

# Synthetic Indicators of Spanish Universities

Francisco Pérez (dir.) Joaquín Aldás (dir.)







This project has been carried out by the following team:

Francisco Pérez (dir.) (Universitat de València and Ivie) Joaquín Aldás (dir.) (Universitat de València and Ivie)

Rodrigo Aragón (Ivie) Francisco Goerlich (Universitat de València and Ivie) María Moraga (Ivie) Irene Zaera (Ivie)

**DESIGN & DOCUMENTATION** 

Rosa Buitrago Alicia Raya Susana Sabater



http://dx.medra.org/10.12842/RANKINGS\_EN\_ISSUE\_2021

## Table of contents

## 5 ACKNOWLEDGEMENTS

7 1. INTRODUCTION

## 13 2. METHODOLOGY

- 2.1. THE DESIGN OF RANKINGS
- 2.2. ACTIVITIES STUDIED
- 2.3. DISAGGREGATION OF ACTIVITIES
- 2.4. INDICATORS, AREAS AND DIMENSIONS
- 2.5. PERIOD COVERED BY THE DATA
- 2.6. CRITERIA FOR THE CONSTRUCTION OF INDICATORS
- 2.7. PERFORMANCE RANKINGS VS. VOLUME RANKINGS
- 2.8. PRIVATE UNIVERSITIES

### 31 3. USER PERSONALIZED RANKINGS

- 3.1. EXAMPLES OF PERSONALIZED RANKINGS
- 3.2. DESCRIPTION OF THE WEB TOOL FOR GENERATING PERSONALIZED RANKINGS OF DEGREES
- 3.3. COMPLEMENTARY INFORMATION ON GRADUATE EMPLOYABILITY

### 43 4. MAIN RESULTS

- 4.1. U-RANKING
- 4.2. U-RANKING VOLUME
- 4.3. U-RANKING VOLUME VS. U-RANKING PERFORMANCE
- 4.4. U-RANKING VS. SHANGHAI RANKING
- 4.5. COMPARISON OF RESULTS WITH OTHER INTERNATIONAL RANKINGS
- 4.6. RESEARCH VS. TEACHING: SENSITIVITY ANALYSIS
- 4.7. TEACHING AND RESEARCH AND INNOVATION RANKINGS
- 4.8. PUBLIC AND PRIVATE UNIVERSITIES' RESULTS COMPARED
- 4.9. U-RANKING 2020 AND 2021
- 4.10. REGIONAL UNIVERSITY SYSTEMS

## 5. CHANGES IN BACHELOR'S DEGREE PROGRAMS OFFERED IN THE LAST DECADE

- 5.1. METHODOLOGY
- 5.2. MAIN FEATURES OF THE CHANGES IN THE OFFERING OF DEGREES (SINGLE DEGREES AND DOUBLE DEGREES)
- 5.3. FIT BETWEEN THE NEW OFFERING AND STUDENT DEMAND IN PUBLIC ON-SITE UNIVERSITIES
- 5.4. THE NEW OFFERING AND LABOR MARKET SIGNALS
- 5.5. DETERMINANTS OF THE CHANGES IN DEGREE PROGRAMS OFFERED

### 99 6. CONCLUSIONS

- 104 Appendix 1: Glossary of Indicators
- 106 Appendix 2: List of University Abbreviations
- 107 Appendix 3: Universities' Panel of Indicators
- 181 REFERENCES

## Acknowledgements

The ISSUE (acronym in Spanish for *Indicadores Sintéticos del Sistema Universitario Español* [Synthetic Indicators of the Spanish University System]) project, developed by the Ivie (The Valencian Institute of Economic Research) and the BBVA Foundation, is an essential part of a program of activities carried out by both institutions to document and analyze the role of knowledge in social and economic development. This report presents the basic products of the project, U-Ranking and U-Ranking Volume, including the methodology and results for 2021 (9th edition).

The approach of ISSUE, the selection of variables on which the rankings compiled are based and the methodology used when treating the data have been thoroughly discussed by the Ivie team with a large group of experts on the assessment of universities, university information and management. We would like to thank these specialists from fourteen universities for their invaluable collaboration.

We would also like to acknowledge the support of the Valencian public universities in the initial stages of the project and the suggestions made by members of different Spanish universities since the presentation of the first results in June 2013, which have been followed with interest by many people. From then until May 2021, the U-Ranking website has received over one million hits, many of which have resulted in the calculation of personalized rankings (over 210,000). As well, the different editions of the report have been downloaded almost 70,000 times. In addition, the project is being followed with interest from abroad: 29% of the visits to the website come from outside of Spain, the majority from Latin America and the United States which jointly represent almost onefourth of total foreign visits. Visits from major European countries such as United Kingdom, France, Germany, Italy and Portugal also have significant percentages. These data provide a stimulus to maintain the continuity of the project while making improvements.

We would like to give special thanks the IUNE Observatory<sup>1</sup> for their collaboration with research and innovation and technological development data, as well as participating in meetings on the availability and suitability of various sources and the problems of their treatment. In this regard, the IUNE Observatory, and specially the INAECU team, directed by Professor Elías Sanz-Casado, have provided complete Bibliometric data on all the Spanish universities (based on information provided by Thomson-Reuters), from which many of the indicators relating to research have been calculated.

Also, the U-Ranking team acknowledges the cooperation of the General Secretariat of Universities and, in particular, the General Sub-Directorate of University Research Activity of the Spanish Ministry of Universities, whom, for another consecutive year, has provided us access to the Integrated System of University Information (SIIU). In addition, the Ivie team would like to acknowledge assistance from the Spanish Ministry of Science and Innovation, through the State Bureau of Investigation, by providing information on the research resources available to universities, The institutional collaboration of all these bodies demonstrates their commitment to transparency and accountability, which are key elements in a sector in which public and private investment is as high as it is in university education.

The Ivie also acknowledges the important contributions made by the following people in

<sup>&</sup>lt;sup>1</sup> The IUNE Observatory is the result of work carried out by a group of researchers from the universities that make up the "Alianza 4U" (Universidad Carlos III de Madrid, Universidad Autónoma de Madrid, Universitat Autònoma de Barcelona and Universitat Pompeu Fabra). The general coordinator

of IUNE is Elías Sanz-Casado, professor at the Department of Librarianship and Documentation of the Carlos III University Carlos III in Madrid and director of INAECU (Research Institute for Higher Education and Science).

developing the methodology of the project: Antonio Villar (Universidad Pablo Olavide and Ivie Research Professor), Antonio Ariño (Universitat de València), Álvaro Berenguer (Universidad de Alicante), Gualberto Buela-Casal (Universidad de Miguel Carot (Universitat Granada), José de València), Fernando Politècnica Casani (Universidad Autónoma de Madrid), Daniela De Filippo (Universidad Carlos III), M.ª Ángeles Fernández (Universitat Jaume I), José M.ª Gómez (Universidad de Zaragoza), Sancho Juan Hernández Armenteros (Universidad de Jaén), Joan Oltra (Universitat de València), Carmen Pérez Esparrells (Universidad Autónoma de Madrid), José Antonio Pérez (Universitat Politècnica de València), Fernando Vidal (Universidad Miguel Hernández) and Carlos García Zorita (Universidad Carlos III).

Thanks are also owed to the group of Ivie researchers and economists who have taken active part in the successive methodological adaptations that are a natural feature of any long-running project such as U-Ranking: José Manuel Pastor and Abel Fernández. The team also counted on the valuable support of other Ivie members. The U-Ranking team would like to thank all of them for their dedication and professionalism.

The results of the U-Ranking project are, therefore, the results of the collaboration of many people and institutions that share the same interest in analyzing the performance of Spanish universities and facilitating comparable and synthetic images of them. Nevertheless, the indicators presented and the resulting conclusions are the sole responsibility of the U-Ranking team.

## 1. Introduction

This report presents the results of the research undertaken by the Ivie to develop the 9<sup>th</sup> edition of Synthetic Indicators of the Spanish Public University System (ISSUE), based on an analysis of university teaching activities and research, innovation and technological development.

The indicators developed provide the basis for compiling different rankings of Spanish universities. The first of these rankings is U-**Ranking**, which analyzes the performance of the University System, synthesizing the universities' achievements in teaching, research, innovation and technological development in a single index. The fact that a smaller university achieves good results is relevant, but we should not ignore that their impact on their environment may be far smaller than a large university with less outstanding results. For example, a university with 100 faculty members that produces 100 patents is more productive than one with 1,000 members that produces 500 patents. However, 500 patents will have more impact on the economy than 100. For this reason we provide a second global ranking, the **U-Ranking Volume**, which considers the combined effect of both variables, results and size, and classifies the universities according to their total contribution to the universities' missions. In addition to these two general rankings, we construct other more specific ones: U-Ranking Dimensions, focused on the classification of universities in two dimensions that make up the mission of the universities (teaching and research and innovation). Also, U-Ranking Degrees ranks the degrees offered by the different universities, providing useful information to potential students for their decision making in the choice of a University.

All of these rankings are approximations of university results, allowing them to be compared

from different perspectives. Through such comparisons, synthetic indicators assess their performance by answering to relevant questions, such as the following:

- Which Spanish universities are the most productive or efficient? Which achieve the greatest volume of results? Do the universities at the top of these rankings coincide?
- Do the positions of Spanish universities in international rankings meet the criteria in terms of volume of activity or in terms of output? Are the positions of Spanish universities in the U-Rankings in line with the best-known international rankings such as that of Shanghai, QS or THE<sup>2</sup>?
- Do the universities with the best research and innovation results stand out for their teaching results? Are both results correlated?
- Do universities maintain their positions over time or do they vary?
- Are the general rankings on university activities as a whole similar to those obtained when comparing specific qualifications? Is the internal heterogeneity of universities high?

The 9<sup>th</sup> edition of U-Ranking includes an additional analysis of the array of degrees offered by the Spanish University System (SUE). Thus, the report considers the changes that have taken place in the offering of degrees in the university system as a whole and in each university over the last decade, with a special focus on the changes experienced between the 2014-2015 academic year and the current one, delving into the pattern of creation and elimination of degrees and the adaptation of new degrees to student and labor market

<sup>&</sup>lt;sup>2</sup> Academic Ranking of World Universities (ARWU), QS World University Rankings and Times Higher Education World University Rankings.

demands. With this in mind, the document will address the following questions:

- Have the universities in the Spanish University System changed their degrees offerings in the last decade? At what pace have the changes taken place?
- How have these changes taken place and what instruments have been used by the universities to adapt and to what extent?
- What areas of knowledge have experienced the most changes?
- Are these changes in line with student demand? Do they adjust to the labor market demand?
- What determines the intensity of the changes in the degrees offered in the different universities?

The answers to these questions can be of great interest in order to offer an updated vision of the Spanish University System, identifying the strengths and weaknesses of each of the universities that form part of it, from a comparative perspective, and to classify them according to their position within the system. That is the purpose of this project and report, as noted in other studies carried out by the Ivie and the BBVA Foundation (Pérez y Serrano [Dirs.] et al. 2012; Aldás [Dir.] et al. 2016; Escribá, Iborra and Safón 2019; Pérez [Dirs.] et al. 2018), the Spanish University System is far from being homogenous. Not acknowledging its heterogeneity makes its evaluation difficult. Thus, this assessment requires that the different specialization and changing characteristics of each university be taken into account, as well as their real possibility of competing in different areas.

### Rankings as synthetic indicators of results

The performance of Spanish universities receives constant attention, and debates about the exploitation of the resources used and their results are increasingly frequent. The driving force behind this interest is the significant amount of resources currently dedicated to these activities and the recognition of the important role universities play in generating and transmitting knowledge, two key areas in the social and economic development of countries today.

In Spain, discussions about university results frequently focus on public universities, for two main reasons: the volume of their activity accounts for most of the Spanish University System and the origin of the majority of the resources used is public; the assessment of their results is therefore considered to be of general interest. There is also a more practical reason. In Spain, traditionally, it has been more feasible to assess the resources and results of public universities based on relatively homogeneous data, because until recently most of the numerous private universities (currently, 34 active centers) did not provide the necessary data to carry out analyses. However, the participation of private universities in public statistics and information systems is increasing, and a project such as U-Ranking, which aims to provide an overall view of the Spanish University System, should take on the challenge of including these institutions. In this regard, recent editions of U-Ranking included in the ranking system private universities that provided sufficient information of adequate quality, so that the data would be homogeneous with that of public universities in order to construct synthetic indicators.

The 9<sup>th</sup> edition of U-Ranking considers 24 of the 34 private Spanish universities that have been active during the 2020-21 academic year, i.e., 71% of total private universities, all of which have information of at least 18 of the 20 indicators used to calculate the synthetic index.

The published rankings include a list of private universities that are not included because of lack of comparable information. This means the reader has an enhanced overview of the system as a whole and will appreciate that if certain universities are not ranked, it is because they do not provide enough available information. If they were included, they would probably rank below other universities that do exercise transparency by disclosing information to the ranking system.

Assessments to measure university results in many countries, as well as in Spain, are increasingly using rankings to classify institutions from different perspectives and with different criteria. Some international university rankings have found their place in debates about the quality of these institutions, becoming widely used references to assess the position of universities and national University systems. Thus, for example, the presence of 13 Spanish universities (15% of the total 84 public and private Spanish universities) among the first 500 institutions of the world according to the Shanghai Ranking, with only one in the top 200, is a fact often mentioned as proof of the limited quality and insufficient international projection of our university system.

Researchers, public and private institutions, university associations, along with companies in information and media are increasingly taking more initiatives to compile rankings. The objectives and interests of such initiatives and their scope are diverse, both in terms of university activities studied (many rankings focus on research), as well as in terms of coverage (national and international), the data used and its treatment. Some recent reports (Rauhvargers 2011, 2013) stressed the importance of carefully assessing the criteria with which the rankings are compiled when demonstrating their significance and interpreting results. Accordingly, in 2015 IREG Observatory on Academic Ranking and Excellence developed a quide that provides recommendations to help stakeholders (students, families, higher education institutions, policymakers, etc.) interpret and use rankings appropriately.

Indeed, the rankings are a particular way to assess university results and their appeal lies in the fact that they offer simple and concise information. This facilitates comparisons while simplifying them and making them sensitive to the criteria and procedures followed when constructing indicators. It is for this reason that the value given to the rankings should not be separated from how they are compiled or from the metric used. These precautions are not always present when using rankings. On the one hand, the reputation of a good position in a ranking turns them into an intangible asset to universities. Therefore, increasingly more universities develop strategies to convey information about themselves (signaling) by advertising their more favorable results, and also to improve their positioning in the rankings. Certainly, the expected return of a good position in a ranking is significant, given that it can affect areas as diverse as recruiting students, attracting researchers, obtaining resources and the social projection of institutions.

On the other hand, the growing interest in these classifications is because they are perceived as useful tools (despite being imprecise) for various purposes and different stakeholder groups in universities as they:

- a) Provide the members of each university with external references on their strengths and weaknesses, contributing to the perception of their position.
- b) Offer the users of university services easy to interpret information in terms of attractiveness or quality of institutions.
- c) Provide comparative information to governments, with the possibility of being used to assign resources or for the accountability of universities to society.
- d) Complement the work of university quality assurance agencies and provide information to analysts interested in having homogenized indicators available.

## Approach of the project

In Spain different university rankings are being regularly presented, compiled with diverse perspectives and methodologies. What sets this project apart is that its rankings (U-Ranking, U-Ranking Volume, U-Ranking Dimensions, U-Ranking Degrees) are developed according to criteria that respond to many recent international recommendations. One of them is that indicators should be created with the objective of studying university activities from a comprehensive approach, i.e. examining teaching, research, and innovation and technological development activities. Another important feature, is that it offers rankings by degrees (U-Ranking Degrees), giving guidance to students when choosing what to study.

The criteria used in developing U-Ranking that should be noted are:

- Offering multiple university rankings, in which university activities are examined from a general perspective, as well as in specific fields (teaching or research and innovation), but also in terms of the performance achieved (U-Ranking) or the total output (U-Ranking Volume) of each university.
- Taking into account the perspectives and interests that potential users of the data have when using the rankings. In particular, special attention has been paid to the importance that many people give to specific areas of activity, such as degrees, when comparing universities. To deal with this concern, a web tool has been developed which enables users to create personalized rankings in terms of bachelor's degrees (U-Ranking Degrees). It has been designed to guide students, families and counselors when choosing a university in which to study. The advantage of recognizing that users have different preferences is that the following problem can be avoided when constructing synthetic indicators: their excessive dependence on experts' opinions (subjective and sometimes contentious) regarding the weights that should be attributed to teaching or research.

The project therefore offers two different products:

- A general collection of rankings on Spanish universities, based on the criteria of the project's team and the experts consulted, allowing each institution to be compared with others from different points of view: U-Ranking, U-Ranking Volume and U-Ranking Dimensions.
- A web tool that provides personalized rankings for different bachelor's degrees, grouped according to area of study and which allows to compare universities taking into account the interests and criteria of each user (mainly students enrolling in universities, their parents or school counselors) on their choice of studies, the regions considered and the importance given to teaching and research and innovation: U-Ranking Degrees.

The project U-Ranking relies on the collaboration with the Spanish Ministry of Universities, allowing access to the Integrated System of University Information (SIIU). The SIIU is a web-based platform that collects, processes, analyzes and disseminates data of the Spanish University System providing homogeneous and comparable statistical information of the Spanish universities. This platform provides information on the degrees offered by each university, in which schools they are taught, students in each degree and full-time equivalent teaching staff, students in international mobility programs, as well as detailed information by degree on success, performance and drop-out rates and percentage of foreign students in each degree. Since new information is continuously being added and updated in the SIIU, U-Ranking can rely on this source to access other indicators that can be expected to become more accurate over time. Through the SIIU, the Spanish Ministry aims to make the university system more transparent, so that citizens and researchers alike can analyze it, draw their own conclusions and generate proposals for improvement. Thus, the SIIU is a tremendously valuable project, which is a result of the necessary commitment on behalf of maioritv of universities and the public administrations that allows society to know the reality and performance of the university system, a system that is vital for economic and social development and in which a large amount of resources are allocated.

One of U-Ranking's main objectives is to provide the most useful and detailed information as possible for the different target publics which are the potential users. Consequently, the project includes additional information both in the ranking of universities and in the ranking by degree:

### a) Ranking of universities:

A university ranking allows to observe the relative position of one institution with respect to others, but it is not easy for university managers or researchers to analyze in depth the performance of a specific university, to assess the aspects in which it stands out or its distance from the average of the system or from a certain university that is taken as a reference. For this reason, the www.u-ranking.es website also offers a **panel of indicators**<sup>3</sup> for each university, which is a file containing the values for each of the 20 indicators used and the mean value of the universities so that managers can observe the relative distance to the average of the system and use the data file to make a direct comparison with other universities. The added value<sup>4</sup> of the indicators is presented on a scale of 0 (minimum value obtained by a university of the system) to 100 (value given to the university that scores the most). In this way, it facilitates the comparison between very different indicators and it offers a general profile of each university. Each panel of indicators also shows the university's position in U-Ranking, U-Ranking Volume and U-Ranking Dimensions, along with basic information regarding its year of foundation, ownership, number of students, teachers and degrees, among other data. In addition, from the information published by the Ministry of Universities and the Spanish Social Security system, the panel includes three indicators on the employability rate in 2018 of university students who graduated during the 2013-14 academic course, as well as the position of each university according to the synthetic index of employability calculated in the previous edition. Finally, as a result of the specific analysis carried out in chapter 5, the panel includes the percentage of single and double degree programs offered by each university that have been created in the last decade.

b) Personalized university rankings by degree:

As with the ranking of universities, the user can consult, once his or her personalized ranking has been calculated, the employability indicators per degree. Thus, for the degrees for which there is information —approximately 1,800 degrees from the 2,638 degrees included in the data published by the Spanish Ministry of Universities— data is given on the employability rate in 2018 of graduates from the 2013-14 academic course, as well as the percentage of university graduates hired according to their educational level.

### Structure of the document

After this introduction, the rest of this document is divided into five chapters, as follows. Chapter 2 describes the methodology used to prepare the various rankings. Chapter 3 describes the approach adopted to allow users to personalize the rankings and the online tool constructed to present the results to students. Chapter 4 presents an analysis of the main aggregate results, putting special emphasis on the comparison of the U-Rankings with the main international reference ranking (ARWU). It also provides an analysis of the sensitivity of our results to changes in any of the assumptions used in preparing the rankings. The results are compared at the level of the university systems of the different autonomous communities. Chapter 5 analyzes the changes that have occurred in the offer of bachelor's degrees over the last decade, analyzing the rate of change and the differences by areas of study and by universities, as well as the fit between the new offerings and student and labor market demands. Lastly, chapter 6 summarizes the main characteristics and results of the project.

<sup>&</sup>lt;sup>3</sup> See appendix 3 for the panel of indicators of the 70 universities analyzed.

<sup>&</sup>lt;sup>4</sup> Without distinction by areas of study, fields of knowledge or degrees.

U-RANKING 2021. SYNTHETIC INDICATORS OF SPANISH UNIVERSITIES

## 2. Methodology

The U-Ranking project was born from the desire to closely examine the most important national and international rankings available, so as to identify possible ways of reducing their shortcomings. The most significant problems arising with rankings occur in the following areas: (1) university activities studied, (2) disaggregation by subject or type of studies, (3) data availability and use, (4) methodological rigor in the treatment of data and construction of indicators, (5) recognition of the user's perspective when creating and providing data, and (6) user-friendly tools to select their preferences in the rankings.

The project has studied the shortcomings in all these areas and this chapter describes how they have been addressed.

## **2.1. THE DESIGN OF RANKINGS**

In the first editions of the ISSUE project, and due to its novelty, an entire chapter was dedicated to the limitations of rankings and the improvements that a new tool like this one should include. The reader can view previous reports —found on the U-Ranking website (www.u-ranking.es)— for a detailed analysis of these aspects, which are summarized in this edition.

The development and use of rankings entails a number of **risks** that should be forewarned. First of all, it is not wise to base strategies on improving the variables studied, instead of on correcting the underlining problems: the improvement of the institutions should be based on principles of efficiency and the results are reflected in the indicators. For university administrators, the goal is to generate policies that will make their institutions improve in teaching, research and knowledge transfer, trusting that if a ranking is well designed (as is the case of U-Ranking), those improvements will be reflected in the indicators used to prepare the ranking. The opposite approach, i.e. to try to improve the indicators so as to improve an institution's place in the ranking, is not only misguided but doomed to failure.

The use of indicators that are not very robust, with values that are highly sensitive to the criteria of measuring the variables and aggregation procedures, and that focus on what should be measured and not only on what can be measured, must be avoided. Finally, a very common risk involving rankings is to focus only on the elite (world-class universities) and obliviate the rest. This may inadequately compare institutions that have very different specializations and resources.

Some of the published rankings show **limitations** that users should be aware of. In the case of universities outside the circle of the "great" universities, many rankings are exclusively based on indicators that focus on research activity and unreliable reputation factors. For example, the exclusive use of these indicators to rank Spanish universities is in many cases inappropriate and risky, leading to wrong conclusions.

In the first three U-Ranking reports, a detailed review of the issues to be considered in the design of a good ranking was carried out and applied to the project. In this report it is not necessary to repeat in detail the aforementioned analysis, but, we will summarize some of the most relevant aspects:

- The study Principles of Berlin on University Rankings (IREG 2006) stresses, among other recommendations, to indicate clearly what the target audience of the ranking is, to be clear about what each indicator measures to be methodologically scrupulous, to focus on the outcomes rather than on the inputs and to maintain a high ethical standard, given the responsibility and impact that rankings have.
- The results of discussions held by the European University Association and the International group of Experts in Rankings (IREG 2006) highlight the importance of providing a

vision of all the institutions, addressing their multidimensional nature and diversity, respecting the user's perspective and maintaining the independence and temporal sustainability of the ranking.

The U-Ranking project expressly includes all the principles which were recently discussed internationally and proposed by the EU. The following sections detail the many aspects that have been taken into account when working with these criteria.

## **2.2. ACTIVITIES STUDIED**

One of the main shortcomings of certain rankings in providing a general assessment of universities, particularly international ones, is that the activities are examined from a very partial perspective. The problem stems from the limited data availability on the results of teaching activities, and innovation and development technology, which are far less abundant than research.

In fact, most of the important rankings focus on analyzing research, taking little account of another significant function of universities which is teaching and barely considering technological development activities, despite their increasing importance. The rankings which are biased toward research are frequently interpreted as representative of university activity as a whole and they may not be.

There are three possible reasons for this: 1) the data available is used and, without a doubt, the abundance, quality and homogeneity of data on research is much greater than in the other two areas; 2) research activity is considered the most important distinctive element of universities in the last two centuries; and 3) the opinion holds that the research quality of professors is a proxy variable for other areas, and therefore observing the results in this area is sufficient to predict the others.

The first reason is practical, but can induce bias by omission in indicators and rankings. The second needs some clarification in that it is a powerful argument regarding postgraduate studies but less so in relation to the degree, especially in mass university systems, such as those of most developed countries today. In fact, in many of these systems there is a significant concentration of research activity in a small number of universities, while in a large number of institutions there is fundamentally teaching activity. The third reason is a hypothesis, which validity should be tested by developing indicators for all activities and testing whether the correlation between teaching and research results is high. If the validity of this hypothesis is not tested, and given that the intensity of university teaching specialization, research and innovation and technological development varies greatly<sup>5</sup>, overlooking the direct indicators of teaching and innovation and technological development can bias the rankings. To the extent that the results of U-Ranking show a low correlation between teaching and research and knowledge transfer, the importance of including teaching and research innovation indicators becomes more relevant, in fact, they are considered the cornerstone of U-Ranking since its start.

Therefore, it is important to take advantage of the data available on university activity in the field of teaching, and innovation and technological development, so that the rankings reflect university activity as a whole more accurately. In addition, this also allows us to recognize the different specialization profiles of universities, as some focus more on basic research (as occurs in many of those most often included in the world rankings), others on higher education and professional development, and others on applied research, innovation and technological development. Currently, the public and homogeneous data available on the innovative activity of Spanish universities does not allow a rigorous, independent evaluation of their performance in the area of knowledge transfer. For this reason, "Research and Innovation" is considered a single dimension, which includes one of the indicators most commonly associated with innovation: patents.

Studying the different activities of the universities is a first step in the direction of addressing the different perspectives on university systems and the different interests that potential users of rankings may have. Thus, a degree student

<sup>&</sup>lt;sup>5</sup> See Pérez and Serrano (dirs.) (2012, ch. 1 and 4).

probably shows greater interest in teaching, while postgraduate students and teachers focus more on aspects related to the quality of research. If the data focuses solely on research results then these distinct approaches cannot be carried out accurately.

The U-Ranking system specifically studies these two categories of university activities, analyzing the data available on each of them in Spain. The national dimension of the project ensures that reasonably homogeneous data is available with a set of variables representing the activity of Spanish public universities and two-thirds of private universities. In the future, it would certainly be desirable to have data available for the rest of the private universities of similar quality and homogeneity as those included in the ranking, which would improve the scope of the project.

The total amount of 72 universities included in the ranking is sufficiently high for the data available to allow a contrast of the hypothesis to which we referred earlier: if research results can predict correctly those of teaching or not. The project has examined this specific objective, with the results presented in chapter 4.

## 2.3. DISAGGREGATION OF ACTIVITIES

A further shortcoming noticed when analyzing current rankings is that many deal with universities in a unitary manner, not recognizing the diversity of areas in which these institutions can offer professional development or conduct research or innovation. This problem needs little explanation: to be more useful, a ranking has to provide the user with as much information as possible on the specific areas or scientific fields of their choice, since universities may not be homogeneous in the quality of each of their areas.

It is for this reason that ranking systems can be improved by providing disaggregated data by areas of study, fields of knowledge or specific degrees. This last level of detail could be very significant for students, given that their fundamental interest is generally linked to the quality of the specific studies that they want to pursue. For the disaggregation, the U-Ranking project had to work in several directions. Firstly, it followed the criteria that it is important to start with the most disaggregated data available, maintaining its detail whenever possible, so as not to lose the wealth of its heterogeneity. Secondly, the disaggregated data had to be homogenized properly before adding it to the indicators. And third, the problems of combining (for the construction of some of the indicators studied) the data disaggregated according to scientific fields or degrees with other data aggregated at university or area of study level had to be solved. When there is no disaggregated data, or its disaggregation makes no sense, the aggregated data has been allocated to the various elements of the set, following the criteria considered more reasonable in each case.

Addressing the above problems is not technically considered to be trivial. For example, in the case of the rankings on specific bachelor's degrees of Spanish universities, to deal with data on areas at different levels of disaggregation, a series of matrices have been created to connect one another. In order to do this, accurate connections had to be established between university, area of study, Web of Science category, areas of the National Evaluation and Foresight Agency (ANEP) and bachelor's degrees.

In allocating research results to each degree, the starting point was data disaggregated by the Web of Science categories (more than 250 items). Given that one classification is not perfectly nested in another, both classifications have been connected, and the two types of errors that could be made have been taken into account:

- 1. *Inclusion error.* That is, attributing to a given degree the research carried out by teachers from other areas. For example, attributing to the Pharmacy degree of a given university, the research in "Hematology" that has actually been conducted by teachers from the Faculty of Medicine and who only teach in Medicine.
- Exclusion error. That is, excluding research by teachers in areas that are not exactly the subject of the degree courses they teach in, as a result of being too restrictive when allocating areas to degrees. For example, if in Economy we only allocate the category "Economics", then important research may be

missed in the area of "Business and Finance", theoretically more related to Business Administration degrees but also carried out by economists who teach in the degree of Economy.

These problems do not have a perfect solution and one of the alternatives have to be chosen. Therefore, we have opted for a more inclusive criterion: when in doubt about whether to associate a category or scientific field to a degree we have chosen to include it, minimizing exclusion errors on the grounds that they are more serious errors.

## 2.4. INDICATORS, AREAS AND DIMENSIONS

The main pillar of a ranking system is the rigor of the procedure followed when dealing with existing problems so that the created classification is based on appropriate data and is treated with reasonable methodological criteria. Many of the rankings have clear shortcomings in this aspect, which international literature has analyzed in detail.

The U-Ranking system considers that a university ranking should consider all their activities and be structured according to the two following major dimensions:

- Teaching
- Research and innovation

The assessment of each of these dimensions can take into account multiple areas of activity. However, many experts agree that an excessive number of indicators obscure the meaning of a ranking and complicate the construction of synthetic indices, a complex matter as it is. Following a criterion of (relative) simplicity, four **areas** have been studied in each of the dimensions aforementioned:

- Access to financing
- Output obtained
- Quality (particularly in the results and in some cases, resources and processes)
- Internationalization of the activities

The main reference to assess universities should be the results, but these can be studied both from the perspective of total volume as well as from the perspective of their quality. If there were a market that assessed the differences in quality, then results showing a higher quality would have a higher price. These prices hardly exist in the area of public universities. The differences in rates, currently very diverse between regions and degrees, respond in many cases to factors that have nothing to do with guality. However, some indicators can supplement, in part, this limited information. Thus, for example, there are indicators on the quality of teaching and research and also on a very relevant feature today regarding the specialization (and quality) of universities: their internationalization.

However, as we pointed out in the introduction, the assessment of the quality of the output is incomplete if we want to take into account the impact of the university system on its environment. A university can generate high-quality results, but if its size is very small, its contribution to technological development or to the production of human capital through its graduates may have a much smaller influence on the productive environment than a university with somewhat lower levels of quality in its output but a significantly larger size. This obliges us to introduce also the size factor in the rankings system, thus generating U-Ranking Volume.

Each of the four areas mentioned has been analyzed using a series of indicators. Depending on the availability and suitability of data, between one and three indicators have been taken into account for each area in the dimension that is being studied.

Table 2.1 shows the indicators studied, after analyzing the availability of data and discussing alternatives with the group of experts working on the project. Agreements were reached by analyzing the suitability of each indicator in capturing significant data on the area and dimension it forms part of it.<sup>6</sup> It is important to stress that the data used is obtained from sources allowing the project database and the rankings based on it not to require universities to provide data directly to U-Ranking.

The logic underlying this selection of indicators, disclosed in summary form, is the following:

### Teaching

- Teaching *resources* are characterized by budgetary allocations per student, and faculty and research staff per student, with special attention paid to faculty members with PhD.
- Teaching *output* is measured by using results obtained by students, analyzing how many students undergo evaluation, how many succeed in those evaluations and how many drop out.
- The *quality* of teaching is very difficult to observe at present, but we studied as a proxy the quality of students measured by the cut-off mark of each area and the percentage of postgraduate students.
- The *internationalization* of teaching is shown by the percentage of foreign students and the percentage of students participating in mobility programs.

### Research and innovation

- The *research* process is characterized by data referring to two types of resources: competitive public funds raised and the provision of research staff, scholarships and qualified technical support.
- Output is accounted for by citable papers published in each area and the number of doctoral theses, which are an indicator of the training activity of a researcher in a given

area. The number of patents is also included in this area.

- The *quality* of the research is reflected in the impact the publications have and the citations that these papers generate.
- Finally, a greater proportion of international publications, international co-authoring and the percentage of research funds from external sources indicate a greater *international* vocation in research activity.

As shown in table 2.1, U-Ranking 2021 is calculated based on 20 indicators<sup>7</sup>, ten for the evaluation of teaching results and another ten for research and innovation activity. In the case of U-Ranking Universities, 16 of the 20 indicators are obtained by areas of study and the remaining four for the university as a whole. However, the level of detail increases in the case of the U-Ranking Degrees (see chapter 3), in which five of the ten indicators of teaching are obtained for each degree and five of the ten indicators of research and innovation are classified by degree groups, that is, an aggregation in 122 groups of the 3,493 degrees and double degrees offered by the Spanish universities analyzed.

<sup>&</sup>lt;sup>6</sup> In order to ensure the transparency of the process in developing indicators, the definition of each indicator, its source and its time frame are all included in appendix 1 and in the following website of the project: <u>www.u-ranking.es.</u>

<sup>&</sup>lt;sup>7</sup> See Annex 1 for a more detailed description of the definition, source of information and period considered.

Table 2.1. List	of indicators, areas	and dimensions	
Dimension	Area	Indicator	Level
		Faculty member per 100 students	Area of study
	Resources	Budget per student	University
		Percentage of faculty member with PhD	Area of study
		Success rate	Area of study
Teeshine	Production	Evaluation rate	Area of study
reaching		Drop-out rate	Area of study
	Quality	Percentage of postgraduate students	Area of study
	Quality	Cut-off mark <sup>1</sup>	Area of study
		Percentage of foreign students	Area of study
	Internationalization	Percentage of students in foreign exchange programs	University
		Competitive public resources per faculty member with PhD	Area of study
	Resources	Contracts with PhDs, research grants and technical support over total budget	Area of study
		Citable documents with ISI reference per faculty member with PhD	Area of study
	Production	Number of patents per 100 faculty members with PhD	University
Research and Innovation		Number of thesis defended per 100 faculty members with PhD	University
		Mean impact factor	Area of study
	Quality	Percentage of publications in the first quartile	Area of study
		Citations per document	Area of study
	Internationalization	H2020 European research funds per faculty member with PhD	University
		Percentage of publications with international co-authorship	Area of study

<sup>1</sup> Mark of the last student who gained admission to a degree with limited places. Source: Own elaboration

## **2.5. PERIOD COVERED BY THE DATA**

University rankings aspire to offer an image of the current position of each institution, though they should not be conceived of as a snapshot of a given year. Many indicators have the character of a flow, and as such, can present high variability from year to year, both in the quality of the information and in the distance between the actual reality and what the information reflects, given the delays in information availability. In addition, other indicators reflect the accumulation of results over long periods of time.

The rankings referred to usually recognize this problem by taking comparison periods longer than a single year, either using moving averages and even considering the complete history of the University (as in the case of the treatment of the Nobel Prize and Fields Medal winners in the Shanghai Ranking). Considering multi-year periods when elaborating the indicators provides greater interannual stability of the rankings and permits specific random disturbances to be smoothed out by considering a longer time range.

Our approach follows this criterion, considering that one cannot reasonably expect abrupt changes in the universities' real situation, so the ranking should avoid giving that impression. Therefore, as information has become available, we have converged toward a 6-year moving average for nearly all the indicators. All of the indicators on research and innovation are already calculated as a mean of six years. Furthermore, since the 6th edition, teaching results are reached using data by university from six academic years, except for the three exclusions mentioned in table 2.2.

Table 2.2 shows the updating in terms of years and time series registered by the indicators used in the ranking for 2021. All the indicators include an additional year compared to the previous edition, covering data for the majority of indicators up to 2019.

In sum, the methodology on which the calculation of the U-Ranking system is based leads one to expect that the rankings of universities will not present sudden changes from one year to another. The existence of an inertia in the rankings seems to be a desirable attribute, since the quality of university institutions does not change radically in the short term, though some of their annual results may do so.

Table 2.2. Time	series used in the 2	021 U-Ranking	
Dimension	Area	Indicator	Period
		Faculty member per 100 students	2013-14 to 2018-19
	Resources	Budget per student	2013-2018
		Percentage of faculty member with PhD	2013-14 to 2018-19
		Success rate	2013-14 to 2018-19
Teaching	Production	Evaluation rate	2013-14 to 2018-19
reaching		Drop-out rate	2010-11 to 2014-15
	Quality	Percentage of postgraduate students	2013-14 to 2018-19
	Quality	Cut-off mark	2020-21
	Internationalization	Percentage of foreign students	2013-14 to 2018-19
	Internationalization	Percentage of students in foreign exchange programs	2014-15 to 2018-19
Resources		Competitive public resources per faculty member with PhD	2014 to 2019
	hesources	Contracts with PhDs, research grants and technical sup- port over total budget	2014 to 2019
		Citable documents with ISI reference per faculty member with PhD	2014 to 2019
	Production	Number of patents per 100 faculty members with PhD	2014 to 2019
Research and Innovation		Number of thesis defended per 100 faculty members with PhD	2014 to 2019
		Mean impact factor	2014 to 2019
	Quality	Percentage of publications in the first quartile	2014 to 2019
		Citations per document	2014 to 2019
	Internationalization	H2020 European research funds per faculty member with PhD	2014 to 2019
	memutonutzution	Percentage of publications with international co-author- ship	2014 to 2019

Source: Own elaboration.

## 2.6. CRITERIA FOR THE CONSTRUCTION OF INDICATORS

A key aspect to being able to trust the meaning of the rankings is that the processes on which their elaborations are based should be transparent and respect the foundations established by statistical publications for the construction of indicators. In this regard, the project team contacted experts in the subject and analyzed the methodological principles established in the specialized literature, especially in the *Handbook on constructing composite indicators: methodology and user guide* (Nardo et al. 2008).

The underlying process of drawing up any of the rankings of universities constructed is structured according to the following six steps —the fifth one being unnecessary in the case of the partial rankings of teaching and research and innovation:

- 1. Preparation of the data bank
- 2. Standardization of indicators
- 3. Weighting and aggregation of indicators within the areas of each dimension
- 4. Weighting and aggregation of area indicators, within the dimensions
- 5. Weighting and aggregation of the dimensions
- 6. Obtaining of rankings

The following scheme graphically illustrates the time sequence of the steps. To complete each of them it is necessary to solve technical problems, as described and indicated below.



## **2.6.1.** Constructing the database and missing data

The starting point for any ranking is to have the necessary available information on the variables to be considered in order to construct each indicator. The data used for the synthetic indices are obtained from public information systems and statistical sources. The main source of information is the Integrated System of University Information (SIIU) of the Spanish Ministry of Universities. The Bibliometric data regarding the research performance of all Spanish universities (based on information provided by Thomson-Reuters, currently Clarivate) and on patents is provided by the INAECU research team in charge of the IUNE Observatory. Information has also been collected from the State Bureau of Investigation on competitive resources and research contracts. Information on European research funds has been obtained from the European Commission's Horizon 2020 Dashboard.

For data on the revenue of private universities, public annual accounts and other information from the universities' website section on transparency have been used.

The data has been collected with the maximum level of disaggregation available (area of study, degree, area or field of study, ANEP areas), so that the standardizations within each field make the results more comparable.

The initial indicators of the ranking are obtained from the database, and when the information allows it, they are calculated by area of study. This disaggregation is available for 16 of the 20 indicators. In the case of the remaining four indicators, the value of the university for all the areas of study is considered. A first technical problem to be solved is the treatment of missing data from certain universities in some of the variables used. Such gaps may be due to several factors, whether technical (an error in loading the data), or of availability (the university may not have generated certain information or not done so in time) and even strategic (a university may opt not to give certain information because it is not in its interests to do so).

Not facing this problem rigorously would condition the comparability of the universities, the quality of the aggregate indices, and the final results. The methodology applied and the new sources of information used have reduced the percentage of indicators with missing values to 1.1%, thus, no further treatment is required to compensate the absence of data. The following are the criteria that have led to this methodological approach:

First, given that U-Ranking takes into account the specialization by areas of study of the different universities and operates in most indicators with this level of disaggregation, it is important to distinguish whether a possible lack of data is due to the absence of activity in that particular area -for example, a university does not register dropout rates in Sciences because it does not offer classes for that area of study- or due to one of the reasons stated above. Therefore, the first step in identifying the missing data is to determine which areas of study are offered by a university. The following criteria are established to identify the areas of study in each university that are nonexistent or of little importance for evaluating its performance:

a) The teaching dimension does not take into account those areas of study in which a university does not offer degrees during the 2020-21 academic year.

b) In the case of the research activity dimension, the areas of study with no full-time equivalent faculty members with PhD are not considered.

As table 2.3 shows, during the 2020-21 academic year, 20 universities did not offer Science degrees, 10 did not offer Arts and Humanities, 7 Health Sciences, and 4 Engineering and Architecture.

Table 2.3. Number of	universities with no activity in t	eaching or researc	h by area of stud	y
		Public universities	Private universities	Total universities
	Arts and Humanities	1	9	10
Teachina	Social studies and Legal studies	0	0	0
With no degree offers	Sciences	0	20	20
in 2020-21	Engineering and Architecture	0	4	4
	Health Sciences	4	3	7
Research and	Arts and Humanities	0	7	7
<b>innovation</b> With no full-time	Social studies and Legal studies	0	0	0
equivalent faculty	Sciences	0	19	19
member with PhD (on average in the last	Engineering and Architecture	0	3	3
6 years)	Health Sciences	1	3	4

Source: Spanish Ministry of Universities (Integrated System of University Information) and own elaboration

Secondly, it should be noted that the indicators are based on the calculation of moving averages, 6 years for most of the cases. If a university does not present any data for the years considered, an average is estimated with data from the available years, thus, reducing the chances of a variable with no data.

In addition, for indicators in which there are a greater number of universities without data, the information is constructed from exhaustive administrative registers, so if a university does not appear it is because it has no activity or no results in that area and therefore its value is 0. This information is based on competitive resources and research contracts from the State Bureau of Investigation, national patents granted from the INVENES database or income data from the European Commission's H2020 projects.

Closely linked to the previous reasons is the improvement in the sources of information and their consolidation over time in the collection of university data.

Finally, the minimum requirement for a university to be evaluated in U-Ranking is that it has at least 18 of the 20 indicators used to calculate the synthetic index, as well as the three variables that measure size (student body, full-time equivalent faculty members with PhD and consolidated revenues). After applying these criteria, the number of data missing is considerably reduced. Out of the 7,431 indicators in U-Ranking 2021, 57 values are missing, which represents 0.77% of the total. Thus, in addition to a detailed analysis of the list of arguments cited, it has been verified that the results do not suffer substantial differences if the missing values are not estimated. Therefore, the decision to not estimate the missing data proves to be the most accurate, since it is robust with the methodology applied previously while it simplifies the calculation method, making it easier to reproduce the ranking.

Treatment of the outliers can be done once the database from which the various indices are obtained is available. An outlier is considered to be any variable that is outside the interquartile range, i.e. those values not included within the interval defined by the percentile value 25 minus one and a half times the interquartile range and the percentile value 75 plus one and a half times the interquartile range of this same ratio. These values are corrected by assigning them the maximum or minimum value —depending on the case— of this interval.

### 2.6.2. Standardization of indicators

One of the pillars upon which the construction of synthetic indicators is based is the proper

standardization of the information, that is, its transformation in order to homogenize it and make possible its comparison and aggregation. There are numerous systems of standardization, such as the Gaussian (subtracting from each variable its arithmetic mean and dividing by its standard deviation), relative order (ordering the values according to their relative value), distances from the mean or the median, and the ratio between the variable and its mean or its median.

The standardization chosen must be in consonance with the method of aggregation to be used subsequently. Because as a general rule the geometric aggregation method has been chosen, requiring the value of the standardized variables to be positive, we must exclude the Gaussian and absolute distances from the mean and from the median, which necessarily generate negative values, as alternatives of standardization.

For this reason, the standardization method chosen is the calculation of the ratio between the variable and its median. Taking into account that the median is the value separating each distribution into two halves, the standardized results will be centered on the value 1: values below the median are bounded between 0 and 1, while those above will be greater than 1.

As previously highlighted, one of the key aspects of U-Ranking is that its methodology takes into account the different areas of study of the universities. Thus, whenever information by areas of study is available, each indicator in level I is calculated for each area of study and university. Subsequently, each one of the 5 indicators per area of study is standardized by dividing by the median of its area and finally the 5 standardized indicators of each university are aggregated by calculating the arithmetic average weighted by the weight of the student body in each area and university (if the indicator belongs to the teaching dimension) or by the weight of the faculty members with PhD (if it belongs to the research and innovation dimension).

## **2.6.3. Weighting and aggregation of indicators within an area**

Once the 20 standardized indicators for each university is obtained, they are aggregated to obtain a first synthetic indicator for each area. Thus, for example, to obtain the value of the indicator for the *quality* area in the *Research* dimension we aggregate the standardized values of the *Mean impact factor of publications* and the *Percentage of publications in the first quartile*.

As in the case of standardization, there exist numerous aggregation procedures, such as the arithmetic, the geometric or those based on factor analysis. The choice of one method or the other has implications in the substitutability of the indicators or the importance of extreme values (both large and small). The aggregation criterion chosen implies a weighting of the indicators, which is important to bear in mind.

It must be taken into account that some universities might have zeros in some indicator of a specific area (for example, they may not possess *Patents*). For this reason we have opted in this phase for an arithmetic aggregation, ruling out the geometric aggregation because the presence of a zero in the product would cause the whole area analyzed to take a nil value.

As the weighting of the indicators shows the importance assigned to each variable when aggregating it into a synthetic indicator, we also reflect on this question. This is a classic problem in the construction of synthetic indices and generally requires a judgment on the relative importance of each element. In the case of economic aggregates the weights are offered by prices —which reflect the market valuation of the goods, services or factors exchanged— but in many other cases there are no prices and the indicators have to be constructed following other criteria, frequently based on subjective opinions.

There are three possible approaches to weighting: 1) assignation of identical weights (which also implies a judgment, since the weight of one indicator is conditioned by the number of indicators included); 2) reference consultation among experts to identify the most widely held opinions (by means of surveys or methods such as the Delphi); 3) weighting according to the user's preferences. These three alternatives have been used in each case according to the level of aggregation to be achieved.

At this first level of aggregation (changing of simple indicators into synthetic indicators for each area) we have opted for the first system, that is, equal weighting. This is because in most cases the indicators capture different aspects of the area analyzed, but there are no clear arguments for granting one of them greater or lesser importance. Also, the nature of the information captured in each indicator is fairly homogeneous and in that case there is less interest in giving greater weight to one indicator or another, because in many cases they are correlated. This occurs, for example, in the case of the mean impact of publications index and the percentage of these in the first quartile. Consequently, the different simple indicators will enter into the calculation of the arithmetic mean with the same weight.

## **2.6.4. Weighting and aggregation of the area indicators within each dimension**

At the second level of aggregation the indicators of the different areas are grouped into an indicator for each of the dimensions considered: teaching and research and innovation and technological development. At this stage there are reasons for following a different criterion, as after the arithmetic aggregation of the previous stage no area indicator presents zeros.

This stage proceeds by means of a *geometric* aggregation method. Among the most interesting properties of geometric aggregation is that it limits the substitutability among the components that it aggregates. In other words, geometric aggregation penalizes those universities that have

neglected any of the four transversal areas (*Resources, Output, Quality, Internationalization*) as against those that attend to them in a balanced manner.

One reason for using weights instead of an equal distribution is that if all the areas were aggregated with the same weight, this being a geometric mean the number of areas considered would influence the result. For example, if we had decided to group the indicators of guality and internationalization in a single area, their influence on the dimension would have been less than if considered separately. Another reason is that, unlike what occurred with the basic indicators, in this case there may be reasons to grant different values to each of the areas. Thus the decisions on the number of areas to be considered and their weights are relevant, and we have preferred to ask experts about the importance that should be given to each area. To make this valuation easier we followed the criterion that the number of areas should be small, and similar within each dimension.

Table 2.4 shows the weights given to the different areas by the experts consulted. Regarding the weight to be given to each area within each dimension at this second level of aggregation, we are inclined to carry out a survey of university experts, by applying the Delphi method, instead of choosing to give them the same weight, as in the previous stage<sup>8</sup>.

Table 2.4. Weights by area				
	Resources	Production	Quality	Internacionaliza- tion
Teaching	25.4	30.4	23.9	20.3
Research an innovation	20	30	30	20

Source: Own elaboration.

<sup>&</sup>lt;sup>8</sup> Two rounds of consultations were carried out, after which a 2.1 percentage point reduction was obtained in the average interquantile range.

## **2.6.5. Weighting and aggregation of the dimensions to obtain the rankings**

The last phase of the methodology establishes how the different rankings of the project are drawn up. This offers university rankings for each of the two dimensions separately, so it is no longer necessary to take any further step beyond those described in the above sections. On the other hand, to draw up the rankings combining the two dimensions it is necessary to perform a new geometric aggregation, deciding the most reasonable criteria for doing so.

In the transition from the dimensions to the final ranking we consider that the importance attributed to each dimension can be different depending on the interests of the people contemplating the ranking, that is, of its potential users: students, researchers, managers, society. For this reason, we have come to the conclusion that the user's perspective can be the key to giving more or less importance to each of the dimensions. It could be unconvincing to impose weights from a specific standpoint -for example, that of a group of experts, who consider that research is the most important-.For individuals with another standpoint, such as students or careers guidance staff, it is more important to attend to the teaching aspects, while for firms the capacity of technological transfer.

After due reflection, therefore, we have opted to consider two alternatives.

First, U-Ranking Degrees offers the option of 1. the system earlier described as *personalized* based on the user's own rankina. preferences. We understand that in this case users are more likely to seek to compare the universities with fairly closely defined interests and diverse criteria, probably different from those of the experts. For this reason, with the help of a web tool, users can decide the importance for them of each of the two dimensions when placing the degrees in order, and the tool automatically offers them the ranking corresponding to the preferences revealed by the user.

To apply this first approach we have considered various alternatives for the choice of weights by the user. We opted for the procedure known as Budget Allocation Process, that is, for the distribution by the user of 100 points among the dimensions to be valued. This method, widely used in marketing to find out a consumer's valuation of the characteristics of a product, has the principal advantage of forcing the user to adopt a more active and reflexive position by distributing points, being therefore more aware of the opinion that he/she displays.

 Second, for the general rankings (U-Ranking and U-Ranking Volume), corresponding to the universities' activities as a whole, the two dimensions are weighted on the basis of the experts' opinions, according to a survey such as that mentioned above when aggregating areas into dimensions, and a Delphi process to achieve convergence among the experts' opinions.

The weights to be given to teaching and research and innovation are, respectively, 56% and 44%. These weights are included as a default option for calculating the personalized rankings when the user does not enter any preferences of his/her own.

## 2.7. PERFORMANCE RANKINGS *VS.* VOLUME RANKINGS

When comparing universities, it is relevant whether or not their size is taken into account. Making one choice or the other is not in itself a methodological advantage or failure, but implies adopting a particular perspective which affects the rankings and must be borne in mind when interpreting the results.

In the same way as when analyzing the activity of a firm or a country we can consider its volume of output or its achieved performance, and both positions are reasonable, the same occurs in the case of analysis of the results of universities. Neither of the two approaches is, *a priori*, more valid than the other, and the choice depends on the intended use of the results. The per capita GDP is more useful than total GDP when comparing the quality of life between countries or regions, but the volume or the growth of GDP are also important for explaining, for example, the employment generated. So, although in some cases the performance reached to obtain the results may be more important than their volume, in other cases the size may also be relevant. A very productive and at the same time large university is more beneficial to society than one that offers the same level of productivity but has a small size; likewise, a very large university with a poor level of results is a much bigger problem than a small university with the same level of results.

### 2.7.1. Interest of the two approaches

Another reason to pay attention to this aspect is that the existing rankings adopt on occasions an approach based on the performance by which the results are obtained and in other cases deal with the volume of results. For example, some of the most cited international rankings —especially, the Academic Ranking of World Universities (ARWU), known as the Shanghai Ranking— are volume rankings.

The Shanghai Ranking can be said to be one rather of volume, because most of the variables from which it is built —number of Nobel prizewinners or Fields medalists among their exstudents or staff, widely cited researchers, publications in Nature or Science, articles published in indexed journals— are not relativized by the size of the university. Such variables make up the greater part of the weight in the ranking, while only one indicator (academic performance) is expressed in *per capita* terms. So, the universities' positions are conditioned both by their quality and by their size, both qualities being necessary for reaching good positions in this ranking.

Other rankings, on the other hand, make their comparisons from the point of view of quality. Such is the case of the QS World Universities Ranking, whose indicators are taken from surveys of academic reputation or are variables standardized by size. There are rankings that expressly contemplate both approaches, and make differentiated comparisons based on quality or on the total volume of results, as does the I-UGR Ranking<sup>9</sup> of research results.

The reason for acknowledging the interest of both approaches is that the size of institutions can be relevant for valuing the contributions of the universities, but correcting the results for size permits us to compare the universities from a perspective that makes them, in a certain sense, more homogeneous. However, given that, as we said earlier, for the university system as a whole it makes a difference whether a university with high (low) productivity is large or small, we must consider whether universities would have the same position in the performance rankings as in the production volume rankings and bring out the specific significance of each ranking. To sum up:

- The rankings of volume of production are based on indicators not relativized by size, and depend on both the university's performance and its size. Thus, a university may generate a greater volume of research results than another of smaller size, even though the second is more productive.
- The performance rankings are based on indicators of results corrected by size, and seek to measure the output per unit of inputs or resources used. For example, scientific output is measured as a function of the number of faculty members with PhD and the teaching results are relativized by the number of students. This enables some smaller universities to obtain a better final result in the ranking than other much larger ones.

An interesting question is whether size influences performance positively or negatively, that is, whether performance/efficiency increases or decreases with the size of the university. In the first case, the universities' positions in the rankings of volume would be favored by two factors (size and performance). The testing of the two hypotheses is an empirical matter, which can be analyzed by drawing up both types of rankings using the same approach, as will be presented later.

<sup>&</sup>lt;sup>9</sup> This ranking was last updated in 2014.

## **2.7.2. Treatment of the size of universities**

The selection of simple indicators with which we started implies that all are relativized depending on the variable considered most appropriate (students, faculty members, budget, etc.), so that size does not have a direct influence on the results. Consequently, the general scheme of the methodology described leads to measuring each university's results independently of its size, so these are performance rankings. Therefore, to construct volume rankings, the size variable has to be added to the indicators hitherto described. This task has been undertaken following the criteria detailed below.

The first criterion for introducing the role of size is to preserve, as far as possible, the methodological homogeneity of both rankings, calculating them on the basis of the same set of indicators and with the same aggregation criteria. For this reason the ranking of volume was not drawn up simply by not relativizing those indicators that can be expressed in total terms —for example, reflecting the income from patents or the doctoral theses read without dividing them by the number of faculty members with PhD— as the Shanghai Ranking does.

It is not reasonable to proceed in that way because some variables cannot be presented in absolute terms, being rates or indices, such as the percentage of publications in the first quartile or the mean impact of publications factor.

If some variables are expressed in absolute terms and others are not, the relative importance of the size within the results would fall only on the variables that can be expressed in absolute terms. In that case, the importance accorded to size would depend implicitly on the proportion of variables that can be expressed in absolute terms. For example, in the variables considered in our study only 14 of the 20 indicators finally used could be expressed in absolute terms, which would be equivalent to the acknowledged importance of size being 52%. This percentage would be arbitrary because it would reflect the number of indicators that form part of the database expressed in absolute terms.

This solution is unsatisfactory, and we have explored other alternatives for introducing size. The option chosen consists of calculating the total volume of results of each university by multiplying the performance index by a measure of size. We have considered three indicators of the size of a university: the number of faculty members, the number of students, and the budget. Each one has its specificities and can be a better proxy of different aspects of the university's activity that do not have the same importance in each of them. To avoid skewing the size proxy in one or other direction in the most general indices ---which could favor some institutions by giving greater weight to one of the aspects- we have taken as indicator of size the standardized arithmetic mean of the three variables.

## **2.8. PRIVATE UNIVERSITIES**

U-Ranking 2021 analyzes 48 public and 24 private universities. Private universities are an important part of the Spanish University System. As shown in figure 2.1, they have experienced a large growth in the last twenty years, quadrupling in number to 39 institutions out of the 89 that make up the Spanish University System today (see panel a), after in 2019, two centers previously considered centers attached to public universities, ESIC and CUNEF, were recognized as universities. In addition, three universities were created, Universidad Internacional de Villanueva and Universidad de les Hespérides in 2019 and Universidad Internacional de la Empresa in 2020. Likewise, the number of bachelor's and master's degree students has sextupled, from 52,000 to more than 313,000 students in the 2019-202010 academic year, which represents 20% of university students studying in Spain, compared to 4% 25 years ago.

 $<sup>^{\</sup>rm 10}$  Data on students in the last academic year does not include students from the universities created in 2019

and 2020, since information on these universities has not yet been provided by the Ministry.

## Figure 2.1. Evolution of the number of universities and students. 1994/95 to 2020/21 academic years

a) Number of public and private universities



**b)** University students by level of studies and type of university. 1994/95 to 2019/20 academic years (number and percentage)



*Note:* Student data for the 2019/20 academic course are provisional.

Source: and Spanish Ministry of Universities (Registro de Universidades Centros y Títulos [RUCT]), Estadística de Estudiantes).

An important characteristic of private universities, apart from their relative young age of existence, is their smaller size. If we compare the number of private universities as a percentage of the total (44%) and the number of private university students as a percentage of the total (20%), it becomes clear that private universities are generally smaller. Another distinctive feature is their greater degree of specialization in postgraduate studies. Private universities have placed great emphasis on master's degrees, as the makeup of their students shows. Whereas the proportion of master's degree students in public universities is 11.3%, in private universities it is 30.5%. Indeed, four in every ten master's degree students in Spain study at a private university.

Due to the idiosyncrasies of private universities, one of the indicators defined in the methodology, "Cut-off marks"11 (Teaching), is not applicable to these institutions. Students must pass a university admissions test (PAU) and upper secondary education tests in order to study a degree regardless of whether it is offered by a public or private university. However, for private universities, the mark obtained does not always constitute a criterion of admission, since they have their own procedures, based on specific tests, personal interviews and academic record.

As a result, private universities do not publish cutoff marks for their degrees.<sup>12</sup> Therefore, for private universities this variable will be set at 5.

All these things considered, U-Ranking 2021 has reviewed all the information available for private universities following the criteria to include those institutions that provide at least 18 out of the 20 indicators considered for the public system<sup>13</sup>, as well as the three variables that measure for size (student body, full-time equivalent faculty members with PhD and consolidated revenues). As a result, in the 9<sup>th</sup> edition of U-Ranking the following private universities are analyzed:

<sup>&</sup>lt;sup>11</sup> The cut-off mark is the mark of the last student who gained admission to a degree with limited places. This mark is only a guideline and varies from one year to the next, depending on the number of available places and the marks of the students registered.

<sup>&</sup>lt;sup>12</sup> For private universities, the cut-off mark for each degree is 5 since the prerequisite is to pass the university admissions test.

<sup>&</sup>lt;sup>13</sup> Since the indicators are based on moving averages, the requirement has been for each of the chosen indicators to have information that would enable to calculate them.

- IE Universidad
- Mondragon Unibertsitatea
- Universidad a Distancia de Madrid
- Universidad Alfonso X el Sabio
- Universidad Camilo José Cela
- Universidad Cardenal Herrera-CEU
- Universidad Católica de Valencia San Vicente Mártir
- Universidad Católica San Antonio
- Universidad de Deusto
- Universidad de Navarra
- Universidad Europea de Canarias
- Universidad Europea de Madrid
- Universidad Europea de Valencia
- Universidad Internacional de La Rioja
- Universidad Internacional de Valencia
- Universidad Internacional Isabel I de Castilla
- Universidad Nebrija
- Universidad Pontificia Comillas
- Universidad San Pablo CEU
- Universitat Abat Oliba CEU
- Universitat de Vic-Universitat Central de Catalunya
- Universitat Internacional de Catalunya
- Universitat Oberta de Catalunya
- Universitat Ramon Llull

In comparison with the 2020 edition, U-Ranking 2021 includes two more private universities: IE Universidad and Universidad Católica de Murcia.



## 3. User personalized rankings

The aggregation of information on each of the aspects of a complex problem when evaluating it synthetically may depend on the user. In the case of the universities, there are different dimensions in their performance, but also different profiles of users interested in them: postgraduate students, undergraduate or teachers, managers, members of a governing body or Board of Directors, heads of university policy in the Public Administration, journalists, interested citizens, etc. The importance granted by each to the different activities of the universities may be different and their interest may focus on one or more of their activities. For example, students are likely to focus on aspects of the university related with the degree that they wish to study and teachers may focus more on research.

Given the high number of users that might value the universities' activity from a particular viewpoint, it makes sense to consider the possibility of drawing up personalized rankings, established taking into account the interest of the user. The U-Ranking project considers this question for the case of bachelor's degrees, in order to offer a tool that provides information on the ranking of degrees to students, their families and careers advisers, personalized according to their specific interests.

## 3.1. EXAMPLES OF PERSONALIZED RANKINGS

Constructing synthetic indicators by acknowledging the preferences of users has been available only recently, thanks to the interactivity permitted by web tools. Through them, the user can value personally each one of the dimensions considered, indicating which areas they want to consider and which are the most important for them. Web technology allows these preferences identified by the users themselves to be incorporated and combined with other elements contributed by the experts, such as the selection of variables and aggregating them in intermediate indicators according to criteria as described in section 2.

Two interesting examples of this approach, referring to very distinct areas, are those corresponding to the "Talent Attractiveness" Index, developed by the OECD (2020), and the CHE Ranking, a ranking of university degrees drawn up by the German Center for Higher Education.

The OECD (2020) draws up a synthetic index that ranks countries according to their ability to attract and retain talent based on three types of migrants: university students, entrepreneurs and workers with higher education. The index rates country performance based on different dimensions: quality of opportunities, income and taxes, future prospects, family environment, skills, inclusion and quality of life. In order to calculate the index, the user must specify the importance they give to each one of the dimensions considered.

Experts prepare the set of relevant dimensions and variables and, once the user has introduced their valuation of each area, the web tool shows a synthetic index of talent attraction that takes into account the importance given by the user, as well as the category it belongs to.

A similar approach is used by one of the university rankings analyzed, the CHE Ranking, drawn up **by Germany's Center for Higher** Education for the journal *Zeit*. In this case, the student who wishes to choose a degree needs to select the subject they wish to study, the type of course of their interests and the aspects they consider to be most important (teaching, subsequent employment opportunities, research, etc.). A personalized university ranking is created based on their preferences.

OECD Home	About	Countries -	Topics -	Coronavirus (	COVID-19)		
ECD Home - Migration - 1	alent Altractiveness						
alent Attractiv	eness						
Talent Att	ractiveness	jobs tha econom countrie favourat converg Beyond for foreig The OEC strength specific degrees	t are key for innoval ic growth with other s increasingly comp be migration policie ence of policy fram conditions for migra gn talent. CD Indicators of Talk s and weaknesses categories of talent ), foreign entreprene	tion and technolog remployment opp bete to attract and s for the best and eworks but signific ation, many other ent Attractiveness of OECD countries ed migrants: highli surs and university	ical progress and ortunities and bett retain talented wo the brightest. This ant differences in factors contribute is the first compre s regarding their ca y educated worker s students.	ultimately contribute to stra er living conditions for all. ( rikers notably by adopting i competition has led to a policies and practices rem- to shape countries' attracti hensive tool to capture the pacity to attract and retain s (those with master and d	onger DECD more ain. veness three loctoral
ank your priori	ities and se	e how countrie	s compare —				
Compose two equations	ries of your choic	e Comr	pare countries in each	dimension	Besearch ar	nd methodology	

### Rank your priorities and see how countries compare -



Their position indicates their place in the ranking.

ZEIT Campus	> ZEIT (	ONLINE	Abo	Mehr 🗸	Anmelden
CHE Ranking	SUBJECTS 🛩	UNIVERSIT	Y TOWNS	ABOUT	DE / EN
Kerker and Ol	Ci Des	No.	30	REAL	harr
GERMANY'S LARGEST	UNIVERSIT	Y RAN	KING		×AS
Facts & Assessments by 120,00	O Students and 3	8,000 Pr	ofessor	's	6
town, university or course o	f study	5000	SEARCH		
	A 2 PM		Cox)	2+	

SELECT YOUR RANKING				
Which subject?	~ (	What type of institution/degree?	~	SHOW RANKING

## Ejemplo:



Students at this campus (F)

Apply selection

Restore pre-selection

### 3.2. DESCRIPTION OF THE WEB TOOL FOR GENERATING PERSONALIZED RANKINGS OF DEGREES

This personalized ranking approach has been used in the U-Ranking project to classify degrees in order, constructing rankings of universities for the different bachelor's degrees. In the future it is intended to extend this approach to other university activities, for example, to master's degrees, when the necessary databases are available.

The value of a tool like this depends much on the effort made to facilitate its use. The objective of U-Ranking is to present a simple, easy-to-use tool to minimize the number of clicks needed to obtain the relevant information, which is above all the corresponding ranking. This simple approach must be present both when limiting the degrees to be compared and when permitting the user to declare their preferences in order to draw up the personalized rankings. The opinion as to when a user-friendly procedure has been achieved must also take into account **the user's point of view. Therefore, to harmonize** the tool with the most frequent potential users we performed trials among students ages 17 to 18 years old, who are less familiar with the concepts used in the university world than the experts participating in the project. Based on these trials, the necessary corrections were made to better adapt the tool to the students and to make the results easier to understand.

The tool is presented on the screen of the **project's website via the** *Select University* tab. When this part of the screen is selected, three questions appear that must be answered in order to obtain the ranking of the universities by degrees that adapt to the interests of the student in the following three aspects:

- What to study
- Where to study
- Study and research



When each of the three questions are selected, another box appears in which the user has to choose, respectively:

- The bachelor's degree or degrees they wish to study
- The region where they would like to study
- The importance they give to teaching and research and innovation.

The user can choose either one or several options in the first two questions (one or several degrees; one, several or all of the autonomous communities).

To avoid having to make the choice among the thousands of different bachelor's degrees offered by Spanish universities, the first selection window shows 3,493 degrees offered by 72 universities analyzed and grouped into 26 *families of degrees*.

When one of these areas is clicked, a drop-down list is displayed showing the bachelor's degrees it contains. Thus, for example, when "Civil Engineering and Architecture" is selected the bachelor's degrees included in this family of degrees are displayed.

The names of the degrees that appear in the drop-down list are not exhaustive or literal either, as those bachelor's degrees with very similar names have been grouped, as for example "Humanities" and "Humanities and social studies" have been grouped under the name "Humanities Degrees". Therefore, the more than 3,493 bachelor's degrees available have been reduced to 122 to make the user's decision easier. However, regardless of this initial reduction, the final results show the complete title of the degree, as well as the center where it is taught in case there are various options.

## Choose or find a degree 🖪

You can select various degrees from different areas of study

🛨 🔜 Artistic Studies
🕂 📃 Philology, Literature, Languages and Translation
🔣 🔜 Humanities, History and Philosophy
E Communication and Documentation Sciences
Education, Sport and Exercise Sciences
🚼 🔲 Lāw
Economics and Business
🔛 📰 Social Studies and Administrative Science
💶 Geography and Planning
Human Resources and Labour relations
🕂 🔜 Biological Sciences
Physics
🔣 🛄 Geology and Environment
H Mathematics
🛨 🗖 Chemistry
Computer Science
Civil Engineering and Architecture
Architecture Degrees
Coul Engineering and Architecture     Architecture Degrees     Naval and Marine Architecture and Engineering Degrees
Coul Engineering and Architecture     Architecture Degrees     Naval and Marine Architecture and Engineering Degrees     Geomatics and Surveying Degrees
Coul Engineering and Architecture     Architecture Degrees     Naval and Marine Architecture and Engineering Degrees     Geomatics and Surveying Degrees     Civil Engineering Degrees
Coul Engineering and Architecture  Architecture Degrees  Naval and Marine Architecture and Engineering Degrees  Geomatics and Surveying Degrees  Civil Engineering Degrees  Mining and Energy Resources Engineering Degrees
Coul Engineering and Architecture  Architecture Degrees  Naval and Marine Architecture and Engineering Degrees  Geomatics and Surveying Degrees  Civil Engineering Degrees  Mining and Energy Resources Engineering Degrees Aviation Studies for Commercial Pilot Training Degrees
Coul Engeneering and Architecture      Architecture Degrees      Naval and Marine Architecture and Engineering Degrees      Geomatics and Surveying Degrees      Civil Engineering Degrees      Mining and Energy Resources Engineering Degrees      Auiation Studies for Commercial Pilot Training Degrees      Engineering Geology Degrees
Coul Engineering and Architecture  Architecture Degrees  Naval and Marine Architecture and Engineering Degrees  Geomatics and Surveying Degrees  Civil Engineering Degrees  Mining and Energy Resources Engineering Degrees  Aviation Studies for Commercial Pilot Training Degrees Engineering Geology Degrees  Industrial Engineering
Coul Engineering and Architecture  Architecture Degrees  Geomatics and Surveying Degrees  Civil Engineering Degrees  Kining and Energy Resources Engineering Degrees  Aviation Studies for Commercial Pilot Training Degrees Engineering Geology Degrees  Aviation Engineering  Agrifood Engineering
Coul Engineering and Architecture      Architecture Degrees      Naval and Marine Architecture and Engineering Degrees      Geomatics and Surveying Degrees      Civil Engineering Degrees      Mining and Energy Resources Engineering Degrees      Aviation Studies for Commercial Pilot Training Degrees      Engineering Geology Degrees      Industrial Engineering      Agrifood Engineering      Nursing and Podiatry
Coul Engineering and Architecture      Architecture Degrees      Naval and Marine Architecture and Engineering Degrees      Geomatics and Surveying Degrees      Civil Engineering Degrees      Mining and Energy Resources Engineering Degrees      Aviation Studies for Commercial Pilot Training Degrees      Engineering Geology Degrees      Industrial Engineering      Agrifood Engineering      Nursing and Podiatry      Pharmacy
Cuid Engineering and Architecture  Architecture Degrees  Geomatics and Surveying Degrees  Geomatics and Surveying Degrees  Cuid Engineering Degrees  Aviation Studies for Commercial Pilot Training Degrees  Aviation Studies for Commercial Pilot Training Degrees Engineering Geology Degrees  Industrial Engineering  Agrifood Engineering  Nursing and Podiatry  Pharmacy  Physiotherapy
Coul Engineering and Architecture      Architecture Degrees      Naual and Marine Architecture and Engineering Degrees      Geomatics and Surveying Degrees      Civil Engineering Degrees      Mining and Energy Resources Engineering Degrees      Aviation Studies for Commercial Pilot Training Degrees      Engineering Geology Degrees      Industrial Engineering      Agrifood Engineering      Nursing and Podiatry      Pharmacy      Medicine and Dentistry
Cuid Engineering and Architecture  Architecture Degrees  Geomatics and Surveying Degrees  Cuid Engineering Degrees  Kaining and Energy Resources Engineering Degrees  Aviation Studies for Commercial Pilot Training Degrees  Engineering Geology Degrees  Industrial Engineering  Agrifood Engineering  Nursing and Podiatry  Pharmacy  Medicine and Dentistry  Other Health Sciences
Coul Engineering and Architecture     Architecture Degrees     Naual and Marine Architecture and Engineering Degrees     Geomatics and Surveying Degrees     Civil Engineering Degrees     Mining and Energy Resources Engineering Degrees     Aviation Studies for Commercial Pilot Training Degrees     Engineering Geology Degrees     Industrial Engineering     Agrifood Engineering     Nursing and Podiatry     Pharmacy     Pharmacy     Medicine and Dentistry     Other Health Sciences     Psychology
The second step is to choose the autonomous community or regions considered as places in which to study. Thus, the user must mark those chosen on the following table, one of the options **being "Any region".** The option of restricting the search to specific autonomous communities is a response to the fact that many students do not contemplate the idea of moving as an alternative or a restriction. In this case, their interest will be to know which of the studies offered are valued best in the territories that the student is considering. In any way, complementary information is offered to position their options in relation to the remaining offers in the Spanish University System. Thirdly, the user must declare their preference regarding the importance they give to study and re**search when valuing the universities' profiles,** by distributing the 100 points available to the importance they grant to teaching and to research.

As the user selects the degrees and regions of choice and distributes the 100 points among the two dimensions in such a way as to reflect their preferences, those decisions are registered in the boxes below. Once the information is introduced in the three fields, they can select the **"Create** your own ranking" icon that appears on screen.





=	Civil In the	Engineering and Architec selected regions there are 22 option	To view the 167 options existing in Spain in this area of study, please download the PDF					
					2020/2	2021 (*)	Indic employ	ators of ability (**)
Ranking	Index	University	Degree		Cut-Off mark	Cost	% of workers affiliated to the Spanish Social Security system	% of university graduates hired according to their educational level
н	1.4	Universidad Politécnica de Madrid	Grado en Ingeniería Civil	www		24.55		-
2	1.3	Universidad Politécnica de Madrid	Grado en Edificación	www.	5.008	24.55	82.8	60.3
2	1.3	Universidad Politécnica de Madrid	Grado en Ingeniería Civil	www	5	24.55	77.6	77.2
2	1.3	Universidad Politécnica de Madrid	PCEO Grado en Ingeniería Civil y Territo Grado en Administración y Dirección de Empresas	rial /	e	B	34 1	2
3	1.2	Universidad de Granada	Grado en Edificación	WWW		12.62		-
3	1.2	Universidad de Córdoba	Grado en Ingeniería Civil	www.	5	12.62	71.4	80.0
3	1.2	Universidad de Granada	Grado en Ingeniería Civil	www	5	12.62	65.0	76.9
3	1.2	Universidad Politécnica de Madrid	Grado en Ingeniería Civil y Territorial	www	5.026	24.55	48.4	84.7
з	1.2	Universidad de Córdoba	PCEO Grado en Ingeniería Civil (M. Construcciones Civiles) / Grado en Administración y Dirección de Empresas	www.	6	₿	5	-
3	1.2	Universidad de Granada	PCEO Grado en Ingeniería Civil / Grado Administración y Dirección de Empresas	en www.	e	Ð	- 2	-
4	1.1	Universidad de Cádiz	Grado en Ingeniería Civil	www	5	12.62	58.3	57.1
4	1.1	Universidad de Córdoba	PCEO Grado en Ingeniería Civil / Grado Recursos Energéticos y Mineros	en www	5	12.62	5	ā.
5		Universidad de Sevilla	Grado en Edificación	www	5	12.62	÷	-

When this button is selected, the personalized ranking corresponding to the criteria introduced is displayed placing in order the universities that offer the bachelor's degrees of their choice in the pre-selected territories according to their preference. The user is also informed that there are other options in addition to those selected in the same family of degrees, in case it is of their interest. This more complete set of alternatives is offered in a pdf file.

The first column shows the position of each degree considered in the personalized ranking. The second shows the value of the index reached for each specific degree. As we observe in the example, various bachelor's degrees can occupy the same position in the ranking, since the indices are rounded to one decimal point because greater precision is not considered to reflect, more accurately, differences among the degrees.

Next to the names of the bachelor's degrees appears a link to the webpage of each university. In addition, the cut-off mark of the last year, the price per credit on first registration, and information on the centers which impart the degree. The last columns on the right show the information on graduate employability which will be described in the next section.

Table 3.1 shows the level of disaggregation of each of the indicators included in the calculation of the personalized ranking of degrees<sup>15</sup>. These indicators are the same twenty as those used to calculate the rankings by institutions. The

<sup>&</sup>lt;sup>15</sup> The dimensions, areas, and indicators used, as well as the definition of the indicators, sources, and period coincide with what is described in Annex 1 (overall ranking). As shown in the table, the only variation is in the column of level of disaggregation.

sources and the years used are also the same; however, the level of disaggregation varies. While the indicators in the general ranking are collected at area of study or university level, more disaggregated information is used for the personalized ranking when available. Thus, 9 of the 20 indicators involved in the calculation of the synthetic index of each degree are analyzed at the level of degree or group of degrees. It should be noted that the only difference with regards to the methodology of the general ranking is that the standardization of the indicators of the personalized ranking of degrees is done by groups of degrees, not by area of study. In other words, the reference group for each degree would be the one that belongs to the same family of degrees and therefore, it is the median value of this family that is used for the standardization.

To sum up, the web tool for constructing personalized rankings is easy to use, very flexible, and is underpinned by a rigorous methodology identical to the one described in previous sections on how general rankings are constructed. Therefore, it is a complement to the latter with a high potential for students, families and careers counselors, as well as for universities themselves. The more than 185,000 personalized rankings that have been calculated testify to the level of interest in the tool. For this interest in the tool to be effective, it is essential to keep all the supporting information up-to-date and to constantly improve the data offered, taking the users' experience into account. Revisions and improvements are currently underway and that is why this edition includes complementary information on graduate employability.

degree			
Dimension	Area	Indicator	Level
	Resources	Faculty member per 100 students Budget per student Percentage of faculty member with PhD	Area of study University Area of study
Teaching	Production	Success rate Evaluation rate Drop-out rate	Bachelor's Degree Bachelor's Degree Bachelor's Degree
	Quality	Percentage of postgraduate students Cut-off mark	Area of study Bachelor's Degree
	Internationalization	Percentage of foreign students Percentage of students in foreign exchange programs	Bachelor's Degree University
	Resources	Competitive public resources per faculty member with PhD Contracts with PhDs, research grants and technical support over total budget	Area of study Area of study
Research and	Production	Citable documents with ISI reference per faculty member with PhD Number of patents per 100 faculty members with PhD Number of thesis defended per 100 faculty members with PhD	Area of study University Area of study
Innovation	Quality	Mean impact factor Percentage of publications in the first quartile Citations per document	Group of degrees Group of degrees Group of degrees
	Internationalization	H2020 European research funds per faculty member with PhD Percentage of publications with international co-authorship	University Group of degrees

Table 3.1. Indicators and level of disaggregation of the information used for the ranking by dearee

Source: Own elaboration.

### 3.3. COMPLEMENTARY INFORMATION ON GRADUATE EMPLOYABILITY

Graduate employability according to the degrees offered by **a university influences the users'** valuations of its services. The demand for a university can be reinforced if it offers degrees with a favorable employability outlook, especially if a certain degree has better employability results than those of the same degree in another university. Consequently, this edition of U-Ranking offers employability indicators instead of environmental data as in previous editions.

An analysis of graduate employability is carried out with data from the report "Inserción laboral de los egresados universitarios" (Ministry of Universities 2019) on the Spanish Social Security system affiliation rates of university students who graduated during the 2013-14 academic course and on the labor market access of these graduates during the four years after their graduation (2015 to 2018). In 2015, the Ministry published its first report with employability data along with the corresponding indicators on graduates from the 2009-10 academic course, focusing on 1st and 2nd cycle students. Now with its 2019 publication, the Ministry makes two-wave data sets available. The continuity of this project will allow information on graduate employability at degree level, which is very useful for users, to be updated on a regular basis.

The data analyzed in U-Ranking 2021 focuses on the employment situation of university graduates four years after obtaining their degree, taking into account two indicators of degree employability: a) percentage of university graduates affiliated to the Spanish Social Security system that are working over total number of graduates four years after graduating and b) percentage of graduates affiliated to the Spanish Social Security system in contribution categories compatible with a university degree four years after graduating. Information on the average salary for the National Insurance contribution calculation used in this report to calculate the synthetic indicator of employability is not available at degree level.

Data on employability is presented as a supplementary to the ranking of degrees. The web tool offers the value of the degree for each one considered, with information for approximately 1,800 degrees.

The same as in previous editions, this year's edition also includes the price per credit for over 3,493 bachelor's degrees analyzed by U-Ranking, based on university statistics provided by the Spanish Ministry of Universities (2021a). These prices, despite the maximum limit set by the Spanish Ministry, can vary depending on the region, the university, the level of degree —bachelor, master, doctorate— the level of experimentality of the degree and the type of ownership of the center<sup>16</sup> offering that degree. As can be seen in table 3.2, the current range of fees by regions is considerable, even more if differences of experimentality and level of degree are considered.

For this reason, it is relevant that the U-Ranking user will be able to know the price per credit at first registration for each bachelor's degree. The prices included in U-Ranking correspond to those established for the 2020-2021 academic year. Also, the cost was included by degree course or by credit offered by private universities when available on their webpage.

<sup>&</sup>lt;sup>16</sup> U-Ranking also includes b**achelor's degrees** imparted by private centers affiliated to public universities. In general, the price of these degrees includes an extra cost added on to the public prices.

Table 3.2.	<b>Public price per</b>	credit at the ti	me of first enr	ollment by req	gion. 2020-202 <sup>.</sup>	1 academic year
(€/credit)						

Region	Average price	Min. price	Max. price
Andalusia	12,62	12,62	12,62
Aragon	17,79	13,50	21,30
Asturias	12,67	8,63	15,70
The Balearic Islands	16,05	11,59	20,82
The Canary Islands	12,08	9,47	14,59
Cantabria	12,95	10,17	15,90
Castile-La Mancha	15,94	12,13	18,87
Castile and Leon	16,59	12,94	22,93
Catalonia	22,69	17,69	27,67
The Valencian Community	17,04	13,86	20,00
Extremadura	14,78	10,31	18,51
Galicia	11,78	9,85	13,93
Madrid	23,17	21,39	26,14
Murcia	15,49	14,38	16,78
Navarre	18,85	15,86	22,50
Basque Country	16,93	14,08	19,84
La Rioja	15,74	14,08	22,68
UNED	14,70	13,00	21,60
Average price	17,18	8,63	27,67

Note: In Catalonia, the Generalitat de Catalunya, the public universities and the Universitat Oberta de Catalunya (UOC), through the Agency for Management of University and Research Grants (AGAUR), have applied the "Equidad" (Equity) grants, which involve a reduction in the price paid per credit of enrollment by the bachelor and master students of these universities, based on the level of family income, so the resulting prices, after deducting the grant, are those set out in Annex 6 of the Price Decree.

To calculate the average price per credit for 2020-2021, the distribution of credits for the 2018-2019 academic year has been used, therefore, the data is provisional.

Source: Ministry of Universities (2020a).



# 4. Main results

This chapter reviews the principal results obtained in the 9<sup>th</sup> edition of U-Ranking, corresponding to 2021, in which the general rankings and the personalized rankings of bachelor's degrees have been updated. All the rankings are available at the project website <u>www.u-ranking.es.</u>

The 2021 rankings will be analyzed in this section from five different perspectives in order to emphasize the contribution made by the project and its methodology: a) comparing them with existing rankings to evaluate their similarities and differences; b) assessing the sensitivity of the results to changes in some of the hypotheses set forth, specifically the relative weights assigned to teaching and research activities, and the importance of considering or not the size of the university; c) comparing this year's results with the 2020 edition; d) and examining the differences in the performance of the various regional university systems. U-Ranking 2021 analyzes the various changes that have taken place in the degrees offered in Spanish universities over the last decade, focusing particularly on the changes produced between the 2014-15 and 2020-21 academic courses, considering the creation and elimination of degrees to meet the demands of students and labor market.

### 4.1. U-RANKING

Table 4.1 offers the ranking of 72 Spanish universities classified according to their indices of performance (U-Ranking). Keeping in mind that performance is the relationship between the volume of university results in the areas analyzed and the resources used to accomplish them, i.e. if two universities generate the same results, the one that makes use of less resources to achieve them will have a higher performance. The order is based on the value of the synthetic indicator obtained for each university which is offered in the second column. This indicator has been rounded to one decimal as a greater detail of the index would not reflect the differences among universities more accurately, given the set of decisions adopted in the process of construction of indicators already described.

As shown in the table, various universities obtain the same index and therefore present the same position in the ranking. As a result of this criterion, the 72 universities are grouped into 12 levels of performance. Those universities with the same index have been ordered alphabetically within their group.

Universities that are 15 years or younger are marked with an asterisk (\*), so the reader can put into context the results in the following sense. Universities must be able to show their teaching potential from the start, because graduates must acquire all the competences associated to a degree, however, most results in research and innovation require a longer amount of time in order to create research teams and obtain equipment and infrastructures, as well as the needed organizational requirements to develop their full potential. Pointing out the universities with 15 years or less of existence allows the reader to keep in mind the reason why the results for these younger universities in research and transfer are often lower.

Thus, the nine universities that have existed for less than 15 years are marked with an asterisk. The purpose of including this group is to highlight the transparency of the universities that are included in the rankings, as they generate and disclose the information required in order to be included, regardless of their final position. When interpreting the results of a university included in the ranking, it is important to bear in mind, therefore, that a large part of the private university system is not included due to lack of information. The end of table 4.1 includes a list of the universities that have not been analyzed because of insufficient information to construct the indices. Any university in the ranking could conceivably have an indeterminate number of universities behind it, even though it is included in the lowest level (12) in the current ranking.

Table 4.1. U-Ranking of Spanish universities 2021											
University	Ranking	Index	University	Ranking	Index	University	Ranking	Index			
Universidad Carlos III de Madrid	1	1.5	U. Politécnica de Cartagena	5	1.1	Mondragón Unibertsitatea		0.8			
Universitat Politècnica de Catalunya	1	1.5	Universidad Pública de Navarra	5	1.1	Universidad Cardenal Herrera-CEU		0.8			
Universitat Pompeu Fabra	1	1.5	U. de Santiago de Compostela	5	1.1	Universidad Europea de Madrid		0.8			
Universitat Autònoma de Barcelona		1.4	Universidade de Vigo	5	1.1	UNED	8	0.8			
Universitat Politècnica de València	2	1.4	Universitat de les Illes Balears	5	1.1	Universidad A Distancia de Madrid*	9	0.7			
Universidad Autónoma de Madrid	3	1.3	Universitat de Lleida	5	1.1	Universidad Abat Oliba CEU	9	0.7			
Universidad de Cantabria	3	1.3	Vic-Universitat Central de Catalunya	5	1.1	Universidad Católica San Antonio	9	0.7			
Universidad de Deusto	3	1.3	Universidad de Cádiz		1.0	U. Internacional de La Rioja*	9	0.7			
Universidad de Navarra	3	1.3	Universidad de Jaén		1.0	Universidad Católica de Valencia		0.6			
Universidad Politécnica de Madrid	3	1.3	Universidad de León		1.0	Universidad Europea de Canarias*		0.6			
Universitat de Barcelona	3	1.3	Universidad de Málaga		1.0	U. Internacional Valenciana*		0.6			
Universitat Rovira i Virgili	3	1.3	Universidad de Murcia		1.0	Universidad Alfonso X El Sabio	11	0.5			
IE Universidad		1.2	Universidad de Oviedo		1.0	Universidad Camilo José Cela	11	0.5			
Universidad de Alcalá		1.2	Universidad de Salamanca		1.0	Universidad Europea de Valencia*	11	0.5			
Universidad Pablo de Olavide		1.2	Universidad de Sevilla		1.0	U. Internacional Isabel I de Castilla*	12	0.4			
Universitat de Girona		1.2	Universidad de Valladolid		1.0	CUNEF Universidad*					
Universitat de València		1.2	Universidad Rey Juan Carlos		1.0	ESIC Universidad*					
Universitat Jaume I de Castellón		1.2	Universidade da Coruña		1.0	Universidad Católica de Ávila					
Universitat Ramon Llull	4	1.2	U. Internacional de Catalunya		1.0	Universidad de las Hespérides*					
Universidad Complutense de Madrid	5	1.1	Universitat Oberta de Catalunya	6	1.0	Universidad del Atlantico Medio*					
Universidad de Alicante	5	1.1	Universidad de Castilla-La Mancha	7	0.9	Universidad Europea Miguel de Cerv	antes				
Universidad de Almería	5	1.1	Universidad de Extremadura	7	0.9	Universidad Fernando Pessoa-Canar	ias*				
Universidad de Burgos	5	1.1	Universidad de Huelva	7	0.9	Universidad Francisco de Vitoria					
Universidad de Córdoba	5	1.1	Universidad de La Laguna	7	0.9	Universidad Internacional de Andalu	cía				
Universidad de Granada	5	1.1	U. de Las Palmas de Gran Canaria	7	0.9	Universidad Internacional Villanuevo	Pelayo 1*				
Universidad de La Rioja	5	1.1	Universidad Nebrija	7	0.9	Universidad Louola de Andalucía*	•				
Universidad de Zaragoza	5	1.1	Universidad Pontificia Comillas	7	0.9	Universidad Pontificia de Salamanco	1				
Universidad del País Vasco	5	1.1	Universidad San Pablo-CEU	7	0.9	Universidad San Jorge					
U. Miguel Hernández de Elche	5	1.1				Universidad Tecnología y Empresa*					

Note: Universities are ordered from highest to lowest index value. Universities with the same index value are ordered alphabetically. The 16 universities listed in the last column have not been analyzed due to lack of data.

\*Universities 15 years or younger.

Source: BBVA Foundation-Ivie

The cardinal and ordinal aspects of the universities that constitute notable differences are discussed below.

An aspect worth mentioning is that the range of the index from which this ranking is derived continues to show, as in previous editions, significant differences in performance among Spanish universities, with the most productive ones having results that are three times higher than those in end positions.

The leading group in U-Ranking is made up of 19 universities occupying from the first to the fourth positions (various universities share the same position), increasing their results to 20% above the national average. These universities are: Universitat Pompeu Fabra in first place, which for the first time shares ranks with two other universities: Universidad Carlos III de Madrid and Politècnica de Catalunya. Following this top group are Universitat Autònoma de Barcelona and Politècnica de València. Behind them is a group of seven universities which include the first private universities in the ranking, Universidad de Deusto and Universidad de Navarra, along with the public universities of Autónoma de Madrid, Universidad de Cantabria, Politécnica de Madrid, Universitat de Barcelona and Universitat Rovira i Virgili. The fourth place is occupied by seven universities: Alcalá, Pablo Olavide, Universitat de València, Universitat de Girona, Universitat Jaume I de Castellón and two private universities, IE Universidad and Universitat Ramon Llull.

In fifth place, still above the average, are seventeen universities. Other groups of universities with similar levels of performance are: thirteen that share sixth place (equivalent to the average of the system), eight in seventh position, five others are found in eighth place, four in ninth and three in tenth place. Three universities occupy the eleventh place, and one, the twelfth place.

The nineteen universities in the top four places are basically the same universities as in the 2020

edition<sup>17</sup>. The main changes are the rise of Universidad Carlos III de Madrid and Politècnica de Catalunya from second place to first along with Pompeu Fabra, the direct entry into fourth place of IE Universidad, which appears for the first time in the ranking, the rise of Universidad de Deusto and Jaume I from fourth to third place, and the fall in one position of Universitat de Lleida.

### **4.2. U-RANKING VOLUME**

Table 4.2 shows the index and the ranking of the 72 Spanish public universities according to their volume of results (U-Ranking Volume), which differs from that of the previously discussed performance ranking because it is obtained by calculating the size of each university. The underlying idea that justifies the need for a volume index is that a small university can also have a great performance (i.e., its researchers can publish almost all of their articles in first quartile [Q1] journals), but if its size is very small, its impact on the environment and university system as a whole will be limited. In turn, a very large university may have a low performance rate (i.e., the percentage of articles published in Q1 journals is small), but if its size makes the total output bigger (the total number of published Q1 articles is higher), its total impact can be significantly relevant.

In the volume ranking there are many more different positions in the ranking because there are less universities that share the same position with others as a group. Unlike the performance ranking, in which universities are grouped in 12 levels, in U-Ranking Volume, the 72 universities analyzed are ordered in 33 different positions, indicating the greater heterogeneity in the university system in terms of the size-performance binomial, adding variability to the ranking. As can be seen in table 4.2, Universidad Complutense de Madrid leads by a large margin, with an index of 5.9, almost one point higher than Universitat de Barcelona in second place, (5.0). Universitat de Barcelona itself has a half a point higher index than the ones in third place, Universidad de Granada and Universitat de València (4.2). In fourth place is Universidad de Sevilla, followed by Universidad del País Vasco in fifth, three universities in sixth place, Polytechnics of Madrid and Valencia and Universitat Autònoma de Barcelona, in seventh place Politécnica de Catalunya, in eighth place Universidad Autónoma de Madrid and both Universidad de Zaragoza and UNED take the ninth position. Finally, Universidad de Málaga and Universidad de Santiago de Compostela complete the list of the 10 top universities of the ranking. These fifteen top universities are the same ones located at the top of the 2020 edition. From among these, Granada and València rise one position, occupying the third place, but in general they all remain stable.

Between the eleventh and twentieth place are 18 public universities. The rest are shown below, most of them grouped in levels shared by at least three or more universities.

The ranking by volume shows the smaller size of private universities compared to public ones. Due to their size, they rank lower in the ranking by volume of results than in the ranking by performance. Thus, in table 4.2, it can be observed that all the private universities are located in the lower half of the list. The highestranking private universities in terms of volume of results when combining better results and larger size are Universidad de Navarra and Universitat Ramon Llull.

<sup>&</sup>lt;sup>17</sup> In the 2020 ranking, 18 universities were placed between the first and fifth positions.

Table 4.2. U-Ranking Volume of Spanish universities 2021											
University	Ranking	Index	University	Ranking	Index	University	Ranking	Index			
Universidad Complutense de Madrid	1	5.9	Universidad de Extremadura	20	1.3	Mondragón Unibertsitatea	30	0.3			
Universitat de Barcelona	2	5.0	Universitat Ramon Llull	20	1.3	Universidad Alfonso X El Sabio	30	0.3			
Universidad de Granada		4.4	Universitat Rovira i Virgili	20	1.3	U. Internacional de Catalunya	30	0.3			
Universitat de València	3	4.4	Universidad de Cantabria	21	1.2	Universidad A Distancia de Madrid*	31	0.2			
Universidad de Sevilla	4	4.2	U. de Las Palmas de Gran Canaria	21	1.2	Universidad Camilo José Cela	31	0.2			
Universidad del País Vasco	5	4.1	Universidad de Navarra	21	1.2	Universidad Nebrija	31	0.2			
Universidad Politécnica de Madrid	6	3.7	Universitat Jaume I de Castellón	21	1.2	IE Universidad	32	0.1			
Universitat Autònoma de Barcelona	6	3.7	Universitat Oberta de Catalunya	22	1.1	Universidad Abat Oliba CEU	32	0.1			
Universitat Politècnica de València	6	3.7	Universidad de Almería	23	1.0	Universidad Europea de Valencia*	32	0.1			
Universitat Politècnica de Catalunya	ι 7	3.5	Universidad de Jaén	23	1.0	U. Internacional Isabel I de Castilla*	32	0.1			
Universidad Autónoma de Madrid	8	3.1	U.Miguel Hernández de Elche	23	1.0	U. Internacional Valenciana*	32	0.1			
Universidad de Zaragoza		2.9	Universitat de Girona	23	1.0	Universidad Europea de Canarias*	33	<0,1			
UNED	9	2.9	Universitat de les Illes Balears	23	1.0						
Universidad de Málaga	10	2.5	Universidad Pablo de Olavide	24	0.9	CUNEF Universidad*					
U. Santiago de Compostela	10	2.5	Universidad de Deusto	25	0.8	ESIC Universidad*					
Universidad Carlos III de Madrid	11	2.2	Universidad de León	25	0.8	Universidad Católica de Ávila					
Universidad de Murcia	12	2.1	Universidad Europea de Madrid	25	0.8	Universidad de las Hespérides*					
Universidad de Alicante		2.0	Universitat de Lleida	25	0.8	Universidad del Atlántico Medio*					
Universidad de Salamanca		2.0	Universidad de Huelva	26	0.7	Universidad Europea del Atlántico*					
Universidad Rey Juan Carlos	13	2.0	Universidad Pública de Navarra	26	0.7	Universidad Europea Miguel de Ceru	antes				
Universidad de Oviedo	14	1.9	Universidad San Pablo-CEU	26	0.7	Universidad Fernando Pessoa-Canar	ias*				
Universidad de Valladolid	15	1.8	Universidad de Burgos	27	0.6	Universidad Francisco de Vitoria					
Universidad de Castilla-La Mancha	16	1.7	U. Internacional de La Rioja*	27	0.6	Universidad Internacional de Andalu	ιcía				
Universidad de Alcalá		1.6	U. Politécnica de Cartagena	27	0.6	Universidad Internacional Menéndez	Pelayo				
Universidade de Vigo	17	1.6	Universidad Pontificia Comillas	28	0.5	Universidad Internacional Villanuevo	1*				
Universidad de Cádiz	18	1.5	Universidad Cardenal Herrera-CEU	29	0.4	Universidad Loyola de Andalucía*					
Universidad de Córdoba	18	1.5	Universidad Católica de Valencia	29	0.4	Universidad Pontificia de Salamanco	a 🛛				
Universidad de La Laguna		1.4	Universidad Católica San Antonio	29	0.4	Universidad San Jorge					
Universidade da Coruña		1.4	Universidad de La Rioja	29	0.4	Universidad Tecnología y Empresa*					
Universitat Pompeu Fabra		1.4	Vic-Universitat Central de Catalunya	ı 29	0.4						

Note: Universities are ordered from highest to lowest index value. Universities with the same index value are ordered alphabetically. The 16 universities listed in the last column have not been analyzed due to lack of data.

\*Universities 15 years or younger. Source: BBVA Foundation-Ivie

### 4.3. U-RANKING VOLUME VS. U-RANKING PERFORMANCE

The comparison of the above two tables indicates that the differences are substantial between U-Ranking Volume and U-Ranking, which measures performance. But both approaches can be useful, depending on the question to be answered.

The differences in the values of the indicators are much greater in the volume ranking due to the importance of size. The indicator of total results ranges from 5.9 to less than 0.1, very much wider than for the indicator of performance, which goes from 1.5 to 0.4.

Figure 4.1 combines the two types of rankings and facilitates the comparison of the position of each university in both. The results of U-Ranking Volume, which depend on the size, are shown on the vertical axis, while on the horizontal axis the results of U-Ranking, which measures the performance and corrects the effects of size, are seen.

The universities are ordered from top to bottom on the first axis and from right to left on the second. In each case the scale is different, to reflect that each ranking establishes a different number of groups of universities with the same index. As can be observed, the dispersion of points in the figure is significant and reflects that there is no definite correlation between the two rankings. Therefore, size does not seem, in general, to have any defined positive or negative influence on performance.

The universities with the highest output are located in the upper part of the figure: Universidad Complutense, Universitat de Barcelona, Universidad de Granada, Universidad de Sevilla, Universitat de València, Universidad de Granada, Universidad de Sevilla, Universidad del País Vasco, Universitat Politècnica de València, Universitat Autònoma de Barcelona, Universidad Politécnica de Madrid, Universitat Autònoma de Barcelona, Universitat Politècnica de Catalunya, Universidad Autónoma de Madrid, Universidad de Zaragoza and UNED.

# Figure 4.1. U-Ranking vs. U-Ranking Volume of the Spanish public universities



*Note:* See appendix 2 for a list of abbreviations. *Source:* BBVA Foundation-Ivie.

However, not all of these large universities show a good performance (see right side of figure), while other smaller ones stand out in this regard. An example of the former case is UNED, a large university with a great volume of results that is placed among the top 9 universities in U-Ranking Volume. An example of the latter is Universitat Pompeu Fabra and Universidad Carlos III, which obtain the highest performance in U-Ranking, in addition to other very productive medium- or small-sized universities such as Universitat Rovira i Virgili, Universidad de Cantabria and Universidad de Navarra, whose output places them around the middle of U-Ranking Volume.

In fact, examples of higher or lower performance can be found among universities of very different sizes.<sup>18</sup> Figure 4.2 shows the relationship in panel a (all the universities) and b (universities with a U-Ranking Volume index inferior to or same as 1.5) between size on the horizontal axis and the index of U-Ranking Volume for each university on the vertical axis. Those situated above the diagonal achieve results higher than the average performance, the gradient of the vector radius joining each position to the origin being the measure of their performance.

Figure 4.2. U-Ranking Volume vs. Size indicator



b) Universities with a U-Ranking Volume Index below 1.5



*Note:* The size indicator is a standard arithmetic mean of the teachers, students and budget of each university. See appendix 2 for a list of abbreviations.

Source: BBVA Foundation-Ivie.

<sup>&</sup>lt;sup>18</sup> As mentioned previously, the indicator of size is the result of calculating the standardized arithmetic mean of the

number of students, faculty members and budget of each university.

Thus, it is visually evident that size is not a determinant of a universities' performance. There are large institutions like Universidad Complutense de Madrid, Universitat de Barcelona, Universitat de València, Polythecnics of Madrid, València and Catalunya and the Autonomous Universities of Barcelona and Madrid, which show a high performance as their volume indices are superior to what would correspond to them strictly by size. This is significant because, as noted previously, it is important for the overall results of the system for large universities to leverage their productivity. In the opposite direction, we find UNED which is far below the diagonal.

# 4.4. U-RANKING VS. SHANGHAI RANKING

Many universities are interested in being compared with the best in the world, thus explaining the increasing popularity attained by some international rankings. In view of the importance given to these popular references, the question arises whether U-Ranking offers different or similar results as international ones. As an external reference for comparison, we will consider the Academic Ranking of World Universities (ARWU), also known as the Shanghai Ranking, which without a doubt has become the most widely known to date.

Since the 2017 edition, the Shanghai Ranking offers a list of the top 1,000 universities from among the more than 20,000 that exist in the world. In the last edition of ARWU, 40 Spanish universities (39 public and 1 private) have been included among these 1,000. ARWU presents an individual positioning system for the first 100 universities, the next 100 appear in groups shared by 50 universities (101 to 150 and 151 to 200), and from position 201 onwards the universities are grouped in sections of 100.

In the latest edition, as can be seen in figure 4.3, 13 Spanish universities appear in the top 500. All except one, Universitat de Barcelona, are located below the 200th place. Spain appears in the seventh position in the figure when considering the 1,000 universities of the ranking. When only the first 500 universities are considered, Spain's

position improves from that perspective since, despite the fact that only 15% of Spanish universities are in the Top 500, 48% appear in the complete ranking, that includes a total of 1,000.

The positioning system by groups published in the ranking makes it impossible to compare with U-Ranking, but it is possible to obtain an individual ranking of the 40 universities which are among the top 1,000 in the world on the basis of five standardized indicators disseminated by ARWU. Once the Spanish universities have been sorted by means of this calculation, a comparison between U-Ranking and the international ranking can be made (see figures 4.4 and 4.5). However, a recent study (Docampo 2017) offers a version of the 2016 Shanghai Ranking adapted to the Spanish universities that includes the majority of the private and public universities, allowing a better comparison.

The results of U-Ranking Volume and Shanghai Ranking are much more similar than if we compare our two U-Rankings (performance and volume) with each other, as shown in the following figures. The reason is that ARWU uses indicators that, in general, do not minimize because of size. Only one of the six indicators it uses, with a weight of 10%, takes into account size, that is measured by the number of full-time equivalent faculty members it has. Figure 4.4 represents on the horizontal axis the position of the Spanish universities in U-Ranking Volume and in the vertical axis, their place in the Shanghai Ranking. Regardless of the different number of levels that each ranking sets, both offer a similar order, and therefore the universities are mostly grouped around areas I and III of the figure.

The universities located in area IV of the figure have comparatively a better position in our ranking. The case of Universidad Carlos III de Madrid stands out, occupying a clearly better position in U-Ranking Volume than in the Shanghai Ranking. The universities in area II, on the contrary, are comparatively better placed in the Shanghai Ranking. The common denominator in many cases is that these are small but more productive universities, such as Pompeu Fabra, whose greater efficiency already became apparent in the U-Ranking's measurement of performance.





*Note:* Ordered from the countries' highest to lowest number of universities in the Top 1,000. *Source:* ARWU (CWCU 2020).

In figure 4.4, the universities that are among the Top 500 of the 2020 Shanghai Ranking are highlighted with dark squares. Almost all are among the top universities in U-Ranking Volume: Universitat de Barcelona, Universidad Complutense de Madrid, Universidad de Granada, Autónoma de Madrid, Universitat Autònoma de Barcelona, Universitat Politècnica de València, Universitat de València, Universidad de Sevilla, Universitat de País Vasco, Universidad de Zaragoza and Santiago de Compostela. Two universities, Universidad de Oviedo and Universitat Pompeu Fabra are located in more discrete positions of U-Ranking Volume, the first because its performance is within average and the second because of its smaller size.

The differences with ARWU are much more substantial in the case of the U-Ranking of performance (figure 4.5) since the Shanghai Ranking scarcely corrects the indicators used to take into account size and, therefore, it is more a ranking of volume of results than of performance.<sup>19</sup>

<sup>&</sup>lt;sup>19</sup> As an example, the Shanghai Ranking uses as an indicator of teachers' quality the number of teachers who have received a Nobel Prize or a Fields Medal, not this

number divided by the number of professors of the university.

#### **Figure 4.4. U-Ranking Volume vs. Shanghai Rankin** Position in each ranking



*Note:* Results correspond to an adaptation for 40 Spanish universities that appear in the ranking based on their score in the 5 indicators used and their relative position with respect to the university with the highest score. See appendix 2 for a list of abbreviations.

Universities in the Shanghai Ranking Top 500 2020.

Source: BBVA Foundation-Ivie and ARWU (CWCU 2020).

To view the position of universities that stand out in both U-Rankings (performance and volume) and their position in the Shanghai Ranking, the shaded area in figure 4.6 shows the fifteen universities that stand out in U-Ranking, both for their high performance and their great volume of results. The universities listed in the 2020 Shanghai Ranking are highlighted in red.

The shaded area contains all the universities also highlighted by the Shanghai Ranking, except for Universidad de Oviedo. Both have been included this year in the Top 500 of the 2020 Shanghai Ranking and are located in intermediate positions in U-Ranking. On the other hand, three universities appear in prominent positions in U-Ranking (shaded area) but not in the Shanghai Top 500 of the 2019 Ranking: Universidad Carlos III and Politécnica de Madrid, which have not yet been included in the Top 500 of the international ranking, and Universitat Politècnica de Catalunya, which has not appeared since 2016.

To illustrate at the same time the extent to which the three rankings compared generate different groupings of the universities a Venn diagram can be used that represents the ones that form part of the first quartile in each of the classifications and the intersections among the three.





Note: Results correspond to an adaptation for 40 Spanish universities that appear in the ing based on their score in the 5 indicators used and their relative position with respire the university with the highest score. See appendix 2 for a list of abbreviations. Universities in the Shanghai Ranking Top 500 2020.

Source: BBVA Foundation-luie and ARWU (CWCU 2020).





*Nota:* Universities in the Top 500 of Shanghai Ranking are highlighted in red. See appendix 2 for a list of abbreviations.

Source: BBVA Foundation-Ivie and ARWU (CWCU 2020).

#### Figure 4.7. U-Ranking vs. Shanghai Ranking



*Note:* The 13 Spanish universities in the Top 500 of the Shanghai Ranking 2020 and the first 20 and 19 universities in U-Ranking Volume and U-Ranking are included. See appendix 2 for a list of abbreviations.

Source: BBVA Foundation-Ivie and ARWU (CWCU 2020).

In the middle area of the diagram (figure 4.7) appear the five universities situated in the first guartile of the three rankings, namely, Universitat de Barcelona, Universitat de València, Universitat Autònoma de Barcelona, Universidad Autónoma de Madrid and Universitat Politècnica de València. Ten other universities are in the first quartile in two of the rankings: Universitat Pompeu Fabra, in Shanghai and U-Ranking; Universidad Complutense de Madrid, Universidad de Santiago de Compostela, Universidad de Granada, Universidad de Sevilla, Universidad de Zaragoza and Universidad del País Vasco-EHU, in Shanghai and U-Ranking Volume; Universidad del País Vasco-EHU, and, in Shanghai and U-Ranking Volume; and the Polytechnics of Cataluña and Madrid, along with Universidad Carlos III, in U-Ranking (performance) and U-Ranking Volume. Finally, sixteen universities stand out by only one of the three criteria considered.

In sum, these results show important coincidences between the rankings when identifying the universities that stand out, but also significant differences that reflect the different approach of each ranking. It is especially interesting to observe that of the thirteen Spanish universities that the Shanghai Ranking places in its Top 500, five also appear in the first quartile of our two rankings, in the intersection of the three circles of the diagram; four other ones are found in the two top positions in the ranking of performance (Universitat Pompeu Fabra, Universitat Autònoma de Barcelona and Universitat Politècnica de València) and volume (Universitat de Barcelona).

Therefore, it can be said that, of the thirteen Spanish universities included in the Top 500 of the Shanghai Ranking, ten are found in our first quartile because of their greater volume of results according to U-Ranking Volume and six among our most productive universities according to U-Ranking of performance. Consequently, our classifications, especially of volume, present a substantial harmony with those of the Shanghai Ranking, which strengthens their interest as instruments for identifying best practice. They also allow us to see that there may be differences in the rankings according to the perspective with which they are drawn up, but at the same time indicate that some universities are well positioned from any perspective.

# 4.5. COMPARISON OF RESULTS WITH OTHER INTERNATIONAL RANKINGS

Although the Shanghai Ranking is consolidating its influence as the most cited international indicator, there exist other initiatives of high international repute, such as the Times Higher Education (THE) or the QS Ranking. The principal differences between these two and the Shanghai Ranking are that they (i) try to measure the role of teaching and (ii) incorporate subjective valuations based on surveys of international employers and experts. The results for the Spanish universities in the three initiatives present similarities but also some differences, as shown in figure 4.8.



#### Figure 4.8. Comparison of the results of three international rankings. 2020-2021

Note: See appendix 2 for a list of abbreviations. Source: ARWU (CWCU 2020), THE (2021) and QS (2021). In the intersection of the three rankings we find four universities (Universidad Autónoma de Madrid, Universitat Autònoma de Barcelona, Universitat de Barcelona and Universitat Pompeu Fabra) which appear systematically in the top positions of our rankings and belong to the group of universities at the *frontier* of figure 4.6 —that is, those universities that are not dominated by hardly any other university—. If we compare the universities that appear in the international rankings mentioned in figure 4.8 with the efficient frontier of figure 4.6 for U-Ranking, we see that only one, Universidad de Navarra, appears in more than one of the rankings, namely, QS and THE, which is not in our efficient frontier. The rest of the universities that are not part of it appear, at most, in one of the three rankings.

These results again confirm the presence of a group of Spanish universities in the top positions within our university system, regardless of the prism with which they are analyzed and that the discrepancies between our ranking and any of the well-known international rankings are not any greater than those among them.

# 4.6. RESEARCH VS. TEACHING: SENSITIVITY ANALYSIS

One of the biggest problems inherent to any composite indicator is the effect of the relative weight of the elements composing it. The U-Ranking methodology expressly considers that teaching and research and innovation can be regarded differently important to each user of university services. Therefore, the web tool allows to draw up personalized rankings that take into account each user's preferences in this sense.

The question posed in this section is how much the general rankings of the universities would change if the weights allocated to teaching and to research were to change. In the results presented above the weights used to calculate the rankings were those obtained by applying the Delphi method that captures the opinions of the experts who collaborated in the design of the project as well as other available information.  $^{\rm 20}\,$ 

Given that other experts or users of rankings may have different valuations about the weights that should be assigned to different activities, we should analyze whether the results are sensitive or not —in the latter case we will say that they are *robust*— to changes in the weights.

Would the results differ much if a greater weight was granted to research, as in other well-known rankings? Can a university occupy a high place in a ranking if the weights of teaching and research and innovation change to better suit its strengths? The answers to these questions are important in assessing whether the results of a ranking are reliable, in other words, if they are over sensitive to the arbitrary nature of the weight assigned to research or any other university activity. As we shall see, the answer to each question is very different.

Most rankings place great emphasis on research because the information on the results of this activity is abundant and seems more precise and reliable. This bias tendency, based on "using what can be measured", is attempted to be minimized by arguing that teaching and research are highly correlated, but this hypothesis has barely been tested due to a lack of indicators of teaching results or lack of consensus on which most appropriately reflect an institution's quality of life. Thus, studying the sensitivity of the rankings to changes in the weight of teaching and research and innovation is not an easy task, but allows us to analyze whether the results of universities in both activities are indeed correlated or whether these one-dimensional rankings would be offering a partial view that should be recognized.

The fact that research dimension is easier to measure should not be an excuse to not measure quality of teaching. Likewise, the existence of a positive correlation between the quality of teaching and that of research should not hide the fact that disparity is also possible: if for the same level of research quality there are different

<sup>&</sup>lt;sup>20</sup> The weights used are 56% for teaching, 34% for research and 10% for innovation and technological development. The weights were established on the basis of the opinion of the experts consulted, and agree practically with the distribution of resources among the teaching, research and transfer activities in the universities' budgets. It also reflects an intensity of research activity in

accordance with the results of the Spanish universities: if we consider that in the top universities of the world by their research results these activities had a weight of 85-90%, the corresponding figure for the Spanish universities would be 35%.

teaching results between two universities, ignoring this information biases the results in favor of one and against the other. This fact becomes more evident since there is a strong disparity in the importance attributed to research by universities in the Spanish University System depending on whether they are public or private.

To value the effect of the selection of the weights given to teaching and to research and innovation we performed an analysis of sensitivity to their variations on the ranking of performance. We calculated three rankings that are differentiated by the very different relative weights of research and of teaching and innovation:

- Option 1: Teaching 30% / Research and innovation 70%
- Option 2: Teaching 70% / Research and innovation 30%
- U-Ranking 2021: Teaching 56% / Research and innovation 44%

Figure 4.9 shows the effect on the position in the ranking of each of Spain's 72 universities analyzed when the weight of research and innovation varies, according to the three weightings chosen.

The changes in position in the ranking are visible by right to left movements of the solid-colored circle that represents the position with the weights of U-Ranking 2021 which are characterized by:

If the weight of research and innovation were to increase to 70% (option 1), the gaps in the results would widen, generating 15 levels in the ranking instead of the current 12, but the maximum variations would be in general 4 places. The main pattern of these changes is that the worsening in the ranking is more intense among private universities, since they are institutions with less research tradition. From the 24 private universities, 11 would fall 4 places and 8 would fall 3 places. In the case of public universities, the variations would be much more moderate, moving one or two places, although some, such as Universidad Pública de Navarra, would fall three places. In no case does the increase in the weight of research imply improvements in positions, although it should be taken into account that the number of groups has increased to 15, which

makes it more difficult for these improvements to occur.

On the other hand, if the weight given to research and innovation were reduced to 30% (option 2), there would be only a few improvements in position. Note that the ranking generates 12 levels, instead of 11, because, as will be explained in section 4.7, the differences in teaching performance are less than the differences in research performance. As the weight given to teaching increases, the number of groups decreases. Thus, 57 of the 72 universities would improve at least one position, including all the private ones given their higher degree of teaching specialization. Two private universities -- Universidad Europea de Madrid and Universidad Europea de Valencia- would improve 3 places, limiting the majority of the rest of to an improvement of 2 places. Public universities that improve their position would rise 1 place at the most.

These result reveals a pattern of sensitivity of the ranking to changes in weights: because of their high degree of specialization in teaching, private universities are much more sensitive than public universities to increases in the weight of research and innovation.

Thus, the rankings are sensitive to changes in the weights given to teaching and to research and innovation, if we compare weightings as different as those corresponding to our options 1 and 2. However, a university does not pass from the top places to the bottom ones no matter how substantial the changes in the weights may be, although, it is true that some can improve in the ranking if greater importance is accorded to teaching or research.

We must consider that, as with any type of measuring instrument, the sensitivity to changes is desirable. If the instrument is insensitive to very significant changes in the weights that reflect a different attribution of importance to different factors, it would not be useful if it does not react to changes, it cannot be expected to react to changes in indicator levels, which is what makes a university better or worse in the ranking. In this sense, U-Ranking proves to be tolerant to moderate changes in the weights, but reacts to significant changes.

#### Universidad Carlos III de Madrid Universitat Pompeu Fabra Universitat Politècnica de Catalunua Universitat Autònoma de Barcelona Ó Universitat Politècnica de València Universidad Autónoma de Madrid Universidad de Cantabria Universidad de Deusto Universidad de Navarra (];Ο (Universidad Politécnica de Madrid Universitat de Barcelona 0 Universitat Rovira i Virgili 8 IE Universidad Universidad de Alcalá Universidad Pablo de Olavide Universitat de Girona Universitat de València Ο Universitat Jaume I de Castellón Universitat Ramon Llull Ο 8 Universidad Complutense de Madrid Universidad de Alicante Universidad de Almería Φ Universidad de Burgos Universidad de Córdoba Universidad de Granada Universidad de La Rioja (); Universidad de Zaragoza Universidad del País Vasco U. Miguel Hernández de Elche U. Politécnica de Cartagena Universidad Pública de Navarra 0 U. de Santiago de Compostela Universidade de Vigo Universitat de les Illes Balears 8 Universitat de Lleida Vic-Universitat Central de Catalunya Universidad de Cádiz Universidad de Jaén Universidad de León Universidad de Málaga $\oplus$ Universidad de Murcia Universidad de Oviedo Universidad de Salamanca \$ Universidad de Sevilla Universidad de Valladolid Universidad Rey Juan Carlos Universidade da Coruña $\oplus$ Universitat Internacional de Catalunya 4 $\oplus$ Universitat Oberta de Catalunya Universidad de Castilla-La Mancha Universidad de Extremadura Č Universidad de Huelva Universidad de La Laguna U. de Las Palmas de Gran Canaria Universidad Nebrija $\oplus$ Universidad Pontificia Comillas <del>(</del>); 8 $\odot$ Universidad San Pablo-CEU Mondragón Unibertsitatea 0 4 0 Φ Universidad Cardenal Herrera-CEU $\langle \cdot \rangle$ 0 Universidad Europea de Madrid UNED ()); Universidad A Distancia de Madrid Universidad Abat Oliba CEU Universidad Católica San Antonio 4 Universidad Internacional de La Rioja U. Católica de Valencia 8 Universidad Europea de Canarias Universidad Internacional Valenciana Universidad Alfonso X El Sabio 8 Universidad Camilo José Cela Universidad Europea de Valencia $\bigcirc$ U. Internacional Isabel I de Castilla Ο 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 Option 1 Option 2 Teaching=30 % - Research & Innovation=70% U-Ranking 2021 Teaching=70 % - Research & Innovation=30% Teaching=56% - Research & Innovation=44%

#### Figure 4.9. Evolution of U-Ranking according to variations in the weight of research and innovation

*Note:* Universities are ordered by their position in the global performance ranking with the following weights: 56/44. *Source:* BBVA Foundation-Ivie.

If instead of focusing on the analysis of sensitivity of the ranking, in other words, in the positions of the universities, we consider the values of the index by which U-Ranking is obtained, we observe that their stability when changing the weights of teaching and research and innovation is notable. Figure 4.10 presents the synthetic indicator from which U-Ranking is derived for research and innovation weights of 30% and 70%. It shows that a drastic change in the weights would cause an increase of only three decimal points for Universitat Autònoma de Barcelona, Universitat Pompeu Fabra and Universitat Rovira I Virgili, improving their index. In the opposite direction, if the index were to worsen, thirteen private universities would fall by four decimal point, Universidad Europea de Madrid, Universidad Europea de Valencia, and in three other groups of private universities, such as Alfonso X El Sabio, Internacional de Valencia, Europea de Canarias, UDIMA, UNIR, Abat Oliba, Pontificia de Comillas and Mondragón.

To offer another sample of the stability of the groups of universities, the Venn diagram in figure 4.11 presents the results of the U-Ranking for the three weights described above. Based upon the value of the index, each circle contains the dominant universities. Looking at the diagram we see that changing the weights does not alter the index so much as to cause the appearance or disappearance of universities in those top positions. In extreme cases where a small value is given to research and innovation (30%) two universities, Pablo Olavide and Universitat Jaume I de Castellón, would drop from the top positions. On the other end, in which more weight is given to research, these same universities would leave the first positions, along with Universidad de Navarra and Ramon Llull, and Universidad de Burgos and Universidad Santiago de Compostela would then appear among the top places. This last one, along with the Universitat de Lleida and Universidad Pablo de Olavide, would be included in the group at the top of the ranking if the weight of research and innovation were 44%.

# Figure 4.10. U-Ranking for two different weights in research

Weights of Teaching/Research and Innovation: 70/30 vs. 30/70. Index



*Note:* See appendix 2 for a list of abbreviations. *Source:* BBVA Foundation-Ivie.

Figure 4.11. Effects of the change in the weight given to research in U-Ranking on the top-ranking universities. Top universities according to different weights given



*Note:* The first 16 universities are included in the case of research and innovation weights of 30% and 70%, and the first 19 with a weight of 44%. See appendix 2 for a list of abbreviations.

Source: BBVA Foundation-luie

# 4.7. TEACHING AND RESEARCH AND INNOVATION RANKINGS

The methodology used constructs indicators with the results of the universities in teaching and research and innovation, which are then aggregated to draw up the two global rankings presented (U-Ranking and U-Ranking Volume). The partial results for each university in each of the two dimensions can be arranged in order to obtain a *teaching ranking and* a *research and innovation ranking*. Each of them can be calculated according to both variants: volume of results and performance.

Figure 4.12 shows by means of box plots the distribution corresponding to the indices of the different dimensions and the global index of a university in the case of performance (panel a) and volume of results (panel b). It shows the distributions for the university system as a whole and for public vs. private universities. The extremes of the black lines represent the maximum and minimum values reached by the indices in each dimension and define the range of variation of the index; the top of the central box indicates the 75% percentile and the 25% percentile is marked by the bottom of the box, so that between them is situated 50% of the distribution (interquartile range). The border between the two parts of the box defines the median value. From the comparative analysis of the panels, four essential features stand out:

- The comparison of panels *a* and *b* permits us to observe that the differences between public universities are much greater if their volume of results is analyzed instead of their performance. This feature is observed in both dimensions, but is greater in research and innovation activities than in teaching. Given the total weight of public universities in the university system, this pattern applies to the average of the system.
- In private universities, since they all have a smaller size, the situation is the opposite, and the volume index has much greater homogeneity than the performance index.
- Differences in performance are greater in research than in teaching for both public and

private universities. The range of the teaching index is 0.6 points and 1.7 for research. This result is important because it makes research the main discriminating factor in U-Ranking positions.

• The median for the total number of universities in the distribution of the indices is 1 (see figure 4.12, panels a1 and b1). However, when we analyze private universities (figure 4.12, panels a3 and b3), we clearly observe the difference that exists in specialization to which we have been making reference. Fixing our attention on the indices of performance, we observe that the median is higher than the average of the system in teaching and, meanwhile, it is half in research and innovation.

Table 4.3 shows the coefficients of correlation between teaching and research and innovation in the different rankings and corresponding performance indices. Once again, we can observe that the behavior is different depending on whether a university is private or public. While the correlation is high and fairly homogeneous among dimensions in public universities, in private universities the correlation is found at 0.3.

These results suggest that complementarity exists among teaching and research activities, but it is much higher in public universities than in private ones. If the university system as a whole is analyzed, the existence of groups of institutions with different characteristics that result from the coexistence of private and public institutions cannot be ignored, as analyzed by Aldás (Dir.) (2016). If we did, it could lead to biases in the analysis of the reality of the university system.

# Table 4.3. Correlation coefficients of the indices and rankings for each dimension

	Index	Ranking
Total universities	0.10	0.18
Public universities	0.76	0.73
Private universities	0.25	0.29

Note: The ranking values are calculated by means of a Spearman correlation coefficient and the index values by means of a Pearson correlation coefficient. Source: BBVA Foundation-lvie.

#### Figure 4.12. U-Ranking. Distribution of the indices obtained in each dimension

a) U-Ranking (performance)

#### b) U-Ranking Volume











Δ validation of these diffe

A validation of these differences can be obtained by checking if the hypothesis that research results can predict correctly those of teaching is true or not, this being the assumption of many rankings that concentrate exclusively on the research dimension. Therefore, the rates of performance in research and innovation are represented against the rates of performance in teaching (figure 4.13, panel a). We can see that the observations are grouped vertically and the relationship is practically insignificant as confirmed b1. Total universities









by the coefficient of determination of the regression line that is below 1%.

This result is important because, as was pointed out previously, many rankings exclusively analyze the research work carried out by the institutions, assuming that good results in the latter imply good results in the former, when this is not the case. Hence the importance of using a multidimensional configuration for rankings, as in the case of U-Ranking.

#### Figure 4.13. U-Ranking. Teaching vs. Research and innovation Index

a) Public and private universities



b) Public universities



c) Private universities





If we examine the universities by type of ownership and focus the analysis mainly on the public system (figure 4.13, panel b), the adjustment between the synthetic indices of teaching and research and innovation improves and reaches a coefficient of determination of 0.50, giving evidence of stronger relationship than in the private system but, in any case, limited. In the subset of private universities, the relationship is even smaller than for the overall system (figure 4.13, panel c).

Finally, after describing the results of the rankings of teaching and research and innovation, tables 4.4 to 4.7 present in detail the results of the rankings for each of the dimensions drawn up for all Spanish universities (U-Ranking of teaching and research and innovation and U-Ranking Volume for each of the aforesaid dimensions). In the performance ranking a well-defined pattern of teaching specialization of private universities can be seen: all improve when comparing their position in teaching ranking with the global ranking and worsen when considering the research ranking. That pattern is also shown in panel c of figure 14: almost all the private universities are located below the diagonal because their research rate is lower than their teaching rate (the only exceptions being Universitat Oberta de Catalunya and Universidad de Deusto, IE Universidad and Universitat de Vic-Universitat Central de Catalunya, which have a research index that is higher than the teaching index). On the other hand, the opposite happens among public universities in most of the cases.

Table 4.4. U-Ranking of Spanish universities 2021. Teaching											
University	Ranking	Index	University	Ranking	Index	University	Ranking	Index			
Universidad Carlos III de Madrid	1	1.3	Universitat de Barcelona	3	1.1	Universidad de Cádiz	5	0.9			
Universidad de Navarra	1	1.3	Universitat de Lleida			Universidad de Extremadura		0.9			
Universidad Europea de Madrid	1	1.3	Universitat de València			Universidad de Huelva		0.9			
U. Internacional de La Rioja*	1	1.3	U. Internacional de Catalunya		1.1	Universidad de Jaén		0.9			
Universidad Nebrija	1	1.3	Universitat Jaume I de Castellón			Universidad de La Laguna		0.9			
Universitat Politècnica de Catalunya	1	1.3	Universitat Rovira i Virgili	3	1.1	U. de Las Palmas de Gran Canaria		0.9			
Universitat Politècnica de València	1	1.3	Universidad Alfonso X El Sabio	4	1.0	Universidad de Murcia		0.9			
Universitat Ramon Llull	1	1.3	Universidad Camilo José Cela	4	1.0	Universidad de Sevilla		0.9			
IE Universidad	2	1.2	Universidad Cardenal Herrera-CEU	4	1.0	Universidad de Valladolid		0.9			
Mondragón Unibertsitatea	2	1.2	Universidad Católica de Valencia	4	1.0	U. Internacional Isabel I de Castilla*		0.9			
Universidad Autónoma de Madrid	2	1.2	Universidad Católica San Antonio	4	1.0	Universidade da Coruña		0.9			
Universidad de Deusto	2	1.2	Universidad de Alicante	4	1.0	Universitat Oberta de Catalunya	5	0.9			
Universidad Europea de Valencia*	2	1.2	Universidad de Almería	4	1.0	Universidad de Castilla-La Mancha	6	0.8			
Universidad Pontificia Comillas	2	1.2	Universidad de Burgos	4	1.0	UNED	7	0.7			
Universidad San Pablo-CEU	2	1.2	Universidad de Córdoba	4	1.0						
Universitat Pompeu Fabra	2	1.2	Universidad de La Rioja	4	1.0	CUNEF Universidad*					
Universidad A Distancia de Madrid*	3	1.1	Universidad de León	4	1.0	Universidad Católica de Ávila					
Universidad Abat Oliba CEU	3	1.1	Universidad de Málaga	4	1.0	Universidad de las Hespérides*					
Universidad Complutense de Madrid	3	1.1	Universidad de Oviedo	4	1.0	Universidad del Atlántico Medio*					
Universidad de Alcalá	3	1.1	Universidad de Salamanca	4	1.0	Universidad Europea del Atlántico*					
Universidad de Cantabria	3	1.1	Universidad de Zaragoza	4	1.0	Universidad Europea Miguel de Cerve	antes				
Universidad de Granada	3	1.1	U. Miguel Hernández de Elche	4	1.0	Universidad Francisco de Vitoria	us				
Universidad del País Vasco	3	1.1	U. Politécnica de Cartagena	4	1.0	Universidad Internacional de Andalu	cía				
Universidad Europea de Canarias*	3	1.1	Universidad Rey Juan Carlos	4	1.0	Universidad Internacional Menéndez	Pelayo				
U. Internacional Valenciana*	3	1.1	U. de Santiago de Compostela	4	1.0	Universidad Internacional Villanuevo	I*				
Universidad Pablo de Olavide	3	1.1	Universidade de Vigo	4	1.0	Universidad Loyola de Andalucia*					
Universidad Politécnica de Madrid	3	1.1	Universitat de Girona	4	1.0	Universidad San Jorae					
Universidad Pública de Navarra	3	1.1	Universitat de les Illes Balears	4	1.0	Universidad Tecnología y Empresa*					
Universitat Autònoma de Barcelona	3	1.1	Vic-Universitat Central de Catalunya	4	1.0						

Note: Universities are ordered from highest to lowest index value. Universities with the same index value are ordered alphabetically. The 16 universities listed in the last column have not been analyzed due to lack of data.

\*Universities 15 years or younger.

Source: BBVA Foundation-Ivie

Table 4.5. U-Ranking of Spanish universities 2021. Research and Innovation										
University	Ranking	Index	University	Ranking	Index	University	Ranking	Index		
Universitat Pompeu Fabra	1	2.0	Universidad de Sevilla	8	1.2	Universidad Cardenal Herrera-CEU	15	0.5		
Universitat Autònoma de Barcelona		1.9	Universidad de Zaragoza		1.2	Universidad Católica San Antonio	15	0.5		
Universitat Politècnica de Catalunya	3	1.8	Universidad Pablo de Olavide		1.2	Universidad Europea de Madrid	15	0.5		
Universidad Carlos III de Madrid		1.7	Universidade da Coruña		1.2	Mondragón Unibertsitatea	16	0.4		
Universitat de Barcelona		1.7	Universitat de Lleida		1.2	Universidad A Distancia de Madrid*	16	0.4		
Universitat Rovira i Virgili	4	1.7	Universitat Oberta de Catalunya	8	1.2	Universidad Abat Oliba CEU	16	0.4		
Universidad Autónoma de Madrid	5	1.6	Universidad de Almería	9	1.1	Universidad Católica de Valencia	16	0.4		
Universidad de Cantabria	5	1.6	Universidad de Málaga	9	1.1	U. Internacional de La Rioja*	17	0.3		
Universidad Politécnica de Madrid	5	1.6	Universidad de Salamanca	9	1.1	Universidad Alfonso X El Sabio	18	0.2		
Universitat Politècnica de València	5	1.6	Universidad del País Vasco	9	1.1	Universidad Camilo José Cela	18	0.2		
Universidad de Burgos		1.4	Universitat Ramon Llull	9	1.1	Universidad Europea de Canarias*	18	0.2		
Universidad de Deusto		1.4	Vic-Universitat Central de Catalunya	9	1.1	Universidad Europea de Valencia*	18	0.2		
U. de Santiago de Compostela		1.4	Universidad de Huelva		1.0	U. Internacional Isabel I de Castilla*	18	0.2		
Universitat de València		1.4	Universidad de Jaén		1.0	U. Internacional Valenciana*	18	0.2		
IE Universidad	7	1.3	Universidad de La Laguna		1.0					
Universidad de Alcalá	7	1.3	Universidad de León		1.0	CUNEF Universidad*				
Universidad de La Rioja	7	1.3	Universidad de Murcia		1.0	ESIC Universidad* Universidad Católica de Ávila				
U. Miguel Hernández de Elche	7	1.3	Universidad de Oviedo		1.0	Universidad de las Hespérides*				
U. Politécnica de Cartagena	7	1.3	Universidad de Valladolid		1.0	Universidad del Atlántico Medio*				
Universidade de Vigo	7	1.3	Universidad Pública de Navarra		1.0	Universidad Europea del Atlántico*				
Universitat de Girona	7	1.3	Universidad Rey Juan Carlos	10	1.0	Universidad Europea Miguel de Cerv	antes			
Universitat de les Illes Balears	7	1.3	Universidad de Castilla-La Mancha	11	0.9	Universidad Fernando Pessoa-Lanar	ias*			
Universitat Jaume I de Castellón	7	1.3	Universidad de Extremadura	11	0.9	Universidad Internacional de Andalu	cía			
Universidad Complutense de Madrid		1.2	U. de Las Palmas de Gran Canaria	11	0.9	Universidad Internacional Menéndez	Pelayo			
Universidad de Alicante		1.2	UNED	11	0.9	Universidad Internacional Villanuevo	<b>1</b> *			
Universidad de Cádiz		1.2	U. Internacional de Catalunya		0.8	Universidad Loyola de Andalucía*				
Universidad de Córdoba		1.2	Universidad San Pablo-CEU	13	0.7	Universidad Pontificia de Salamanco	1			
Universidad de Granada		1.2	Universidad Nebrija	14	0.6	Universidad Tecnología u Empresa*				
Universidad de Navarra		1.2	Universidad Pontificia Comillas		0.6	, , , , , , , , , , , , , , , , , , ,				

Note: Universities are ordered from highest to lowest index value. Universities with the same index value are ordered alphabetically. The 16 universities listed in the last column have not been analyzed due to lack of data.

\*Universities 15 years or younger.

Source: BBVA Foundation-Ivie

Table 4.6. U-Ranking Volume of Spanish universities 2021. Teaching											
University	Ranking	Index	University	Ranking	Index	University	Ranking	Index			
Universidad Complutense de Madrid	1	5.5	Universidad de La Laguna	19	1.3	Mondragón Unibertsitatea	27	0.5			
Universidad de Granada		4.2	U. de Las Palmas de Gran Canaria	19	1.3	Universidad de Burgos	27	0.5			
Universitat de Barcelona		4.2	Universidad de Navarra	19	1.3	U. Politécnica de Cartagena	27	0.5			
Universidad del País Vasco	3	4.0	Universidad Europea de Madrid	19	1.3	Universidad Camilo José Cela		0.4			
Universitat de València	3	4.0	Universidade da Coruña		1.2	Universidad de La Rioja		0.4			
Universidad de Sevilla	4	3.8	Universitat Pompeu Fabra	20	1.2	Vic-Universitat Central de Catalunya		0.4			
Universitat Politècnica de València	5	3.4	U. Internacional de La Rioja*	21	1.1	U. Internacional de Catalunya		0.4			
Universidad Politécnica de Madrid	6	3.1	Universitat Jaume I de Castellón	21	1.1	Universidad Nebrija	29	0.3			
Universitat Autònoma de Barcelona	7	3.0	Universitat Rovira i Virgili	21	1.1	Universidad A Distancia de Madrid*		0.2			
Universitat Politècnica de Catalunya	7	3.0	Universidad de Cantabria		1.0	U. Internacional Valenciana*		0.2			
Universidad de Zaragoza		2.8	Universidad de Jaén		1.0	IE Universidad	31	0.1			
Universidad Autónoma de Madrid	9	2.7	Universitat Oberta de Catalunya		1.0	Universidad Abat Oliba CEU	31	0.1			
UNED		2.6	Universidad de Almería	23	0.9	Universidad Europea de Valencia*	31	0.1			
Universidad de Málaga	11	2.3	U. Miguel Hernández de Elche	23	0.9	U. Internacional Isabel I de Castilla*	31	0.1			
U. de Santiago de Compostela		2.1	Universidad Pablo de Olavide	23	0.9	Universidad Europea de Canarias*		<0,1			
Universidad de Murcia	13	2.0	Universitat de Girona	23	0.9	CUNEF Universidad*					
Universidad Rey Juan Carlos	13	2.0	Universitat de les Illes Balears	23	0.9	ESIC Universidad*					
Universidad Carlos III de Madrid		1.9	Universidad de Deusto		0.8	Universidad Católica de Ávila					
Universidad de Alicante		1.9	Universidad de León		0.8	Universidad de las Hespérides*					
Universidad de Oviedo		1.9	Universidad Pontificia Comillas		0.8	Universidad del Atlantico Medio*					
Universidad de Salamanca		1.9	Universidad Pública de Navarra		0.8	Universidad Europea Miguel de Cerve	antes				
Universidad de Valladolid	15	1.7	Universidad San Pablo-CEU		0.8	Universidad Fernando Pessoa-Canari	ias*				
Universidad de Castilla-La Mancha		1.6	Universitat de Lleida		0.8	Universidad Francisco de Vitoria					
Universidad de Alcalá	17	1.5	Universidad de Huelva	25	0.7	Universidad Internacional de Andalu	cía				
Universidade de Vigo		1.4	Universidad Alfonso X El Sabio		0.6	Universidad Internacional Villanueur	Pelayo *				
Universitat Ramon Llull		1.4	Universidad Cardenal Herrera-CEU		0.6	Universidad Louola de Andalucía*	•				
Universidad de Cádiz	19	1.3	Universidad Católica de Valencia		0.6	Universidad Pontificia de Salamanca	1				
Universidad de Córdoba	19	1.3	Universidad Católica San Antonio		0.6	Universidad San Jorge					
Universidad de Extremadura	19	1.3				Universidad Tecnología y Empresa*					

Note: Universities are ordered from highest to lowest index value. Universities with the same index value are ordered alphabetically. The 16 universities listed in the last column have not been analyzed due to lack of data.

\*Universities 15 years or younger.

Source: BBVA Foundation-Ivie

Table 4.7. U-Ranking Volume of Spanish universities 2021. Research and Innovation											
University	Ranking	Index	University	Ranking	Index	University	Ranking	Index			
Universidad Complutense de Madrid	1	6.5	Universidad de Cantabria	23	1.5	Mondragón Unibertsitatea	36	0.2			
Universitat de Barcelona	2	6.3	Universidad de La Laguna	23	1.5	Universidad Católica de Valencia		0.2			
Universitat Autònoma de Barcelona	3	5.0	Universidade da Coruña	23	1.5	Universidad Nebrija		0.2			
Universidad de Sevilla		4.9	Universidad de Extremadura	24	1.4	U. Internacional de Catalunya	36	0.2			
Universitat de València	5	4.8	Universitat Jaume I de Castellón	25	1.3	IE Universidad	37	0.1			
Universidad de Granada	6	4.7	Universitat Oberta de Catalunya	25	1.3	Universidad A Distancia de Madrid*	37	0.1			
Universidad Politécnica de Madrid	7	4.5	U. de Las Palmas de Gran Canaria		1.2	Universidad Alfonso X El Sabio	37	0.1			
Universitat Politècnica de Catalunya	8	4.2	Universidad de Navarra		1.2	Universidad Camilo José Cela	37	0.1			
Universidad del País Vasco	9	4.1	U. Miguel Hernández de Elche		1.2	Universidad Abat Oliba CEU		<0,1			
Universitat Politècnica de València	9	4.1	Universitat de Girona		1.2	Universidad Europea de Canarias*		<0,1			
Universidad Autónoma de Madrid	10	3.8	Universitat de les Illes Balears		1.2	Universidad Europea de Valencia*		<0,1			
UNED	11	3.3	Universitat Ramon Llull	26	1.2	U. Internacional Isabel I de Castilla*		<0,1			
Universidad de Zaragoza	12	3.1	Universidad de Jaén	27	1.1	U. Internacional Valenciana*	38	<0,1			
U. de Santiago de Compostela	13	3.0	Universidad de Almería		1.0						
Universidad de Málaga	14	2.7	Universidad Pablo de Olavide	28	1.0	CUNEF Universidad*					
Universidad Carlos III de Madrid	15	2.5	Universidad de Deusto	29	0.9	ESIC Universidad*					
Universidad de Alicante		2.2	Universitat de Lleida	29	0.9	Universidad Católica de Ávila					
Universidad de Murcia	16	2.2	Universidad de Burgos	30	0.8	Universidad de las Hespérides*					
Universidad de Salamanca	17	2.1	Universidad de Huelva	30	0.8	Universidad Europea del Atlántico*					
Universidad de Oviedo		2.0	Universidad de León	30	0.8	Universidad Europea Miguel de Cervo	antes				
Universidad Rey Juan Carlos	18	2.0	Universidad Pública de Navarra	31	0.7	Universidad Fernando Pessoa-Canari	as*				
Universidad de Valladolid	19	1.9	U. Politécnica de Cartagena	32	0.6	Universidad Francisco de Vitoria					
Universidade de Vigo	19	1.9	Universidad de La Rioja	33	0.5	Universidad Internacional de Andalu	cia Deleve				
Universitat Pompeu Fabra	19	1.9	Universidad Europea de Madrid	33	0.5	Universidad Internacional Villanueva	relayo *				
Universidad de Alcalá		1.8	Universidad San Pablo-CEU	33	0.5	Universidad Loyola de Andalucía*					
Universidad de Castilla-La Mancha	20	1.8	Universidad Pontificia Comillas	34	0.4	Universidad Pontificia de Salamanco	ı i				
Universidad de Cádiz	21	1.7	Vic-Universitat Central de Catalunyo	a 34	0.4	Universidad San Jorge					
Universitat Rovira i Virgili	21	1.7	Universidad Cardenal Herrera-CEU	35	0.3	Universidad Tecnologia y Empresa*					
Universidad de Córdoba		1.6	Universidad Católica San Antonio	35	0.3						
			U. Internacional de La Rioia*	35	0.3						

Note: Universities are ordered from highest to lowest index value. Universities with the same index value are ordered alphabetically. The 16 universities listed in the last column have not been analyzed due to lack of data.

\*Universities 15 years or younger.

Source: BBVA Foundation-Ivie

### 4.8. PUBLIC AND PRIVATE UNIVERSITIES' RESULTS COMPARED

The increased weight of private universities in the Spanish University System is making the comparison of the results depending on the ownership of the universities --public or privatemuch more relevant. It is undeniable that many variables may cause non-equivalent results: private universities are much younger on average, many are located in geographic areas with higher per capita income, a less diversified range of courses than the public system, to the extent that their age of existence has allowed them to decide which degrees to specialize in, and also a smaller size. But to determine the differences in the results its necessary to find first evidence that these differences do exist. The indices of the U-Ranking system allow us to address this issue with accurate data.

Figure 4.14 shows the average results for U-Ranking indices for each one of the key dimensions —teaching and research and innovation—, as well as in the global index of results.

If we take the average of the system as basis 100, built as an average weighted by the weight of the individual indices of universities, we observe that the performance of the private universities is 21 points less than the public system. This result is due, primarily, to a specialization in these universities, that is much more focused on the teaching dimension, as was pointed out earlier, in which they achieve a greater performance than public universities (11 points). This teaching specialization goes in hand with research results that are well below those of public universities (their performance being 47 points lower).

Averages may hide a more complex reality characterized by a great heterogeneity of results. The heterogeneity shared by private and public university systems, is clearly visible in figure 4.15. In all the panels (global, teaching and research and innovation) we observe how the distribution of both types of universities along the range that represents the index indicates diversity in the results.



Figure 4.14. Average performance of the Spanish public and private universities

Source: BBVA Foundation-Ivie.

In panel *a* we observe that public universities are distributed along the values of the global index of U-Ranking, with 6 that are below average. In the case of private ones, 17 of the 24 analyzed have lower values than the average, hence their lower overall performance. The situation is much more balanced in the teaching dimension (panel b), where both groups maintain their heterogeneity, but the better performance of private institutions can be seen by the fact that 50% of them (12) are above the average values, although this percentage is not much lower (47%) in public universities. Panel c shows that research in Spain is dominated by public universities and only three private universities exceed the average of the system.

In short, public and private university systems are both heterogeneous with respect to the performance of the institutions that comprise them, there being a great diversity in the global, teaching and research and innovation results. However, the public university system stands out with respect to private universities in their research achievements and innovation results. On the other hand, the teaching specialization of the private system achieves better results in this dimension.

# Figure 4.15. U-Ranking index of public and private universities. 2021

Index and number of universities with the same index

a) Global



b) Teaching



#### c) Research and Innovation



Source: BBVA Foundation-Ivie.

### 4.9. U-RANKING 2020 AND 2021

The aim of this section is to evaluate the stability of results of the different editions of U-Ranking. Direct comparisons between the 2020 and 2021 editions of U-Ranking are difficult to make because of the inclusion or exclusion in each edition of another private university, depending on whether they were able to provide the necessary data. Such inclusions and exclusions could result in changes in a university's position in the ranking not because of its performance but because another university entered the ranking. For that reason, we will calculate the correlation in the position occupied and also that of the indices, which is more indicative of the relationship between the two editions.

The results obtained by U-Ranking 2021 are highly correlated with those presented in 2020. As table 4.8 shows, the coefficients of correlation between the indices and the rankings corresponding to the two editions are very high. All the correlations, both those referring to the positions in the ranking (Spearman) and to the values of the synthetic indicator (Pearson), are significant to 1% and, for the global index, present coefficients higher than 0.95 in all cases. This result is important because it means that the small changes introduced and data updates have not significantly altered the results confirming the reliability of the methodology used.

The close fit between the indicators of both editions of the rankings can also be appreciated in the figures which show on the horizontal axis the synthetic indicator of each university in 2020 and on the vertical axis the results for 2021, both for U-Ranking (figure 4.16) and for U-Ranking Volume (figure 4.17). In the case of the volume index, there is a shift to the left, which is more pronounced in universities with a higher volume of results (higher index in U-Ranking 2021). In addition, nine new private universities have been in this year's edition. Although they are not included in the figure since they were not evaluated in 2020, they do affect the results in 2021. The new universities, due to their reduced size and/or lower results, decrease the average size of the group and widen the gap with the larger universities. However, the correlation observed is very high.

Table 4.8. Correlation coefficients of 2020 and 2021 U-Rankings									
	Perforr	nance	Volume						
	Ranking	Index	Ranking	Index					
Global	0.99	0.96	1.00	1.00					
Teaching	0.99	0.97	1.00	1.00					
Research and In- novation	0.99	0.98	1.00	1.00					

Note: The ranking values are calculated by means of a Spearman correlation coefficient and the index values by means of a Pearson correlation coefficient. Source: BBVA Foundation-lvie.





Note: IE Universidad and Universidad Católica San Antonio are analyzed for the first time in U-Ranking 2021 and are not included in the figure. See appendix 2 for a list of abbreviations.

Source: BBVA Foundation-Ivie.

# 4.10. REGIONAL UNIVERSITY SYSTEMS

Universities undertake their teaching and research activities in a certain geographic context that influences them. On the one hand, if they are public, investment efforts as well as incentive policies, fees, quality assurance and plans to boost internationalization vary greatly from one region to another. On the other hand, the socio-economic environments of each region are different: there are differences in the levels of income, the population's educational levels, type of industries, labor market, urbanization, etc. Many of these circumstances influence the location of private universities, which are clearly concentrated in the most prosperous regions of Spain, so that the number of regional public and private universities is also uneven. For all these reasons, it is interesting to analyze the performance of the socalled regional university systems.

#### **Figure 4.17. U-Ranking Volume of the Spanish public universities. 2020 and 2021** Index



Note: Data on 9 private universities (Abat Oliba CEU, Alfonso X El Sabio, Camilo José Cela, Europeas de Canarias, Madrid y Valencia, Internacional Isabel I de Castilla, Internacional de La Rioja and Universidad Internacional Valenciana) analyzed for the first time in U-Ranking 2020, along with Universidad Francisco de Vitoria, which is no longer analyzed in this edition, is not included in the figure. See appendix 2 for a list of abbreviations.

Source: BBVA Foundation-Ivie.



### Figure 4.18. Performance of the regional university systems in U-Ranking. 2021. Spain=100

Note: On-line universities not included. Source: BBVA Foundation-luie.

Figure 4.18 shows the averages of the 2021 U-Ranking index of all universities, both public and private, of each autonomous community. The six distance-learning universities have been removed from this analysis because, given their teaching method, it would be difficult to assign their scope of action to a particular region.

The results show, firstly, large differences regarding performance among the regional university systems: the autonomous community with the highest performance exceeds by 40 percentage points the region with the lowest performance.

The best-performing university systems are those of Catalonia (11 of the universities analyzed in U-Ranking), and Cantabria (with just one university), which have performance indices of 19% and 13%, respectively. They are followed by Navarra (+5%), the Valencian Community (+5%), La Rioja (+2%) and Madrid (+2%), all of which are above average. Galicia is within average.

Among the regional university systems with performance levels below the average, we can distinguish several levels: some do not reach 5% —Galicia, Balearic Islands, Basque Country and Aragon—, others are less than 10% —Andalusia, Asturias and Castile and Leon—. While other communities are over 10%, as is the cases of Murcia, Canary Islands, Extremadura and Castile-La Mancha.

When comparing the regional university systems, we must take into account that private universities, which on average have a lower performance, tend to be concentrated, as we already have seen, in regions with high levels of income and large potential markets. This is not to say, however, that the autonomous communities with more private universities rank lower, as those with the highest concentration of private universities (especially Madrid and Catalonia) also have a large number of strong public universities.

Figure 4.19 compares the results obtained by the autonomous communities in the 2020 edition with the results from the present edition. In general, we can highlight the stability of the results, but some changes should be noted. Specifically, there is a break in the convergence trend that had taken place up until this edition. The most evident proof of this fact is that the performance index of the regions in the end positions (Canary Islands, Castile-La Mancha and Extremadura) has decrease, although very slightly. While, the regions in the middle maintain their index and slight increases (Madrid, Galicia, Aragon) are accompanied by small decreases (Navarre, La Rioja, Basque Country, Andalucia). In the top, Catalonia, which was already the leader, is the region that grows the most, increasing its distance with the next region in line, Cantabria. In summary, as we pointed out, the reduction in the differences across regions that had been occurring up until now is not so strong.



Figure 4.19. Evolution of the regional university systems. 2020 and 2021. Spain =100

Note: On-line universities not included.

Source: BBVA Foundation-Ivie.



# 5. Changes in bachelor's degree programs offered in the last decade

The education to which university students have access is the result of decisions taken by universities (what degrees to offer and how many places in each program), by the institutions that govern and regulate the university system (what degrees and, in some cases, how many places to authorize), and by the students themselves, as they are the ones who apply to enroll in a particular degree program at a particular university. All these factors –supply, demand and regulation– have an impact on the number of students who eventually enroll in each degree, whether the degrees fit students' preferences, the number and characteristics of those who graduate, and their employment opportunities.

The suitability of the degrees offered by universities in Spain is often questioned from various points of view. On the one hand, students and their families are sometimes dissatisfied because they cannot pursue the desired degree or because they are unable to find employment after graduation. On the other, employers are often critical when job candidates lack the necessary training or specialization. Finally, universities themselves sometimes complain about the restrictions they face when seeking authorization to offer certain degrees.

The fact that there is a mismatch between the degrees offered and the demand does not mean that the supply never changes. On the contrary, it has been changing constantly over the last decade, as evidenced by the growing number of bachelor's and master's degrees offered by Spanish universities. Yet some consider the increased offering excessive and therefore an unnecessary cost. In determining whether the new degree offerings have improved things or not, we must bear in mind that they have been introduced in the context of multiple changes: in student numbers, in students' preferences on enrolling at university, in the number and nature of the jobs for which each degree makes them eligible, and so on.

In this chapter we analyze how the range of degrees offered by the Spanish University System has evolved over the last decade, and how well the new offering meets the demands of students and the labor market. Since the information available for master's degrees is much more limited and less systematic, the focus of the analysis is on bachelor's degrees. The analysis focuses on the actions of the universities, as they are the ones that decide when to create new bachelor's degrees or to combine or eliminate existing ones, and how many students to admit to new or existing degrees. Although the universities' decisions often require the prior approval of the Spanish University System regulators and supervisors, who in some cases play a significant role (e.g., in limiting the offer of some health science degrees), this supervisory framework is common to all the universities, so our focus is on the differences between universities.

Universities' decisions to change their offering of degrees may be driven by a wish to adapt to students' demands and employability, but there may be other factors too. For instance, a university may offer new degrees at the initiative of faculty, without paying much attention to demand, aiming to adapt its educational offering to changes in the knowledge map that make it advisable to create degrees in emerging disciplinary fields or to offer interdisciplinary degrees. The offering of degrees may also change in anticipation of, or in response to, the development of new types of jobs (as has often happened in the past) or to adjust a university's output of graduates to the new occupations that are expected to provide employment opportunities now and in the future<sup>21</sup>.

<sup>&</sup>lt;sup>21</sup> For more information on the development of this problem, see Pérez et al. 2021 and Pérez (dir.) et al. 2020.

Note that for our purposes a new degree is a degree or double degree that was not offered previously by any university. What we call new offerings, on the other hand, are not necessarily new degrees, since they include the degrees young private universities start to offer as they expand their programs and the degrees offered by the longer established universities as they restructure their offering to meet new demand or offer qualifications in new scientific and professional fields.

We have three questions to answer. The first is how fast the changes are taking place, since that will tell us how quickly the universities are responding to imbalances. The second is how the changes are being implemented, i.e., what instruments the universities are using to adapt. The third is why the changes are being made, i.e., what the changes are intended to achieve.

Universities naturally approach these changes from very different starting points, on account of their ownership (public or private), their specialization and their life stage as institutions, given that some are newly created while others have existed for centuries. These three factors may facilitate or hinder the changes by augmenting or diminishing the need to adjust the degrees offered to the demand or expand the initial offering. Changes in a university's offering may also be influenced by the university's ability to develop an academic strategy, its culture of change and the leadership capacity of those in charge<sup>22</sup>.

The answers to these questions are constrained by the information available, but the data on Spanish universities allow some interesting approximations. The data show the changes in degrees offered and places, the demand for degrees and places, and the number of students enrolled in public and private universities in the Spanish University System between the 2010-2011 and 2020-2021 academic years. In some cases the information is limited to a shorter period, starting from the 2013-2014 academic year; and for some variables the data provided by private universities is limited, so that the analysis can only be performed for public universities. In general, however, we can identify overall trends in the offering of degrees and the adjustments to supply and demand over a full decade in the Spanish University System as a whole.

The chapter is divided into the following sections: (a) a brief description of methodology used; (b) the scope and main features of the changes in bachelor's degrees offered, in two dimensions: number of degrees created and eliminated, and number of students enrolling in new degrees; (c) an analysis of the improvements resulting from the adaptation of degree courses to student demand, comparing the new degrees with the previous ones; d) how well the new degrees respond to labor market employability signals, compared to the old ones; e) finally, what determines the intensity of the changes in the offering of different universities, evaluating the explanatory power of factors such as public vs. private ownership, years of existence, location, job opportunities, stability of teaching staff, and teaching and research performance.

## **5.1. METHODOLOGY**

To analyze the changes in the degree programs offered, we measure the intensity and nature of the changes and how they affect the fit between the supply and demand of degrees, on the one hand, and job opportunities, on the other.

### Indicators

The unit of analysis is the degree programs offered by the universities each year. Starting with the degrees offered by university i in the initial year ( $t_0$ ), ( $T_{0i}$ ), we define indicators of the intensity of the changes based on the number of new degrees created ( $TN_i$ ) since the initial year —differentiating between new single degrees ( $TC_i$ ) and new double degrees based on existing single degrees ( $TD_i$ )— and the number of old degrees eliminated ( $TE_i$ ). Expressed as rates of change with respect to the initial offering, ( $T_{0i}$ ), the cumulative changes are:

 $tn_i = (TN_i/T_{0i}) \cdot 100; \ tc_i = (TC_i/T_{0i}) \cdot 100; \ td_i = (TD_i/T_{0i}) \cdot 100; \ te_i = (TE_i/T_{0i}) \cdot 100$ 

The total rate of change of the offering, (ai), including degrees created and degrees eliminated, measures the overall intensity of the changes; and its components measure the importance of the different instruments used to restructure the offering

<sup>&</sup>lt;sup>22</sup> For more information on university leadership, see Pérez et al. 2021.

(creation, elimination, and grouping of existing degrees into double degrees). It is defined as:

$$\alpha_i = tn_i + te_i = (tc_i + td_i) + te_i$$
$$= (TC_i + TC_i + TE_i) \cdot 100/T_{0i}$$

A variant of indicator  $\alpha$  i that is intuitive for assessing the scope of the changes is the number of new degrees (offered for the first time at any point during the reference period) as a percentage of the total number of degrees offered at the end of the period. We call this ( $\alpha_i$ ') and define it using the same variables as for  $\alpha_i$  but combined differently:

$$\alpha'_{i} = (TC_{i} + TC_{i} - TE_{i}) \cdot 100 / [T_{0i} + (TC_{i} + TC_{i} - TE_{i})]$$

When measuring the intensity of the changes in the offering, we must bear in mind that each university may have a very different starting point, both because of its stage in the university life cycle and because of the characteristics of its offering at  $t_0$ . A young university with a limited offering will need to create more degree programs to attract new students, whereas a large, well established university may be better served grouping existing degree programs or eliminating unattractive ones. Moreover, if a university already has an attractive offering, it may not need to make any changes, so lack of change should not be seen as negative in itself.

To take these factors into account, we define two indicators of the fit between the offering of degree *j* at university *i* and student demand. These indicators are calculated for students enrolling in any degree program at the university. We compare the indicators of new degrees and degrees offered previously to determine whether the new degrees improve the fit.

The *preference rate* indicator  $(\beta_{ij})$  of the fit between a university's offering and potential students' preferences is defined as:

 $\beta_{ij} = \frac{Students who choose degree j}{\frac{at university i as their first option}{Number of places in degree j} \cdot 100}$ 

<sup>23</sup> See Ministerio de Ciencia, Innovación y Universidades (2019), Ministerio de Universidades (2019) and Pérez and

Aldás-Manzano (dirs.) (2020).

The *rate of fit* ( $\gamma_{ij}$ ) measures the fit between the offering and the actual demand by calculating how many students enrolled in degree program ij are studying the degree they most prefer. It is defined as:

Students studying degree j  
at university i who chose that  
$$\gamma_{ij} = \frac{degree \text{ as their first option}}{Students \text{ studying degree } j} \cdot 100$$
at university i

We also study the fit between the degrees offered and the demand for graduates signaled by employers, so as to determine whether the new degrees respond to those signals better than the degrees offered previously. We use the available information on employment rates for the different degrees<sup>23</sup> and the fit between graduates' employment contracts and their degrees to define two indicators, according to the family of degrees to which each degree belongs.

The *employment rate* ( $\delta_{ijk}$ ) is defined as:

$$\begin{split} & 2014\ graduates\ of\ degree\ j\ at\ university\ i,\\ & belonging\ to\ degree\ family\ k, affiliated\ to\\ & \delta_{ijk} = \frac{the\ Social\ Security\ system\ in\ 2018}{2014\ graduates\ of\ degree\ j}\cdot 100\\ & at\ university\ i \end{split}$$

And the rate of fit between education and employment ( $\varepsilon_{ijk}$ ):

 $\begin{aligned} & 2014 \ graduates \ of \ degree \ j \ at \ university \ i, \\ & belonging \ to \ degree \ family \ k, affiliated \ to \\ & the \ Social \ Security \ system \ and \\ & contributing \ as \ graduates \ in \ 2018 \\ \hline & 2014 \ graduates \ of \ degree \ j \\ & at \ university \ i \ affiliated \ to \end{aligned}$ 

the Social Security system in 2018

#### Statistical sources

To perform this analysis we used the information provided by the Spanish Ministry of Universities through the Integrated System of University Information:

- The offering and situation of single and double degree programs offered by Spanish universities in their different campuses and facilities between 2010 and 2021.
- Number of new students enrolling in single and double degree programs in the 2013-2014 to 2020-2021 academic years.
- University pre-enrollment indicators in single and double degree programs at public on-site universities in the 2013-2014 to 2020-2021 academic years.
- Indicators of labor market participation in the 2018 academic year of university graduates who obtained their degree in the 2013-2014 academic year.

All the exercises presented in this chapter except those in the last section<sup>24</sup> include all the universities currently offering bachelor's degrees and so provide a complete overview of the educational offering of the Spanish University System and how it has changed<sup>25</sup>.

#### The determinants of the changes

In sections 5.2 to 5.4 we describe the changes in the offering of degrees from various perspectives, noting differences in the intensity of the changes between universities. In section 5.5 we model the determinants of these differences using a multivariate regression analysis, so as to take the simultaneous effect of several explanatory variables into account. We use three types of explanatory variable: institutional characteristics (type of ownership, years of existence, location); features that may affect a university's agility, efficiency and ability to adapt to change (stability of the teaching staff, quality indicators based on U-Ranking); and the signals the universities receive from the labor market regarding the employability of their graduates.

### 5.2. MAIN FEATURES OF THE CHANGES IN THE OFFERING OF DEGREES (SINGLE DEGREES AND DOUBLE DEGREES)

The indicators we have defined are useful for answering the questions posed at the beginning of this chapter about the changes in the offering of degrees. In this section we use those indicators to characterize the intensity of the changes and the relative importance of the different instruments used to update the offering.

### 5.2.1. Changes in the offering of degrees between 2010 and 2021

#### **General features**

Over the last decade, the number of degrees offered by Spanish universities has increased substantially and at a fairly steady pace, averaging 3.8% per year and totaling 44.4% over the 2010-2011 to 2020-2021 academic years. The net increase of 1,131 degrees<sup>26</sup> is the sum of 1,760 new degrees created (an increase of 69.1% relative to the beginning of the period) and 629 degrees eliminated (a decrease of 24.7% relative to the beginning of the period) (table 5.1). The first observation of interest is that three times as many degrees were created as were eliminated. The second is that 40.9% of the degrees offered in the 2020-2021 academic year are less than ten years old.

<sup>&</sup>lt;sup>24</sup> As the U-Ranking performance index is used as an explanatory variable in the regressions, only the 72 universities included in U-Ranking 2021 are considered.

<sup>&</sup>lt;sup>25</sup> The results of Universidad San Jorge, Universidad Francisco de Vitoria and Universidad Miguel de Cervantes have been excluded from the figures and tables at their request.

<sup>&</sup>lt;sup>26</sup> The number of new degrees offered is calculated for each university as a whole, not for each campus or site. In other words, each degree is counted only once per university,

regardless of whether it is offered in more than one campus or site belonging to the same university. Counting the degrees offered in each campus or site separately only makes a significant difference in the case of universities such as UCLM, UGR and UPV-EHU that are single universities in their region or province but repeat the same degree programs across provincial or local campuses, and also in the case of some very large universities (UCM).

Table 5.1. Evolution of single and double degrees offered in the Spanish University System (SUE). Academic years 2010-2010 to 2020-2021

Number of degrees									
Academic year	Public universities			Private universities			SUE		
	Single degrees	Double degrees	Total	Single degrees	Double degrees	Total	Single degrees	Double degrees	Total
2010-2011	1,861	102	1,963	443	141	584	2,304	243	2,547
2011-2012	1,925	147	2,072	482	157	639	2,407	304	2,711
2012-2013	1,958	162	2,120	510	172	682	2,468	334	2,802
2013-2014	1,981	204	2,185	571	213	784	2,551	417	2,968
2014-2015	2,019	247	2,266	620	247	867	2,638	494	3,132
2015-2016	2,037	310	2,347	640	271	911	2,675	581	3,256
2016-2017	2,046	361	2,407	641	292	933	2,686	653	3,339
2017-2018	2,060	415	2,475	653	264	917	2,712	679	3,391
2018-2019	2,101	450	2,551	672	281	953	2,772	731	3,503
2019-2020	2,136	489	2,625	692	285	977	2,828	774	3,602
2020-2021	2,156	524	2,680	715	284	999	2,870	808	3,678

Note: Two or more universities can offer jointly the same degree as part of an inter-university program. Therefore, the sum of degrees by type of ownership can be greater than the actual number of different degrees offered by the SUE.

The total number of degrees offered by the SUE differs from the total given by the Spanish Ministry of Universities' statistics since this table does not include inter-university degree programs.

Source: Spanish Ministry of Universities (2021c) and own elaboration.

The number of degrees offered has increased in both private and public universities (figure 5.1), but much more strongly in private universities (71% vs. 36%). Private universities have increased their share of the total number of degrees offered from 23% to 27%. In public universities, the number of degrees eliminated is 23.9% of the number created, as against 43.4% in private universities. Given that private universities are relatively young, they are less likely to have obsolete degree programs, unlike public universities. These percentages therefore indicate that eliminating degrees is more difficult in the longer established universities, which are the public ones.

These and other differences in behavior between the public and private universities are largely attributable to their years of existence, since on average they are at very different stages of their life cycle. Only 15 of the 50 public universities were created after 1990, whereas 34 of the 38 private universities are "young" by this criterion. During the reference period and the period immediately preceding it, hardly any new public universities were created, whereas many new private universities appeared and many of those already in existence were at the stage of expanding and consolidating their offering by creating new degrees.

One reason why so few degrees have disappeared is that many of the changes in the degree offering of established universities have involved combining existing degrees into double degrees, rather than eliminating degrees, as can be seen in figure 5.2. In the Spanish University System as a whole, the offer of double degrees tripled over the decade, with a much sharper increase in public universities. Of the 36.5% overall increase in the number of degrees offered by public universities, 15 percentage points (pp) are attributable to the increase in single degrees and 21.5 pp to the increase in double degrees. Moreover, once created, very few degrees are discontinued. In contrast, private universities, having started out with a much smaller number of degrees, expanded their offering by 71.1%, with a 46.6 pp increase in single degrees and a 24.5 pp increase in double degrees.

# Figure 5.1. Evolution of bachelor's degrees offered by type of ownership and type of degree. Academic years 2010-2011 to 2020-2021

Number of degrees





d) Type of bachelor's degree. Private universities



c) Type of bachelor's degree. Public universities



Source: Spanish Ministry of Universities (2021c) and own elaboration.

Although private universities introduced a significant number of double degrees, they have less scope to do so because the degrees to be combined need to be already well established, which is more likely to be the case in public universities with a longer track record. The adaptation strategy of creating double degrees is more common in public universities not only because they already have a larger offering, but also because they have well established teaching staff and rigid organizational structures, making this a less complicated option than eliminating degrees for which demand has declined due to changes in the wider economy or in the interests of potential students. It is significant that in the 2020-2021 academic year, in on-site universities in the Spanish University System, there are 891 degree programs still on offer with an enrollment of fewer than 25 students. Of that total, 519 are at public universities and 354 at private universities, accounting for 20.5% and 42.8%, respectively, of the offering in these institutions.
#### Figure 5.2. New and eliminated bachelor's degrees. Type of ownership. Academic years 2010-2011 and 2020-2021



a) Number of degrees

Single degrees Double degrees



b) Distribution by type of degree

Note: Two or more universities can offer jointly the same degree as part of an inter-university program. Therefore, the sum of degrees by type of ownership can be greater than the actual number of different degrees offered by the SUE as it does not include inter-university degree programs. *Source:* Spanish Ministry of Universities (2021c) and own elaboration.

#### Changes in degrees offered by subject area

The number of degrees has grown by a similar amount – around 40% (figure 5.3) – in all areas of study except Social and Legal Sciences, where it grew 60%. Given that it already had a larger number of degrees and has grown faster than other areas of study, Social and Legal Sciences has increased its share of the total number of degrees to 40%.

All five areas of study added a considerable number of double degrees and dropped only very few (mainly new single degrees, not so many double degrees, table 5.2). However, taking new single and double degrees created and degrees eliminated into account, the change in the offering is clearly less pronounced in Sciences and Health Sciences than in the other three areas of study. This difference will become clearer when we come to describing the fit with student demand and employability in the different areas of study.

#### Figure 5.3. Evolution of the number of degrees by degree family. Academic year 2010-2011=100



Note: In the classification carried out, a degree can be assigned to more than one degree group, each belonging to a different family or even area, therefore the sum of degrees per area can be greater than the actual number of different degrees offered by the SUE. Source: Spanish Ministru of Universities (2021c) and own elaboration.

Percentages										
	Ne	w degrees (	(%)	Eliminated degrees (%)			Rate of change (%) - $lpha$			
	Single degrees	Double degrees	Total	Single degrees	Double degrees	Total	Single degrees	Double degrees	Total	
Arts and Humanities	44.4	30.3	74.7	22.2	9.9	32.1	66.6	40.2	106.8	
Social and Legal Sciences	40.2	53.2	93.4	15.7	16.2	31.9	55.9	69.4	125.3	
Sciences	22.3	32.8	55.1	6.9	4.0	10.9	29.1	36.8	66.0	
Engineering and Architecture	45.7	28.6	74.3	22.4	6.9	29.3	68.2	35.5	103.7	
Health Sciences	36.7	22.9	59.6	11.0	7.0	18.0	47.7	30.0	77.7	
Total SUE	38.8	30.3	69.1	16.5	8.1	24.7	55.3	38.5	93.8	

#### Table 5.2. Denoused of basis along a denous offening s hu areas of study. Academic years 2010-11 to 2020-2021

Note: In the classification carried out, a degree can be assigned to more than one degree group, each belonging to a different family or even area, therefore the sum of degrees per area can be greater than the actual number of different degrees offered by the SUE.

Source: Spanish Ministry of Universities (2021c) and own elaboration.

Table 5.2 shows how the changes in the offering follow a similar pattern in all areas of study. Note that the rate of change (a) is calculated by adding the percentage of degrees eliminated to the percentage created, whereas in figure 5.3 the degrees eliminated have been subtracted to show the net new degrees created. The rate of creation of new degrees is three times higher than rate of elimination of existing degrees. In Social and Legal Sciences, the number of new degrees offered in the 2020-2021 academic year is almost equal (93%) to the number offered in 2010-2011. The rate of change is also high in Engineering and Architecture (74.3%) and Arts and Humanities (74.6%), and somewhat lower so in the others. The percentage of degrees eliminated is generally very similar in the three areas of study that created the most degrees (around 30%), and lower in those that changed the least, namely, Health Sciences (18%) and Sciences (11%).

#### Families of degrees

The differences in the rate of change by subject area are less pronounced than the differences by family of degrees, breaking the areas of study down into 26 disciplinary and professional fields. As the number of degrees in each grouping is very different (figure 5.4), we focus on the cumulative rate of change in each family (figure 5.3), which reveals large differences.





#### 2010-2011 • 2020-2021

Note: In the classification carried out, a degree can be assigned to more than one degree group, each belonging to a different family, therefore the sum of degrees per family can be greater than the actual degrees offered.

Source: Spanish Ministry of Universities (2021c) and own elaboration.

The biggest increases, well above the average for the Spanish University System, are found in families of degrees belonging to all five areas of study, which indicates that all five areas of study have seen significant, sometimes far-reaching, change. The standouts include three degree families in the Social Sciences area (social studies and administration, law, and economics and business), one in Arts and Humanities (artistic studies), two in Sciences (physics and mathematics), two in Engineering and Architecture (computer science and telecommunications, and industrial engineering) and two in Health Sciences (pharmacy and psychology). The degree families that have seen the least change include geography and land planning, and civil engineering and architecture<sup>27</sup>.

The following features of the patterns of change in the degree families are worth noting:

- The second largest change was in the artistic studies family of degrees, which accounts for the bulk of the change in the Arts and Humanities subject area. This change is attributable to the development of new degrees focused on the digital transformation of the humanities, in fields such as animation and multimedia (27 new degrees) and design (28 new degrees). Arts and Humanities is undergoing a transformation as some of its degree families adapt to the new demands. The exception in this respect is philology, which also faces the challenges of digitization.
- Engineering and Architecture has 20 new degrees, also in the field of animation but with a more technological approach, in the fields of digital content and video game development. The number of data science degrees increased from 3 to 36 during the reference period. Other significant increases were in biomedical engineering, which now offers 34 degrees, compared to 7 in 2010-2011, and mechatronics, a discipline combining mechanical engineering, electronics and robotics, which has increased from 2 to 15 degrees.

- The family of degrees in the Social Sciences area that has increased the most, namely, social studies and management sciences, followed a different pattern. Here the focus was more on creating double degrees, adopting a more multidisciplinary approach to pre-existing courses in political science (45 new degrees) and international relations (62 new degrees). Rather than targeting new niches of emerging demand, the aim has been to create a more attractive offering by adding double degrees. The same applies to the degree families of law, and economics and business studies, which saw a significant increase in number of degrees. In business studies, however, there was also a fivefold increase in new degrees focusing on business analysis and business intelligence.
- The same approach is observed in Sciences, notably in physics, where 13 of the 15 new degrees offered are double degrees with mathematics, chemistry or an engineering subject. And also in Health Sciences, especially in pharmacy, where 13 of the 16 new degrees are double degrees with nutrition, business administration and management, or biotechnology.
- Also in Health Sciences, the psychology family of degrees grew considerably, with a mixture of new degrees, in psychology and speech therapy (33 new degrees), and double degrees (23).

The areas that have seen the biggest changes are also the ones in which we find most of the more than 190 degrees that are new to the Spanish University System as a whole. Some 20% of these new degrees (which account for almost 13% of the total number of new degrees) are double degrees and 80% are single degrees. Similarly, 56% are offered by public universities and the rest by private universities. Madrid and Catalonia account for 35% and 32%, respectively, of the offering of these innovative new degrees. Many of the new degrees in the Spanish University System reflect efforts to renew education in the areas of study so as to assimilate the changes brought about by digitalization, which they address from different

<sup>&</sup>lt;sup>27</sup> The changes described are attributable both to the creation of new degrees (+) and to the elimination of existing ones (-). The families that stand out in the creation of new degrees are artistic studies, communication and documentation sciences, law, social studies and administration sciences, economics and business, physics, pharmacy, and psychology. The families with the highest percentage of

degree programs eliminated are artistic studies, with a decrease of up to 80% compared to the initial offering (offset by an increase of 180% in degrees created), and communication and documentation sciences, and civil engineering and architecture, with decreases of around 50%.

angles, combining the use of big data with creative activities and design, communication, business management and analytics, the new engineering disciplines, etc.

Figure 5.5 shows the importance of double degrees in renewing the offering in each family of degrees. Social and Legal Sciences and Sciences are the areas of study that have made the most use of double degrees, which account for 57% and 60%, respectively, of the total number of new degrees in these two areas. The families of degrees with the highest concentration of double degrees are law, physics, mathematics, chemistry and pharmacy.

#### Figure 5.5. Percentage of new bachelor's degrees that are double degrees by areas of study and degree family



Source: Spanish Ministry of Universities (2021c) and own elaboration.

#### Universities and regional university systems

To complete our overall analysis of the intensity of the changes in the offering, figure 5.6 shows the number of degrees currently offered by each university and the percentage of new degrees, ordered by percentage of new degrees (ai'). The enormous diversity among the universities in terms of the number of degrees offered is immediately apparent, as is the intensity of the change. These two variables are not correlated, however, as large changes are observed in both large and small universities. Nevertheless, large increases in the number of degrees offered are more frequent in small and private universities, many of which are recently created. In nine of these universities all the degrees offered are post-2010, i.e., new for our purposes<sup>28</sup>.

The box-plots in figure 5.7 show the diversity of behavior of the universities. The size of the boxes (which contain 50% of the observations) allows us

to measure diversity among universities without focusing on external values.

The average percentage of new single degrees is high in private universities and low in the public ones. The percentage of new double degrees is also higher in private universities, with greater dispersion than in single degrees. The percentage of degrees eliminated is low, but higher in private universities than in the public ones, where it is negligible.

Among the regional university systems (figure 5.8), the regions with the biggest increase in number of degrees offered over the last decade are Madrid and Catalonia, with more than 600 degrees on offer in the 2020-2021 academic year, more than 50% of which are new in relation to 2010-2011 (when the total also included Cantabria). The regions with the smallest increase in degrees offered are Asturias, Extremadura and Aragon, with no more than 20% of new degrees.

 $<sup>^{\</sup>ensuremath{^{28}}}$  The University of La Rioja renewed its offer before that year.

Percentage of new degrees 50 60 10 40 90 100 0 20 30 70 80 Universidad Louola Andalucía Universidad Europea de Valencia IE Universidad 000000 Universidad Europea del Atlántico Universidad Europea de Canarias Universidad Internacional Isabel I de Castilla Universidad Internacional Villanueva Universidad del Atlántico Medio Universidad Fernando Pessoa-Canarias Universidad Internacional Valenciana Universidad a Distancia de Madrid Universidad Europea de Madrid Universidad Nebrija Universidad Pontificia Comillas Universidad San Pablo - CEU Universitat de Lleida Universitat Pompeu Fabra Universidad Internacional de La Rioja Universitat de Vic - Universitat Central de Catalunya Universidad de Deusto Universitat Politècnica de Catalunya Universidad Rey Juan Carlos Universitat Ramon Llull Universitat Internacional de Catalunya Universitat Oberta de Catalunya Universidad Camilo José Cela Universitat de Girona Universitat Rovira i Virgili Universidad Politécnica de Madrid Universidad Pública de Navarra Universidad de Navarra ersidad Cardenal Herrera - CEU Universidad Pablo de Olavide Universidad Carlos III Universidad de Salamanca ----Universidad Católica Santa Teresa de Jesús de Ávila Universidad de Cádiz Universitat Abat Oliba CEU Universidad de Almería Mondragon Unibertsitatea Universidad de Córdoba Universidad Politécnica de Cartagena Universidad Católica San Antonio Universitat Politècnica de València Universidad Alfonso X el Sabio Universidad de Castilla-La Mancha Universidade da Coruña Universidade de Santiago de Compostela Universidad Complutense Universidad Católica de Valencia Universidad de Sevilla Universidad de Alcalá Universitat de Barcelona Universidad de Valladolid Universitat Autònoma de Barcelona Universidad de Jaén Universidad de Cantabria Universidad de Las Palmas de Gran Canaria Universidad de Málaga Universidad de Huelva Universidad de Burgos Universitat de les Illes Balears Universidad de Granada Universidad Autónoma de Madrid Universidad Miguel Hernández de Elche Universidad del País Vasco Universidad de Alicante Universidade de Vigo Universidad de León Universidad de Extremadura Universidad de Murcia Universidad Pontificia de Salamanca Universidad de Oviedo Universitat Jaume I Universitat de València Universidad de La Laguna Universidad de Zaragoza Universidad Nacional de Educación a Distancia Universidad de La Rioja 0 50 100 150 200 Number of degrees

## Figure 5.6. Bachelor's degree offerings by university (2020-2021) and the intensity of the changes in the degrees offered since 2010-2011

Bacherlor's degrees offered in 2020-2021 • New degrees (%)

#### Public universities

Private universities

Note: For universities with no degrees offered during the academic year 2010-2011, the initial academic year is the first one available after this date. Two or more universities can offer jointly the same degree as part of an inter-university program. Therefore, the sum of degrees by university can be greater than the actual number of different degrees offered by the SUE as it does not include inter-university degree programs. Source: Spanish Ministry of Universities (2021c) and own elaboration.





a) Public universities

b) Private universities

Note: For universities with no degrees offered during the academic year 2010-2011, the initial academic year is the first one available after this date. The distribution shown in the figure refers to the tni and tei indicators, described in the methodology, by single and double degrees and by type of ownership. Source: Spanish Ministry of Universities (2021c) and own elaboration.



#### Figure 5.8. Bachelor's degrees offered by Spanish region (2020-2021) and intensity of changes in the degrees offered since 2010-2011

Note: Two or more universities can offer jointly the same degree as part of an inter-university program. Therefore, the sum of degrees by university and region can be greater than the actual number of different degrees offered by the SUE as it does not include inter-university degree programs. Source: Spanish Ministry of Universities (2021c) and own elaboration.

## 5.2.2. Effect of the changes for new students

The reform of the offering of degrees in the university system has affects the composition of the student body gradually, as students enroll and progress in the new degrees. Newly enrolled students account for approximately one-third of the bachelor's degree students in Spanish universities and are the ones who can take advantage of new degree options as they arise. In this section we analyze the effect of the changes in the offering of degrees by observing the students who are able to choose between new and old degrees each year.

#### Demand, a constraint

It is important to bear in mind that changes in the degrees offered can occur in different contexts of demand and that the period analyzed was marked by a drop in the number of students. In these circumstances, the need to adapt the supply to the demand is exacerbated by increased competition for a smaller number of students. We therefore need to look at the changes in student demand in the different areas of study and families of degrees, as this may vary sharply, closing off and opening up opportunities for the universities and putting pressure on them to adapt. However, because the universities start from different positions, they face different challenges in restructuring their offering and show a varying capacity to react.

Because of limitations in the available information, our study of how the changes in the degrees offered are reflected in the composition of the student intake must be restricted to the academic years 2013-2014 to 2020-2021. The number of new students followed a downward trend during that period due to the decrease in the size of the university age cohorts. However, the drop in student numbers is distributed very asymmetrically among the universities, particularly between public and private universities: while enrollment grew 40% in private universities, it fell 13% in public universities (panel a of figure 5.9). Enrollment also differs markedly between areas of study, with the biggest drops in Engineering and Architecture, and Social and Legal Sciences, compared to smaller declines in the other three areas. While private universities gained in number of new students in all areas of study (especially Arts and Humanities), public universities lost students in all areas, with Sciences proving the most resilient and Engineering and Architecture posting the sharpest decline (panel b).

Figure 5.10 shows that in public universities the new student intake was below the 2013-2014 level in most families of degrees. The opposite is true for private universities. Practically the only families of degrees in which public universities did better than private universities are those private universities do not offer (physics and mathematics) and artistic studies. Enrollments increased in some degree families despite the overall decline. In public universities, increases are observed in only five families of degrees (and in some of them only slight increases), whereas in private universities there were increases in 21 of the 26 degree families. The advantage of private universities in attracting new students is thus apparent in a large majority of degree families during the reference period.

At university level these observations results in changes in the number of new students shown in figure 5.11, with growth (in some cases rapid growth) in most of the private universities and a decline (again in some cases a sharp decline) in most of the public universities. These differences have to do with the differing rates at which the universities created degrees, although that is not the only explanatory variable, since the average number of students enrolled in each degree program is not the same, as can be seen in table 5.3.







Source: Spanish Ministry of Universities (2021c) and own elaboration.

## Figure 5.10. Evolution of new student enrollments by degree family. Public universities vs private. Academic years 2013-2014 and 2020-2021

Academic year 2013-2014=100



Note: In the classification carried out, a degree can be assigned to more than one degree group, each belonging to a different family, therefore the sum of degrees per family or branch can be greater than the number of total enrollments.

Source: Spanish Ministry of Universities (2021c) and own elaboration.

**Figure 5.11. Evolution of new student enrollments by university. Academic years 2013-2014 to 2020-2021** Academic year 2013-2014=100



Note: The following universities have not been included as no students were enrolled during the academic year 2013-2014: Universidad Europea de Valencia, Universidad Fernando Pessoa-Canarias, Universidad del Atlántico Medio, Universidad Europea del Atlántico and Universidad Internacional de Villanueva. Source: Spanish Ministry of Universities (2021b).

## Table 5.3. Average size of the degrees by degree family and type of ownership. On-site universities. Academic year 2020-2021

Number of students					-		
	Public uni	versities	Private uni	versities	Total SUE		
	Pre-existing	New	Pre-existing	New	Pre-existing	New	
	degrees	degrees	degrees	degrees	degrees	degrees	
ARTS AND HUMANITIES	72.5	35.6	20.5	20.9	67.8	30.1	
Artistic Studies	115.9	56.2	32.6	26.7	96.0	40.5	
Philology, Literature, Language and Transla- tion	62.0	29.1	12.8	28.2	59.7	29.0	
Humanities, History and Philosophy	74.1	30.6	14.4	11.9	68.4	22.9	
SOCIAL SCIENCES	138.3	38.2	80.0	36.5	126.1	37.3	
Communication and Documentation Sciences	92.8	41.5	35.4	17.8	74.5	25.2	
Education, Physical Activity and Sport Sciences	194.3	37.5	134.6	75.3	177.4	54.5	
Law	153.5	37.0	56.1	34.9	134.1	35.8	
Economics and Business	130.7	38.8	66.7	39.6	119.0	39.1	
Social Studies and Administration Sciences	88.1	37.3	37.8	22.8	80.2	30.2	
Geography and Spatial Planning	28.4	30.7	-	-	28.4	30.7	
Human Resources and Labor Relations	103.9	31.3	-	16.7	103.9	28.7	
SCIENCES	69.1	30.6	43.6	28.3	67.3	30.3	
Biological Sciences	79.1	30.2	47.6	27.4	74.8	29.7	
Physics	72.6	23.1	-	54.0	72.6	25.2	
Geology and Environment	52.5	32.6	25.3	16.0	50.8	30.5	
Mathematics	48.0	29.1	-	28.0	48.0	29.1	
Chemistry	82.4	22.2	27.0	-	78.1	22.2	
ENGINEERING AND ARCHITECTURE	72.7	43.6	33.9	31.1	67.9	40.9	
Informática y Telecomunicaciones	87.8	42.0	40.5	23.2	81.0	37.4	
Ingeniería Agroalimentaria	41.6	27.0	18.0	21.8	40.6	26.4	
Ingeniería Civil y Arquitectura	52.1	71.1	24.3	31.2	47.9	66.5	
Ingeniería Industrial	75.3	31.4	37.3	39.2	70.7	33.2	
HEALTH SCIENCES	148.1	53.6	113.5	66.4	138.1	60.9	
Nursing and Podiatry	220.9	100.9	155.1	82.1	202.1	90.1	
Pharmacy	181.3	19.1	64.0	25.9	131.7	22.5	
Physiotherapy	93.1	30.9	86.7	90.0	90.5	55.1	
Medicine and Dentistry	148.2	70.4	165.8	107.4	152.5	92.2	
Other Health Sciences	68.3	33.0	34.9	33.3	62.0	33.2	
Psychology	178.4	64.3	96.3	53.3	153.2	56.2	
Veterinary	123.4	60.0	197.0	-	141.8	60.0	
Total	105.2	42.7	74.9	40.7	100.3	41.9	

Note: Pre-existing degrees are those single and double degree programs with new students registered before the academic year 2014-2015, and new degrees are those with students registered for the first time in the academic year 2014-2015 or later.

A degree can be assigned to more than one degree group, each belonging to a different family, therefore the sum of degrees/students per family can be greater than the total number of degree offerings/enrollments.

Source: Spanish Ministry of Universities (2021c) and own elaboration

#### New degrees' share of newly enrolled students

The newly enrolled students who opted for one of the new degrees offered in the 2020-2021 academic year account for 15.4% of first-year students (figure 5.12). This is a small percentage considering that the new degrees accounted for 32.1% of the total. The same trend is seen in 24 of the 26 families of degrees and the share of firstyear students is low in almost all cases. Even so, in six degree families the new degrees accounted for 25% of newly enrolled students.

This finding does not necessarily mean that the new degree offering is poorly designed or

unattractive. In many cases, it reflects the fact that the new degrees and double degrees were created for a smaller number of students than the traditional ones. Table 5.3 shows that the average size of the new degrees (in number of students) is less than half that of the degrees offered previously. Although there are differences by subject area and degree family, this is a general rule with only one exception (in the family of civil engineering and architecture). The same pattern is found in both public and private universities, although in private universities the new degrees (unlike the old ones) do not differ so clearly in size and the new degrees are smaller or larger than the previous degrees depending on the family of degrees.

## Figure 5.12. Percentage of new bachelor's degrees and of new students enrolled in new degrees by subject area and degree family. Academic year 2020-2021



• % alumnado de nuevo ingreso en nuevas titulaciones

Note: Pre-existing degrees are those single and double degree programs with new students registered during the academic year 2014-2015 or later. A degree can be assigned to more than one degree group, each belonging to a different family, therefore the sum of degrees/students per family can be greater than the total number of degree offerings/enrollments.

Source: Spanish Ministry of Universities (2021c) and own elaboration.



Figure 5.13. Percentage of bachelor's degrees with less than 25 new students enrolled in pre-existing or new degrees and by type of ownership. On-site universities. Academic years 2014-2015 and 2020-2021

*Note:* Pre-existing degrees are those single and double degree programs with new students registered before the academic year 2014-2015, and new degrees are those with students registered for the first time in the academic year 2014-2015 or later. *Source:* Spanish Ministry of Universities (2021c) and own elaboration.

The small size of the new degree programs is therefore not, in itself, a sign of unattractiveness but undoubtedly reflects a commitment to differentiation, as the universities move toward an offering that comprises a larger number of smaller programs. To explore this issue, in later sections we will analyze the new offering of degrees in the light of data on student preferences and employability. If the new degrees show a better fit, the extra cost of a more fragmented offering may be justified.

A separate question is whether the cost of offering degrees with such a small enrollment is acceptable, at least for the public sector. In the 2020-2021 academic year, 25.8% of the degrees offered had fewer than 25 new student enrollments (figure 5.13). In the case of degrees created in or after 2014-2015, the figure rises to 46.8%. There are also marked differences between public and private universities: private universities have twice as many degrees with fewer than 25 students than public universities (42.8% vs. 20.5% of the total). However, the figure for public universities is the

result of a sharp rise in the last five years, from 12.5% to 20.5%, with the creation of new, less well established degrees with smaller enrollments. A high percentage of the newly created degrees are very small, to the point where in private universities very small degrees are almost a majority.

Although, as table 5.3 shows, public and private universities do not differ markedly in the size of the new degrees offered, they do differ in their share of new students enrolled in the new degrees, as can be seen in table 5.4. The table shows the public and private universities' share of total new degree programs and the proportion of total new students enrolled in new degrees, by subject area and family of degrees. Overall, private universities have a larger proportion of students enrolled in new degrees (33.8%) than the public ones (10.8%), but private universities also have a much higher proportion of new degrees (53.1%) than the public ones (24.9%). These percentages are even further away (28 pp) from the weights represented by students (23 percentage points).

Table 5.4. Percentage of new bachelor's degrees and of new students enrolled in new degrees by subject area, degree family and type of ownership. Academic year 2020-2021

	P	ublic univers	ities	Private universities		
	% of new degrees	% of new student enrollments in new degrees	% of offerings in 1st academic year of new degrees*	% of new degrees	% of new student enrollments in new degrees	
ARTS AND HUMANITIES	23.7	9.7	12.6	64.1	71.2	
Arts Studies	37.5	22.5	22.3	67.5	69.9	
Philology, Literature, Language and Translation	22.2	9.7	11.1	57.1	59.3	
Humanities, History and Philosophy	22.7	6.3	9.6	64.3	78.5	
SOCIAL SCIENCES	28.3	10.4	10.4	59.3	33.6	
Communication and Documentation Sciences	33.1	18.1	18.2	69.2	41.5	
Education, Physical Activity and Sport Sciences	24.5	5.4	5.6	40.9	24.3	
Law	31.9	17.7	7.2	66.3	36.2	
Economics and Business	31.6	10.5	11.2	64.2	41.3	
Social Studies and Administration Sciences	36.3	13.2	20.2	74.7	68.7	
Geography and Spatial Planning	24.1	25.6	16.5	100.0	100.0	
Human Resources and Labor Relations	22.6	8.1	7.8	83.3	27.3	
SCIENCES	25.3	10.8	12.2	37.0	27.6	
Biological Sciences	27.2	12.5	12.6	35.0	23.7	
Physics	32.6	9.4	11.4	100.0	100.0	
Geology and Environment	23.7	12.4	16.0	40.0	29.6	
Mathematics	35.4	17.4	14.2	100.0	100.0	
Chemistry	19.6	5.1	6.0	0.0	0.0	
ENGINEERING AND ARCHITECTURE	32.0	20.8	21.6	48.1	39.9	
Computer Science and Telecommunications	39.2	21.4	23.6	54.8	34.6	
Agroalimentary Engineering	39.0	29.3	28.3	66.7	70.7	
Civil Engineering and Architecture	32.6	39.8	32.7	26.1	31.2	
Industrial Engineering	28.3	13.5	15.0	46.4	47.0	
HEALTH SCIENCES	20.1	6.3	8.0	44.1	26.2	
Nursing and Podiatry	16.7	8.4	5.8	40.0	26.1	
Pharmacy	31.8	4.7	4.6	38.9	20.5	
Physiotherapy	28.9	11.9	11.2	30.0	30.8	
Medicine and Dentistry	13.0	6.6	6.3	40.0	30.2	
Other Health Sciences	30.4	17.4	18.0	69.0	68.0	
Psychology	19.6	3.1	8.6	54.3	19.9	
Veterinary	10.0	5.1	5.5	0.0	0.0	
Total	24.9	10.8	10.3	53.1	33.8	

A degree can be assigned to more than one degree group, each belonging to a different family, therefore the sum of degrees/students per family can be greater than the total number of degree offerings/enrollments.

Source: Spanish Ministry of Universities (2021c) and own elaboration.

The relative importance of the public and private universities in the Spanish University System remains unequal, as does their specialization, and the above is not to say that private universities, because they have increased the number of degrees they offer, are the ones mainly responsible for the changes in the offering. Table 5.5 shows that public universities offer 57.7% of the new degrees in the Spanish University System as a whole, compared to private universities' 42.3%, and the share of new students in the 2020-2021 academic year was very similar to previous years. Table 5.5. Distribution of new student enrollments in new bachelor's degrees. Type of ownership and degree family. Academic year 2020-2021

	New bachel	or's degrees	New student o new d	enrollments in egrees
	Public universities	Private universities	Public universities	Private universities
ARTS AND HUMANITIES	60.0	40.0	50.2	49.8
Arts Studies	43.8	56.3	39.3	60.7
Philology, Literature, Language and Translation	80.0	20.0	76.9	23.1
Humanities, History and Philosophy	55.7	44.3	45.3	54.7
SOCIAL SCIENCES	47.6	52.4	50.4	49.6
Communication and Documentation Sciences	30.3	69.7	50.0	50.0
Education, Physical Activity and Sports Sciences	52.6	47.4	33.0	67.0
Law	43.4	56.6	65.1	34.9
Economics and Business	50.4	49.6	47.9	52.1
Social Studies and Administration Sciences	49.6	50.4	52.8	47.2
Geography and Spatial Planning	87.5	12.5	31.3	68.7
Human Resources and Labor Relations	73.7	26.3	72.3	27.7
SCIENCES	88.9	11.1	89.6	10.4
Biological Sciences	81.6	18.4	83.0	17.0
Physics	93.3	6.7	85.7	14.3
Geology and Environment	87.5	12.5	93.4	6.6
Mathematics	96.6	3.4	96.7	3.3
Chemistry	100.0	-	100.0	-
ENGINEERING AND ARCHITECTURE	76.9	23.1	77.4	22.6
Computer Science and Telecommunications	72.4	27.6	69.9	30.1
Agri-Food Engineering	88.2	11.8	90.3	9.7
Civil Engineering and Architecture	88.5	11.5	94.6	5.4
Industrial Engineering	76.6	23.4	72.0	28.0
HEALTH SCIENCES	42.7	57.3	37.6	62.4
Nursing and Podiatry	42.9	57.1	48.0	52.0
Pharmacy	50.0	50.0	42.5	57.5
Physiotherapy	59.1	40.9	33.2	66.8
Medicine and Dentistry	41.2	58.8	31.5	68.5
Other Health Sciences	45.9	54.1	45.7	54.3
Psychology	26.5	73.5	30.3	69.7
Veterinary	100.0	-	100.0	-
Total	57.7	42.3	56.4	43.6

Note: Single and double degree programs registering new students for the first time in the 2014-2015 academic year or later.

Source: Spanish Ministry of Universities (2021c) and own elaboration.

However, these aggregate features hide large differences in size of offering and positioning between public and private universities by subject area and degree family. The share of new students enrolled in new degrees at public and private universities differs markedly from the average when we look at particular families of degrees, mainly because of the differences in the number of new degrees in each subject area. Public universities account for a majority of new students enrolled in new degrees in 14 families of degrees, while private universities have a majority in the other 12 families.

#### 5.3. FIT BETWEEN THE NEW OFFER-ING AND STUDENT DEMAND IN PUB-LIC ON-SITE UNIVERSITIES

In this section we analyze the attractiveness of the new degrees for students, looking beyond the take-up of the places offered<sup>29</sup>. However, because of limitations in the information available, the analysis can only be carried out for students enrolled in on-site universities in the Spanish Public University System (SUPE). For students in public universities, we know not only where they are enrolled but also whether the degree they are studying is the one they chose in the first place, based on pre-enrollment data. This information is not available for students in private universities.

The success of the degree reform can be evaluated from the perspective of the fit between degrees offered and student demand, with the help of the indicators ( $\beta$ ,  $\gamma$ ) described in section 5.1. The first of these two indicators measures whether the new offering is more attractive to potential students, i.e., whether they make it their first choice more frequently than the pre-existing offering. The second indicator compares the percentage of students enrolled in their degree of first choice in old vs. new degrees.

Figure 5.14 shows the values of indicator  $\beta$ i, i.e., the ratio of preference for places offered in new degrees vs. old degrees, in each subject area and its associated families of degrees (panels a to e) and the total preference ratio in the five areas of study (panel f). The scale is different in each panel, but the proportion of first-choice pre-

registration applications is consistently higher in the new degrees than in the ones that existed previously. The preference for the new degrees is more than 16 pp higher than for the initial degrees overall and almost double in Social and Legal Sciences. In Health Sciences the preference for new and old degrees is similar, but the starting figures were already very high, with more than four firstchoice applicants for every place offered.

A student's wish to study a particular degree is an aspiration that may or may not eventually be reflected in an enrollment in that degree. Figure 5.15 shows, by subject area and degree family, the percentage of students enrolled in their first-choice degree program (indicator  $\gamma$ ). The proportion of students enrolled in their program of first choice is higher in the new degrees than in the initial degrees, indicating an improvement in fit between students' preferences and degree studied. The fit is 7 pp higher for the new degrees than for the rest of the degrees in the SUPE as a whole and 10 pp higher in Sciences and Social and Legal Sciences.

In short, the indicators of fit to demand show that in a large majority of degree families the new degrees perform better than the pre-existing ones. Only in three families of degrees is there no improvement, whereas in nearly all the rest the improvement is considerable. The fit between first choice and degree actually studied is improved in 21 of the 26 families of degrees and the improvement, though generally moderate, exceeds 10 pp, and reaches as much as 20 pp, in a few cases. The new degrees perform worse only in a few exceptional cases. We can conclude, therefore, that the redesigned degree offering meets students' interests better than the initial offering.

places in the new Engineering and Architecture degrees has been 6 pp higher than in the previous degrees, indicating that the changes in the offering may be succeeding in reverting trends. Enrollment rates improved in 18 of the 26 families of degrees considered. The most significant improvement was in civil engineering and architecture, which went from 62% to 89%.

<sup>&</sup>lt;sup>29</sup> In general, the new degrees have filled up as well as the previous ones, probably because when the number of places offered is tailored to the number of students seeking places, a program is likely to fill up. The Spanish Public University System (SUPE) fills more than 90% of places across all areas of study, with no major differences between initial and new degrees, except perhaps in Engineering and Architecture, where the offering has changed most, in response to the decline in demand noted earlier. The take-up of

#### Figure 5.14. Rate of preference of bachelor's degrees in pre-existing and new degrees. Academic year 2020-2021. On-site public universities



e) Health Sciences



#### f) Total by areas of study



Note: Pre-existing degrees are those single and double degree programs with new students registered before the academic year 2014-2015, and new degrees are those with students registered for the first time in the academic year 2014-2015 or later.

Source: Spanish Ministry of Universities (2021c) and own elaboration.

## Figure 5.15. Rate of fit to demand of bachelor's degrees in pre-existing and new degrees. Academic year 2020-2021. On-site public universities

a) Arts and Humanities

#### b) Social and Legal Sciences





#### d) Engineering and Architecture



#### e) Health Sciences

#### f) Total by areas of study



Note: Pre-existing degrees are those single and double degree programs with new students registered before the academic year 2014-2015, and new degrees are those with students registered for the first time in the academic year 2014-2015 or later. Source: Spanish Ministry of Universities (2021c) and own elaboration.

## 5.4. THE NEW OFFERING AND LABOR MARKET SIGNALS

The next question is whether the new offering of degrees responds to labor market signals of graduate employability. For the time being we can only approximate an answer to this question because we have no data on the employment rate of graduates of the new degree programs. The latest employment rate statistics published by the Spanish Ministry of Universities (2019a) include the 2018 employment status of students who graduated in 2014 but no information on graduates of the degrees we have defined as "new", i.e. those created from 2014 onward. We can, however, assess the extent to which the new degrees are concentrated in the areas of study or degree families in which, according to the latest employment report, the student employment rate was highest. This will give us an approximation to whether the new degrees respond to labor market signals or not.

The answer of this question is based on two indicators ( $\delta$ ,  $\epsilon$ ): the employment rate in 2018 of students who graduated in 2014, as an indicator of how many graduates found employment within four years of graduation; and the fit between education and employment, measured by the percentage of graduates affiliated to the Social Security system in contribution categories compatible with a university degree, which gives us an approximation to quality of employment.

The quadrants in figure 5.16 relate the percentage of new degrees offered in each subject area to the average employment rate for that subject area in 2018. The size of the circle is proportional to the number of new students enrolled in the new degrees. From the size of the circles, we observe that new student enrollments are concentrated in Engineering and Architecture, and Social and Legal Sciences. From the position of the circles in the chart we know that Engineering and Architecture and Health Sciences have above average employment rates. The proportion of new degrees is lower in Health Sciences, which could be because employment rates are already high with the existing degrees, so there is less need for change. This may also explain why Legal and Social Sciences and Arts and Humanities, with below average employment rates (especially the latter), have an average or above average proportion of new degrees. The reasoning would be that universities seek to improve graduate employability by creating degrees more in demand in the labor market.

In the third quadrant is Sciences, which has both a low employment rate and a smaller proportion of new degrees, indicating a passive response to labor market signals. Despite an already good employment rate, Engineering and Architecture appears to have responded to the high demand for graduates in some of its disciplines by renewing its degree offering to seize opportunities.

Panel b of figure 5.16 shows quality of employment, measured as the percentage of graduates affiliated to the Social Security system in contribution groups compatible with university qualifications. The percentage of new degrees offered in a given family of degrees and the quality of employment are inversely related. The areas of study in which the fit between quality of employment and education is lowest, namely Social and Legal Sciences, but also Arts and Humanities, have had more changes in their offering of degrees. Presumably, as the percentage of graduates employed in jobs for which a university degree is not required rises, the universities try to improve the fit by offering new degrees. The messages are no different, therefore, from those given by panel a.

These impressions by subject area are a very coarse-grained approach to our question, since they aggregate very diverse degrees within areas of study we have found to be heterogeneous. Figure 5.17 therefore shows the same indicators broken down by family of degrees. To simplify the analysis, quadrant II contains families of degrees in which no new degrees are considered necessary because the employment rate is already high. Quadrant IV, in contrast, contains families in which new market-oriented degrees are a means to remedy low employment rates. Quadrant I contains degree families with high employment rates in which universities seek to attract students by offering new degrees in subjects with proven high employability. Finally, quadrant III contains degree families with low employability in which the universities have not renewed their offering, either because they have a passive attitude or because they have not found the right type of degrees to revert the situation.

Panel a of figure 5.17 shows that the degree families, especially if weighted by number of students enrolled, are concentrated in quadrants I and IV, indicating a general trend to create more new degrees in degree families with lower employment rates (quadrant IV: artistic studies, communication and documentation sciences, law, social studies and administration sciences, physics and psychology) and to continue to create new degrees in degree families with higher employment rates so as to take advantage of new employment niches and thus make the university more attractive (quadrant I). These are degree families that have changed rapidly but are well positioned in terms of employability, such as computer science, mathematics, health, and economics and business. There are five degree families with low employment rates but still below average rates of change in their offering (quadrant III): philology, literature and translation; geography and land management; biology; and geology and the environment. Quadrant II contains degree families with high employment rates where universities have not considered it necessary to significantly update their offering (including veterinary medicine, medicine and dentistry, and chemistry).

#### a) Employability rate us. new degree offerings b) Fit between employment demand and education 100 90 Ш II L Fit between employment quality-education in 2018 0 0 0 0 0 0 0 0 0 0 85 Engineering and **Engineering** and Architecture Architecture Health Health 80 Sciences Sciences Employment rate in 2018 Average SUE 75 Average SUE Sciences 70 Arts and Sciences Humanities 65 Social and Social and Legal Legal 60 Sciences Arts and Sciences **Humanities** 55 IV ш 111 IV 50 0 15 20 25 30 35 40 45 15 20 25 30 35 40 45 Percentage of new degrees Percentage of new degrees

#### Figure 5.16. Employment results vs. new bachelor's degree offerings by areas of study

Note:

Source: Spanish Ministry of Universities (2019 y 2021c) and own elaboration.

Percentages of new degrees: Percentages that represent new degrees created since the academic year 2014-2015 over degree offerings in the academic year 2020-2021. Employability rate in 2018 of graduates from the academic year 2013-2014.

The between employment demand and education in 2018: Percentages of students who graduated in the academic course 2013-2014 and employment rate in 2018 of graduates affiliated to the Social Security system in contribution categories compatible with a university degree. The size of the circles represents the number of new student enrollments in new degrees in the academic year 2020-2021.



#### Figure 5.17. Employment results vs. new bachelor's degree offerings by degree family



b)	Fit between education and employment demand us
	new degree offerings



Degr	ee Families
1	Artistic Studies
2	Philology, Literature, Language and Translation
3	Humanities, History and Philosophy
4	Communication Sciences and Documentation
5	Education, Physical Activity and Sports Sciences
6	Law
7	Economics and Business
8	Social Studies and Administration Sciences
9	Geography and Territorial Planning
10	Human Resources and Labor Relations
11	Biological Sciences
12	Physics
13	Geology and Environment
14	Mathematics
15	Chemistry
16	Computer Science and Telecommunications
17	Agroalimentary Engineering
18	Civil Engineering and Architecture
19	Industrial Engineering
20	Nursing and Podiatry
21	Pharmacy
22	Physiotherapy
23	Medicine and Dentistry
24	Other Health Sciences
25	Psychology
26	Veterinary

#### Note:

Percentage of new degrees: Percentages that represent new degrees created since the academic year 2014-2015 over degree offerings in the academic year 2020-2021.

Encloyability rate in 2018 of graduates from the academic year 2013-2014. Fit between employment demand and education in 2018: Percentage of students who graduated in the academic course 2013-2014 and employment rate in 2018 of graduates affiliated to the Social Security system in categories according to their university degree.

cording to their university degree. The size of the circles represents the number of new student enrollments in new degrees in the academic year 2020-2021.

Source: Spanish Ministry of Universities (2019 y 2021c) and own elaboration.

#### 5.5. DETERMINANTS OF THE CHANGES IN DEGREE PROGRAMS OFFERED

Having described the changes in the degree programs offered from different perspectives, in this section we analyze the determinants of the intensity of these changes at individual university level with the aim of identifying statistically significant patterns. In all cases, the changes in the offering of degrees is modeled using a multivariate regression analysis, so as to consider the simultaneous effect of several explanatory variables.

#### Variables considered and databases

The variable to be explained is the indicator of the intensity of the changes, which we have defined as (ai'), that is, the number of new degrees offered by each university in the last year as a percentage of the total number of degrees offered by that university in that year.

We consider three types of explanatory variable: variables representing institutional characteristics of the universities (ownership, age, location); features of the universities that may affect their responsiveness, efficiency and ability to adapt their offering to changes in demand (new or established teaching staff, university quality or performance); and responsiveness to labor market signals regarding the employability of their graduates.

The institutional variables are intended to capture circumstances over which the universities have little or no control. In other words, they are conditioning factors that set limits to the universities' operations and influence their decisions, particularly as regards creating or eliminating degrees. Three variables of this kind are included in the model: public or private ownership, assuming that the institutional and cultural framework of public universities will be more rigid; date of creation, assuming that younger universities will take a different approach to changing their offering because they are still at the stage of creating an offering and are less constrained by existing structures (we distinguish between 'old' universities, i.e. created before the 1983 University Reform Law, or LRU; 'middle-aged' universities, created between 1983 and 2000 under the LRU or subsequent laws; and 'young' universities, created since 2000); and location, in terms of autonomous community, because the social, economic and labor environments are very different and university funding policies are regional, potentially influencing universities' decisions.

The second type of variables are also, to a certain extent, structural but leave universities room for maneuver in the medium term. They are features of universities that change slowly and can influence an institution's responsiveness in many areas over time, in particular its readiness to change its educational offering. They include a variable that measures the quality and stability of a university's faculty, to test whether having a stable faculty is a retarding factor that slows down changes in the offering of degrees or whether it actually drives the process of adaptation. Also included is an indicator of the overall quality of a university, in terms of the results it achieves, to check whether the best universities are more or less likely to change their educational offering. For this we use the performance index calculated by U-Ranking (described in detail in the previous chapters).

The third type of variable has to do with how much attention universities pay to perceived mismatches between their course offering and the labor market, and how they react to such mismatches. In sections 3 and 4 we considered two types of mismatches: between student demand and number of places offered, and between degree offering and graduate employability. Including indicators of mismatches between student demand and degrees offered in the models is problematic because indicators of student preferences are only available for public universities. Since we want to analyze all institutions and avoid drastically reducing our sample, this option is discarded. For employability we use graduate employment rates (affiliation to Social Security), having performed tests with the fit indicator that proved not to be statistically significant.

The data used in the exercises are for 69 of the 72 universities included in the 9<sup>th</sup> edition of U-Ranking<sup>30</sup>, since their performance index is used as one of the explanatory variables. The rest of the variables come from the sources described in this chapter.

#### Results: differences between universities

Table 5.6 shows the results of the multivariate regressions for the two dependent variables: the number of new degrees as a percentage of the total number of degrees (including double degrees) offered in the 2020-2021 academic year (columns 1 and 2); and the number of new single degrees (excluding double degrees) as a percentage of the total number of single degrees offered in that academic year (columns 3 and 4). New degrees means degrees first opened for enrollment in the 2013-2014 academic year, as this is the first year for which information on student employment rates is available. The analysis does not include new double degrees separately because, as shown in previous sections of this chapter, most of the new double degrees were created by the older universities and are already included in the overall change in the offering.

Regarding the first variable analyzed, columns 1 and 2 of table 5.6 show the effects of a number of determinants when the autonomous community is, respectively, disregarded and controlled for. The most significant results are as follows:

a) Private ownership has a marked positive effect on the intensity of the changes that is statistically significant at 1% and larger than the effect controlled for by university age. Age shows a positive and significant effect when the university was created after the 1983 LRU, that is, when it is middle-aged, compared to those classified as old. This could be because the more established universities have a broad offering which they may not need to improve if it is already attractive; but it could also be that they find it more difficult to change because they have a more rigid structure. After controlling for ownership, a young age does not seem to be relevant for explaining the proportion of new degrees, possibly because the seven

universities classified as young are all privately owned.

- b) The quality of a university, as reflected by the U-Ranking overall performance index is very relevant for explaining the offering of new degrees, since the effect is significant at 1%. The interpretation is that the best universities pay more attention to their results and their environment and so react earlier by changing their offering of degrees more substantially, so as to maintain and improve their teaching and research quality.
- c) Both the percentage of a university's faculty with a PhD and the employment rate of its graduates show a negative effect on the intensity of change, although the coefficient is higher for the employment rate. The meaning is different, however. For faculty with a PhD, the interpretation is that stability can make structures more rigid and thus foster inertia. For the employment rate, the interpretation is that the worse the labor market outcome for graduates, as measured by the employment rate, the greater the risk for the university of not revising its policies. And adapting the offering by creating new degrees is a way of reacting to that risk.
- d) In the second model, when we control for the effect of the autonomous community in which each university is located, only Castile-La Mancha and the Valencian Community show significant regional effects (compared to Andalusia, which is taken as the reference). In both cases the intensity of the changes is greater than in the reference community, though with a different sign (positive in Castile-La Mancha and negative in the Valencian Community). However, including the regional dummies does not improve the fit of the model. The results of the other variables mentioned above are robust to the introduction of the regional dummies, although the size of the effect of private ownership is reduced and age loses significance. The effect of the employment rate and the percentage of faculty with a PhD is intensified and remains significant, though at a lower level.

<sup>&</sup>lt;sup>30</sup> The European University of Valencia, the International University of Valencia and the European University of the Canary Islands are not included in the multivariate

regression analysis because no data on graduate employment rates are available.

The results are very similar if we take as our dependent variable the number of new single degrees (excluding double degrees) as a percentage of the total number of degrees offered in the last academic year (columns 3 and 4). In this case the regional variables are significant in quite a few cases and improve the overall significance of the model, according to the adjusted R2. With this dependent variable, the employment rate, besides showing a larger effect, is only significant when we control for the autonomous community. The private ownership coefficient is also somewhat higher when we consider only new single degrees, which may reflect the fact that private universities have tended to create more new single degrees, whereas public universities have shown a preference for new double degrees.

		т	otal d	earees			Dee	1005	
		(1)	otut o	legiees (2)		(2)	Degi	(4)	
		(1)	+++	(2)		(3)	***	(4)	
Ref: Public	Private	22.880	***	19.318	**	25.18/	***	20.009	***
Defe Aredelucía	Augefus	(5.041)		(7.556)		(4.865)		(6.625)	
rej. Anadudu	Aragon			-7.038				-0.028	
	Driveria e de la Astruria e			(5.182)				(4.672)	*
	Principado de Asturias			-0.140				(2,614)	
	Illes Palaars			(4.454)				(5.014)	
	illes balears			-9.451				(6,962)	
	Caparias			(7.081)				(0.802)	*
	culturus			(9.106)				(5 760)	
	Cantabria			(0.100)				(5.760)	
	Cantabria			-2.021				-0.497	
	Castilla u Loón			(5.726)				(4.696)	
	custillu y Leon			(6 6 4 3)				9.330	
	Castilla-La Mancha			16 / 27	***			(3.991)	***
				(5.105)				22.850	
	Cataluão			(5.105)				(4.182)	
	Catatana			5.542				(9.522)	
	Comunidad Valenciana			(9.502)	*			(8.552)	
	comunicadi valenciana			-11.405				-0.140	
	Extromoduro			(6.328)				(5./38)	**
	Extremadura			1.998				9.571	
	Calizia			(5.077)				(3.983)	
	Galicia			4.45/				6.954	
	Comunidad da Madrid			(8.237)				(7.530)	**
	comunicad de Madria			6./00				15.740	
	Posión do Mursia			(5.918)				(5.205)	*
	Region de Murcia			2.910				12.002	
	Comunidad Foral do Navarra			(7.962)				(7.551)	
	comunicadi Foral de Nabarra			(11 (42)				(10, 907)	
	Dole Massa			(11.442)				(10.807)	
	Puis vusco			-1.700				5.508	
	La Dioia			(10.229)				(7.910)	
	Lu Rioju			(12 (07)				(12,603	
Pof: Universidad antiqua		E 70.9	*	(13.487)		6 /192	*	7 101	**
Kej. Onibersiada antigua	Aberuge uge	(2 2 9 0)		(2 021)		(2 224)		(2 459)	
	Vouna	(3.385)		(3.821)		(3.334)		(3.438)	
	roung	(6 720)		(7 125)		(7,404)		(7.022)	
	Clobal index	24 222	***	28.440	***	(7.494)	***	22.066	***
	global maex	(6.966)		(12 904)		(7 295)		(10 915)	
	Faculty member with PhD (%)	-0.509	***	-0.562	**	-0.301	**	-0 /15	*
	rucuity member with the (30)	(0.163)		(0.220)		(0 173)		(0.21/1)	
	Employment rate	-0.757	***	-0.789	**	-0.543		-0.867	**
	Employment rate	(0.228)		(0.298)		(0 326)		(0 353)	
	Constant	75 968	***	75 961	*	44 774		62 550	
		(24.071)		(39,957)		(29,940)		(39,533)	
	R <sup>2</sup>	0 583		0.691		0 595		0 730	
	R <sup>2</sup> adjusted	0.505		0.557		0.556		0.600	
	Log Likelihood	-267.889		-257,597		-265,489		-251.562	
	Observaciones			69		69		69	

Table 5.6. Determinants of I	bachelor's degree (	offerings: numbe	er of new de	egrees as a perce	entage of the tot	al num-
ber of degrees. 2020-2021						

*Note:* \*p<0,1; \*\*p<0,05; \*\*\*p<0,01. The table offers the standarized coefficients and robust standard errors.

Source: Spanish Ministry of Universities (2019, 2021c, 2021f), BBVA Foundation-Ivie and own elaboration.

## 6. Conclusions

The aim of U-Ranking is to generate classifications that allow to analyze the Spanish universities with broad datasets that consider the main dimensions of their activities: teaching and research and innovation and technological development. Two main rankings are obtained with this project: U-Ranking, which correcting for size, measures the performance of Spanish universities and ranks them according to their level, and U-Ranking Volume, which measures the results taking into account their size. The methodology used in U-Ranking is rigorous and in harmony with the recommendations of recent international studies on this subject.

Adding the information on the results of the universities in different areas has its challenges. Not considering them and examining the numerous indicators that can be contemplated separately is not a practical solution, since most of the people interested in comparing universities want information presented in a simple manner, not large and complex volumes of information. Therefore, students, faculty members, researchers, university managers or politicians, and communications media appreciate having synthetic indicators available. Rankings, if constructed with suitable criteria and clear metrics, can be useful in this sense, because they condense the results of universities in several areas, reducing the effort that users have to make to obtain and analyze the information, which in many cases, the user has to do personally.

U-Ranking indices allow to analyze the results in teaching, research and innovation and technological development of all the public universities in Spain (48) and 24 private universities that offer the information needed to make the comparison. Data for the rest of the private universities that are currently not included will be in the future when information on their activities becomes available and can be compared with the data offered by the 72 universities that are now included.

The rankings were constructed from 20 variables that take into account the following aspects: (i) the universities' different missions (teaching and research, innovation and technological development); (ii) the existence of differences in the results of a university in the different areas of study; and (iii) the importance of considering the preferences of the users of university services when constructing some rankings.

The project generates two general university rankings —volume of results (U-Ranking Volume) and performance (U-Ranking)— and four partial rankings: teaching, research, innovation and technological development, in terms both of volume and of performance. These six university profiles can be of interest for assessing them from different perspectives, since the images projected of a university by each ranking are not the same for all of them. It corresponds to the users of the information —university or political leaders, researchers, students, analysts, etc.— to consider which images are the most relevant for their needs or interests.

The main results of the 2021 edition of U-Ranking are:

- 1. The synthetic indicators from which the rankings are obtained show that the differences in performance among universities are relevant: the level of the indicator of those with better results triples that of the universities with lower performance levels.
- 2. The differences among universities in terms of volume of results are much greater, since they are influenced by performance and the different sizes of the universities.
- Public universities dominate the Spanish University System. The Universities Pompeu Fabra, Carlos III, Autónoma de Barcelona and Polytechnic Universities of Catalonia and Valencia, take the lead in U-Ranking 2021. For the first time, Pompeu Fabra shares first

place, which it previously held alone, with Universidad Carlos III de Madrid and Universidad Politécnica de Catalunya. They are followed by U. Autónoma de Barcelona and U. Politécnica de Valencia. The first private universities, Navarra and Deusto, appear in third place, which they share with U. Autónoma de Madrid, U. de Cantabria, U. de Barcelona, U. Politécnica de Madrid and U. Rovira i Virgili.

- 4. The leadership of some of these universities is especially outstanding in the research and innovation. More specifically, the Universitat Pompeu Fabra leads the research and innovation ranking, followed by U. Autònoma de Barcelona, U. Politècnica de Catalunya, U. Carlos III de Madrid, U. de Barcelona and U. Rovira y Virgili. While a group of eight universities, of which five private stand out taking the lead in the teaching ranking: U. Carlos III, U. de Navarra, U. Europea de Madrid, U. Internacional de La Rioja, U. Nebrija, U. Politécnica de Catalunya, U. Politécnica de Valencia and U. Ramon Llull.
- 5 There is a group of universities, made up of institutions with varied profiles among which predominate those of larger dimension that occupy the prominent places regarding volume of results and also performance. Most of them appear among the top 500 universities in well-known international rankings, such as Shanghai, THE and QS. U-Ranking confirms that Spanish universities that appear in the international rankings with greater volume of results are more productive. The repeated signals of quality sent by these institutions allow us to identify them as excellent universities, a conclusion that is repeated with different classification criteria. Consequently, efforts to improve the positioning of Spanish universities at international level should focus on these institutions.
- 6. With regard to private universities, the ranking confirms their high specialization and remarkable performance in teaching which exceeds by 11% the average of public universities. Five out of the eight universities with a high level of performance in teaching are private. To evaluate this result in perspective, it is important to note that the private universities that have been included

in the ranking have higher indicators than the majority of private ones that are not included due to lack of information, in view of the values which are available. Thus, the average level of the teaching results of private universities could be lower if U-Ranking included all the private universities.

- 7. The specialization in teaching of private universities has its counterpart in a worse relative position with respect to the public system in terms of research performance which is 47 percentage points lower than that of public universities, with the first private university (Deusto) appearing in sixth place in the research and innovation ranking. None of the 19 universities with best performance in research is private. Public universities present higher levels of performance in research, and innovation.
- Some well-known international initiatives 8. -such as the Shanghai Ranking or THEhave increased the visibility of the classifications of universities and the social demand for such rankings. But these rankings emphasize the indicators of research and training of high international prestige, often at graduate level, leaving out most of the activity of our university system, which focuses on the teaching of bachelor's degrees and does not compete in the world leagues. The orientation towards research indicators is also characteristic of other national rankings, drawn up with guarantees of quality but are based on indicators of the activities of universities that are too partial. Our results highlight the key importance of combining research performance with teaching performance measurements. Using the former as a proxy for the latter offers a very biased view of reality because the correlation between the two measures is low. The incorporation of private universities blurs the relationship between the two dimensions because they combine strong teaching performance and (in many cases) weak research performance, confirming the need to acknowledge the heterogeneity of the Spanish University System.
- 9. Differences in the results of the universities are also seen at regional level. Catalonia, whose university system is clearly the leader, Cantabria, Navarre, Valencian Community,

La Rioja and Madrid have the most productive university systems, with average performance levels above the Spanish average, which is set by the Community of Galicia. Differences in performance among the regional university systems are great: 40 percentage points between the bestperforming region and the worst-performing region. The 2021 edition shows a significant break in the convergence process that had been observed in previous editions.

In addition to a larger pool of information and more up-to-update information, U-Ranking 2021 also offers an analysis of how the offering of degrees in the university system has changed -through the creation of new degrees and double degrees and the elimination of existing degreesand how well the new offering meets the demands of families and the labor market.

This analysis aims to answer a number of questions. First, how quickly do the universities change their offering of degree programs to respond to mismatches between supply and demand? Second, how are the changes brought about, i.e. what instruments do universities use to adapt their offering and how intensively do they use each instrument? Third, what is the purpose for the changes: to adapt the offering of degrees to student demand and to the job opportunities available to graduates in the labor market?

Our analysis shows that the offering of degree programs has changed significantly over the last decade. The two vectors of change have been the creation of new degree programs in young private universities and the restructuring of the offering of established universities. In both cases, a degree offering that is new for a particular university is not necessarily new for the university system as a whole. In our analysis we consider all the degrees a university has offered for the first time during the last decade, as well as the subset of those that are completely new to the Spanish University System as a whole.

The total number of degrees has increased considerably and many of the new degrees are smaller (in number of students), at least for the time being, than the ones that existed previously. The offering of new degrees as a percentage of the total number of degrees is thus much larger than the number of students enrolling in the new degrees as a percentage of the total number of students enrolling in the university for the first time. As a result, the offering is becoming more differentiated, in the sense that more universities are offering new degrees and each university is offering more degrees. In a context of declining enrollment, this means that the market shares of the various offerings are generally decreasing and program size is likewise decreasing.

Within this general frame, set out below are some relevant results of the analysis included in the 9<sup>th</sup> edition of U-Ranking.

- 1. In the last decade, 1,760 new degrees were created, of which 43.9% were double degrees and 56.1% new degrees. Between the 2010-2011 and 2020-2021 academic years, 629 existing degrees were discontinued, so that the net increase in degrees during the period was 1,131, or 44%. As a result of this process of creation and elimination of degrees, 40.9% of the degrees offered in the 2020-2021 academic year are new.
- 2. Private universities have created new degrees at a much faster rate than public ones, as they are still building up their offering. Private universities (and the more recently created universities in general) have shown a greater tendency to create new single degrees, whereas public universities (and the universities with a large established offering in general) have tended to update their offering by combining single degrees into new double degrees. In both types of universities, eliminating degrees has been less common: for every three new degrees created, only one has disappeared.
- 3. The growth in number of degrees has been close to 40% in four of the five subject areas, namely, Sciences, Health Sciences, Arts and Humanities, and Engineering and Architecture, but has exceeded 60% in Social and Legal Sciences. The differences are much more marked among the 26 families of degrees into which the subject areas are divided, with growth rates ranging from more than 100% (e.g., artistic studies, and social studies and administration sciences) to barely 10% (e.g., geography and land management).

- Intense, far-reaching changes in the offering 4 of degrees are found in all five subject areas. In some cases they reflect recent changes in scientific and professional fields (not only the technological ones) associated with the impact of new technologies and digitalization. The changes have been most intense in three families of degrees in the Social Sciences subject area (social studies and administration, law, and economics and business), one in Arts and Humanities (artistic studies), two in Sciences (physics and mathematics), two in Engineering and Architecture (computer science and telecommunications, and industrial engineering) and two in Health Sciences (pharmacy and psychology). The families of degrees that have changed the least are geography and land planning, and civil engineering and architecture.
- 5. The over 190 degrees that are new not just to a particular university but to the Spanish University System as a whole are concentrated in the families of degrees in which the changes have been most intense. The proportion of new degrees offered by public universities and private ones is very similar (56% vs. 44%). The new offering (two thirds of the total number of new degrees) is concentrated in Madrid and Catalonia.
- The differences among universities in terms 6. of the changes in their offering of degrees are very large in percentage terms and do not depend on the size of a university but on a variety of institutional circumstances and characteristics. Taking these into account, the percentage of new degrees in each university's current offering is higher in private than in public universities. It is also higher in universities with a less stable faculty (faculty with a PhD). The universities that performed better in U-Ranking generally pay more attention to their results and are more active in adapting their offering of degrees. The ones whose graduates face the greatest employment difficulties create more new degrees, presumably because expanding and updating their offering will help improve their results.
- Over the course of the decade analyzed, as the number of degrees increased, the number of new students decreased for demographic reasons. This has affected the creation of new degree programs and has

intensified the competition for students, with public universities in general losing students and market share, while private universities have gained on both fronts. Private universities have been gaining strength and their new degrees have played a role in this competition, largely because they are in the phase of building up their offering.

- 8. This advantage of private universities is also apparent, to a greater or lesser extent, in the different subject areas and families of degrees. In some degree families, enrollment has been increasing despite overall declining student numbers. In public universities, new enrollments increased in only five of the 26 families of degrees, compared to 21 in private universities.
- 9 Despite the difficulties mentioned above, public universities continue to attract the majority of the total number of students enrolling in the Spanish University System, as well as the majority of those who enroll in new degrees (56.4% vs. 43.6% in private universities). However, private universities' share of students enrolling in new degrees is far larger than their share of students enrolling in degree programs of any kind (17%). There are two reasons for this: private universities have created more new degrees, making them more attractive to students. At the level of degree families, public universities lead in 14 families and private universities in 12 of the total 26.
- 10. The available information on student preferences on entering public universities tells us, in those cases only, whether the new offering of degrees meets student demand better than the previous one. Our analysis shows that it clearly does in two respects. First, in terms of number of places, new degrees are more often examined as first choice than old ones. Second, with the places they offer (which often are limited because on average new degrees are only a third of the size of older ones), new degrees have a higher percentage of students studying their first choice of degree. In both cases this applies in general across subject areas and degree families.
- 11. The new degree offerings are clearly in tune with the signals sent by the labor market regarding graduate employment and the fit

between employment needs and university training. The rate at which new degrees are created in the different degree families appears to be driven by a concern for employability. In general, the fields in which most new degrees have been created (law, social sciences, artistic studies) are the ones that need to improve the most in graduate employability and quality of employment, whereas the ones that have created fewer new degrees (medicine) are already better positioned with their existing degrees. A third group of degree families has grown strongly, despite good employability, because they are in fields that are rapidly expanding (computer science, mathematics) and their graduates are in high demand. Lastly, a fourth group of degree families with low employability (philology and biology) has shown minor changes in terms of creating new degrees, possibly because they have been unable to find opportunities to improve employability by changing their offering.

## Appendix 1: Glossary of Indicators

#### Appendix 1. Glossary of indicators and statistical sources of U-Ranking 2021 Dimension Indicator and definition Period Area Source Level 2013-14 to Faculty member per 100 students: Full-time equivalent faculty and research staff in centers belonging to the 2018-19 University per 100 full-time equivalent students in studies of 1<sup>st</sup> and 2<sup>nd</sup> cycle, bachelor's and master's degrees SIIU Area of study and students in doctoral dearees (all of these students registered in centers belonging to the University) Budget per student: Effective income of the University by number of full-time equivalent students in studies of 2013-2018 SIIU Resources 1<sup>st</sup> and 2<sup>nd</sup> cucle, bachelor's and master's degrees and of students in doctoral degrees (all of these students regis-SABI University tered in centers belonging to the University) WEB 2013-14 to Percentage of faculty member with PhD: Full-time equivalent faculty members with PhD in centers belonging to SIIU Area of study 2018-19 the University over total full-time equivalent faculty and research staff in centers belonging to the University Success rate in bachelor's dearee studies: Number of credits passed by grade students registered in an academic 2013-14 to SIIU Area of study 2018-19 uear over total credits evaluated within the same course (excluding transfer and recognized credits) 2013-14 to **Evaluation rate in bachelor's degree studies:** Number of credits evaluated by grade students registered in an SIIU Area of study 2018-19 academic year over total credits registered within the same course (excluding transfer and recognized credits) Output Teaching 2010-11 to Overall drop-out rate in bachelor's degree studies: Number of students registered in academic year t who, two 2014-15 uears after registering in the first uear of a degree, abandon it without graduating, over the total number of SIIU Area of study students registered in year t 2013-14 to Percentage of postaraduate students: Full-time equivalent students registered in master's degrees over the 2018-19 total number of full-time equivalent students registered in studies of 1<sup>st</sup> and 2<sup>nd</sup> cycle, bachelor's and master's SIIU Area of study Quality degrees (all of these students registered in centers belonging to the University) 2020-21 **Cut-off mark:** Mark of the last general group<sup>1</sup> student that gained admission to a degree with limited places SIIU Area of study 2013-14 to Percentage of foreign students: Non-Spanish students of 1<sup>st</sup> and 2<sup>nd</sup> cycle, bachelor's and master's degrees over SIIU Area of study 2018-19 the total number of students of 1<sup>st</sup> and 2<sup>nd</sup> cycle, bachelor's and master's degrees 2013-14 to Internationalization Percentage of students in international mobility programs: Number of bachelor's and master's degree stu-2018-19 dents who study abroad through a mobility program over total number of bachelor's and master's degree stu-SIIU Area of study dents

Appendix 1. Glossary of indicators and statistical sources of U-Ranking 2021 (continued)

Dimension	Area	Indicator and definition	Source	Period	Disaggrega- tion
	Resources	<b>Competitive public resources per faculty member with PhD:</b> Competitive public resources for undi- rected research projects, including both projects and complementary actions and ERDF funds, over the total number of faculty members with full-time equivalent PhD	State Bureau of In- vestigation	2014 to 2019	Area of study
		<b>Contracts with PhDs, research grants and technical support over total budget:</b> Competitive re- sources obtained for research staff training, Juan de la Cierva, Ramón and Cajal and support techni- cians over total effective income	State Bureau of In- vestigation/ SIIU/SABI/WEB	2014 to 2019	Area of study
		<b>Citable documents with ISI reference per faculty member with PhD:</b> Documents with ISI reference published per faculty members with full-time equivalent PhD	IUNE (Thomson Reu- ters) SIIU	2014 to 2019	Area of study
	Output	Number of patents per 100 faculty members with PhD: Number of national patents granted to each Spanish university by the Spanish Patents and Trade Marks Office per 100 faculty members with PhD	IUNE (INVENES) SIIU	2014 to 2019	University
Research		<b>Doctoral theses read per 100 faculty members with PhD:</b> Doctoral theses read per 100 faculty members with full-time equivalent PhD	SIIU	2014 to 2019	Area of study
Innovation		<b>Mean impact factor:</b> Mean impact factor of the publications with at least one author affiliated to the University	IUNE (Thomson Reu- ters)	2014 to 2019	Area of study
	Quality	<b>Percentage of publications in the first quartile:</b> Publications corresponding to journals in the first quartile of relevance within the Thomson Reuters classification by areas, over the total number of publications belonging to that area	IUNE (Thomson Reu- ters)	2014 to 2019	Area of study
		<b>Citations per document:</b> Citations received per document from the date of publication to the date of data gathering	IUNE (Thomson Reu- ters)	2014 to 2019	Area of study
		<b>Horizon 2020 European research funds per faculty members with PhD:</b> Funding received by the university from EU research funds (H2020 programme) per every 100 full-time equivalent faculty members with PhD	European Commission (H2020 Dashboard)	2014 to 2019	University
	Internationalization	<b>Percentage of publications with international co-authorship:</b> Publications with at least one co-au- thor affiliated to a foreign institution over the total number of publications	IUNE (Thomson Reu- ters)	2014 to 2019	Area of study

General group: students finishing high school or students graduated in Advanced Vocational Training or foreign students. Note: Faculty members with PhD used for calculating the indicators of Innovation and Technological Development are those in the following categories: Professor, University School Professor, Associate Professor, University School Associate Professor, and Assistant Professor, registered each year in the centers belonging to the public universities. In the case of private universities it considers university professors with permanent contracts registered each year.

# Appendix 2: List of University Abbreviations

Abbreviation	University	Type of ownership
ABATOLIBA	Universitat Abat Oliba CEU	Private
COMILLAS	Universidad Pontificia Comillas	Private
IE	IE Universidad	Private
UA	Universidad de Alicante	Public
UAB	Universitat Autònoma de Barcelona	Public
UAH	Universidad de Alcalá	Public
UAL	Universidad de Almeria	Public
UAM	Universidad Autonoma ae Maaria	Public
UANE	Universidad Alfonso X El Sabio	Private
LIR	Universitat de Barcelona	Public
UBU	Universidad de Burcaos	Public
UC3M	Universidad Carlos III de Madrid	Public
UCA	Universidad de Cádiz	Public
UCAM	Universidad Católica San Antonio	Private
UCEU	Universidad San Pablo-CEU	Private
UCH	Universidad Cardenal Herrera-CEU	Private
UCJC	Universidad Camilo José Cela	Private
UCLM	Universidad de Castilla-La Mancha	Public
UCM	Universidad Complutense de Madrid	Public
UCO	Universidad de Córdoba	Public
UCV	Universidada Catolica de Valencia San Vicente Martir	Private
UDC	Universidade da Coruna	Public
UDC	Universitat de Cirona	Privale
	Universidad A Distancia de Madrid	Private
UDI	Universitat de lleida	Public
UEC	Universidad Europea de Canarias	Private
UEM	Universidad Europea de Madrid	Private
UEV	Universidad Europea de Valencia	Private
UGR	Universidad de Granada	Public
UHU	Universidad de Huelva	Public
UIB	Universitat de les Illes Balears	Public
UIC	Universitat Internacional de Catalunya	Private
UIIC	Universidad Internacional Isabel I de Castilla	Private
UJAEN	Universidad de Jaén	Public
UJI	Universitat jaume i de Castellon	Public
ULPCC	Universidad de Las Palmas de Gran Canaria	Public
LIM	Universidad de Murcia	Public
	Universidad de Málaga	Public
UMH	Universidad Miguel Hernández de Elche	Public
UMON	Mondragón Unibertsitatea	Private
UN	Universidad de Navarra	Private
UNED	Universidad Nacional de Educación a Distancia	Public
UNEX	Universidad de Extremadura	Public
UNICAN	Universidad de Cantabria	Public
UNILEON	Universidad de León	Public
UNIOVI	Universidad de Oviedo	Public
UNIRIOJA	Universidad de La Rioja	Public
	Universidad Internacional de La Rioja	Private
	Universitat Oberta de Catalunua	Public
LIPC	Universitat Politècnica de Catalunua	Public
UPCT	Universidad Politécnica de Cartagena	Public
UPF	Universitat Pompeu Fabra	Public
UPM	Universidad Politécnica de Madrid	Public
UPNA	Universidad Pública de Navarra	Public
UPO	Universidad Pablo de Olavide	Public
UPV	Universitat Politècnica de València	Public
UPV-EHU	Universidad del País Vasco/Euskal Herriko Unibertsitatea	Public
URJC	Universidad Rey Juan Carlos	Public
URLL	Universität Ramon Llull	Private
UKV	Universitat Kovira i Virgili	Public
05	Universidad de Selameneo	Public
USAL	Universidade de Santiago de Compostela	Public
	Universitat de València	Public
	Universidad de Valladalid	Public
UVIC-UCC	Universitat de Vic-Universitat Central de Catalunua	Private
UVIGO	Universidade de Vigo	Public
VIU	Universidad Internacional Valenciana	Private

## Appendix 3: Universities' Panel of Indicators

- 1. IE Universidad
- 2. Mondragon Unibertsitatea
- 3. Universidad A Distancia de Madrid
- 4. Universidad Alfonso X El Sabio
- 5. Universidad Autónoma de Madrid
- 6. Universidad Camilo José Cela
- 7. Universidad Cardenal Herrera-CEU
- 8. Universidad Carlos III de Madrid
- 9. Universidad Católica de Valencia S. Vicente Mártir
- 10. Universidad Católica San Antonio
- 11. Universidad Complutense de Madrid
- 12. Universidad de Alcalá
- 13. Universidad de Alicante
- 14. Universidad de Almería
- 15. Universidad de Burgos
- 16. Universidad de Cádiz
- 17. Universidad de Cantabria
- 18. Universidad de Castilla-La Mancha
- 19. Universidad de Córdoba
- 20. Universidad de Deusto
- 21. Universidad de Extremadura
- 22. Universidad de Granada
- 23. Universidad de Huelva
- 24. Universidad de Jaén
- 25. Universidad de La Laguna
- 26. Universidad de La Rioja
- 27. U. de Las Palmas de Gran Canaria
- 28. Universidad de León
- 29. Universidad de Málaga
- 30. Universidad de Murcia
- 31. Universidad de Navarra
- 32. Universidad de Oviedo
- 33. Universidad de Salamanca
- 34. Universidad de Sevilla
- 35. Universidad de Valladolid
- 36. Universidad de Zaragoza

- 37. Universidad del País Vasco
- 38. Universidad Europea de Canarias
- 39. Universidad Europea de Madrid
- 40. Universidad Europea de Valencia
- 41. Universidad Internacional de La Rioja
- 42. U. Internacional Isabel I de Castilla
- 43. Universidad Internacional Valenciana
- 44. U. Miguel Hernández de Elche
- 45. UNED
- 46. Universidad Nebrija
- 47. Universidad Pablo de Olavide
- 48. Universidad Politécnica de Cartagena
- 49. Universidad Politécnica de Madrid
- 50. Universidad Pontificia Comillas
- 51. Universidad Pública de Navarra
- 52. Universidad Rey Juan Carlos
- 53. Universidad San Pablo-CEU
- 54. Universidade da Coruña
- 55. U. de Santiago de Compostela
- 56. Universidade de Vigo
- 57. Universitat Abat Oliba CEU
- 58. Universitat Autònoma de Barcelona
- 59. Universitat de Barcelona
- 60. Universitat de Girona
- 61. Universitat de les Illes Balears
- 62. Universitat de Lleida
- 63. Universitat de València
- 64. Universitat de Vic-Universitat Central de Catalunya
- 65. Universitat Internacional de Catalunya
- 66. Universitat Jaume I de Castellón
- 67. Universitat Oberta de Catalunya
- 68. Universitat Politècnica de Catalunya
- 69. Universitat Politècnica de València
- 70. Universitat Pompeu Fabra
- 71. Universitat Ramon Llull
- 72. Universitat Rovira i Virgili

# **IE UNIVERSIDAD**



#### Year of foundation: 1997

Type of ownership: Private
Churd and a 1
Students
Bachelor: 1,784
Master: 2,648
Doctoral: 61
Degrees <sup>1</sup>
Bachelor and dual degree: 27 (18+9)
Master: 22
Doctoral: 1
Faculty members <sup>2</sup> : 423
Administration and service staff <sup>2</sup> : 102
Budget³: 6,059,105€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### **New Bacherlor's degrees**

4 years after graduation

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year urce: Ministry of Universities and own elabora



## U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



Universities' average

## **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100



■ Universities' average

26,930

• IE

Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

base (€)


## **MONDRAGON UNIBERTSITATEA**



#### Year of foundation: 1997

Type of ownership: Private
Students <sup>1</sup>
Bachelor: 4,626
Master: 729
Doctoral: 184
Degrees <sup>1</sup>
Bachelor and dual degree: 18 (17+1)
Master: 18
Doctoral: 4
Faculty members <sup>2</sup> : 472
Administration and service staff <sup>2</sup> : 123
Budget³: 78,853,573€

<sup>1</sup>Course 2020-21: <sup>2</sup>Course 2019-20: <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### **New Bacherlor's degrees**

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year rce: Ministry of Universities and own elabora



#### **Employability indicators**

Situation in 2018 of graduates in 2013-2014 4 years after graduation

#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





## **UNIVERSIDAD A DISTANCIA DE** MADRID



#### Year of foundation: 2008

Type of ownership: Private
Students <sup>1</sup>
Bachelor: 4,278
Master: 3,636
Doctoral: 76
Degrees <sup>1</sup>
Bachelor and dual degree: 25 (22+3)
Master: 30
Doctoral: 1
Faculty members <sup>2</sup> : 240
Administration and service staff <sup>2</sup> : 88
Budget³: 18,679,000€

<sup>1</sup>Course 2020-21: <sup>2</sup>Course 2019-20: <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### **New Bacherlor's degrees**

4 years after graduation

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year rce: Ministry of Universities and own elabora



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





## **UNIVERSIDAD ALFONSO X EL SABIO**



UNIVERSIDAD ALFONSO X EL SABIO

#### Year of foundation: 1994 Type of ownership: Private Students<sup>1</sup>

Bachelor: 6,483
Master: 2,152
Doctoral: 37
Degrees <sup>1</sup>
Bachelor and dual degree: 52 (36+16)
Master: 29
Doctoral: 3
Faculty members <sup>2</sup> : 687
Administration and service staff <sup>2</sup> : 158
Budget³: 125,067,000€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### **New Bacherlor's degrees**

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year rce: Ministry of Universities and own elabora



#### **Employability indicators**

Situation in 2018 of graduates in 2013-2014 4 years after graduation

#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



**U-Ranking 2021 indicators** 

University with the minimum value=0; University with the maximum value=100





## UNIVERSIDAD AUTÓNOMA DE MADRID



Year of foundation: 1968

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 21,006
Master: 3,170
Doctoral: 3,998
Degrees <sup>1</sup>
Bachelor and dual degree: 49 (41+8)
Master: 89
Doctoral: 36
Faculty members <sup>2</sup> : 2,555
Administration and service staff <sup>2</sup> : 1,115
Budget³: 255,238,811€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

**TEACHING INDICATORS** 





■ Universities' average





Position according to the synthetic index of employability





# **UNIVERSIDAD CAMILO JOSÉ CELA**



Year of foundation: 2000

Type of ownership: Private
Students <sup>1</sup>
Bachelor: 5,594
Master: 3,325
Doctoral: 106
Degrees <sup>1</sup>
Bachelor and dual degree: 35 (23+12)
Master: 30
Doctoral: 3
Faculty members <sup>2</sup> : 440
Administration and service staff <sup>2</sup> : 149
Budget³: 35,783,000€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



#### Employability indicators

#### Situation in 2018 of graduates in 2013-2014 4 years after graduation

Source: Ministry of Universities and own elaboration.

#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





## UNIVERSIDAD CARDENAL HERRERA CEU



#### Year of foundation: 2000

Type of ownership: Private
Students <sup>1</sup>
Bachelor: 8,198
Master: 965
Doctoral: 87
Degrees <sup>1</sup>
Bachelor and dual degree: 49 (21+28)
Master: 18
Doctoral: 6
Faculty members <sup>2</sup> : 978
Administration and service staff <sup>2</sup> : 341
Budget³: 85,124,891€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100



■ Universities' average

• UCH



## **UNIVERSIDAD CARLOS III**



Universidad Carlos III de Madrid

#### Year of foundation: 1989

Type of ownership: Public Students<sup>1</sup> Bachelor: 16,153 Master: 3,538 Doctoral: 1,320 Degrees<sup>1</sup> Bachelor and dual degree: 49 (36+13) Master: 76 Doctoral: 23 Faculty members<sup>2</sup>: 1,688 Administration and service staff<sup>2</sup>: 725 Budget<sup>3</sup>: 184,231,001€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





#### **RESEARCH AND INNOVATION INDICATORS**



■ Universities' average





Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

## UNIVERSIDAD CATÓLICA DE VALENCIA SAN VICENTE MÁRTIR



Year of foundation: 2004

Type of ownership: Private
Students <sup>1</sup>
Bachelor: 9,680
Master: 1,807
Doctoral: 295
Degrees <sup>1</sup>
Bachelor and dual degree: 50 (26+24)
Master: 35
Doctoral: 3
Faculty members <sup>2</sup> : 847
Administration and service staff <sup>2</sup> : 444
Budget³: 75,410,415€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





## **UNIVERSIDAD CATÓLICA SAN ANTONIO**



#### Year of foundation: 1998

Type of ownership: Private
Students <sup>1</sup>
Bachelor: 11,323
Master: 3,153
Doctoral: 538
Degrees <sup>1</sup>
Bachelor and dual degree: 34 (34+0)
Master: 38
Doctoral: 4
Faculty members <sup>2</sup> : 772
Administration and service staff <sup>2</sup> : 353
Budget³: 65,732,812€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year arce: Ministry of Universities and



#### **Employability indicators** Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



Universities' average

**U-Ranking 2021 indicators** 

University with the minimum value=0; University with the maximum value=100



Universities' average

UCAM



## **UNIVERSIDAD COMPLUTENSE**



#### Year of foundation: 1508

Type of ownership: Public Students¹ Bachelor: 51,421 Master: 6,971 Doctoral: 6,523 Degrees¹ Bachelor and dual degree: 89 (70+19) Master: 155 Doctoral: 57 Faculty members²: 6,199 Administration and service staff²: 3,347 Budget³: 523,120,618€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

#### **TEACHING INDICATORS**

Faculty members/students Budget/Student Faculty member with PhD/Faculty members Success rate Evaluation rate Non drop-out rate % of postgraduate students Cut-off mark % of foreign students % of students in mobility programs

#### **RESEARCH AND INNOVATION INDICATORS**

Competitive public resources/Faculty member PhD Research staff contracts/budget Scientific documents/Faculty member PhD Number of patents/Faculty members PhD Doctoral theses read/Faculty member PhD Mean impact factor % of publications in the 1st quartile Citations per document European research funds/Faculty member PhD % of publications with international co-authorship

■ Universities' average





Position according to the synthetic index of employability





# **UNIVERSIDAD DE ALCALÁ**



Year of foundation: 1977

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 14,420
Master: 2,775
Doctoral: 1,721
Degrees <sup>1</sup>
Bachelor and dual degree: 42 (38+4)
Master: 48
Doctoral: 30
Faculty members <sup>2</sup> : 1,719
Administration and service staff <sup>2</sup> : 834
Budget³: 147,298,686€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation

Source: Ministry of Universities and own elaboration.

#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

**TEACHING INDICATORS** 

**Social Security** 

**Employed** as

Average contribution

graduates

base (€)



% of publications with international co-authorship

10 20 30 40 50 60 70 80 90 100

🔳 Universities' average

Universities' average

UAH

76.7%

26,416

0

57 6%

• UAH





Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

## **UNIVERSIDAD DE ALICANTE**



#### Year of foundation: 1979

Type of ownership: Public Students¹ Bachelor: 22,007 Master: 2,088 Doctoral: 1,717 Degrees¹ Bachelor and dual degree: 49 (44+5) Master: 55 Doctoral: 31 Faculty members²: 2,284 Administration and service staff²: 1,398 Budget³: 201,615,460€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities and own elaboration.

#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100



**Social Security** 

**Employed** as

Average contribution

graduates

base (€)







Universities' average

Universities' average

•• UA

69.7%

23,891

UA







## **UNIVERSIDAD DE ALMERÍA**



#### Year of foundation: 1993

Type of ownership: Public Students<sup>1</sup> Bachelor: 11,134 Master: 1,819 Doctoral: 900 Degrees<sup>1</sup> Bachelor and dual degree: 39 (35+4) Master: 40 Doctoral: 14 Faculty members<sup>2</sup>: 918 Administration and service staff<sup>2</sup>: 469 Budget<sup>3</sup>: 99,229,649€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100







■ Universities' average



ughilitu indicators



**4 years after graduation** Source: Ministry of Universities and own elaboration.



Position according to the synthetic index of employability





## **UNIVERSIDAD DE BURGOS**



#### Year of foundation: 1994

Type of ownership: Public Students¹ Bachelor: 6,614 Master: 677 Doctoral: 398 Degrees¹ Bachelor and dual degree: 30 (25+5) Master: 25 Doctoral: 13 Faculty members²: 797 Administration and service staff²: 357 Budget³: 57,781,005€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

#### **TEACHING INDICATORS**

Faculty members/students Budget/Student Faculty member with PhD/Faculty members Success rate Evaluation rate Non drop-out rate % of postgraduate students Cut-off mark % of foreign students % of students in mobility programs RESEARCH AND INNOVATION INDICATORS





Position according to the synthetic index of employability



Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

# **UNIVERSIDAD DE CÁDIZ**



Year of foundation: 1979

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 18,262
Master: 2,447
Doctoral: 1,119
Degrees <sup>1</sup>
Bachelor and dual degree: 66 (44+22)
Master: 55
Doctoral: 20
Faculty members <sup>2</sup> : 1,703
Administration and service staff <sup>2</sup> : 841
Budget³: 154,887,557€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100







■ Universities' average



**Employability indicators** Position according to 64.3% **Social Security** Situation in 2018 of graduates in 2013-2014 the synthetic index 4 years after graduation **Employed** as of employability 51.0% Source: Ministry of Universities and own elaboration. graduates **67** Average contribution 24,291 base (€) ■ Universities' average UCA



## **UNIVERSIDAD DE CANTABRIA**



Year of foundation: 1972

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 7,706
Master: 1,137
Doctoral: 653
Degrees <sup>1</sup>
Bachelor and dual degree: 32 (27+5)
Master: 45
Doctoral: 20
Faculty members <sup>2</sup> : 1,187
Administration and service staff <sup>2</sup> : 623
Budget³: 107,708,840€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

**TEACHING INDICATORS** 

**Social Security** 

**Employed** as

Average contribution

graduates

base (€)



#### **RESEARCH AND INNOVATION INDICATORS**

Competitive public resources/Faculty member PhD Research staff contracts/budget Scientific documents/Faculty member PhD Number of patents/Faculty members PhD Doctoral theses read/Faculty member PhD Mean impact factor % of publications in the 1st quartile Citations per document European research funds/Faculty member PhD % of publications with international co-authorship



Universities' average

Universities' average • UNICAN

UNICAN

73.5%

26,123

61.9%







## **UNIVERSIDAD DE CASTILLA-LA** MANCHA



Year of foundation: 1982

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 23,060
Master: 2,142
Doctoral: 1,555
Degrees <sup>1</sup>
Bachelor and dual degree: 63 (54+9)
Master: 42
Doctoral: 18
Faculty members <sup>2</sup> : 2,496
Administration and service staff <sup>2</sup> : 1,132
Budget³: 208,938,972€

<sup>1</sup>Course 2020-21: <sup>2</sup>Course 2019-20: <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### **New Bacherlor's degrees**

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year arce: Ministru of Universities and own elabora



#### **Employability indicators**

Situation in 2018 of graduates in 2013-2014 4 years after graduation

Source: Ministry of Universities and own elaboration.

#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

**TEACHING INDICATORS** 

**Social Security** 

**Employed** as

Average contribution

graduates

base (€)







■ Universities' average



■ Universities' average

UCLM

72.5%

25,023

62 9%

UCLM







# UNIVERSIDAD DE CÓRDOBA



Year of foundation: 1972

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 13,759
Master: 2,116
Doctoral: 1,684
Degrees <sup>1</sup>
Bachelor and dual degree: 46 (34+12)
Master: 45
Doctoral: 11
Faculty members <sup>2</sup> : 1,446
Administration and service staff <sup>2</sup> : 809
Budget³: 163,825,192€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

**TEACHING INDICATORS** 

**Social Security** 

**Employed** as

Average contribution

graduates

base (€)



#### **RESEARCH AND INNOVATION INDICATORS**





■ Universities' average

■ Universities' average

68.2%

23,555

UCO

57 1%

Position according to





Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

## **UNIVERSIDAD DE DEUSTO**

### **Deusto**

Year of foundation: 1886

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



#### Employability indicators

#### Situation in 2018 of graduates in 2013-2014 4 years after graduation

Source: Ministry of Universities and own elaboration.

#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100



Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

## **UNIVERSIDAD DE EXTREMADURA**

# UNIVERSIDAD OTHER DE EXTREMADURA

Year of foundation: 1973

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 16,302
Master: 1,765
Doctoral: 961
Degrees <sup>1</sup>
Bachelor and dual degree: 72 (61+11)
Master: 43
Doctoral: 17
Faculty members <sup>2</sup> : 1,823
Administration and service staff <sup>2</sup> : 885
Budget³: 144,699,974€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities and own elaboration.

#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100



■ Universities' average

• UNEX

Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

## **UNIVERSIDAD DE GRANADA**



#### Year of foundation: 1531

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 43,117
Master: 4,665
Doctoral: 3,480
Degrees <sup>1</sup>
Bachelor and dual degree: 75 (63+12)
Master: 111
Doctoral: 27
Faculty members <sup>2</sup> : 3,570
Administration and service staff <sup>2</sup> : 2,484
Budget³: 422,991,611€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

#### **TEACHING INDICATORS**

**Social Security** 

**Employed** as

Average contribution

graduates

base (€)

Faculty members/students Budget/Student Faculty member with PhD/Faculty members Success rate Evaluation rate Non drop-out rate % of postgraduate students Cut-off mark % of foreign students % of students in mobility programs

#### **RESEARCH AND INNOVATION INDICATORS**





-

62.4%

23,851

UGR

59.1%

■ Universities' average

■ Universities' average

Position according to the synthetic index of employability





## **UNIVERSIDAD DE HUELVA**

## uhu.es

Year of foundation: 1993

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 8,853
Master: 1,384
Doctoral: 592
Degrees <sup>1</sup>
Bachelor and dual degree: 37 (29+8)
Master: 35
Doctoral: 11
Faculty members <sup>2</sup> : 941
Administration and service staff <sup>2</sup> : 464
Budget³: 89,351,180€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100



■ Universities' average

UHU



## **UNIVERSIDAD DE JAÉN**



#### Year of foundation: 1991

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 11,233
Master: 2,124
Doctoral: 725
Degrees <sup>1</sup>
Bachelor and dual degree: 44 (34+10)
Master: 41
Doctoral: 20
Faculty members <sup>2</sup> : 989
Administration and service staff <sup>2</sup> : 526
Budget³: 109,669,081€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation

Source: Ministry of Universities and own elaboration.

#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100



**Social Security** 

**Employed** as

Average contribution

graduates

base (€)









Universities' average

■ Universities' average

UJAEN

68.5%

23,395

UJAEN

55.5%







## **UNIVERSIDAD DE LA LAGUNA**

#### Universidad de La Laguna

Year of foundation: 1792

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 17,551
Master: 1,320
Doctoral: 1,243
Degrees <sup>1</sup>
Bachelor and dual degree: 46 (46+0)
Master: 35
Doctoral: 20
Faculty members <sup>2</sup> : 1,602
Administration and service staff <sup>2</sup> : 848
Budget³: 164,366,282€

<sup>1</sup>Course 2020-21: <sup>2</sup>Course 2019-20: <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### **New Bacherlor's degrees**

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year arce: Ministru of Universities and own elabora



#### **Employability indicators**

Situation in 2018 of graduates in 2013-2014 4 years after graduation

#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100



■ Universities' average

ULL

Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

## **UNIVERSIDAD DE LA RIOJA**



#### Year of foundation: 1979

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 3,275
Master: 550
Doctoral: 265
Degrees <sup>1</sup>
Bachelor and dual degree: 18 (18+0)
Master: 14
Doctoral: 12
Faculty members <sup>2</sup> : 451
Administration and service staff <sup>2</sup> : 260
Budget³: 42,351,660€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

## UNIVERSIDAD DE LAS PALMAS DE GRAN CANARIA



#### Year of foundation: 1979

Type of ownership: Public Students¹ Bachelor: 15,775 Master: 1,206 Doctoral: 736 Degrees¹ Bachelor and dual degree: 43 (36+7) Master: 31 Doctoral: 13 Faculty members²: 1,503 Administration and service staff²: 820 Budget³: 146,544,719€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



#### Employability indicators



Source: Ministry of Universities and own elaboration.

#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





Position according to the synthetic index of employability





# **UNIVERSIDAD DE LEÓN**



#### Year of foundation: 1978

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 8,729
Master: 1,118
Doctoral: 570
Degrees <sup>1</sup>
Bachelor and dual degree: 40 (36+4)
Master: 39
Doctoral: 18
Faculty members <sup>2</sup> : 939
Administration and service staff <sup>2</sup> : 496
Budget³: 89,076,988€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



#### Employability indicators



Source: Ministry of Universities and own elaboration.

#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

# TEACHING INDICATORS Faculty members/students Budget/Student Faculty member with PhD/Faculty members Success rate Evaluation rate Non drop-out rate % of postgraduate students Cut-off mark % of foreign students % of students in mobility programs RESEARCH AND INNOVATION INDICATORS Competitive public resources/Faculty member PhD Research staff contracts/budget







■ Universities' average



# UNIVERSIDAD DE MÁLAGA



Year of foundation: 1972

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 30,413
Master: 3,274
Doctoral: 1,992
Degrees <sup>1</sup>
Bachelor and dual degree: 69 (60+9)
Master: 65
Doctoral: 22
Faculty members <sup>2</sup> : 2,530
Administration and service staff <sup>2</sup> : 1,432
Budget³: 257,399,117€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100



**Social Security** 

**Employed** as

Average contribution

graduates

base (€)





Universities' average



Universities' average

UMA

67.6%

23,201

UMA

54.9%

Position according to the synthetic index of employability





## **UNIVERSIDAD DE MURCIA**



Year of foundation: 1915

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 26,141
Master: 2,707
Doctoral: 2,263
Degrees <sup>1</sup>
Bachelor and dual degree: 58 (51+7)
Master: 72
Doctoral: 37
Faculty members <sup>2</sup> : 2,673
Administration and service staff <sup>2</sup> : 1,234
Budget³: 206,602,096€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100







Universities' average

■ Universities' average

•• UM

67.4%

24,534

60.4%

• UM





Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

**Social Security** 

**Employed** as

Average contribution

graduates

base (€)



## **UNIVERSIDAD DE NAVARRA**



Year of foundation: 1952

Type of ownership: Private
Students <sup>1</sup>
Bachelor: 8,858
Master: 2,595
Doctoral: 990
Degrees <sup>1</sup>
Bachelor and dual degree: 65 (45+20)
Master: 41
Doctoral: 25
Faculty members <sup>2</sup> : 1,392
Administration and service staff <sup>2</sup> : 1,515
Budget³: 112,781,896€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





## **UNIVERSIDAD DE OVIEDO**



#### Year of foundation: 1604

Type of ownership: Public Students<sup>1</sup> Bachelor: 16,553 Master: 1,919 Doctoral: 1,648 Degrees<sup>1</sup> Bachelor and dual degree: 57 (52+5) Master: 61 Doctoral: 27 Faculty members<sup>2</sup>: 2,074 Administration and service staff<sup>2</sup>: 1,057 Budget<sup>3</sup>: 183,477,438€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100



**Social Security** 

**Employed** as

Average contribution

graduates

base (€)



#### **RESEARCH AND INNOVATION INDICATORS**

Competitive public resources/Faculty member PhD Research staff contracts/budget Scientific documents/Faculty member PhD Number of patents/Faculty members PhD Doctoral theses read/Faculty member PhD Mean impact factor % of publications in the 1st quartile Citations per document European research funds/Faculty member PhD % of publications with international co-authorship



■ Universities' average

■ Universities' average ● UNIOVI

UNIOVI

71.0%

24,946

59.6%







## **UNIVERSIDAD DE SALAMANCA**



#### Year of foundation: 1218

Type of ownership: Public Students<sup>1</sup> Bachelor: 20,283 Master: 1,882 Doctoral: 2,671 Degrees<sup>1</sup> Bachelor and dual degree: 100 (75+25) Master: 74 Doctoral: 41 Faculty members<sup>2</sup>: 2,238 Administration and service staff<sup>2</sup>: 1,147 Budget<sup>3</sup>: 203,134,126€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

#### **TEACHING INDICATORS**

Faculty members/students Budget/Student Faculty member with PhD/Faculty members Success rate Evaluation rate Non drop-out rate % of postgraduate students Cut-off mark % of foreign students % of students in mobility programs

#### **RESEARCH AND INNOVATION INDICATORS**

Competitive public resources/Faculty member PhD Research staff contracts/budget Scientific documents/Faculty member PhD Number of patents/Faculty members PhD Doctoral theses read/Faculty member PhD Mean impact factor % of publications in the 1st quartile Citations per document European research funds/Faculty member PhD % of publications with international co-authorship

■ Universities' average







## **UNIVERSIDAD DE SEVILLA**



#### Year of foundation: 1505

Type of ownership: Public Students<sup>1</sup> Bachelor: 48,446 Master: 5,967 Doctoral: 2,973 Degrees<sup>1</sup> Bachelor and dual degree: 91 (68+23) Master: 114 Doctoral: 33 Faculty members<sup>2</sup>: 4,210 Administration and service staff<sup>2</sup>: 2,723 Budget<sup>3</sup>: 435,917,193€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100







■ Universities' average





Position according to the synthetic index of employability





## **UNIVERSIDAD DE VALLADOLID**



#### Year of foundation: 1346

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 18,159
Master: 1,375
Doctoral: 1,397
Degrees <sup>1</sup>
Bachelor and dual degree: 72 (60+12)
Master: 65
Doctoral: 30
Faculty members <sup>2</sup> : 2,333
Administration and service staff <sup>2</sup> : 1,033
Budget³: 189,461,726€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### **New Bacherlor's degrees**

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year arce: Ministru of Universities and own elabora



#### **Employability indicators**

#### Situation in 2018 of graduates in 2013-2014 4 years after graduation

Source: Ministry of Universities and own elaboration.

#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100



■ Universities' average

UVA

Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

base (€)



## **UNIVERSIDAD DE ZARAGOZA**



Year of foundation: 1474

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 24,431
Master: 2,644
Doctoral: 2,318
Degrees <sup>1</sup>
Bachelor and dual degree: 53 (49+4)
Master: 55
Doctoral: 46
Faculty members <sup>2</sup> : 3,693
Administration and service staff <sup>2</sup> : 1,584
Budget³: 268,823,445€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100







■ Universities' average





Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

# **UNIVERSIDAD DEL PAÍS VASCO**



#### Year of foundation: 1968

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 35,052
Master: 3,762
Doctoral: 3,967
Degrees <sup>1</sup>
Bachelor and dual degree: 81 (70+11)
Master: 114
Doctoral: 66
Faculty members <sup>2</sup> : 4,364
Administration and service staff <sup>2</sup> : 1,922
Budget³: 426,736,055€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



#### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

#### **TEACHING INDICATORS**

Faculty members/students Budget/Student Faculty member with PhD/Faculty members Success rate Evaluation rate Non drop-out rate % of postgraduate students Cut-off mark % of foreign students % of students in mobility programs

#### **RESEARCH AND INNOVATION INDICATORS**

Competitive public resources/Faculty member PhD Research staff contracts/budget Scientific documents/Faculty member PhD Number of patents/Faculty members PhD Doctoral theses read/Faculty member PhD Mean impact factor % of publications in the 1st quartile Citations per document European research funds/Faculty member PhD % of publications with international co-authorship



 Social Security
 ● 78.9%
 Position

 Employed as
 ● 59.6%
 2

 Average contribution
 ● 27,737
 2

 ■ Universities' average
 ● UPV-EHU

■ Universities' average

Position according to the synthetic index of employability




## UNIVERSIDAD EUROPEA DE CANARIAS

Universidad Europea Canarias

### Year of foundation: 2010

Type of ownership: Private
Students <sup>1</sup>
Bachelor: 770
Master: 407
Doctoral:
Degrees <sup>1</sup>
Bachelor and dual degree: 13 (9+4)
Master: 9
Doctoral:
Faculty members <sup>2</sup> : 93
Administration and service staff <sup>2</sup> : 18
Budget³: 3,527,000€

U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



<sup>1</sup>Curso 2020-21; <sup>2</sup>Curso 2019-20; <sup>3</sup>2017. Datos de los centros propios. Los datos de máster y doctorado incluyen todos los centros.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





## **UNIVERSIDAD EUROPEA DE** MADRID



Universidad Europea de Madrid

#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



<sup>1</sup>Curso 2020-21; <sup>2</sup>Curso 2019-20; <sup>3</sup>2017. Datos de los centros propios. Los datos de máster y doctorado incluyen todos los centros

Bachelor and dual degree: 137 (67+70)

Administration and service staff<sup>2</sup>: 603



Year of foundation: 1995 Type of ownership: Private

Bachelor: 9,903

Master: 2,738

Doctoral: 214

Master: 50

Doctoral: 5

Faculty members<sup>2</sup>: 1,131

Budget<sup>3</sup>: 154,369,000€

Students<sup>1</sup>

Degrees<sup>1</sup>

#### **New Bacherlor's degrees**

4 years after graduation

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year rce: Ministru of Universities and own elabora



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





## UNIVERSIDAD EUROPEA DE VALENCIA

Universidad Europea Valencia

Year of foundation: 2012 Type of ownership: Private Students<sup>1</sup> Bachelor: 2,291 Master: 994 Doctoral: Degrees<sup>1</sup> Bachelor and dual degree: 26 (16+10) Master: 12 Doctoral: Faculty members<sup>2</sup>: 251 Administration and service staff<sup>2</sup>: 75 Budget<sup>3</sup>: 24,223,000€ <sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



U-Ranking 2021 indicators

University with the minimum value=0; University with the maximum value=100



Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

Fundación BBVA Ivie

## UNIVERSIDAD INTERNACIONAL DE LA RIOJA



Year of foundation: 2009

Type of ownership: Private
Students <sup>1</sup>
Bachelor: 16,663
Master: 26,356
Doctoral: 87
Degrees <sup>1</sup>
Bachelor and dual degree: 21 (21+0)
Master: 109
Doctoral: 3
Faculty members <sup>2</sup> : 1,258
Administration and service staff <sup>2</sup> : 764
Budget³: 108,311,949€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



**U-Ranking 2021 indicators** 

University with the minimum value=0; University with the maximum value=100





## **UNIVERSIDAD INTERNACIONAL ISABEL I DE CASTILLA**



#### Year of foundation: 2011

Type of ownership: Private
Students <sup>1</sup>
Bachelor: 3,003
Master: 1,052
Doctoral:
Degrees <sup>1</sup>
Bachelor and dual degree: 12 (12+0)
Master: 14
Doctoral: 0
Faculty members <sup>2</sup> : 371
Administration and service staff <sup>2</sup> : 109
Budget³: 20,142,000€

<sup>1</sup>Course 2020-21: <sup>2</sup>Course 2019-20: <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### **New Bacherlor's degrees**

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year rce: Ministry of Universities and own elaborat



### **Employability indicators**

Situation in 2018 of graduates in 2013-2014 4 years after graduation

## U-Ranking 2021 performance and volume indices Index and position in the ranking between brackets



**U-Ranking 2021 indicators** 

University with the minimum value=0; University with the maximum value=100





## UNIVERSIDAD INTERNACIONAL VALENCIANA

VIU Universidad Internacional de Valencia

### Year of foundation: 2010

Type of ownership: Private Students¹ Bachelor: 3,311 Master: 10,166 Doctoral: Degrees¹ Bachelor and dual degree: 16 (13+3) Master: 33 Doctoral: 0 Faculty members²: 243 Administration and service staff²: 142 Budget³: 23,245,000€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



**U-Ranking 2021 indicators** 

University with the minimum value=0; University with the maximum value=100



Universities' average
 VIU
 Indicador not available for this university



# UNIVERSIDAD MIGUEL HERNÁNDEZ DE ELCHE



Year of foundation: 1997

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 10,054
Master: 2,324
Doctoral: 712
Degrees <sup>1</sup>
Bachelor and dual degree: 27 (25+2)
Master: 50
Doctoral: 13
Faculty members <sup>2</sup> : 1,148
Administration and service staff <sup>2</sup> : 550
Budget³: 114,197,608€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities and own elaboration.

### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

**TEACHING INDICATORS** 



#### **RESEARCH AND INNOVATION INDICATORS**







■ Universities' average

Position according to the synthetic index of employability





# **UNIVERSIDAD NACIONAL DE** EDUCACIÓN A DISTANCIA



U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.

Bachelor and dual degree: 28 (28+0)

Administration and service staff<sup>2</sup>: 1,118



Year of foundation: 1972 Type of ownership: Public

Bachelor: 146,208

Master: 10,108

Doctoral: 2,010

Master: 73

Doctoral: 20

Faculty members<sup>2</sup>: 1,181

Budget³: 187,550,546€

Students<sup>1</sup>

Degrees<sup>1</sup>

#### **New Bacherlor's degrees**

4 years after graduation

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year rce: Ministru of Universities and own elabora



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





# **UNIVERSIDAD NEBRIJA**



Year of foundation: 1995

Type of ownership: Private
Students <sup>1</sup>
Bachelor: 4,355
Master: 6,151
Doctoral: 87
Degrees <sup>1</sup>
Bachelor and dual degree: 76 (32+44)
Master: 45
Doctoral: 5
Faculty members <sup>2</sup> : 785
Administration and service staff <sup>2</sup> : 274
Budget³: 28,687,000€

#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



<sup>1</sup>Curso 2020-21: <sup>2</sup>Curso 2019-20: <sup>3</sup>2017. Datos de los centros propios. Los datos de máster y doctorado incluyen todos los centros.



#### **New Bacherlor's degrees**

4 years after graduation

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year rce: Ministry of Universities and own elabora



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





# **UNIVERSIDAD PABLO DE OLAVIDE**



#### Year of foundation: 1997

Type of ownership: Public Students<sup>1</sup> Bachelor: 9,291 Master: 1,597 Doctoral: 978 Degrees<sup>1</sup> Bachelor and dual degree: 35 (19+16) Master: 43 Doctoral: 9 Faculty members<sup>2</sup>: 1,065 Administration and service staff<sup>2</sup>: 347 Budget<sup>3</sup>: 89,679,625€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





#### **RESEARCH AND INNOVATION INDICATORS**



■ Universities' average



#### Employability indicators Situation in 2018 of graduates in 2013-2014

4 years after graduation Source: Ministry of Universities and own elaboration.



Position according to the synthetic index of employability





# **UNIVERSIDAD POLITÉCNICA DE CARTAGENA**



Year of foundation: 1999

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 4,063
Master: 676
Doctoral: 281
Degrees <sup>1</sup>
Bachelor and dual degree: 20 (19+1)
Master: 27
Doctoral: 9
Faculty members <sup>2</sup> : 568
Administration and service staff <sup>2</sup> : 381
Budget³: 55,072,508€

<sup>1</sup>Course 2020-21: <sup>2</sup>Course 2019-20: <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### **New Bacherlor's degrees**

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year arce: Ministru of Universities and own elabora



### **Employability indicators**



Source: Ministry of Universities and own elaboration.

### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





■ Universities' average









# **UNIVERSIDAD POLITÉCNICA DE** MADRID



Year of foundation: 1971 Type of ownership: Public Students<sup>1</sup> Bachelor: 27,297 Master: 6,257 Doctoral: 2,194 Degrees<sup>1</sup> Bachelor and dual degree: 58 (50+8) Master: 77 Doctoral: 45 Faculty members<sup>2</sup>: 2,853 Administration and service staff<sup>2</sup>: 1,827 Budget<sup>3</sup>: 345,774,777€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### **New Bacherlor's degrees**

4 years after graduation

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year arce: Ministru of Universities and own elabora



### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





# **UNIVERSIDAD PONTIFICIA COMILLAS**



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



<sup>1</sup>Curso 2020-21; <sup>2</sup>Curso 2019-20; <sup>3</sup>2017. Datos de los centros propios. Los datos de máster y doctorado incluyen todos los centros

Bachelor and dual degree: 40 (22+18)

Administration and service staff<sup>2</sup>: 337



Year of foundation: 1935 Type of ownership: Private

Bachelor: 7,325

Master: 1,811

Doctoral: 266

Master: 28

Doctoral: 9

Faculty members<sup>2</sup>: 1,654

Budget<sup>3</sup>: 95,220,000€

Students<sup>1</sup>

Degrees<sup>1</sup>

#### **New Bacherlor's degrees**

4 years after graduation

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year rce: Ministru of Universities and own elabora



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





# UNIVERSIDAD PÚBLICA DE NAVARRA



### Year of foundation: 1987

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 7,567
Master: 850
Doctoral: 423
Degrees <sup>1</sup>
Bachelor and dual degree: 31 (25+6)
Master: 25
Doctoral: 14
Faculty members <sup>2</sup> : 966
Administration and service staff <sup>2</sup> : 494
Budget³: 76,988,461€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



**U-Ranking 2021 indicators** 

University with the minimum value=0; University with the maximum value=100





#### **RESEARCH AND INNOVATION INDICATORS**



■ Universities' average







# **UNIVERSIDAD REY JUAN CARLOS**

Universidad Rey Juan Carlos

#### Year of foundation: 1997

Type of ownership: Public Students<sup>1</sup> Bachelor: 40,213 Master: 5,199 Doctoral: 1,152 Degrees<sup>1</sup> Bachelor and dual degree: 149 (70+79) Master: 83 Doctoral: 13 Faculty members<sup>2</sup>: 2,376 Administration and service staff<sup>2</sup>: 661 Budget<sup>3</sup>: 170,778,370€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



### Employability indicators

#### Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100



Universities' average

URIC



# **UNIVERSIDAD SAN PABLO CEU**



Year of foundation: 1993

<sup>1</sup>Course 2020-21: <sup>2</sup>Course 2019-20: <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### **New Bacherlor's degrees**

4 years after graduation

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year rce: Ministry of Universities and own elaborat



### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100



Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

Fundación BBVA Ivie

# **UNIVERSIDADE DA CORUÑA**



Year of foundation: 1989

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 13,222
Master: 2,231
Doctoral: 1,267
Degrees <sup>1</sup>
Bachelor and dual degree: 53 (45+8)
Master: 55
Doctoral: 41
Faculty members <sup>2</sup> : 1,408
Administration and service staff <sup>2</sup> : 816
Budget³: 135,264,109€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100







■ Universities' average





Position according to the synthetic index of employability





## UNIVERSIDADE DE SANTIAGO DE COMPOSTELA



Type of ownership: Public Students<sup>1</sup> Bachelor: 19,455 Master: 2,077

Year of foundation: 1495

Doctoral: 2,491 Degrees<sup>1</sup> Bachelor and dual degree: 58 (49+9) Master: 70 Doctoral: 60 Faculty members<sup>2</sup>: 2,100 Administration and service staff<sup>2</sup>: 1,216 Budget<sup>3</sup>: 248,337,626€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



**U-Ranking 2021 indicators** 

University with the minimum value=0; University with the maximum value=100

TEACHING INDICATORS Faculty members/students Budget/Student Faculty member with PhD/Faculty members

Faculty member with PhD/Faculty members Success rate Evaluation rate Non drop-out rate % of postgraduate students Cut-off mark % of foreign students % of students in mobility programs

#### **RESEARCH AND INNOVATION INDICATORS**



■ Universities' average





Position according to the synthetic index of employability





# **UNIVERSIDADE DE VIGO**

## UniversidadeVigo

#### Year of foundation: 1989

Type of ownership: Public Students' Bachelor: 14,524 Master: 2,154 Doctoral: 1,419 Degrees' Bachelor and dual degree: 45 (39+6) Master: 65 Doctoral: 42 Faculty members<sup>2</sup>: 1,462 Administration and service staff<sup>2</sup>: 826 Budget<sup>3</sup>: 161,338,146€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



### Employability indicators

#### Situation in 2018 of graduates in 2013-2014 4 years after graduation

Source: Ministry of Universities and own elaboration.

### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

#### TEACHING INDICATORS Faculty members/students Budget/Student Faculty member with PhD/Faculty members Success rate Evaluation rate Non drop-out rate % of postgraduate students



#### **RESEARCH AND INNOVATION INDICATORS**

**Social Security** 

**Employed** as

Average contribution

graduates

base (€)





Universities' average

■ Universities' average

UVIGO

71.1%

57.0%

UVIGO

23,284







# **UNIVERSITAT ABAT OLIBA CEU**



Universitat Abat Oliba CEU

#### Year of foundation: 2003

Type of ownership: Private
Students <sup>1</sup>
Bachelor: 1,574
Master: 315
Doctoral: 42
Degrees <sup>1</sup>
Bachelor and dual degree: 13 (13+0)
Master: 11
Doctoral: 4
Faculty members <sup>2</sup> : 50
Administration and service staff <sup>2</sup> : 52
Budget³: 10,000,044€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



### Employability indicators

#### Situation in 2018 of graduates in 2013-2014 4 years after graduation

Source: Ministry of Universities and own elaboration.

### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





# UNIVERSITAT AUTÒNOMA DE BARCELONA



## Year of foundation: 1968

Type of ownership: Public Students¹ Bachelor: 27,293 Master: 3,664 Doctoral: 4,685 Degrees¹ Bachelor and dual degree: 94 (80+14) Master: 119 Doctoral: 69 Faculty members²: 3,668 Administration and service staff²: 1,869 Budget³: 314,589,727€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after araduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

#### TEACHING INDICATORS

Faculty members/students Budget/Student Faculty member with PhD/Faculty members Success rate Evaluation rate Non drop-out rate % of postgraduate students Cut-off mark % of foreign students % of students in mobility programs

#### **RESEARCH AND INNOVATION INDICATORS**



■ Universities' average





Position according to the synthetic index of employability





# **UNIVERSITAT DE BARCELONA**



Year of foundation: 1430

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 39,946
Master: 5,934
Doctoral: 3,792
Degrees <sup>1</sup>
Bachelor and dual degree: 80 (64+16)
Master: 140
Doctoral: 49
Faculty members <sup>2</sup> : 5,629
Administration and service staff <sup>2</sup> : 2,408
Budget³: 413,821,963€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

TEACHING INDICATORS
Faculty members/students
Budget/Student
Faculty member with PhD/Faculty members
Success rate
Evaluation rate
Non drop-out rate
% of postgraduate students
Cut-off mark
% of foreign students
% of students in mobility programs
RESEARCH AND INNOVATION INDICATORS



■ Universities' average







# **UNIVERSITAT DE GIRONA**



#### Year of foundation: 1992

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 10,554
Master: 877
Doctoral: 690
Degrees <sup>1</sup>
Bachelor and dual degree: 60 (45+15)
Master: 34
Doctoral: 14
Faculty members <sup>2</sup> : 1,339
Administration and service staff <sup>2</sup> : 606
Budget³: 105,999,623€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



## U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





#### **RESEARCH AND INNOVATION INDICATORS**



■ Universities' average







# UNIVERSITAT DE LES ILLES BALEARS



Year of foundation: 1993

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100











■ Universities' average



# **UNIVERSITAT DE LLEIDA**



#### Year of foundation: 1992

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 8,440
Master: 1,144
Doctoral: 595
Degrees <sup>1</sup>
Bachelor and dual degree: 60 (42+18)
Master: 39
Doctoral: 13
Faculty members <sup>2</sup> : 1,090
Administration and service staff <sup>2</sup> : 581
Budget³: 89,650,193€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### **New Bacherlor's degrees**

offered, created after the 2010-11 academic year



### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



**U-Ranking 2021 indicators** 

University with the minimum value=0; University with the maximum value=100



Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

Fundación BBVA Ivie

# UNIVERSITAT DE VALÈNCIA



Year of foundation: 1500

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 36,932
Master: 6,169
Doctoral: 4,565
Degrees <sup>1</sup>
Bachelor and dual degree: 64 (56+8)
Master: 108
Doctoral: 62
Faculty members <sup>2</sup> : 4,494
Administration and service staff <sup>2</sup> : 2,016
Budget³: 408,907,657€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation Source: Ministry of Universities and own elaboration.

### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





#### **RESEARCH AND INNOVATION INDICATORS**



■ Universities' average





Position according to the synthetic index of employability





# **UNIVERSITAT DE VIC - U. CENTRAL DE CATALUNYA**

#### UVIC UNIVERSITAT DE VIC **JNIVERSITAT CENTRAL DE CATALUNYA**

#### Year of foundation: 1997

Type of ownership: Private
Students <sup>1</sup>
Bachelor: 7,157
Master: 639
Doctoral: 265
Degrees <sup>1</sup>
Bachelor and dual degree: 41 (36+5)
Master: 18
Doctoral: 9
Faculty members <sup>2</sup> : 805
Administration and service staff <sup>2</sup> : 347
Budget³: 42,088,626€

<sup>1</sup>Course 2020-21: <sup>2</sup>Course 2019-20: <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### **New Bacherlor's degrees**

4 years after graduation

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year rce: Ministry of Universities and own elabora



### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





## UNIVERSITAT INTERNACIONAL DE CATALUNYA

## uicbarcelona

#### Year of foundation: 1997

Type of ownership: Private
Students <sup>1</sup>
Bachelor: 4,111
Master: 442
Doctoral: 315
Degrees <sup>1</sup>
Bachelor and dual degree: 16 (16+0)
Master: 17
Doctoral: 4
Faculty members <sup>2</sup> : 467
Administration and service staff <sup>2</sup> : 348
Budget³: 52,890,290€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



### Employability indicators



Source: Ministry of Universities and own elaboration.

### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100



Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

Fundación BBVA Ivie

# **UNIVERSITAT JAUME I**



#### Year of foundation: 1991

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 11,481
Master: 1,541
Doctoral: 947
Degrees <sup>1</sup>
Bachelor and dual degree: 32 (31+1)
Master: 46
Doctoral: 21
Faculty members <sup>2</sup> : 1,293
Administration and service staff <sup>2</sup> : 668
Budget³: 110,904,296€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



### Employability indicators

#### Situation in 2018 of graduates in 2013-2014 4 years after graduation

Source: Ministry of Universities and own elaboration.

### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

#### **TEACHING INDICATORS**

**Social Security** 

**Employed** as

Average contribution

graduates

base (€)

Faculty members/students Budget/Student Faculty member with PhD/Faculty members Success rate Evaluation rate Non drop-out rate % of postgraduate students Cut-off mark % of foreign students % of students in mobility programs

#### **RESEARCH AND INNOVATION INDICATORS**







■ Universities' average

46.8%

75.2%

23,235

• UJI

Position according to the synthetic index of employability



Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

Fundación BBVA Ivie

# UNIVERSITAT OBERTA DE CATALUNYA



Year of foundation: 1995

Type of ownership: Private
Students <sup>1</sup>
Bachelor: 42,131
Master: 21,795
Doctoral: 285
Degrees <sup>1</sup>
Bachelor and dual degree: 28 (28+0)
Master: 58
Doctoral: 5
Faculty members <sup>2</sup> : 322
Administration and service staff <sup>2</sup> : 640
Budget³: 119,022,368€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation

Source: Ministry of Universities and own elaboration.

### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





# UNIVERSITAT POLITÈCNICA DE **CATALUNYA**



UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

Year of foundation: 1971

Type of ownership: Public Students<sup>1</sup> Bachelor: 20,255 Master: 5,130 Doctoral: 1,683 Degrees<sup>1</sup> Bachelor and dual degree: 88 (54+34) Master: 78 Doctoral: 47 Faculty members<sup>2</sup>: 2,855 Administration and service staff<sup>2</sup>: 1,511 Budget<sup>3</sup>: 304,049,763€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### **New Bacherlor's degrees**

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year arce: Ministru of Universities and own elabora



### **Employability indicators**

Situation in 2018 of graduates in 2013-2014 4 years after graduation



### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100



■ Universities' average

Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

Fundación BBVA Ivie

# UNIVERSITAT POLITÈCNICA DE VALÈNCIA



Year of foundation: 1971 Type of ownership: Public Students<sup>1</sup>

Bachelor: 20,141 Master: 5,354 Doctoral: 2,429 Degrees<sup>1</sup> Bachelor and dual degree: 41 (34+7) Master: 84 Doctoral: 30 Faculty members<sup>2</sup>: 2,564 Administration and service staff<sup>2</sup>: 1,405 Budget<sup>3</sup>: 343,789,741€

'Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after araduation



### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

**TEACHING INDICATORS** 

**Social Security** 

**Employed** as

Average contribution

graduates

base (€)



#### **RESEARCH AND INNOVATION INDICATORS**

Competitive public resources/Faculty member PhD Research staff contracts/budget Scientific documents/Faculty member PhD Number of patents/Faculty members PhD Doctoral theses read/Faculty member PhD Mean impact factor % of publications in the 1st quartile Citations per document European research funds/Faculty member PhD % of publications with international co-authorship



70.3%

24,639

57 0%

UPV

■ Universities' average

■ Universities' average

Position according to the synthetic index of employability





# **UNIVERSITAT POMPEU FABRA**



Year of foundation: 1990

Type of ownership: Public
Students <sup>1</sup>
Bachelor: 10,367
Master: 3,241
Doctoral: 1,301
Degrees <sup>1</sup>
Bachelor and dual degree: 34 (30+4)
Master: 68
Doctoral: 9
Faculty members <sup>2</sup> : 971
Administration and service staff <sup>2</sup> : 710
Budget³: 140,170,909€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### **New Bacherlor's degrees**

4 years after graduation

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year rce: Ministry of Universities and own elabora



#### Global Teaching

**U-Ranking** 

2.5

2.0

1.5

1.0

0.5

0.0

■ Universities' average

Research and

innovation



**U-Ranking Volume** 

2.0

U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets

#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





# **UNIVERSITAT RAMON LLULL**



Year of foundation: 1991

Type of ownership: Private
Students <sup>1</sup>
Bachelor: 12,403
Master: 2,862
Doctoral: 357
Degrees <sup>1</sup>
Bachelor and dual degree: 56 (55+1)
Master: 62
Doctoral: 10
Faculty members <sup>2</sup> : 1,254
Administration and service staff <sup>2</sup> : 985
Budget³: 190,244,535€

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministry of Universities and own elaboration.



### Employability indicators

Situation in 2018 of graduates in 2013-2014 4 years after graduation



#### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100





# **UNIVERSITAT ROVIRA I VIRGILI**



Year of foundation: 1992

<sup>1</sup>Course 2020-21; <sup>2</sup>Course 2019-20; <sup>3</sup>2018. Data referes only to centers belonging to the University. Master's degree and doctoral degree data includes all centers.



#### New Bacherlor's degrees

Percentage of Bachelor and dual degrees currently offered, created after the 2010-11 academic year Source: Ministru of Universities and own elaboration.



### U-Ranking 2021 performance and volume indices

Index and position in the ranking between brackets



#### **U-Ranking 2021 indicators**

University with the minimum value=0; University with the maximum value=100

TEACHING INDICATORS Faculty members/students Budget/Student Faculty member with PhD/Faculty members Success rate Evaluation rate Non drop-out rate % of postgraduate students Cut-off mark % of foreign students % of students in mobility programs

#### **RESEARCH AND INNOVATION INDICATORS**

Competitive public resources/Faculty member PhD Research staff contracts/budget Scientific documents/Faculty member PhD Number of patents/Faculty members PhD Doctoral theses read/Faculty member PhD Mean impact factor % of publications in the 1st quartile Citations per document European research funds/Faculty member PhD % of publications with international co-authorship

■ Universities' average





Please see www.u-ranking.es for methodological details on definition and calculation of the indicators and indices.

Fundación BBVA Ivie

## References

AGUILLO, I. F. (2012). «Ranking Web of World Universities: Methodology». Madrid: Cybermetrics Lab, Consejo Superior de Investigaciones Científicas (CSIC). Available at: http://www.webometrics.info/en/Methodology [data of reference: June 2021].

AGUILLO, I. F., J. BAR-ILAN, M. LEVENE and J. L. PRIEGO (2010). «Comparing University Rankings». *Scientometrics* 85, n.º 1: 243-256.

ALDÁS-MANZANO, J. (dir.), A. ESCRIBÁ, M. IBORRA and V. SAFÓN (2016). La universidad española: Grupos estratégicos y desempeño. Bilbao: BBVA Foundation.

ALTBACH, P.G. (2006). «The Dilemmas of Ranking». International Higher Education 42.

BENGOETXEA, E. and G. BUELA-CASAL (2013). «The new multidimensional and user-driven higher education ranking concept of the European Union». *International Journal of Clinical and Health Psychology* 13, n.° 1 (January): 67-73.

BUTLER, D. (2007). «Academics strike back at spurious rankings». *Nature* 447 (May): 514-515.

CHE (Centrum für Hochschulentwicklung). CHE Ranking: Methodology. Available at: https://methodik.che-ranking.de/ [data of reference: June 2021].

CHE (Centrum für Hochschulentwicklung). CHE Ranking. Available at: https://ranking.zeit.de/che/en/ [data of reference: May 2021].

CLARIVATE ANALYTICS. Web of Science (WOS). Filadelfia (EE. UU.). Available at:

https://clarivate.com/products/web-of-science/ [data of reference: June 2021].

COROMINAS, A. and V. SACRISTÁN (2019). *Grados universitarios: ¿cuántos y cuáles? Análisis de la oferta de estudios de grado en las universidades públicas y privadas españolas.* Observatorio del Sistema Universitario. Available at: https://www.observatoriuniversitari.org/es/files/2019/03/Informe-grados.pdf

CWCU (Center for World-Class Universities of Shanghái Jiao Tong University). Academic Ranking of World Universities 2020 (ARWU). Available at: https://www.shanghairanking.com/rankings/arwu/2020 [data of reference: May 2021].

ECCLES, C. (2002). «The Use of University Rankings in the United Kingdom». *Higher Education in Europe* 27, n.º 4.

ERKKILÄ, T and O. PIIRONEN (2018). *Rankings and Global Knowledge Governance. Higher Education, Innovation and Competitiveness.* Helsinki: Palgrave Macmillan.

ESCRIBÁ, A., M. IBORRA and V. SAFÓN (2019). *Modelos de di*rección estratégica en universidades españolas de alto desempeño. Bilbao: BBVA Foundation. GARCÍA, J.A., R. RODRIGUEZ-SÁNCHEZ, J. FERNÁNDEZ-VALDIVIA, D. TORRES-SALINAS and F. HERRERA (2012). «Ranking of research output of universities on the basis of the multidimensional prestige of influential fields: Spanish universities as a case of study». *Scientometrics* 93, n.º 3 (December): 1081-1099.

GONZÁLEZ-PEREIRA, B., V. P. GUERRERO-BOTE and F. MOYA-ANEGÓN (2010). «A new approach to the metric of journals' scientific prestige: The SJR indicator». *Journal of Informetrics* 4, n.º 3 (July): 379-391.

HERNÁNDEZ ARMENTEROS, J. (dir.), J. A. PÉREZ GARCÍA and J. HERNÁNDEZ CHICA (2010). *La Universidad española en cifras 2010*. Madrid: Conferencia de Rectores de las Universidades Españolas (CRUE).

HERNÁNDEZ ARMENTEROS, J. and J. A. PÉREZ GARCÍA (2015). *La Universidad española en cifras 2013-2014.* Madrid: Conferencia de Rectores de las Universidades Españolas (CRUE).

HERNÁNDEZ ARMENTEROS, J. and J. A. PÉREZ GARCÍA (dirs.) (2016). *La Universidad española en cifras 2014-2015.* Madrid: Conferencia de Rectores de las Universidades Españolas (CRUE).

\_\_\_ (2017). *La Universidad española en cifras 2015-2016.* Madrid: Conferencia de Rectores de las Universidades Españolas (CRUE).

\_\_\_ (2018). *La Universidad española en cifras 2016-2017.* Madrid: Conferencia de Rectores de las Universidades Espanolas (CRUE).

IREG (Observatory on Academic Ranking and Excellence) (2006). «Berlin Principles on Ranking of Higher Education Institutions». Varsovia (Polonia). Available at: http://ireg-observatory.org/en\_old/berlin-principles [data of reference: June 2021].

\_\_\_ (2015). *IREG Guidelines for Stakeholders of Academic Rankings*. Varsovia (Poland). Available at: http://ireg-observatory.org/en\_old/pdfy/IREG-Guidelines-14-may-2015.pdf

MARGINSON, S. (2007a). «Global University Rankings: Implications in general and for Australia». *Journal of Higher Education Policy and Management* 29, n.º 2: 131-142.

\_\_\_ (2007b). «Global university rankings: where to from here?». Presented at: *Ranking Systems: Universities of Choice*. National University of Singapore, 7-9 March 2007.

MICHAVILA, F. (dir.). (2012) *La Universidad española en cifras 2012.* Madrid: Conferencia de Rectores de las Universidades Españolas (CRUE).

MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES (2019). Inserción laboral de los egresados universitarios, Curso 2013-14 (análisis hasta 2018). Madrid: Ministerio de Ciencia, Innovación y Universidad, Secretaría General Técnica. Available at:
https://www.cien-

cia.gob.es/stfls/MICINN/Universidades/Ficheros/Estadistica s/INFORME\_INSERCION\_2013\_14.pdf

MINISTERIO DE UNIVERSIDADES (2019). Indicadores de afiliación a la Seguridad Social de los egresados universitarios. Madrid. Available at: https://www.universidades.gob.es/portal/site/universidades/menuitem.78fe777017742d34e0acc310026041a0/?vgnextoid=b747122d36680710VgnVCM1000001d04140aRCRD

\_\_\_\_\_ Estadística de Precios Públicos Universitarios: Curso 2020-2021. Madrid. Available at: https://www.universidades.gob.es/portal/site/universidades/menuitem.78fe777017742d34e0acc310026041a0/?vgnex-toid=e954122d36680710VgnVCM1000001d04140aRCRD [data of reference: May 2021a].

\_\_\_\_\_. Registro de Universidades, Centros y Títulos (RUCT). Madrid. Available at: https://www.educacion.gob.es/ruct/consultaestudios?actual=estudios [data of reference: May 2021b].

\_\_\_\_\_. Sistema Integrado de Información Universitaria (SIIU). Madrid. Available at: https://www.universidades.gob.es/portal/site/universidades/menuitem.78fe777017742d34e0acc310026041a0/?vgnextoid=719f372673680710VgnVCM1000001d04140aRCRD [data of reference: May 2021c].

\_\_\_\_. Clasificaciones estadísticas universitarias. Madrid. Available at: https://www.universidades.gob.es/portal/site/universidades/menu-

item.b96568fef1ce8b35c7d86f10026041a0/?vgnextoid=0a61372673680710VgnVCM1000001d04140aRCRD [data of reference: May 2021d].

\_\_\_\_. Estadística de Estudiantes. Madrid. Available at: https://www.universidades.gob.es/portal/site/universidades/menu-

item.78fe777017742d34e0acc310026041a0/?vgnextoid=3b80122d36680710VgnVCM1000001d04140aRCRD [data of reference: May 2021e].

\_\_\_\_. Estadística de personal de las universidades (EPU). Madrid. Available at: https://www.universidades.gob.es/portal/site/universidades/menu-

item.78fe777017742d34e0acc310026041a0/?vgnextoid=514e122d36680710VgnVCM1000001d04140aRCRD [data of reference: May 2021f].

NARDO, M., M. SAISANA, A. SALTELLI, S. TARANTOLA, A. HOFFMANN and E. GIOVANNINI (2008). *Handbook on constructing composite indicators. Methodology and user guide.* París: OECD; Ispra (Italy): Joint Research Centre.

OCDE (Organización para la Cooperación y el Desarrollo Económicos). OECD Indicators of Talent Attractiveness. París. Available at: <u>https://www.oecd.org/migration/talent-attractiveness/</u> [data of reference: May 2020].

PÉREZ, F., J. ALDÁS-MANZANO, J. M. PEIRÓ (DIRS.), B. MIRAVALLES, I. ROSELL and I. ZAERA (2021). *Universidades líderes en el mundo: El posicionamiento de España*. Bilbao: BBVA Foundation, forthcoming.

PÉREZ, F. (DIR.), B. BROSETA, A. ESCRIBÁ-ESTEVE, A. GÓMEZ,
L. HERNÁNDEZ, J. M. PEIRÓ, L. SERRANO and A. TODOLÍ
(2020). *Cambios tecnológicos, trabajo y actividad empre-*

sarial: El impacto socioeconómico de la economía digital.

Madrid: Consejo Económico y Social (CES) (XXI Premio de Investigación del CES).

PÉREZ, F., J. ALDÁS-MANZANO (DIRS.), R. ARAGÓN, I. ROSELL and I. ZAERA (2020). U-*Ranking 2020: Indicadores sintéticos de las universidades españolas. 8.ª edición.* BILBAO: BBVA Foundation; València: Ivie.

PÉREZ, F., J. ALDÁS-MANZANO (dirs.), R. ARAGÓN E I. ZAERA (2017). U-*Ranking 2017: Indicadores sintéticos de las universidades españolas. 5.ª edición.* BILBAO: BBVA Foundation; València: Ivie.

PÉREZ, F. (dir.), J. ALDÁS-MANZANO, J. M. PEIRÓ, L. SERRANO, B. MIRAVALLES, Á. SOLER e I. ZAERA (2018). *Itinerarios de inserción laboral y factores determinantes de la empleabilidad: Formación universitaria versus entorno*. Bilbao: BBVA Foundation.

PÉREZ, F. y L. SERRANO (dirs.), J. M. PASTOR, L. HERNÁNDEZ, Á. SOLER e I. ZAERA (2012). *Universidad, universitarios y productividad en España.* Bilbao: BBVA Foundation.

QS (Quacquarelli Symonds) (2017). «Methodology: purpose and approach». Available at: <u>http://www.topuniversities.com</u> [data of reference: mayo de 2021].

\_\_\_\_\_. QS World University Rankings 2021. Available at: https://www.topuniversities.com/university-rankings/world-university-rankings/2021 [data of reference: mayo de 2021].

RAUHVARGERS, A. (2011). *Global University Rankings and their impact*. Brussels: European University Association asbl.

\_\_\_ (2013). *Global University Rankings and their impact: Report II.* Brussels: European University Association asbl.

REHN, C., U. KRONMAN and D. WADSKOG (2007). *Bibliometric indicators: Definitions and usage at Karolinska Institutet.* Stockholm: Karolinska Institutet.

REIG, E. (dir.), F. PÉREZ, J. QUESADA, L. SERRANO, C. ALBERT, E. BENAGES, J. PÉREZ and J. SALAMANCA (2017). *La competitividad de las regiones españolas ante la economía del conocimiento.* Bilbao: BBVA Foundation.

SALMI, J. (2009). *The Challenge of Establishing World-Class Universities*. Washington, DC: World Bank.

SALMI, J. and A. SAROYAN (2007). «League tables as policy instruments: Uses and misuses». *Higher Education Management and Policy* 19, n.º 2.

THE (Times Higher Education). Times Higher Education World University Rankings 2021. Available at: https://www.timeshighereducation.com/world-universityrankings/2021/world-ranking#!/page/0/length/25/sort\_by/rank/sort\_order/asc/cols/stats [data of reference: May 2021].

TORRES-SALINAS, D., J. G. MORENO-TORRES, N. ROBINSON, E. DELGADO LÓPEZ-CÓZAR and F. HERRERA (2013). «Rankings I-UGR de Universidades Españolas según Campos y Disciplinas Científicas».

VAN VUGHT, F. and F. ZIEGELE (eds.) (2011). *U-Multirank. Design and Testing the Feasibility of a Multidimensional Global University Ranking. Final Report.* Consortium for Higher Education and Research Performance Assessment CHERPA-Network. Available at: <u>http://ec.europa.eu/education/li-</u> <u>brary/study/2011/multirank\_en.pdf</u>