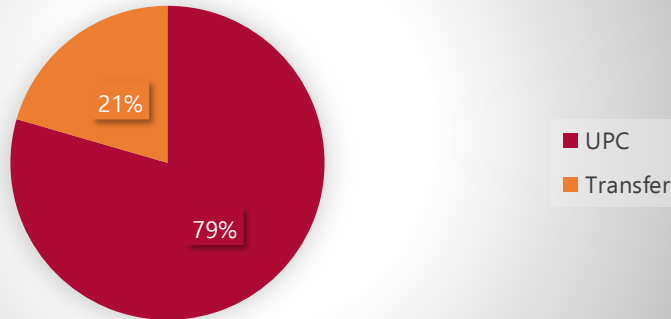
The population is spread similarly to the population defined as of Spanish origin involved in the bachelor degree, however in this survey the population of Spanish student has severely decreased, and in its place, we find an international community of Spanish speakers. The data that lead us to create the Spanish subgroup in the Bachelor degree was the presence of transfer students from the Spanish education system. In this case we find more Spanish speakers than Spanish students, suggesting that of the 74% of the Spanish speaker population a 45% is from foreign origin.

### NATIONAL VS INTERNATIONAL STUDENTS



Unlike in the bachelor UPC we were able to find a significant international community that decreases the number of transfer students that are enrolled for the whole duration of the courses, taking advantage of the internationalization of the university, rather than making use of transfer programs.

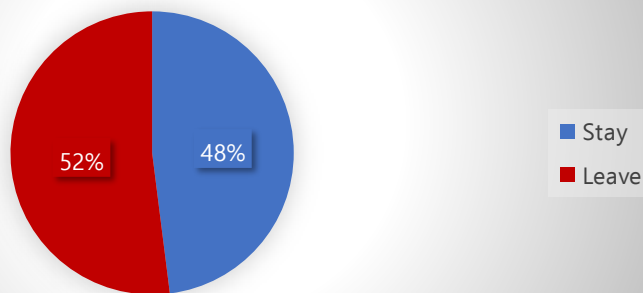
## TRANSFER VS UNIVERSITY STUDENTS



Because separating the data in the many subgroups visible at the survey would extend beyond the purposes of this research we will limit the subgroups to national and international students subgroups, though the presence of a significant population from transfer is significant to measure the success of the international policies of the university, it is clear that International students represent a larger population in this survey, and thus can be assumed that the internationalization process of the university has gone beyond the scope the EHEA to include other nations, in this case, Spanish speaking nations.

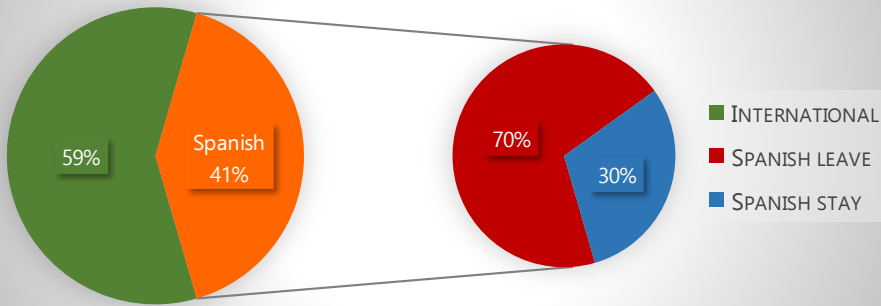
The willingness to stay in Spain is significantly lower in the master than in the bachelor, though in this case the international group is larger and therefore more significant. The international community has been seen throughout this research as a force that devaluates the rating of the university in performance metrics like this one.

## WILLINGNESS TO STAY IN SPAIN



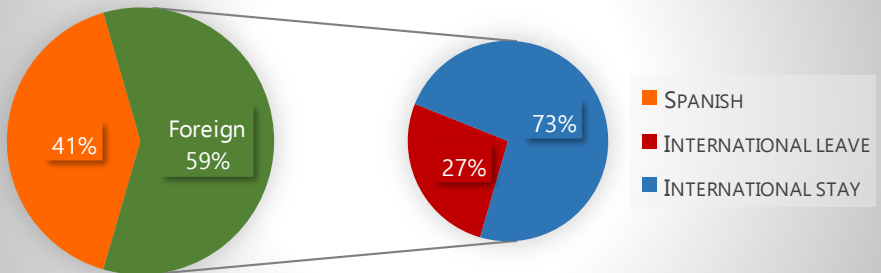
To get an idea of the influence of the international perception in this subjective performance measurement we divide the results of the survey in the national and international population.

### SPANISH WILLINGNESS TO STAY IN SPAIN



In this case, the master students provide a feedback that is different to the previous results obtained. In this case it is the local students that would like to go out of the country, and it is the foreign population that would like to stay. As previously mentioned, this reflects well on the experience students have receive in the UPC and Barcelona during their stay. For the UPC we also need to consider what Doctor Fernandez commented to us. Barcelona is a very touristic place, so it is likely that this experience helps provide a positive feedback on students.

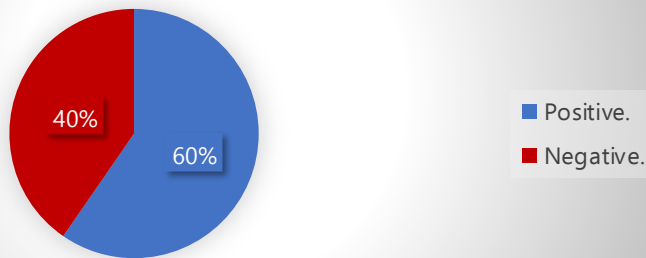
### FOREIGN WILLINGNESS TO STAY IN SPAIN



Looking towards the labor market. We observe at the perception students have of their preparation to be between high and average tending towards the average.

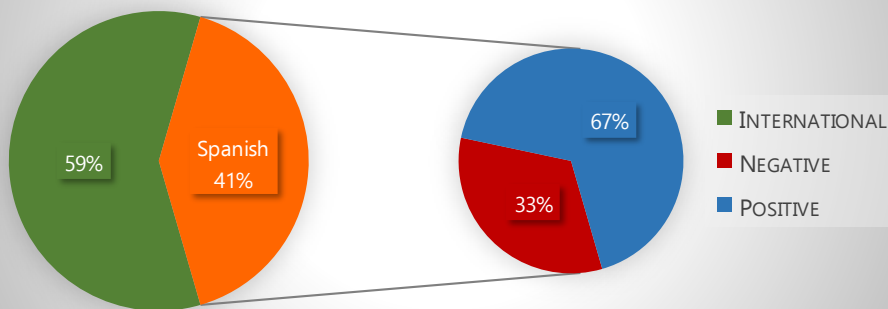


**PERCEPTION OF AN EFFECTIVE LABOR MARKET PREPARATION.**

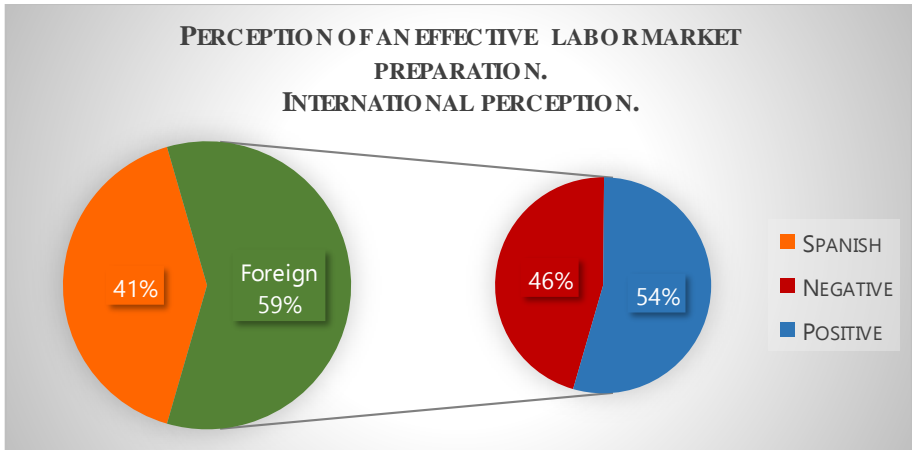


When we observe the subgroup of those surveyed, that the percentage of the population that has professional experience is the same. Both the national and international students' subgroups have a 56.5 percent of their population with previous professional experience. Because of this the division will not be displayed in the graphic. However, the perception of the efficient preparation for the labor market does differ from the subgroups.

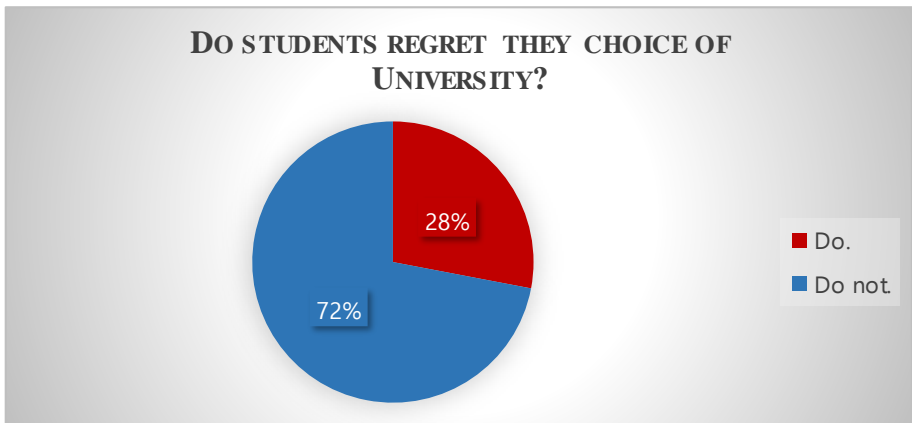
**PERCEPTION OF AN EFFECTIVE LABOR MARKET PREPARATION. SPANISH PERCEPTION.**



The National perception is between high and average, slightly tending towards high, but it is still in the same area as the general perception. The international perception is slower than the national by a 13% but it is still in the same area, which suggest no significant difference in the conclusion (there is statistical significant, but not on the meaning of the data) because the foreign was by default expected to be lower.

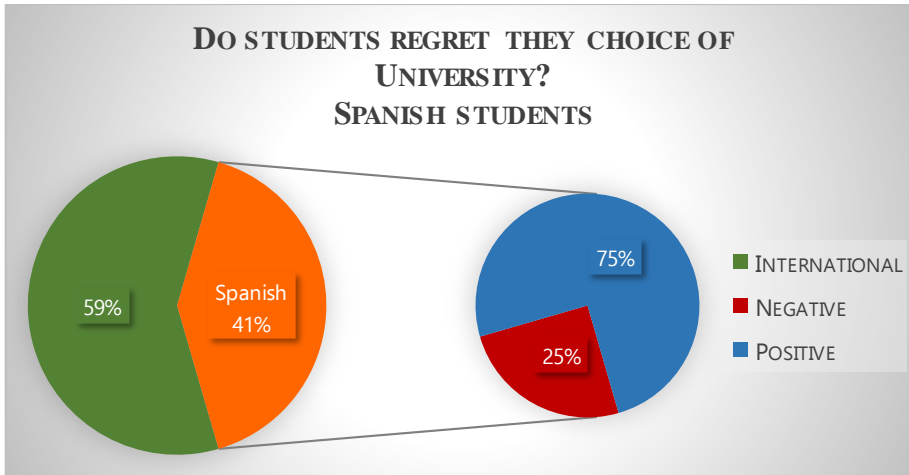


Our last evaluation metric concerns their perception of the subjective and comparative choice for investment on education.



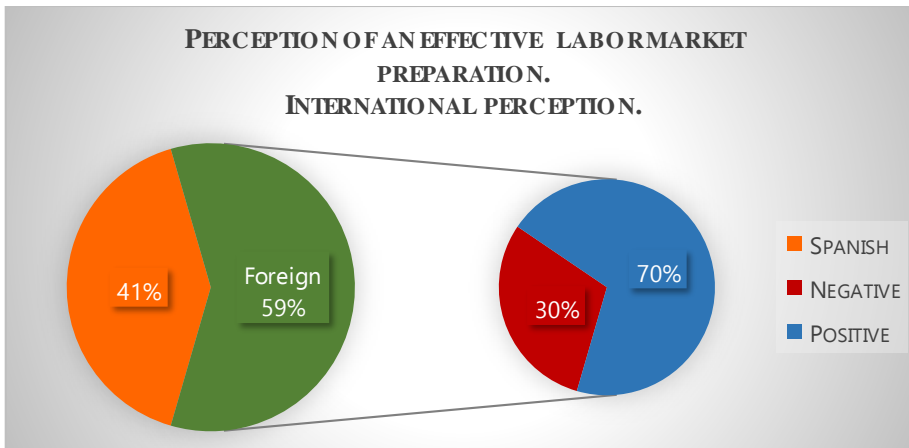
Keep in mind that foreign students have already left their country which would suggest that there was a larger pool of universities for them to choose from, which is often translated as a negative feedback in comparison with the nationals.

**DO STUDENTS REGRET THEIR CHOICE OF UNIVERSITY?  
SPANISH STUDENTS**

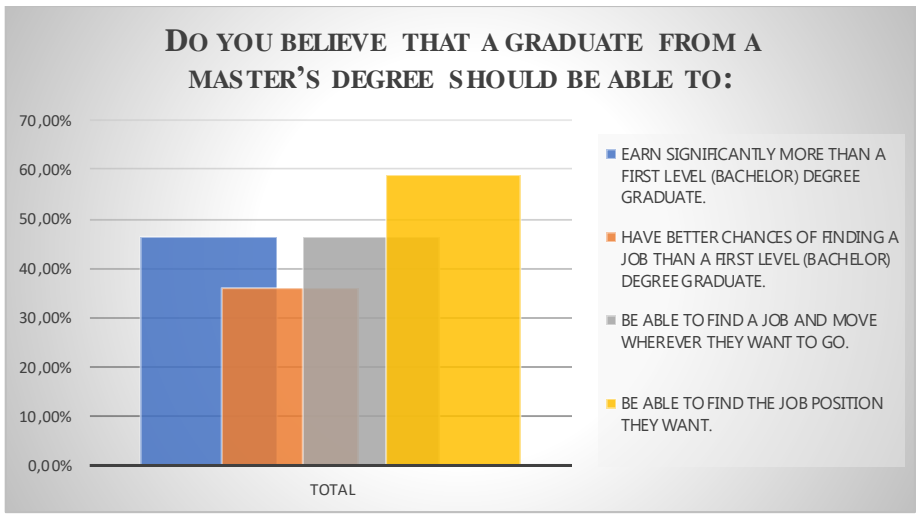


The difference between the national and international student perception on the choice made is so similar it does not go past our statistical significance level. This unique characteristic is like correlated to the foreign willingness to remain in Spain through their positive experience in Spain.

**PERCEPTION OF AN EFFECTIVE LABORMARKET PREPARATION.  
INTERNATIONAL PERCEPTION.**

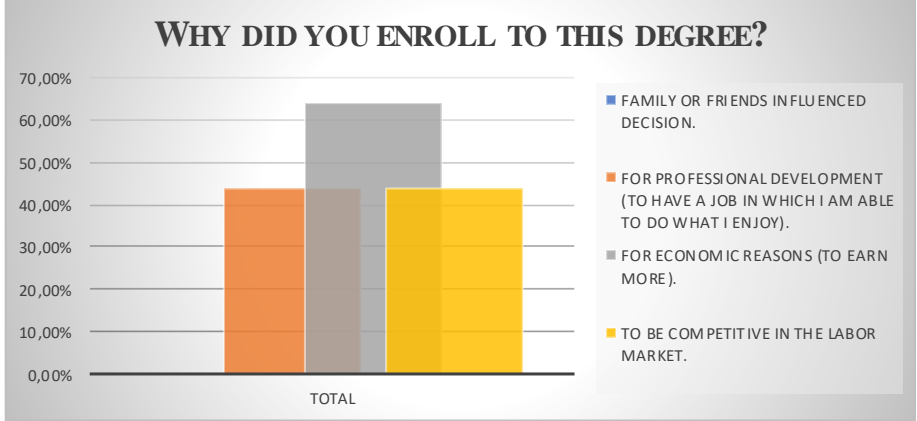


Moving to the second section of our survey, we try to identify the motivators for students in the UPC to enroll to a master degree. Keep in mind that the bachelor degree is considered sufficient enough in Spain to be considered the most common exit point on their investment on education, therefore, this survey provides an input that as previously not considered regarding the reasons for studying a master from a different point of view.

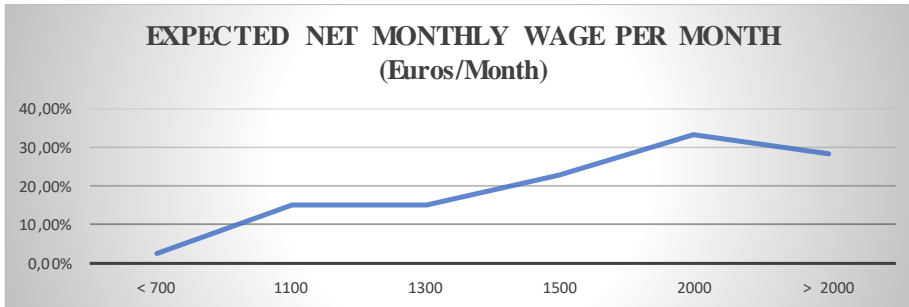


Matching the expectations, when the bachelor is looked at to improve one's qualifications, instead of a requirement to identify oneself as a qualified worker, the reasons for engaging in such studies are all valid and, in this case, similar, with the maximum being 16% away from the smaller. As stated in chapter 1.2.3.2 all answers in this question of the survey are valid and accurate, but the ones with higher percentage reveal the feeling of students towards that characteristic of the degree.

In this case, all options are in a similar range, though the principal characteristic is the ability to obtain the desired job position, none of the options were waived by the surveyed population.



The economic interest in the studies of a master must be highlighted, as students are expecting an economic return on their investment on education.



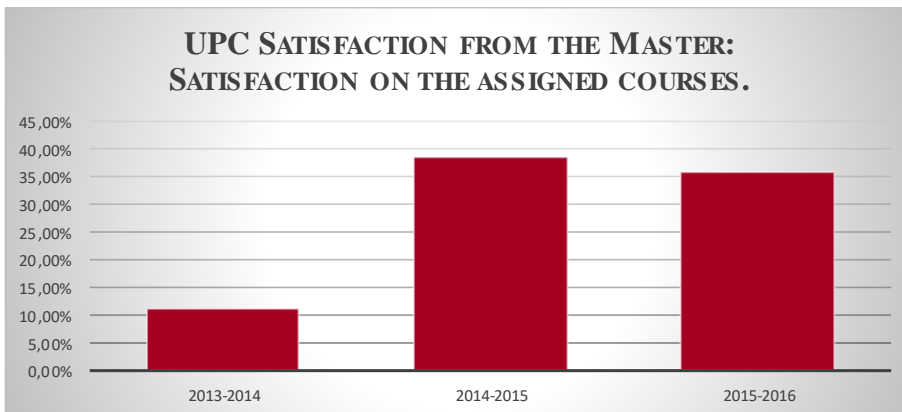
However, the economical expectations of students are broader. The percentage that is expecting a monthly wage higher than 2000 euro per month is higher, but so is the population that is expecting a wage of 1100 euro per month.

#### 4.2.2.4 COMPARISON WITH OFFICIAL DATA.

The UPC also uploads the same official documents with the information concerning the satisfaction of students and the key indicators for the master degree courses. To compare a master degree with its bachelor version, the master program for analysis selected was the Industrial Management Master in the ESEIAAT (Escola Superior d'Enginyeries Industrial, Aeroespacial i Audiovisual de Terrassa). The bachelor data was also taken from the Terrassa campus, it is in this area and campus that the program of Technology and Engineering Management that professor Fernandez coordinates is given.

The Technology and Engineering Management (MEM) program was not selected as there was no selected for this part of the analysis due to the lack of a bachelor version of the studies on the same campus. This choice allows us to better compare the master with the bachelor.

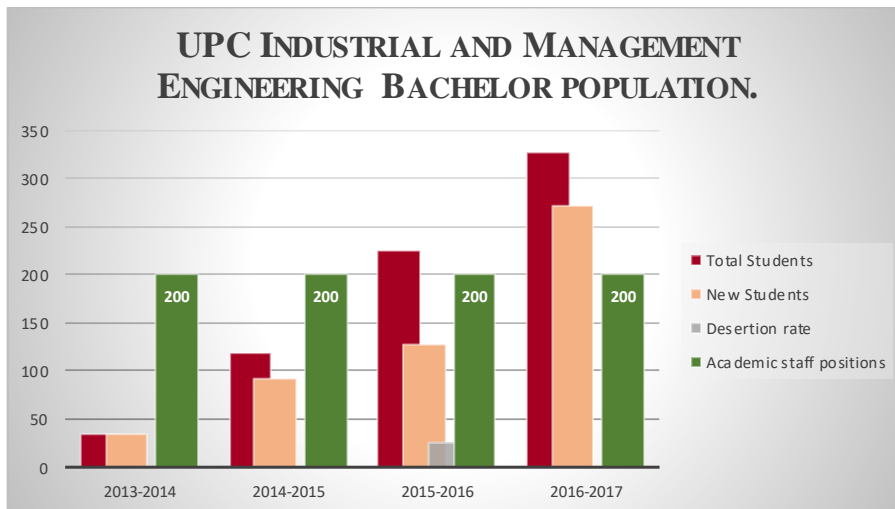
The input of professor Fernandez is used for a comparison with the POLIMI policy evolution. It is more valuable in the analysis of policy making because the MEM program has more in common with the POLIMI Management Engineering Master of Science program.



The master degree program under analysis is relatively new, it started in 2013, and the perception of the student's satisfaction is too low to be representative of the real environment until 2015 where it reaches the average seen in the bachelor. Though the metric is not reveal to us, the metric we use provides a similar result (less than the 5% confidence level) in the willing to remain in Spain and the perception of the preparation for the labor market in the Spanish subgroup.

Because the master is not the average degree provided by the UPC we cannot compare the other results with the national average. We can however, focus on the growth of the master degree in comparison to the bachelor.

We saw that the bachelor was relative stable in the number of students, what we see in the master is that since its implementation on 2013, it has increased ten times its population. We also notice from the UPC report that the availability was increased with every year, suggesting that the demand for the program was higher than expected.



## 5. THE ANALYSIS.

### 5.1 CAUSAL MECHANISMS.

In accordance to the *Process-Tracing, Explaining-Outcome* methodology that as chosen for the analysis. We engage in identifying causal mechanisms that best explain the evolution of the policies we have previously seen. This section contains only the definitions in the context of our analysis, of the causal mechanisms that were identified, and will be refer to in the following analysis.

#### PRE-COMMITMENT

In the international environment we have seen a policy interested in the process, and a policy based in the context. When the European Commission launches the project with the intention of creating the EHEA. We see that the EC has put in place a strategic pre-commitment that is meant to guide the development of university policies in the EHEA, this mechanism is interested on the development of the negotiation process, not in the outcome.

This mechanism is simple, an actor would set itself in a position where it will use its resources to promote a certain output in the negotiations, it implies a deeper context than a mechanism of command. The EC grants the nations through their ministries of education, the right to participate in the program, it is not mandatory, but when accepted, the objective is set by the stance the EC has established.

Regardless of the consequences of the policy, the EC is not going to change the objective, it might change the measurement or approach, but the strategic pre-commitment ensures that the change is going to happen, even if it is only cosmetic. It is defined as "a mechanism that structures future events and discards other options. It favours anticipated commitment to results and prevent procrastination tendencies." (Schelling, 1984)

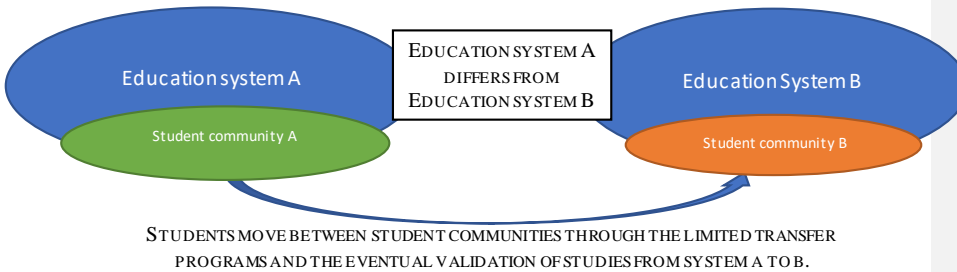
Since the moment the EC started the process of creating the EHEA, the mechanisms and the activities of other actors involved were blocked. The actors include at this point in time only the countries through the ministries of education, but it would have an impact in other actors not involved in the negotiations such as universities, students and the labor market. These actors would no longer have the option of preventing, denying or stopping such developments, they would only be able to choose how it best implement it, in their own environment.

#### BROKERAGE

In the matter of the context of the policy, we see a brokerage mechanism that trying to stablish interactions with students' communities and universities that are separated by national borders. To this end, the EC aims to simplify, standardize and homologize the universities metric of student development with tools such as the EQF. In this process we also see the simplification for students to validate their tertiary studies in universities, allowing students to participate programs that they can design themselves across the universities of the participating countries, allowing them access to transfer and study programs that

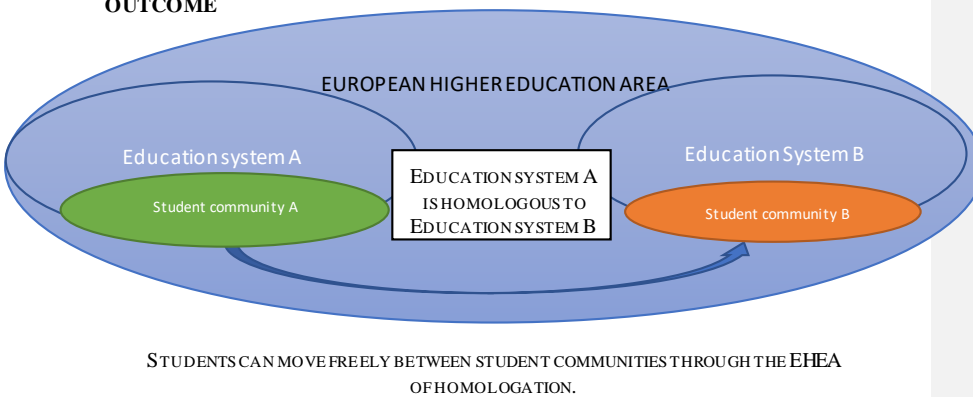
previously required going to a great bureaucratic system or being one of the lucky 4% that manage were selected for transfer projects such as the Erasmus.

**CONTEXT**



Starting from the different education systems and student communities, the EC starts a policy that aims to an area of homologation of the different degrees of study. The concept of homologation refers, that although the study program may differ entirely, they have an equal in value using a common metric. While every university can manage education as it wills, there must be homologation, that allows the degrees to have an identical correlation between the systems are different education systems.

**OUTCOME**



The mechanism proposes to connect the different education areas, and consequently, the involved actor. Brokerage is defined as “the linking of two or more previously unconnected social sites by a unit that mediates their relations with one another and/or with yet other sites.” (Doug McAdam, 2001).

In the education system and specifically the polytechnic cases of analysis, we see a similar mechanism that is the guiding principle of universities. Universities prepare students for a



labor market that requires high quality workers. Because students are interested in identifying themselves as high quality workers, they obtain degrees that certify their competences. The objective of the programs designed by the universities has to be that of adapting the student's competences to the ones the market need, in such engaging in brokerage mechanisms.

The key difference between the international and the university brokerage is the type of broker. In the international level we see a **non-partisan broker** that is attempting to create bridges between those who are not directly connected to each other in a situation. The parties are connected only to the EC as focal actor but not to one another; a role defined with the terms 'social broker' too. (Bülow, 2010). The university is a **partisan broker** that bridges different groups, seeking to improve the (weak) position of one of the parts, in this case the students.

#### ATTRIBUTION OF OPPORTUNITY AND THREAT

In the specific of the POLIMI case, we see a mechanism of attribution of opportunity. Attribution of opportunity is a mechanism defined by an actor response with intense effort to situations where it perceives that the window of opportunity may open. On the master degree in POLIMI we see a commitment to go beyond the requirements of homologation to pursue potential benefits from externalities and network interactions in the new broader international area.

There is an understanding that the policy was an enabler mechanism, so the university took an approach in which the conditions developed by the Bologna process were able to optimize results. The university identified in the new design model the section of the education that is more viable for international experiences and decided to enhance it towards the increase of competitiveness and internationalization.

The reform of the university level in Italy create a division of education that was not previously available, though the system could have remained as it was. The state tried to promote the concept of English as official language in universities, although these attempts were blocked by the involved actors, the POLIMI management saw opportunity in such a policy, and engaged with the policies for the master degree.

The opposite of attribution to opportunity is attribution of threat. It is a mechanism where the development of policies come, not from the vision of an opportunity to grasp, but the out of the threat that not implementing such policies can have. We see this mechanisms in the UPC reaction to the international environment.

The UPC has not adopted a policy like POLIMI did, to gain the benefit of the international community, though the UPC benefits for having a popular official language (Spanish) the is now offering courses in English. There is a demand in the international market for courses in English, and we see a key difference in the mechanisms implemented by POLIMI and UPC, in which the POLIMI takes a proactive mechanism in orienting its activities towards the policy with the expectation of benefit and UPC takes a reactive role for market demand.

We can see that the attribution of opportunity and threat is also the main parameter students use to decide at which point to exit their investment on education. Education is an

investment, students use resources such as time, money and effort on obtaining a degree that recognizes them in the market as high ability workers with the expectations of profit.

Because of the focus of this research, we compare only two types of degree with the expectation of having two different levels of qualifications. When we compare the master with the bachelor, we know that students invest resources for a duration of 2 years in Italy or 1.5 years in Spain, to gain additional competences and consequent qualifications that the degree certifies.

The graduates of the bachelor are potential workers ( $G_B$ ) that has invested resources ( $R_B$ ) on obtaining the qualifications recognized by this degree ( $Q_B$ ), for a  $G_B$  to obtain master qualifications ( $Q_M$ ) and obtain the certification that recognize them as master graduates ( $G_M$ ).

$G_B$  have to invest the resources of the difference between those already invested in the bachelor with those additional required for the master ( $R_{dif} = R_M - R_B$ ).

If firms were able to recognize each worker's type, they would pay:

$$W_B = G_B$$

$$W_M = G_M$$

Being  $W_B$  is the wage fitted for a worker with bachelor qualifications, likewise  $W_M$  is the wage a master graduate should receive.

If firms cannot differentiate the worker's type, then every worker is paid the pooling wage rate, which is the expected marginal product.

$$W_{pooling} = (1 - M) * W_B + M * W_M$$

Where  $1 - M$  is the number of bachelor students in the market, and  $M$  is the number of master students in the market.

But if  $W_{pooling} = (1 - M) * W_B + M * W_M < W_M$ , it means that the wage paid to master graduates is larger than the pooling wage, the firm know that a worker has as  $Q_M$  and is able to recognize him. So  $G_M$  have an incentive to send a credible signal which distinguishes them from  $G_B$ .

Keep in mind that the education cost of  $R_M$  is the sum of  $R_B + R_{dif}$ . Thus, to a  $G_B$ ,  $R_{dif}$  represent a relative small investment compared to the resources that were spent to obtain  $G_B$ . However, the choice to invest in obtaining  $Q_M$  and become a  $G_M$  is based on the attrition of opportunity that this degree represents in differentiating them from  $G_B$ .

Graduates must decide how much education to acquire (to identify themselves in the group of highly qualifies workers) and firms must decide how much to pay workers with different amount of education.

Bachelor graduates will likely acquire a master if:

$$(G_M - G_B = W_M - W_B) > R_{dif} * Q_M$$

This equation suggests that  $Q_M$  is worth acquiring when  $G_M$  benefits from the market by having a better, sufficiently bigger wage than  $G_B$ , to justify the expenses of resources  $R_{dif}$ .

Bachelor graduates will likely **NOT** acquire a master degree if:

$$(G_M - G_B = W_M - W_B) < R_B * Q_M$$

This second equation suggests, that  $Q_M$  is not worth acquiring, suggesting that  $Q_M$  does not justify  $R_{dif}$ .

With both equations we can understand that value given to  $Q_M$  is between:

$$\frac{(W_M - W_B)}{R_B} < Q_M < \frac{(W_M - W_B)}{R_{dif}}$$

The purpose of the education is sending a credible signal. When the signals are not recognized, and therefore, the wages are equal regardless of the extra resources required for obtaining the degree ( $R_{dif}$ ), there is no economical incentive for such an investment. However, to believe that students make an informed decision with regards to the labor market, is unrealistic at best, it is either the attrition of opportunity perceived that motivates them to invest  $R_{dif}$  in order to obtain a better wage, or the attrition of threat, that gives them the perception, that without such a degree they will underperform in the labor market.

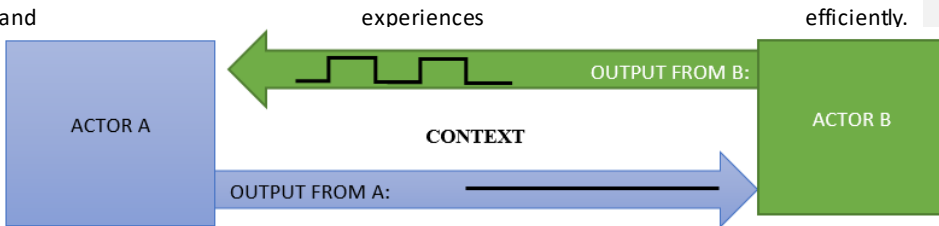
#### REPEATED INTERACTIONS

When interactions take place, actors provide feedback to each other's., through what could be defines as an output function, and receive the feedback through an input function. Every time actors interact, they modify their outputs on the bases of the input received. For example;

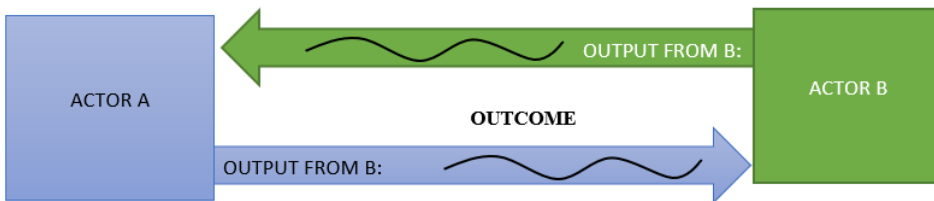
- *A French student has studied English to an advance level and enrolls in a university in the UK.*
- *When the student interacts with his new UK colleagues, he provides them with his knowledge and understanding of the English language, which is his output.*
- *The UK colleagues receive the students output but are unable understand him, so they receive an input that they cannot use.*
- *The UK colleagues then provide the student with their output which is an explicit display that they were unable to understand him.*
- *The student after receiving this input, proceeds to modify his pronunciation, to make it more similar to the one the UK colleagues can understand.*
- *The UK colleagues will receive this input, and although it is not what they are expecting they can use it and receive this input.*
- *Through time, they will continue to interact, and the pronunciation of the French student will improve, and so will the UK colleagues' capability to understand the French accent of English.*

Similar to the example, it is the interaction of foreign students within the university that give value to the international environment created. Whenever national students interact repeatedly with foreign students they get many inputs from one another, and repeated interactions is the process through which universities luring international communities aim to form an international environment and benefit its student in terms of qualifications.

Repeated interactions are a mechanism deeply intertwined with positive and negative feedback. When actors must interact with each other frequently, they depend on the feedback receive to adapt their behavior, the more frequent the interactions the more feedback will be obtained and more likely will actors be to improve cooperation, trust and communication, thus building a setting in which actors can exchange information, knowledge and experiences efficiently.



There are many frequent interactions between actors, but it is considered a mechanism, only when it is used to guide the change in a specific direction. Universities use as one of their metrics of success the ability of graduates (their output) to join the labor market, and so they interact often with the labor market, and in cases like POLIMI where they have direct contact with key partners that are part of the labor market force, such mechanisms can be seen.



Repeated interactions can be held without being considered a mechanism when it is not the interaction that guide the creation of new policy. POLIMI for example, with the introduction of the bachelor graduates into the labor market. It was neither the feedback nor interactions between the actors that introduced the bachelor graduates into the labor market, it was the market availability and attrition of opportunity that allowed this to take place, which is why some POLIMI partners would still refuse to provide the university with a feedback for a useful bachelor graduate figure.

## IDENTITY SHIFT

In the identify shift mechanism we see a change in the scope, objectives, rules, practices and of relations derived from that change (Doug McAdam, 2001). The identity shift mechanism is often a consequence of strategies based on *cognitive heuristics*.

Identity shift take place in public universities when there is a new rectorate, a new goal is set, a new policy is implemented, etc. For the public education system, we are specifically talking about the anchoring heuristics.

Anchoring heuristics function in base of what is called an anchor. It is either a goal to reach or a mechanism to implement, that the forces leading the change are focusing on and its pulling the forces in the environment, thus the name of an anchor. When a university like the UPC selects a new policy with regards the evaluation of the academic staff, there is a new anchor that is pulling the forces towards maximizing the variable in measurement.

People give a value to the anchor that strongly affect their subsequent judgements, and decision-makers are often reluctant to diverge radically from it. Once the anchor is set, subsequent decisions are made by adjusting around the initial anchor. It works like a defined bias that will modify the interactions and objectives of the actors.

After a university sets an anchor, the structural changes and the academic selected will work around this anchor. It is considered an identity shift, because the previous operation and interaction are now lost, and the university is working differently at a structural level.

Another example would be the identity shift in POLIMI towards an international environment. The objective of creating an international environment becomes an anchor, though the attrition of opportunity is what guides the evolution, the master degree in POLIMI has gone through an identity shift when compared to the bachelor degree.

Courses are designed to be in English, students are expected to be international, and the evolution and repeated interactions between the actors is now under a new anchor, while the bachelor degree has not gone through such modifications, the environment and design the students face is visually different even from the surveys, to the point that they seem like different entities.

## 5.2 THE POSITIVE ANALYSIS (THE REFORM WAS FUNCTIONAL).

The process of Bologna, based on the homologation of higher education degrees earned in countries participating in the Bologna accords. The process originates at an international level with the interest of a cosmetic reform that will simplify the mobility of students and graduate across Europe. This policy requires is enforces through a strategic pre-commitment.

Favouring anticipated commitment to results and preventing procrastination tendencies' (Shelling 1984); can explain how actors act will act in order to develop the coordination in cooperative relationships.

In Italy, we can see an example of how actors changed they behavior towards more cooperative relationships because of the reforms. Universities have a limited capacity in the

number of students it can enroll, allowing a foreign student would mean that a national candidate would not be able to occupy this space. The resources that a public university obtain are from the national people for the national people, how would allowing foreign students possibly to help the local community?

POLIMI is a clear example in this matter. By setting a minimum requirement of English language proficiency for the master, national candidate would have to either select a different institution for their studies, do not study a master or learn and certify their English competences. Adding filter like this promotes a more competitive environment for students with higher competences and introduces the national student into an international environment without living the country.

If we see the policies related to the Bologna process and the Italian creation of a bachelor lever, we see that these policies are enablers that though cosmetic in nature, generate externalities that modify the environment and the interactions between the actors (as explained in section 4.1.1.1).

From the academic staff point of view, we see that both UPC and POLIMI have policies that were put in place as consequence of a more competitive, international environment. The implementation of these policies was a costly one in terms of resources. Suggesting that the reforms are cosmetic for the management, does not do justice to their efforts.

In POLIMI, we see that the organization has changed little by only adding responsible of coordinating the different degrees, but we see much efforts on redesigning the master, and in future, the bachelor. The 5 years degree of the Vecchio Ordinamento, is no longer comparable with the Master offered in POLIMI. Not only does the master offers an international environment with a specialization in the area of study, but it is now independent of the bachelor.

The key difference between the now Master of Science and the Vecchio Ordinamento, is the design of the course. The 5 years degree is designed to be a continuous development of the student competences, with a process of continuous evaluation through a long period of time. The Master of Science offers the student the same competences as a 5 years degree, in a 2-year degree that takes on from the general knowledge of any given bachelor, this allows students to take basic competences on one area of expertise and specialist knowledge on another, and it is up to the student to decide which basic knowledge best complements the specialized (knowledge) they want to acquire.

Commented [GV11]: specialized

One of the official objectives of the Bologna process, is to give the students more ability to design their own career by using the different degrees available through Europe. In this sense, POLIMI has already given this ability to the students within a single campus.

Comparing with the UPC, which had already in place a similar system, with the main difference being that the bachelor provides more than just the basic competences and goes to even provide sufficient knowledge in specialization to be considered conclusive. The change in the management has been more administrative and organizational. The courses are developed

similarly to what they were before, but the academic staff has suffered modifications through a meritocratic process.

Ensuring that professors are selected by competences through a tertiary agency, guarantees the selection of the best professors from the pool of candidates, but it also means a critical change in those already employed. Just like modifying a KPI for redirecting the management activities, this change meant a change in the academic activities, professor would now focus more the development of productive activities, such as research and capacitation than in bureaucracy.

The change of direction and the modification of this system, is **correlated** with the university reforms, but it is link in causation. As we have seen the number of master degree students has raised significantly in recent years, this is through the internationalization process in which the Master is the degree of international students.

Commented [GV12]: correlated

Bachelor degree is very stable in the numbers of new enrollments, while the master has shown a huge growth. The demand for master courses is **correlated** to the international environment, and the design of the courses, which are strongly related to the management personnel. We can see the link between the policy enhancing the personal and the international environment through an identity shift mechanism, due to an attrition of threat.

Commented [GV13]: correlated

Engaging in policy change regarding the indicators used for the academic staff, implicitly implies an identity shift. It changes the objectives of the academic staff and filters the personnel that does not fit a competitive profile in the new measurement. It is expected to have consequences in the design and scope of those in charge of designing courses.

The **attribution** of threat is given in an environment that is competitively growing, where the quality of the staff and the programs have to be increase or there is a risk of falling in quality and thus suffering irredeemable losses on non-tangible assets. Universities consider their most asset to be the non-tangible, such as reputation, that is earn through effectively performing in different standards (mentioned in section 4.1.1.1).

Commented [GV14]: attribution

In contrast to POLIMI, which has always been a research institute, the quality of the professors is intrinsically meritocratic and their objectives and was already fixed in the development of productive activities above the management. The organization in which professors of the highest qualifications define the plans for study and assign a professor that best fit the profile of the plan design, is critical to the definition of quality, though it is a different approach than that assumed by UPC, the board of professor ensures that no single academic defines the management of the institution. For this same reason, it is logical to assume that POLIMI would not change its structure to sustain an exclusive management for bachelor a management.

As we have seen, the changes in the institutions, be it through the introduction of the 3+2, the English language for internationalization, or the definition of KPIs, have intrinsic motives and relative to the institutions, but they share a common trigger which is the university reform. Though it is ambiguous and does not indicates how universities will reach the desired outcome, it is the functional purpose of the reform to become an enabler and a motivator.

Even though, older programs such as the Vecchio Ordinamento in Italy still exists, they are given a homologous equivalency in ECTS for compatibility.

**Commented [GV15]:** I think something was lost... the phrase need to be integrated

The case presented in here as positive refers does not defy the its cosmetic nature, it is instead focused on the deeper effect and consequences it is carries on institutions.

The Bologna process represents both a threat and an opportunity for the universities in Europe, the market of available universities grow in number, the environment and the interactions grow in complexity. The need to become more competitive led university to the creation of a policy that ensured the competitiveness, in the case of POLIMI, it was the internationalization and in the case of the UPC, it was the method of selecting the academic staff through more competitive indicators.

The purpose of the Bologna process is to give the opportunity of POLIMI students to become UPC students, and through this process, produce externalities that affect universities and force their evolution towards the intended scope of raising the competitiveness and qualifications of the universities and students.

The student community has been the actor with the most interactions since the reforms. They have felt the changes in the universities and in the student environment. Students are more involved than ever with the international community within a university, and in every survey, we can identify an international group, though in general a minority, this group is growing in the universities.

There is a labor market request for international experience graduates and even international graduates. International students that arrive to the polytechnic universities in analysis, are given the same access other students have to the labor market, and some of them manage to get jobs before even finishing their studies.

Although the Bologna process was designed to create the EHEA, because of the identity shift towards the internationalization of the education, students from all over the world now feel capable and willing of enrolling into the universities. This is a mechanism that allows foreign students to legally migrate from developing countries through more developed countries creating positive externalities, even should the student return home.

Students prepared international communities through a mechanism of repeated interactions, the more interactions the national students have with different international students, the more they benefit from such interactions. The policies of POLIMI have been anchored towards the international environment, which is visible when confronted to the bachelor degree.

It fact that the bachelor degree is now so different from the master, is an indication that the reforms have had a functional effect in the university policy management from the student's perspective.

Students now face specific barriers to enroll to the master degree. The language certification filters national students that do not have this competence, but the international environment demonstrates that the places given to the international students are no longer available to the national students.



For every single international student, there is a vacancy that was not filled by national students, and this is visible in both the UPC and POLIMI cases. The resources invested in creating a master degree in English shows that resources are being redirected to the international community in the attempt of rising the qualifications of the graduates.

Part of the interests on investing in the international students, is the expectation that the other countries involved in the Bologna process are engaging in similar investments to the benefit of their national students.

Spanish and Italian students are likely to move to a better performing European country within the Bologna process, allowing them the possibility of experiencing the culture of the other nations and even the possibility of remaining in that country.

It has been the tasks of the universities to react to the international policy incentives and create the space for the mobility of such students. In the cases of study, we see an identity shift in the universities environment that has allowed for the international mobility program to be successful regardless of the unique university approach, and a full implementation of the homologation of levels of studies.

To summarize:

- The academic staff have gone through functional changes towards the international environment. The UPC went through an identity shift in their management design, and the POLIMI in the scope and design of the master degree.
- The labor market has accepted students of the new degree in Italy, and specifically the POLIMI case, while the competences and rise competitiveness in countries like Spain, have created an increase in the enrollment to master degrees.
- The labor market has also welcomed the international students as well as demanded international competences from the national students, preferring candidates with international experience.
- The students are now allowed to move throughout the EHEA without the need for the bureaucratic process of the "Declaration of value" and can even design personalized multinational programs.
- The requirements for the master degree, and the value of the master qualifications have raised, in the eyes of the student community, increasing the number of students enrolled to the master in countries like Spain, and creating filters in countries like Italy.

Commented [GV16]: Is it correct to insert a dot here?

### 5.3 THE NEGATIVE ANALYSIS (THE REFORM WAS COSMETIC).

The process of Bologna, is process that simplify an already existing process, it allows students to transfer or engage on studies abroad the EHEA. It is an historical fact that students have moved to different countries to improve knowledge and qualifications for centuries, but it has never been so easy as it is today in Europe.

Consider enrolling from a non-EU country education to a university in any of the countries actively participating in the Bologna process. Students are required to provide a validation and/or certification of a degree with the purpose of homologation with the education levels in the EQS country. This process is managed by the interested student with the help of the EU country embassy services.

This process is referred to as Declaration of Value, “dichiarazione di valore” by the Italian embassy and the “declaración de valor” by the Spanish. The process analyzes the time invested in studies and the courses taken by the student and provide a symbolic homologation that guaranties the educational institutions that the competences and knowledge of a given student are equivalent to one stated in the EQT.

Commented [GV17]: dichiarazione

The European Commission proposed the establishment of a single Higher education European zone through the implementation of a common metric the ETCS. This metric proposes a cosmetic screen of homologation between the degrees given in the European countries participating in the Bologna process, this allows an immediate homologation of the degree at the moment of its release, and allows actors involved to bypass the process of the Declaration of Value.

The design of the programs and their duration remains unchanged, and schools operate as before the process started, with the only difference that the universities must now assign their courses a value on ETCS and identify which ones are conclusive to allow graduates to advance to the next EQT level.

We see that POLIMI which was one of the first universities to adapt to the reform, has yet to perform modifications the bachelor degree, and we see that the UPC and POLIMI did not modify their study programs on the bases of the Bologna process or the EHEA.

The measurement through which we may identify the cosmetic nature of the reforms in Italy are on the acceptance of the bachelor degree. We see that even though the labor market has accepted the new degree, the students and the academic staff have not yet come to the see the bachelor degree as conclusive.

Only a 30% of the students in POLIMI consider the bachelor a valuable exit point on their investment, meaning that a 70% do not see this degree as a proper way to identify themselves in the labor market as skilled workers.

And when looking as where the students are coming from, we can see that the majority of students are not from countries within the Bologna accords. According to the ex-rector of the

university, in 2005 12% of the POLIMI student population came from the BRICs countries (Brazil, Russia, India and China), of which only Russia is active in the Bologna process.

When we look at the national data we also find confirmation that the student population that is coming to Italy is coming from outside the European community, and while it could be stated that Italian students move or transfer to European countries, it is of no consequence of the POLIMI, its success or its managerial activities.

When we look at the case in Barcelona, we see that a similar evolution has happen but in the other direction, while Italian universities struggle to introduce a new degree, the Spanish education system remained untouched. Students still consider the bachelor degree as the best way to identify themselves as qualified workers in the labor market.

While it is true that the master population studying master's degree is steadily growing, the total population that chooses to study a master degree is overwhelmingly low, there is no indication that the reforms helped in any way to promote the master degree, and the management of the UPC has opted to handle them assuming the students have all the previous required knowledge. While it is true that the objective is to detach the master from the bachelor degree, the competences and basic knowledge that POLIMI has introduced to prepare students from other careers are not present in these degrees, suggesting that there is a tacit assumption that the students have a specific base of knowledge. This suggest that the plan of study is expecting students with professional experience or with a background education on a similar area.

The management of POLIMI is still working on the construction and redesign of the bachelor degree into a degree that satisfies a clear market demand. However, the academic personal does not consider the knowledge provided in this degree as a viable exit on the investment on education, they define it as a degree that provides the bases and not conclusive knowledge. It has also been pointed out that graduates do not possess soft skills that could make them have an advantage in the labor market.

The changes and reforms made by the university have been designed on bases of the university natural evolution of the policies, where the university tries to produce value from the changes it makes and would have likely engaged on such even without the changes on the educational system.

Contrary to the POLIMI academic staff, the UPC manages the bachelor as a conclusive degree, meaning that the subjects of study guarantee the competences and necessary knowledge to join the labor market, and the master is seen as a way to specialize and deepen into the subjects, which is seen as an investment to grow professionally.

Though the case in Spain is not made on the bases of the adoption of any of the degrees, the plans of study and internationalization are. The master, which is been proven to be the most international degree, is in the process of development, and are in general shorter than the average.

Taking for example the master on Technology and Engineering Management plan of the UPC and the Master of Science of POLIMI, we see that the POLIMI version of the studies require

additional 30 credits, which are relative to 6 months more of studies, the degree offered by POLIMI is only available in its English version and the UPC version is also offered in Spanish, regardless of the differences, both degrees are homologated through the Bologna Process, meaning that they equivalent have the same international validity. Although the interest of students in enrolling on a given university is not just credits, or the degree awarded, but the recognition of the university in which they invested.

Because of the UPC location, and Spanish as one of the official language, there has been no need for the education to adapt to the international environment, though the initiative has been to create master degree courses in English, the interest of keeping the same degree is available in Spanish displays, that even though the study plans are in continues change, they change due to the natural evolution of the policies and not as a consequence of the international policies of standardizing higher education.

The labor market in Italy, has accepted a significant majority of the population of the bachelor that decide to join the labor market, however, there is still a section of the market that refuses to provide a figure of a bachelor degree graduate that they would assume on their labor force

There is still too much cultural inertia that is preventing changes to occur rapidly, although we saw a quick adaptation of the labor market to the new degree, we also realized that it has followed a decreasing trend.

To explain the decreasing trend, we identify three different self-exclusive cases with different premises. Our first case is based on the premise that the market is not able to differentiate the graduates at the moment of their introduction into their workforce. This premise suggest that the decreasing trend is caused by the mechanism of repeated interactions between the graduates and the labor market. As their competences continue to develop with in the enterprise, the enterprise receives a better feedback from the experience of the interactions of the master degree graduates and thus reducing their input of bachelor graduates.

The mechanisms used in this first case is known as positive feedbacks with repeated interactions, the market interacts constantly with the graduates and introduces new policy as input to modify the outcome obtained, using previous experience to identify the desire output.

This would provide the sustenance for the original hypothesis because, if after their introduction in the labor market, bachelor graduates underperform, it means that their capabilities were not properly developed by the program, suggesting that the reform has not gone beyond cosmetic, meaning that it is still an underdeveloped degree that requires the conclusion at a master degree, returning the students to the condition in the labor market before the university reform, which is a plan of studies that requires 5 years.

The second case is based on the premise that the labor market is aware of the competences of the graduates, in which case, the decreasing trend is caused by a mechanism of expectation of benefit. When an enterprise assumes a worker with qualifications  $X(Qx)$ , it does not only invest economically on keeping it as an asset, but it is also investing resources on training and development of their competences, even if these are developed when an individual is

Commented [GV18]: not sure that the “;” is correct here

expending time in the labor market. To the enterprise investing in a worker with master degree qualifications over a worker with bachelor degree qualifications represents an investment with a better return, by being recognized as more capable workers or by requiring less training.

Thus, the second case uses a mechanism attrition of opportunity, in which there is an expected outcome from choosing any of the graduates, and the enterprise chooses the best outcome. This process limits the opportunities of the actors.

This suggest that the original hypothesis is true for the labor market since it has not defined a use for bachelor degree graduates. Though the degree is recognized as valuable, the market considers that graduates of Qm are always preferred. This generates another mechanism that is known as negative feedback. Because bachelor students find it harder to be assumed, they will self-select the master degree as the only viable exit point of their investment education, and in doing so, they will increase the pool of master graduates from which enterprises can assume and reduce the available positions for bachelor graduates.

The third case suggests the presence of a strong cultural environment that is simply "used to" preferring the master degree and it is resisting change. This would mean that the labor market ability to differentiate the both degree is irrelevant when assuming them, but that it is the students that define their level of participation in the labor market.

This assumption reveals, that regardless of the mechanisms in place by the institutions to change the outcome, students will continue to engage in the master degree in larger numbers, simply because it is what they believe is expected of them. However, this reveals the mechanism explained for the second case. There is a negative feedback when there is a labor overflowed with students of master degree qualification, in which simply because there are more of master graduates, the bachelor job offers are competed by both bachelor and master graduates, but the positions that require master degree are unreachable for bachelor graduates.

These cases, and the enacting mechanisms provide feedback for universities and their partners in the labor market. And the signal is one that continues to favor a 5 years degree, even if compressed of a 3+2 system, suggesting that the changes produces by the reform are not sufficient to declare that it serve other purpose beside the homologation with the EQT.

More to support the case of a cosmetic implementation, for the UPC, where the bachelor degree is central, the master student population represents at most a 35% of the student population of the bachelor (using the example of the bachelor on industrial engineering versus the master). It would seem like the scheme in the UPC is inverse to the one in POLIMI, the evidence seems to point out that both universities do not operate in the same market, both demand and offer are different.

The graduates in the labor market, suggests that even if the universities are going towards a more operative and less cosmetic operation, the market is not in agreement. The feedback received by the university from the labor market, which is the force identified as trigger by

POLIMI for promotes the changes and adaption, is localized, not only to a Domestic level, but also to the individual level on the region.

From the international interest of the policy we see, that the international groups involve that take part in both countries, is neither European nor similar between Spain and Italy.

Italy has a major incoming population from China, which suggests that regardless of the reform the universities would have to adapt the system to allow for the internationalization, from a national perspective, there is now way to enforce this, but universities interested in this international population would have a natural evolution of policies that would lead them to this conclusion.

Spain, has huge inflow of students from Latin American countries, which are also outside the Bologna accords, and the UPC analysis has shown that great part of its population is limited to Spanish speaking communities. Indeed, the languages foment a great incentive for students to enroll on any given institution, but the matter at hand is that the standardization of the EHEA has not provided results that would be expected.

In conclusion:

- Actors, being academic staff, students and labor market do not recognize the changes caused by the reforms to be relevant, and they continue to have the same posture towards the degrees that they had before their evolution into the international environment.
- The international community has been amplifying to include foreign students, but the incoming flow of students from the European Union, where the education has been homologized, is still a minority, the filter that was removed by the EHEA is not a modifier for the countries or their academic institutions.
- Students from all over the world can follow the process of the Declaration of Value to homologize their studies, and foreign students are willing to go through this process more than Europeans are willing to move to countries like Italy or Spain.
- Both the UPC and POLIMI have made changes, but the causation of these changes is not relatable to the Bologna process, the higher education reforms or the European policies. The reforms can be identified as the consequence of the evolution of the methodology, development of policies and natural evolution of the educational institution.

#### 5.4. RESEARCHER CONCLUSIONS.

Considering the international mobility of students. The national level analysis has proven beyond any reasonable doubt that the economic performance of countries is the primary reasons why students transfer between universities across countries. To deny that would mean ignoring the inbound and outbound of the tertiary students in both, the Spanish and Italian case, were students move to countries with better economic performance.

From the results obtained at national level and the individual (the universities), the outbound of students, shows that Italian and Spanish students move economical performing country within the Bologna accords, reaffirming that the economic performance is an important input in the process of student's selection of universities, but also suggesting a functional aspect of the reform. However, the reform would seem to be cosmetic in the mobility aspect of the student community, since inbound students are from countries not within the Bologna process, suggesting that the homologation of the studies was never a showstopper for students who wanted to travel abroad.

We would need a reference to determine if the reform is more cosmetic that functional. Starting from the example of the UPC, where the master student population has almost duplicated in the last 5 years, and the percentage of growth is significant enough to demonstrate the effect of the international environment promoted by the reforms.

The effect could be explained as a part of the natural evolution of a policy, only if creating program of study in the international language (English) was a natural process, which is not. It was only through the initiative of the Bologna process that universities began the process of internationalization. The reforms are an enabler without which, the international evolution of the policy could not take place. Thus, confirming the causal relationship between the reform and the evolution of the policy.

**Conclusion: In terms of student international mobility, the reform was functional.**

At international level, the EC is acting like a broker that is trying to get students from different countries to interact with universities along the EHEA. The EC is making policies with the purpose of standardizing the means and the measurements of the tertiary education level, while keeping each education system unique. Though it is countries that regulate the education, we see that the definitions of the activities, roles and performance indicators of universities in the EHEA are autonomous in their operation, and therefore, it is the institutions that decide how to engage the policies.

The cases of the UPC and POLIMI were chosen because they operate in similar environments but show opposite systems and evolution of policies. When the international level is trying to lure students from abroad, both students and universities are expected to have a reaction.

Through this research we saw the POLIMI apply a mechanism of attribution of opportunity, where there was a requirement to introduce the bachelor and the master degree. POLIMI refocused through a heuristic anchor, and an identity shift policy, the transformation the

Commented [GV19]: attribution

master degree into an international experience, and although the incoming foreign students are in a significant majority from countries outside the EHEA, the brokerage from the European Commission had a functional design change in the POLIMI structure.

POLIMI has focused more resources into redefining the master than the bachelor, not only suggesting that the university has focused on the degree with more international environment (for the attrition of opportunity) but also that the measurement for the cosmetic nature of the policies cannot be solely based on the introduction of the bachelor degree graduates into the labor market, but it has to be based on the results obtained from the university in the changes made to the master degree.

Meanwhile, in the UPC there was an environment evolution where the master degree was one with less demand, and through experience given in repetitive interactions and the attrition of threat, created the demand for international master studies plans, and lead to the creation of courses designed in English. We receive confirmation of the change and evolution in the enrollments processes, that until recent, started to increase student population of master students.

We have also seen that there is a language barrier on POLIMI that has been removed, and that the barrier was never as strong in UPC, because of the large Spanish speaking community, that forms a significant part of the Spanish inbound student population. The concept is one to promote the evolution towards the interactions with the international environment, regardless of the EHEA orientation.

It is one of adaptation to the new request of the tertiary education market, that is marking the crucial difference between the functionality and cosmetic, so regardless of mechanism orientation of the policy towards to the international environment the concept of the attrition of opportunity perceived by POLIMI, and the concept of the attrition of threat by the UPC, we can identify functional changes on the academic staff and program design.

**Conclusion: The design of university programs was functional and correlated to the reforms.**

Commented [GV20]: correlated

POLIMI has also assigned specific coordinators, and tasked them with the creation of degrees, where they interact frequently with the labor market in order to make the degrees more valuable.

When the matter at analysis is the organizational model, there is not sufficient evidence to suggest that the academic staff have change the organizational model beyond superficial to functional.

We have confirmed that the UPC has modified their KPI, and therefore the management while POLIMI has keep a similar organizational model. What happened when the KPI change, was identity shift of the management towards the new scope. More than a way to give more importance to the competences of the professors over their social status, what this policy did, was to refocus the target of a specific outcome from introducing a third party to evaluate the staff, it removed any potential bias, but it allows to university to focus on the maximization of the new KPI.



Focusing on a KPI such as researches, published documents or classes to select the academic staff, makes sure that the specific interests of the university are maximized, and that other variables that could otherwise block the introduction of a qualified academic staff are removed, because these variables become less important. This policy also gave entrance to a new generation of coordinators and professors, that are more open to the international environment and the design modern programs with a broader perspective.

However, the rhetoric of this policy being related to the international reforms is not sufficient. We could state that the internationalization process created an attrition of threat and that the university responded with the identity shift. In this case the reason behind the attrition of threat would not be directed towards the international environment, but to an introspection of the university best practices.

**Conclusion: There is not sufficient evidence to confirm that the organizational model changes were functional or related to the reforms, thus the original hypothesis remains, sustaining that it is cosmetic.**

To understand if the reforms were functional we refer to the trend more than the immediate change. For example, in Italy from 2004 we can see that the number of bachelor and master degree graduates were almost similar, but in the trend, we see that the master degree population is pushing the bachelor degree out of the market.

The trend in Spain is a stable growth towards the master, while the growth in Italy is towards reducing the bachelor. Though the previous statement suggests the same result for Italy and Spain, the key indicator is that the master is not growing, it has always been remarkably high since the reform, but the bachelor is being rejected by the actors as a viable exit point on studies. When looking at the UPC the growth is significantly higher than what the statistic would suggest, duplicating its master student population in the last 5 years.

The trend in Italy is stable for the enrollment for the master degree between 60 and 50 percent, but the percentage of the population that enters the labor market is decreasing. The percentage of enrollments to the master degree in Spain is continuously growing but at a stable rate, no significant changes can be identified as consequence of the reforms.

**Conclusion: The student's enrollment rates were not affected by the reform, supporting the original hypothesis.**

Both bachelor and master have now different objectives and will implement different mechanisms to reach particular goals. However, the university still must adapt many of its functions to the division of master and bachelor. One of the examples is the career service. When I enrolled to POLIMI as a master degree student, I took a critical view to the results the university provided in the web site of the career service, this tool provided me and many others with the feedback from previous graduates. It shows the results of the introduction of master degree graduates to the labor market. When I finished my courses, I started to look to a similar tool for the pool of job opportunities that POLIMI partners were offering. In few of these services was the bachelor included, and fewer differentiated them from the master of science.

Therefore, the introduction of coordinators is consequence of a natural evolution of a policy directly linked to the Bologna process and the EHEA that separated the 5 years degree in Italy, but the fact is that few of the university tools and infrastructure have been adapted to separate the 3 years degree from the master of science.

This implies that the school have not perform its broker activities with the labor market by promoting and identifying students the new degree. This would not even fit the definition of cosmetic where the change occurred but is more superficial than functional, there was not even the superficial change in the areas that involve the interactions with the student with the labor market. Should the school decided to consider the new degree as functional, the tools given to the master should also be given to bachelor students.

Master of science students from POLIMI cannot differentiate themselves in the labor market the evidence is that 30% of the master graduates cannot successfully join the labor market and do apprenticeships and internships 3 years after graduation. The recognition of the either degree in Italy is low at best. The degree should identify the competences of the graduate, a high percent of apprenticeship after 3 years of being available in the labor market proves that the certification of a degree is insufficient for graduates to send a credible signal of the competences to the labor market.

While the interaction between students and the labor market have not significantly changed, the fact that the wages for master degree are those of the pool between master and bachelor, provides sustenance for the original hypothesis, that the policies had only a cosmetically effect result.

In the UPC the wages have been reduced by the average wage of a graduate, but it is still significantly higher than the average wage in the region. There is no significant evidence to conclude that there has even been a change of interactions between students and the labor market, suggesting that the reforms did not modified the already existing interactions, not even at a cosmetic level.

**Conclusion: There is not sufficient evidence to confirm that the interactions between graduates and the labor market have changed, suggesting that the reform was cosmetic in incorporating graduates in the labor market.**

Students interactions are a key actor to differentiate between the UPC and the POLIMI case. Not only do bachelor students believe they can't receive a fair wage, but they self-select themselves in the master degree which unbalances the market. In Milan, because the market is overflowing with master degree graduates, the difference between the wages of the average wage and the wage of a POLIMI graduate is insignificant, unlike in the UPC where there is a significant different of more than 20 percent.

The average earning from a master graduate from POLIMI versus the average of a graduate from UPC is 500 euros per month after taxes lower in POLIMI, while the average earning in Milan are 200 euros per month higher than in Barcelona. The average wage of the POLIMI graduates after 3 years in the market is the average in the city of Milan, while the average of the UPC is significantly higher than the average (this is better explained in section 4.2.2.2).

The students and graduates have not shown adaption to the labor market after the reform. Although there is a percentage of students that are exiting their investment on education after the bachelor, their investment on education is not significant enough, the percentage of master students is too high for the current labor market, and it is devaluating itself in the local market. In the international market, graduates from POLIMI obtain significantly higher wages, and yet the percentage of graduates that move to foreign countries is near 5 percent.

This analysis suggests that although the labor market can introduce the number of graduates coming from universities, so the average wage that is offer is the pool wage and is incapable of recognizing the value of the degree.

The interactions between the graduates and the labor market have not been broaden. The market will be dependent to the local market.

**Conclusion: The reforms are transparent and none functional for the internationalization of the labor market, sustaining the original hypothesis.**

### 5.5 AN EXPERT'S OPINION

*The following is the feedback received from Alejandro Medina Giopp. An expert in public value and project manager from the World Bank Group, who provided us with this feedback an interview. (Medina Giopp, s.d.)*

The Process of Bologna has managed to change the interactions of universities and students worldwide. The way universities managed the introduction of foreign students, and the changes to their structural and organizational levels are functional, however, the variables that have changed are on the offer side of the market, specifically the competences and design of qualified worker.

The reforms that take place because of the Bologna Process have provided no new mechanisms of interactions between the students and the labor market. The absence of a discerning mechanism in the market of qualified workers and of rewarding the investment on either bachelor student or master is essential in this matter.

Graduates that join the market after 3 years from graduation, or are still in training process, reveals that the market does not properly recognize a degree of studies as a differentiating characteristic of qualified workers.

The environment present in Catalonia, suggests that a market provides a benefit to those who invest in education, but the environment in Milan does not, evidencing the discrepancy in the EHEA. The working environment in a country within the EHEA might not justify the investment on education while the opposite might be truth in another country with in the EHEA, bus since the market for students is becoming more competitive, and global, it is very likely that the inscription rates will continue to increase.

For these to be successful, there must be a reform that changes the way graduates are introduced into the labor market in which not only universities but students as well, select to engage in the courses that provide the optimal benefit for the market. Using the example of

**Commented [GV21]:** you should quote the source of these opinions

Aguascalientes, Mexico, where a Nissan Motor production plant operates, students of mechanic engineering from the local university orient their studies towards the specific need of this enterprise in the perform apprenticeship, internship and professional practices with direct participation coordination of Nissan officials. Students do not need to engage in further studies than those the enterprise require, and when students graduate from the bachelor, they are assumed by the enterprise, and when higher qualifications are required for a career development, the enterprise selects the personal and encourage them through relations with universities to engage in such studies.

A market overpopulated by highly qualified workers will decrease the value of education and will increase the likelihood of highly qualified workers to assume roles that are below their capabilities.

Universities and governments in Europe, should reform how they introduce new graduates into the labor market. The labor market is not as open as the EHEA to foreign students, there is a lack of policies that help candidates face the sunk costs of switching to another country, but they are also faced with language barrier (which have significance according to this research).

Seeking to create a EHEA requires cooperation and commitment to redesign the labor market in Europe. The strategy of a market to obtain optimal results works only if the market can be properly balanced, modifying variables affecting only the offer, are expected to have consequences on the demand which should be managed through regulation.

## 5.6 BEST PRACTICES (LESSONS LEARNED).

### For the student community:

- Graduates should make use of the mobility granted by the European community, to develop the profession of their preference in accordance with the market demand.
- Students should evaluate the cost, including the cost of opportunity that studying a master degree signifies. They should verify that there is a benefit to the master before enrolling into such a degree. And restrain themselves from studying one if it does not fit its short or midterm objectives. Universities now a day provide programs of study that can be followed even when active in the labor market. In case a master degree is required in the progress of their professional life, the choice can then be made.
- Even though the international community is open, the option to move across countries not in the EHEA is available, and the options should also be considered, for studies and later professional development.

### For the academic staff:

- The interactions with the partners on the demand side must be re-evaluated, and the methods used to introduce master degree graduates into the labor market. Having

graduates working on apprenticeship and internships, should also signal a negative on the performance that could reflect the condition of the market.

- The coordinators should follow the mechanisms of brokerage to introduce the bachelor degree as the most viable choice in cases where no professional development has been developed. The master degree is a specific course that should be engaged to increase the professional characteristics of the individual once it has selected a definitive path, or (in case of the labor market) a specific knowledge or competence is required from them.
- The openness of the institution to the international student market, can help balance deficits in student population and increase the competences of graduates. Policies that enable foreign to enroll in the university have been proved to provide positive outcomes.

## 5.7 TIP OF THE ICEBERG.

This research contains only a superficial analysis of the subjects. There is more to be found in analyzing the specific interactions between the institutions and their partners in the demand side of the labor market, the mechanisms that unite them, and the policies in place.

The analysis done in this research provides an input to the future analysis of the policy making environment in the European union, and specifically in Italy and Spain. Examples like the proposal to reduce the duration of secondary level of studies to four years in Italy (Zorio, Pubblicato il 06/02/2018), although well received, would cause the official school ages to standardize with other European countries, but as we have learned, the official school age in Italy includes the Master degree which would further promote the devaluation of degrees like Master of science in POLIMI of studies by making it comparable to Bachelor degrees in other countries (in terms of cost and time invested, which is used as metric).

The effect of such policies could reduce even more the difference between the income of Master and bachelor's degree graduates in cases like Italy. The competitive European market and the student response would require a dedicated macro analysis, for which this document provides a list of subjects, actors and level of analysis that researchers can use as introduction.

More results can be obtained from selecting a broader list of cases to analyze from more countries and by deepening on each level of the analysis. For example; considering more than three countries, or countries with different economic development in the European zone could provide additional outputs and conclusions.

The research is therefore, an encouragement to promote awareness for all actors in decision making processes. The mechanisms revealed provide the actors involved with the decision-making process with an input to be used when implementing policies in order to promote better results, and policy design when integrating public institutions to the international environment.

## REFERENCES

- AlmaLaurea. (2015). XVIII Indagine Condizione occupazionale dei Laureati.
- AlmaLaurea. (s.d.). *Soft Skill*. Tratto da <https://www.alma laurea.it/info/aiuto/lau/manuale/soft-skill>
- Archick, K. (2017). *The European Union: Questions and Answers*. Congressional Research Service. Tratto da <https://fas.org/sgp/crs/row/RS21372.pdf>
- Assaad, R. (2015). Making sense of Arab labor markets: the enduring legacy of dualism. *IZA Journal of Labor & Development*. Tratto da <http://www.izajold.com/content/3/1/6>
- Barzelay, M. a. (2004). Una guía práctica para la elaboración de estudios de caso sobre buenas prácticas en gerencia social. *Banco Interamericano de Desarrollo*.
- Beach, D. a. (2013). Process-Tracing Methods, Foundations and Guidelines. *The University of Michigan Press*.
- Bülow, M. v. (2010, October 9). Brokers in Action: Transnational Coalitions and Trade Agreements. *Congress of the Latin American Studies Association*. Tratto da [Brokers\\_in\\_Action\\_Transnational\\_Coalitions\\_and\\_Trade\\_Agreements\\_in\\_the\\_Americas](http://www.las.ac.uk/Brokers_in_Action_Transnational_Coalitions_and_Trade_Agreements_in_the_Americas)
- Career Service. (2017). *Employment Statistics*. Politecnico di Milano. Tratto da <http://cm.careerservice.polimi.it/en/employment-statistics/>
- Centro Virtual Cervantes. (2017). CADA UNO HABLA DE LA FERIA COMO LE VA EN ELLA. *Refranero multilingüe*. Tratto da <https://cvc.cervantes.es/lengua/refranero/ficha.aspx?Par=58311&Lng=0>
- Cinco Días. (2017). Herramientas financieras. *El país*. Tratto da [https://cincodias.elpais.com/herramientas/calculadora-sueldo-neto/#tabla\\_resultados](https://cincodias.elpais.com/herramientas/calculadora-sueldo-neto/#tabla_resultados)
- Coughlan, S. (2012). Italian university switches to English. *BBC News education*. Tratto da <http://www.bbc.com/news/business-17958520>
- DE'VITO, L. (2012). Politecnico, i profs ui banchi. *La Repubblica, Milano*. Tratto da [http://milano.repubblica.it/cronaca/2012/05/17/news/politecnico\\_i\\_prof\\_sui\\_banchi\\_per\\_poter\\_insegnare\\_in\\_inglese-35290783/](http://milano.repubblica.it/cronaca/2012/05/17/news/politecnico_i_prof_sui_banchi_per_poter_insegnare_in_inglese-35290783/)
- Doug McAdam, S. T. (2001). *Dynamics of Contention*. Cambridge University Press.
- EHEA. (1998). SORBONNE DECLARATION 1998. *MINISTERIAL DECLARATIONS AND COMMUNIQUÉS*. Tratto da <https://www.ehea.info/cid100203/sorbonne-declaration-1998.html>
- European Commission. (2017). The Bologna Process and the European Higher Education Area. *EDUCATION AND TRAINING Supporting education and training in Europe and beyond*. Retrieved from [http://ec.europa.eu/education/policy/higher-education/bologna-process\\_en](http://ec.europa.eu/education/policy/higher-education/bologna-process_en)
- European Commission. (2017). Descriptors defining levels in the European Qualifications Framework (EQF). *Learning Opportunities and Qualifications in Europe Information about courses, work-based learning and qualifications*.

- European Commission. (2017). Strategic framework – Education & Training 2020. *EC EDUCATION AND TRAINING Supporting education and training in Europe and beyond*. Tratto da [http://ec.europa.eu/education/policy/strategic-framework\\_en](http://ec.europa.eu/education/policy/strategic-framework_en)
- Expansión. (2016). PIB de Cataluña. *Expansión*. Tratto da <https://www.datosmacro.com/pib/espana-comunidades-autonomas/cataluna>
- Gobierno de España, Boletín Oficial del Estado. (1983). *Ley organica 11/1983, 25 de agosto, de Reforma Universitaria*. Madrid: Ministro de la presidencia y para las administraciones territoriales. Tratto da <https://www.boe.es/buscar/doc.php?id=BOE-A-1983-23432>
- INE. (2017). Población residente por fecha, sexo y edad. Tratto da [www.ine.es](http://www.ine.es)
- Investopedia, LLC. (2017). Exit Strategy. Tratto da <https://www.investopedia.com/terms/f/forex-trading-strategies.asp>
- ISTAT. (2017).
- Kelman, S. (2005). *Unleashing Change, A study of organizational renewal in government*.
- King, E. M. (2011). Education is fundamental to development and growth. *The World Bank*.
- La voroImpresa. (2013, October 17). Tirocini: la normativa aggiornata sugli stage in azienda. *Il contratto di stage: obblighi e linee guida del tirocinio formativo in azienda alla luce delle novità normative*. Tratto da <http://www.pmi.it/impresa/normativa/articolo/57154/tirocini-la-normativa-aggiornata-sugli-stage-in-azienda.html>
- Loades, R. (2005). The Bologna Accord: A European Revolution with Global Implications. *Graduate Management News*. Tratto da <https://www.gmac.com/why-gmac/gmac-news/gmnews/2005/january-february/the-bologna-accord-a-european-revolution-with-global-implications.aspx>
- MECD. (2017). Avance de la Estadística de estudiantes.
- MECD. (2017). *Formación*. Tratto da [www.mecd.gob.es](http://www.mecd.gob.es)
- Medina Giopp, A. (s.d.). *Personal Web Page*. Tratto da <https://alejandromedinag.wordpress.com>
- MIUR. (2004, November 12). Decreto 22 ottobre 2004, n.270. Tratto da [http://www.miur.it/0006Menu\\_C/0012Docume/0098Normat/4640Modifi\\_cf2.htm](http://www.miur.it/0006Menu_C/0012Docume/0098Normat/4640Modifi_cf2.htm)
- Numbeo. (2017). Cost of Living Comparison Between Milan and Barcelona.
- OECD. (2016). Unemployment rate. *Organisation for Economic Co-operation and Development*. Tratto da <https://data.oecd.org/unemp/unemployment-rate.htm>
- POLIMI. (2017). Lavoro: laureati Polimi sempre più apprezzati. Tratto da [https://www.polimi.it/fileadmin/user\\_upload/comunicati\\_stampa/1502373130\\_Comst\\_Indagine2017.pdf](https://www.polimi.it/fileadmin/user_upload/comunicati_stampa/1502373130_Comst_Indagine2017.pdf)
- POLIMI. (2017). *TOWARDS THE PRESENT*. Tratto da <https://www.polimi.it/en/university/history/towards-the-present/>
- Ragin, C. (1987). The Comparative Method. Moving Beyond Qualitative and Quantitative. *University of California Press*.



- Repubblica. (2015, September 12). *Giovani italiani, sei su dieci pronti a lasciare il Paese*. *Repubblica*.  
Tratto da  
[http://www.repubblica.it/economia/2015/09/12/news/giovani\\_italiani\\_sei\\_su\\_dieci\\_pronti\\_a\\_lasciare\\_il\\_paese-122722548/](http://www.repubblica.it/economia/2015/09/12/news/giovani_italiani_sei_su_dieci_pronti_a_lasciare_il_paese-122722548/)
- Sampedro Requena, B. E. (2006). *Reforma educativa española*. Universidad de cordoba. Tratto da  
<http://www.uco.es/~ed1alcaj/polieduca/dmpe/grupo47.htm>
- Schelling, T. C. (1984). *Self-Command in Practice, in Policy, and in a Theory of Rational Choice*.
- Svalduz, F. (2015, December 09). \*SPECIALE UNIVERSITA\* GIOVANNI AZZONE: POLIMI, COME PREPARIAMO I NOSTRI STUDENTI. Tratto da  
<https://www.specchioeconomico.com/speciali/2426-speciale-universita-giovanni-azzone-polimi-come-prepariamo-i-nostri-studenti>
- The World Bank Group. (2017). Gross enrolment ratio. Tratto da  
<http://data.worldbank.org/indicator/SE.TER.ENRR>
- UNESCO. (1997). International Standar Classification of Education (ISCED). Tratto da  
[http://www.unesco.org/education/information/nfsunesco/doc/isced\\_1997.htm](http://www.unesco.org/education/information/nfsunesco/doc/isced_1997.htm)
- UNESCO. (2011). Classification of Education ISCED 2011. Tratto da  
<http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf>
- UNESCO. (2017). Global Flow of Tertiary-Level Students. Tratto da <http://uis.unesco.org/en/uis-student-flow>
- UNESCO. (2017). Glosary: Outbound mobility ratio. Tratto da <http://uis.unesco.org/en/glossary-term/outbound-mobility-ratio>
- UNESCO. (2017). Glossary: Inbound Mobility rate. Tratto da <http://uis.unesco.org/en/glossary-term/inbound-mobility-rate>
- UNESCO. (2017). Official school ages by level of education, Education and Literacy. Tratto da  
<http://uis.unesco.org/en/country/it>
- Zorio, S. (Pubblicato il 06/02/2018). Cossato: La Stampa. Tratto da  
<http://www.lastampa.it/2018/02/06/edizioni/biella/il-diploma-in-quattro-anni-esperimento-della-maturit-breve-debutta-al-liceo-di-valle-mosso-hObe4Bp6sad0q3NELu2k1/pagina.html>