The impact of universities' legitimacy on academic and social efficiency

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Abstract:

Universities are facing several challenges dealing with globalization, the use of new technologies and the demanding expectations of the stakeholders. The role of universities is to educate future professionals, research to advance scientific knowledge and contribute to social and economic development. Higher education institutions should provide clear academic and social values to the society, and to do so they should be as much efficient as possible. In this context, legitimacy, the social acceptance of the actions of an organization, represents a competitive advantage for universities, nevertheless, rankings influence society's perceptions about universities. This research aims to identify if the best-ranked universities are the most academically and socially efficient and to confirm if there is a relationship between the legitimacy of universities and their academic and social efficiency. Both hypotheses are confirmed, and the research explains the academic and theoretical implications of these findings.

Keywords: legitimacy, universities, academic efficiency, social efficiency

1. Introduction

Legitimacy refers to the social acceptance of the actions of an organization (Deephouse et al., 2017). This social acceptance allows organizations to influence the stakeholders' behavior (Lamin & Zaheer, 2012) and to achieve higher levels of access to key resources, such as employee commitment (Blanco-González et al., 2021), user satisfaction (Blanco-González et al., 2023), or funding (Díez-Martín et al., 2021a). Therefore, legitimacy is a vital asset for the survival and success of organizations and has become one of the variables receiving the most academic attention in recent years (Díez-Martín et al., 2021b). In general, research on legitimacy is advancing in the understanding of its causes and consequences (Díez-Martín et al., 2021b), the most accurate measurement methodology (Alexiou & Wiggins, 2019), and the recognition of the formulation of the Legitimacy Theory (Deegan, 2019).

In the university context, legitimacy represents a competitive advantage (Miotto et al., 2020). Like any organization, the university must face the challenges of globalization (Del-Castillo-Feito et al., 2019), the use of new technologies (Rey-Martí & Ribeiro-Soriano, 2015; Zapp et al., 2021), and the changing expectations of stakeholders (Corazza et al., 2023; Nielsen & Thomsen, 2018). The role of universities is to educate future entrepreneurs, research to advance scientific knowledge, and contribute to social and economic development (Schlesinger et al., 2015). Universities must create academic value by advancing the development of science, providing knowledge transfer to the business world, and promoting entrepreneurship (Cattaneo et al., 2016; Miotto et al., 2020). In addition, universities must create social value by contributing to achieving the Sustainable Development Goals (Miotto et al., 2020), defining environmentally sustainable and socially responsible focused academic curricula and research projects, and

training young professionals aware of the importance of their future impact in society (Miotto et al., 2018; Godonoga & Sporn, 2023).

Likewise, the global competition among universities seeking to attract the best teachers, researchers, and students has generated a growing interest in being ranked among the best universities. Rankings, such as The Times Higher Education Impact Ranking, Shanghai Ranking, QS World University Ranking, UI GreenMetric, Scimago Institutions Ranking, The World University Ranking, or U-Ranking label universities based on their research quality, students' employability, or internationalization level. But are the universities that are more academically and socially efficient the ones that achieve the best positions? Scholars have analyzed the importance of these rankings (Miotto et al., 2019; Faraoni et al., 2024) to identify how they impact student enrollment (Miotto et al., 2020).

Considering the same typology of universities (public) and a specific country (Spain), the objectives of this research are: 1) to identify if the best-ranked universities are the most academically and socially efficient through an efficiency analysis; and 2) to confirm if there is a relationship between the legitimacy of universities and their academic and social efficiency. The study fulfills the identified research agenda gap that claims more analysis about universities' legitimacy and their constituents (Khalifa et al., 2023). Moreover, the paper sheds light on a relevant and necessary topic: higher education institutions' efficiency sources and effects (Egorov & Serebrennikov, 2023), deeply analyzing related inputs and outputs. The study focuses on the influence of one of the most important international Rankings to follow up on the understanding of these relevant actors of the Higher Education environment (Soysal et al., 2024).

The study's contribution lays in the field of the higher education management. Academically, the study confirms a relationship between the ranking position, the legitimacy perception and academic and social efficiency, confirming previous studies that show that these different aspects are measured through similar criteria: academic reputation, research outputs, and students' employability (Brankovic & Cantwell, 2022). Nevertheless, the findings show that the alignment with social efficiency is not so strong, confirming the literature review about the lack of consistency of the social KPIs (Atici et al., 2021; Kohl et al., 2022). In terms of managerial implications, the research focuses on the importance of external communication and stakeholders' management to provide value to each university output in terms of research, teaching and community outreach.

The article is organized as follows: a theoretical framework focused on legitimacy, higher education rankings and efficiency is defined; second, the sample and methodology are explained. Then, the results are analyzed, and finally, the theoretical and managerial implications, limitations and future research are exposed.

2. Theoretical framework

Organizations with greater legitimacy gain greater access to resources (Pollack et al., 2012; Pollock & Rindova, 2003) and, consequently, greater survival possibilities due to their ability to influence the stakeholders' behavior (Díez-Martín et al., 2021a). In addition, legitimacy facilitates internationalization, the proliferation of socially responsible strategies, better relationships with stakeholders, and access to funding (Díez-Martín et al., 2021a). Legitimacy is "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions" (Suchman, 1995, 574). Although the concept of legitimacy was first introduced in the study of organizations as an application of Weber's ideas, the current flourishing of this field dates back to the mid-1990s. Since then, research on legitimacy has proliferated in multiple directions (Díez-Martín et al., 2021b). First, the importance of legitimacy for the survival of organizations has led researchers to try to understand the effects of legitimacy on organizational outcomes (Pollock & Rindova, 2003), as well as the types of actions or behaviors that increase an organization's legitimacy (Suddaby et al., 2017).

Second, the research of Suchman (1995) and Scott (1995) synthesized the process of legitimacy and made it more understandable. By defining organizational legitimacy and identifying its dimensions, sources, and actions that lead to its acquisition, they brought conceptual clarity to this field. This is important because it allows other scholars to debate and advance the theoretical framework (Díez-Martín et al., 2021a). This has led to several literature reviews, mostly qualitative, such as the ones elaborated by Deephouse & Suchman (2008), Suddaby et al. (2017), and Díez-Martín et al. (2021a).

The Multilevel Theory of Legitimacy (Haack et al., 2021) considers legitimacy as a "generalized" collective perception that, although composed of subjective legitimacy judgments from individuals (Bitektine, 2011; Tost, 2011), may be aggregated and objectified at the collective level. Since it reflects the degree of collective approval of an organization (Deephouse et al., 2017; Suchman, 1995), legitimacy is often considered an objective organizational resource or attribute, independent of individual endorsement (Bitektine & Haack, 2015). However, although legitimacy can be considered a "property" of an evaluator (individual or collective actor), it remains a social evaluation made by others. Although it is the individual

evaluators who perceive, analyze, and make judgments (Jepperson & Meyer, 2011), it is often a collective actor (organizations, associations, interest groups, governments, etc.) that acts based on a "collective" legitimacy judgment. Thus, the evaluation of legitimacy does not take place exclusively at the micro level by each individual (Deephouse et al., 2017; Tost, 2011) but is subject to collective judgment and perception. Given that both individuals and collectives make judgments of legitimacy and interact with each other, it is important to recognize that legitimacy is a fundamentally multilevel construct consisting of two components present at different levels: propriety at the individual level and validity at the collective level (Ruef & Scott, 1998; Scott, 1995; Tost, 2011). Consensus between both generally makes the final judgment output (Haack et al., 2021).

In the field of higher education, globalization and the use of new technologies have increased the expectations of stakeholders (Nielsen & Thomsen, 2018), as well as the complexity of management (Miotto et al., 2020; Rey-Martí & Ribeiro-Soriano, 2015). In this case, the role of universities goes far beyond teaching and research, as they generate social and economic impact (Schlesinger et al., 2015; Zapp et al., 2021), providing knowledge transfer to the business environment and creating broad support for entrepreneurship (Cattaneo et al., 2016; Miotto et al., 2020). A strong legitimacy provides benefits that are relevant in all sectors (Deephouse et al., 2017; Feldman et al., 2014). However, universities are particularly affected by the perception of their legitimacy, as their survival is linked to perceptions about their intangible assets (Losada et al., 2011; Verčič et al., 2016; Zapp et al., 2021). Therefore, legitimacy helps the university sector attract relevant resources, improve relationships with stakeholders, and avoid social scrutiny (Deephouse et al., 2017; Miotto et al., 2020).

However, despite the relevance of legitimacy for the university sector, there is not enough empirical research on it. Most studies focused on measuring legitimacy in the field of universities are more related to specific practices than to institutions as a whole (Corazza et al., 2023). There are examples of authors analyzing the legitimacy strategy implemented by universities to gain a competitive position in the market (Pizarro & Quirke, 2017), while other researchers study how universities try to increase their legitimacy through the public discourses of their presidents (Miotto et al., 2020; Rodriguez-Pomeda & Casani, 2016). Considering the current environment that universities face, properly managing legitimacy is crucial for them to achieve their social and economic objectives in the medium and long term (Christensen et al., 2016; Hemsley-Brown et al., 2016; Plewa et al., 2016). Therefore, evaluating legitimacy can provide useful information for managers of these academic institutions to achieve a highly competitive position within the higher education industry (Miotto et al., 2020).

Universities are under pressure from stakeholders to adopt certain structures and follow specific procedures to be considered legitimate (Corazza et al., 2023; Stensaker & Norgård, 2001). Academics have begun to consider that these institutions need to renew their legitimacy to obtain the right to exist (Rodriguez-Pomeda & Casani, 2016). In addition, some authors show that some universities harm their legitimacy because they have moved away from their original missions of serving the public good (Khurana & Nohria, 2008; Miotto et al., 2020). Obtaining and maintaining legitimacy is a complex issue for institutions of higher education due to the diverse characteristics of their stakeholders (Del-Castillo-Feito et al., 2019). In trying to understand the needs and expectations of specific groups, universities understand that not all the stakeholders have the same influence when evaluating legitimacy (Bitektine, 2011); therefore, the institution will not respond equally to all of them (Del-Castillo-Feito et al., 2020; Farrugia & Lane, 2013).

Despite the relevance of legitimacy for universities, few empirical works have quantified the positive effect of managing legitimacy (Alajoutsijärvi et al., 2015; Del-Castillo-Feito et al., 2020). Spanish public universities, which previously relied mainly on public funding and were valued for the geographical convenience they offered to their students (Blanco-González et al., 2021; Miotto et al., 2020), now compete to reach candidates from around the world. Additionally, they are influenced by international rankings that measure academic performance, student experience, employability outcomes, and knowledge transfer to the corporate world (Miotto et al., 2020).

Universities are evaluated through different and complex influencing factors, such as learning environment, job prospects, student experiences, quality of teaching, curriculum, tuition costs, and last but not least, university reputation (Agrey & Lampadan, 2014; Angulo-Ruiz et al., 2016; Díez-Martín et al., 2021a). Intangible assets such as reputation and legitimacy are key factors for competitive differentiation and could help these institutions in their goal to survive and succeed in the market (Miotto et al., 2019; Rindova, Williamson, Petkova, & Sever, 2005).

These hypotheses are proposed:

- *Hypothesis 1: The universities with the highest-ranking position are the most academically efficient.*

- *Hypothesis 2: The universities with the highest-ranking position are the most socially efficient.*
- *Hypothesis 3: There is a positive relationship between the university's legitimacy and its academic efficiency.*
- *Hypothesis 4: There is a positive relationship between the university's legitimacy and its social efficiency.*

3. Sample and methodology

To obtain the sample for our research, it was necessary to create a rich and comprehensive database about the Spanish university context on which this research is based. The Report on Data and Figures of the Spanish University System (2021) collects the most relevant data regarding the university environment in Spain, including the number of students, professors, administrators, and new admissions (Ministry of Universities, 2021). Additionally, university rankings (QS ARWU, Times Higher Education, and Financial Times) were analyzed, and information was extracted from the QS World University Ranking for the year 2021, which includes data from 24 Spanish public universities and records on student-teacher ratios, internationalization, and sustainability.

This study, based on the above-mentioned hypotheses, measures whether legitimacy impacts the social and academic efficiency of Spanish public universities in the academic year 2019-2020. To conduct the research, organizational legitimacy was measured through the analysis of the content of news articles extracted from the Lexis Nexis database (López-Balboa et al., 2021). Lexis Nexis is an international digital archive of newspapers containing news published in over 15,000 different sources. First, the extracted data was processed and cleaned to ensure the quality of subsequent analysis through the following actions: (i) removal of empty entries or those containing invalid values (e.g., "headline not found"); (ii) removal of news in languages other than Spanish; (iii) replacement of characters that had been incorrectly decoded due to being unique to Spanish (Galán-Valdivieso et al., 2019; López-Balboa et al., 2021). The total sample consists of 2,118 news articles from a total of 50 Spanish public universities in the period from 01/09/2019 to 31/08/2020 (start and end of the academic year).

Secondly, a content analysis of the news articles was conducted to measure the perception of legitimacy. This method of measuring legitimacy has been used in numerous research studies and involves encoding the type of impact (positive and negative) that a news article published in the media generates about the analyzed institution (Etter et al., 2018; López-Balboa et al., 2021). For the analysis of the news articles, the Artificial Intelligence Copilot platform by Microsoft was used. The instructions provided to the platform involved classifying the texts based on whether they express a very positive, positive, neutral, negative, or very negative sentiment through natural language processing.

Thirdly, these values were encoded using the Janis-Fadner coefficient (Galán-Valdivieso et al., 2019):
- $(p^2 - p * n)/(c * t) \rightarrow$ if $p > n$
- $0 \rightarrow$ if $p = n$
- $(p * n - n^2) / (c * t) \rightarrow$ if $p < n$

In this case, the value "p" corresponds to the number of positive or very positive headlines, n is the number of negative or very negative headlines, c is the total number of headlines with any sentiment, and t is the total number of headlines. Thus, the analyzed companies achieve a legitimacy value between -1 and 1. These values have been transformed to an interval [0, 100] to improve their interpretability (López-Balboa et al., 2021).

A non-parametric statistical technique called Data Envelopment Analysis (DEA) was first put forth by Charnes et al. in 1978 and subsequently improved by Banker et al. (1984). In the literature on university efficiency, DEA has become more and more prominent in recent years (Johnes, 2016; Santos Camanho et al., 2024). This approach works particularly well for calculating the efficiency of a unit or organization based on inputs and outputs. Its non-parametric nature prevents the imposition of a predefined functional form. The production frontier is calculated by linear programming techniques and is computed using the enveloping functions of the input-output combinations given by the empirical data. Data from different Decision-Making Units (DMUs), which can be any type of organization, including companies, foundations, and other entities, is required to accomplish this.

Our data set consists of, as shown in Table 1, of 24 Spanish universities. The DMUs (a total of 24) are universities in this article. In comparison to other DMUs, the most efficient DMUs are those with a value of 100; however, there is still room for efficiency improvement in DMUs with lower values. The range of values is fixed at 0 to 100. This procedure can be used to establish a frontier that gives the group

being studied a maximum relative efficiency. "Analyst Frontier 4.5" was chosen from among all the programs available because of its dependability and ease of use. The DMUs that are most effective concerning the selection under consideration can be found since, as was already mentioned, this technique yields relative efficiency rather than absolute efficiency.

Table 1. Data Sheet

Sample	24 universities
Observations	336
Method	Two-stage DEA
Software	Frontier Analyst 4.5; Stata 17.0
Period	Course 2019-20

Choosing and measuring the inputs and outputs that the DEA is one of the most important things you can do to ensure that the findings are precise, solid, and meaningful. (Morita & Avkiran, 2009; Stolp, 1990). Academic Efficiency and Social Efficiency (SE) are the two distinct models that were developed. As far as the academic efficiency (AE) model is concerned, output and input variables were grouped. Based on the existing university DEA literature and legitimacy literature, we identified two inputs that reflect the university main objectives: academic and social efficiency.

Table 2 resumes the identified Inputs and Outputs for Academic and Social Efficiency according to the literature review.

Table 2. Inputs and outputs of Academic and Social Efficiency models

	INPUTS	OUTPUTS
Academic Efficiency (AE)	Faculty Staff (FS)	Academic Reputation (AR)
		Employer reputation (ER)
		Citations per Faculty (CF)
		International Research (IR)
Social Efficiency (SE)	Faculty Staff (FS)	Employment Outcomes (EO)
		Sustainability (S)
		International Students (IS)
		Total Students (TS)

Following the DEA convention that the number of DMUs per year (24) is greater than three times the number of outputs plus inputs (Raab & Lichty, 2002), the first stage of a two-stage DEA involved calculating efficiencies using the Varying Returns BCC mode and attempting to maximize outputs as follows

$$Max\ \varphi(k = 1\ \rightarrow n) = \frac{u_1*y_{11}+u_2*y_{21}+\cdots+u_s*y_{s1}}{v_1*x_{11}+v_2*y_{21}+\cdots+v_m*x_{m1}} \quad (1)$$

where φ is the efficiency rating; k is the number of DMUs; u_r is the weight or coefficient assigned by DEA to output o; y_{ok} is the amount of output o used by k unit; o is the number of outputs from 1 to s; v_i is the coefficient or weight assigned by DEA to input i; x_{ik} is the amount of input i used by k unit; and i is the number of inputs from 1 to m.

For every DMU from 1 to n, the Academic Efficiency (maximizing the outputs) is displayed as follows:

$$Max\ \varphi_{EE}(k = 1\ \rightarrow n) = \frac{u_1 * AR_{11} + u_2 * ER_{21} + u_3 * CF_{31} + u_4 * IR_{41}}{v_1 * FS_{11}} \quad (2)$$

For every DMU from 1 to n, the Social Efficiency (maximizing the outputs) is displayed as follows:

$$Max\ \varphi_{SE}(k = 1\ \rightarrow n) = \frac{u_1 * EO_{11} + u_2 * S_{21} + u_3 * IS_{31} + u_4 * TS_{41}}{v_1 * FS_{11}} \quad (3)$$

In the second stage, a cross-sectional Tobit censored regression and a bootstrap (C=2000) are applied to ascertain the type-effect concerning the two models (academic and social). Stata 17.0 was used to do the bootstrap Tobit regressions. The model used is summarized in Equation (5):

$$DEA_i = \beta_0 + \beta_1 \cdot L_i + \beta_2 \cdot FSR_i + \varepsilon_i \quad (4)$$

where DEA_t represents the economic and social efficiency for t university; L is the Legitimacy variable for universities; FSR is the Faculty Student Ratio used as a control variable; and ε_{it} is the residual term.

4. Results

Table 3 represents the relationship between academic and social efficiency, legitimacy perception, the QS Ranking overall score and position for each public Spanish university.

Table 3. DEA scores, legitimacy, and ranking position

University	Academic Efficiency	Social Efficiency	Legitimacy	Ranking score	Ranking position
Universitat de Barcelona	100.00%	100.00%	42.88	45.4	183
Universitat Autónoma de Madrid	100.00%	91.50%	46.07	45.9	200
Universidad Complutense de Madrid	100.00%	100.00%	47.08	48.8	206
Universitat Autònoma de Barcelona	100.00%	100.00%	47.5	51.7	213
Universitat Pompeu Fabra	100.00%	100.00%	47.34	33.8	287
Universidad Carlos III	100.00%	80.50%	49.8	33.2	311
Universitat Politècnica de Cataluña	80.30%	76.50%	48.38	31	314
Universidad Politécnica de Valencia	70.20%	87.30%	31.25	24.3	326
Universidad Politécnica de Madrid	98.30%	100.00%	54.29	31.3	451
Universidad Alcalá de Henares	44.20%	92.30%	43.94	21.9	499
Universidad de Granada	100.00%	100.00%	30.85	27.8	501-510
Universidad de Zaragoza	56.50%	82.20%	48.75	22.5	501-510
Universidad de Sevilla	83.80%	99.00%	51.4	23.4	581-590
Universidad de Valencia	85.30%	96.00%	47.3	23.8	591-600
Universidad de Salamanca	52.00%	78.60%	26.19	22	601-650
Universidad de Santiago de Compostela	57.50%	83.00%	39.9	*	701-750
Universidad del País Vasco	75.30%	70.70%	49.31	*	701-750
Universitat Rovira i Virgili	100.00%	100.00%	50	*	751-800
Universidad de A Coruña	28.50%	79.30%	18.75	*	801-1000
Universidad de Alicante	56.20%	66.80%	37.5	*	801-1000
Universidad de Murcia	45.60%	56.70%	43.1	*	801-1000
Universidad de Castilla La Mancha	48.20%	81.90%	31.63	*	+1001
Universidad de Vigo	78.40%	100.00%	40.63	*	+1001
Universidad Rey Juan Carlos	19.40%	93.80%	45.85	*	+1001

Results show that academic and social efficiency, measure by the research output, academic reputation, internationalization and sustainable impact in the society, are linked to the ranking positions, the overall ranking score of each university and the legitimacy perception assessed by the media exposure.

Table 4 displays the results of the Bootstrap Tobit regression analyses carried out using the efficiency scores acquired in the initial phase of the investigation to investigate the variations in the two efficiencies based on their legitimacy.

Table 4. Bootstrap Tobit regression analyses

Dependent variables	Academic efficiency β; t value^p	Social efficiency β; t value^p
Wald Chi	11.35***	7.53**
Legitimacy	3.28***(0.00)	2.13** (0.00)

Constant	0.95(0.21)	8.18***(0.10)
Observations	24	24

Standard errors in parentheses *** Significant at 1%. ** Significant at 5%. *Significant at 10%.

5. Implications

Theoretical implications

Nowadays universities rankings are considered a source of quality assurance, reputation, and legitimacy for students, employers, faculty members, and accreditation bodies (Falkenstein and Snelson-Powell, 2020; Miotto et al., 2019). Students refer to ranking to choose their universities (Lozano et al., 2020), and employees are willing to cooperate with the higher ranked academic institutions and hire their graduate students (Brankovic & Cantwell, 2022). Rankings widely influence university administrations, affecting their management strategies, priorities, faculty recruitment, and policies (Brankovic et al., 2023). Rankings have always measured universities' performance (Wilbers & Brankovic, 2023) in terms of research outputs (international networking, high-impact articles publication, and citation impact factor), nevertheless, in recent years, the main global rankings have been including items related to the social and environmental impact of the universities (Atici et al., 2021; Kohl et al., 2022).

As an institutionalized way to define the prestige, reputation, and goodness of the universities worldwide, most of the Rankings, such as the QS Ranking, are based on global references, making the application to each country and context quite complex and not always, consistent (Brankovic et al., 2023). Nevertheless, results show a pattern in the relationship between ranking position and Academic and Social Efficiency. According to the results, the best-ranked universities are also the most academically efficient mainly for two reasons. First, the impact of the research outputs, in terms of journal publications, citations, and international research network, positively influences the ranking positioning and academic efficiency. On the other hand, employees' reputation has an important weight in the ranking and, at the same time, is a clear index of academic quality and efficiency since one of the main missions of the university worldwide is to train future highly employable young professionals (Petruzziello et al., 2023; Zhang et al., 2023).

The first hypothesis (*The universities with the highest-ranking position are the most academically efficient*), is so confirmed, in line with the main literature review about university rankings and academic performance and prestige connected with research excellence and its relationship with the employment context (Brankovic & Cantwell, 2022). The second hypothesis (*The universities with the highest-ranking positions are the most socially efficient.)* is not so direct and consistent. The reason behind these incoherencies is that the social criteria and indicators in the rankings are not easy to measure and apply since they are new and more subjective than the traditional KPI based on academic performance. The second hypothesis is not confirmed since the best-ranked universities are not always the most socially oriented and focused. In line with this finding, the research confirms the recent studies about the difficulties of Rankings in measuring consistently the social and sustainable impact of the universities (Atici et al., 2021; Kohl et al., 2022).

Hypotheses 3 and 4 about the relationship between legitimacy and academic and social efficiency are confirmed. Legitimacy is an external perception and evaluation, and it depends on the judgments of different stakeholders at a micro or macro level (Bitektine & Haack, 2015; Díez-Martín et al., 2021b). In this case, we measured legitimacy according to the mass media opinions (Etter eta al., 2028; López-Balboa et al., 2021). Academic efficiency represented by the university's academic and research good reputation is recognized and valued by the media agenda.

At the same time, the positive social impact measured through the student's employability and the universities' sustainable practices is also part of the media narrative about universities. Efficiency is a concept based on objective outputs and inputs (Johnes, 2016; Santos Camanho et al., 2024), such as journal articles, citations, international research projects, or employment rate, while legitimacy generated by the media is based on the people's external perceptions. In this case, the well-reputed universities' social impact on the ranking is aligned with the public perception of the university's positive impact (Vaara et al., 2024). There is an alignment between the legitimacy perception of the university and the academic and social efficiency.

Managerial implications

In terms of managerial implications, the results suggest that academic efficiency is very much linked to the traditional KPIs related to research performance, where journal publications, international networking, and students' employability improve both ranking position and efficiency. On the other hand, social efficiency is difficult to measure and communicate, so institutions that are willing to position themselves as socially responsible institutions should understand very well how they may reflect their social impact into the ranking measuring criteria and so improve their position and, therefore their prestige and reputation, thanks to their social efforts.

Ranking bodies should also clarify, standardize, and objectivize as much as possible their suitability and social impact criteria to help universities to align their strategies to this new and necessary trend.
In terms of legitimacy and academic and social efficiency, universities should be able to better communicate the aspects that make them more academically efficient (research outputs) and socially efficient (positive impact on society), so mass media would be able to replicate these best practices in their channels and positively influence the public opinion and the legitimacy perception of the universities. A lack of knowledge about the positive outputs of the universities could negatively impact public opinion and legitimacy perception.

There is a relationship between the ranking position, the legitimacy perception and academic and social efficiency, since the different aspects are measured through similar criteria: academic reputation, research outputs and students' employability within the global context. Nevertheless, the alignment with the social efficiency is not so strong, since social KPIs and not so specific and consistent yet.

Limitations and future research

The main limitation of this research stands on the localization of the study in only one Country and only about public universities. Future research should analyze these relationships in other Countries and take into consideration also private universities, which, by now, are the best-ranked worldwide.

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