



# Shadows over accreditation in higher education: some quantitative evidence

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## Abstract

Accreditation systems in higher education are widespread both in the USA and in Europe. However, numerous reservations have appeared in the literature about whether these systems can comprehend and represent the quality of university courses. This study sets out to contribute to this debate by discussing whether the results of the recent university teaching accreditation system in Italy are influenced by the characteristics of degree programmes, their performance, and the characteristics of incoming students. Whilst addressing this research question, this paper intends above all to give a methodological contribution by proposing an evidence-based approach that tackles the limits found in the literature in relation to university accreditation and quality assurance.

**Keywords** Accreditation · Quality assurance in higher education · Evidence-based approach · Italian quality assurance · Performance indicators

## Introduction

The function of national accreditation systems is to ascertain the existence of qualitative requirements through an evaluation process. Accreditation systems are particularly widespread when providers are not the public bodies that are responsible for the costs of services and when providers are highly autonomous from the regulating/financing body. Health and education are two of the sectors where this mechanism is particularly common. There may be several aims of adopting an accreditation system, but the main purposes can be summarised as follows: (i) to ascertain that a service is provided in compliance with previously established standards (also to

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facilitate competitive mechanisms and/or cooperation among institutions), (ii) to ensure that public resources are used properly, and (iii) to encourage accredited institutions to improve their services.

In the field of higher education in USA and Europe, the dissemination of accreditation systems is significant despite their differences. In particular, what differs is the role that national governments play in accreditation systems. In the USA, voluntary, non-governmental, non-profit bodies have spread as accreditation bodies since the end of nineteenth century (Stensaker 2011). In this respect, quality assurance (QA) provides a self-regulatory activity organised by 80 non-governmental associations (Rhoades and Sporn 2002; Wilkerson 2017). The link between accreditation and federal government became stronger after the Second World War (Flood and Roberts 2017), when the government enacted benefit programmes (in the form of grants and loans) to facilitate the reintegration of war veterans into society only in universities and colleges that had been accredited by an agency recognised by the federal government in order to ensure proper use of federal funding. However, accreditation is still voluntary in the USA even though the possibility of obtaining federal funds makes it almost compulsory.

The spread of accreditation in Western Europe is more recent like everywhere else (Cheng 2015). In Europe, the first national QA programmes were implemented in the UK and the Netherlands (Van Vught 1988). The dissemination of QA programmes is associated with the increased autonomy of universities and the subsequent need to find a way to steer them at the distance (Neave and Van Vught 1991), so that the national government (which mostly remains the main financial contributor) can steer the university systems in new ways. Accreditation systems meet the government's need to have a mechanism to control and guide the activities of universities that may be less explicit and more socially acceptable than direct control (Vidovich 2002).

Another element encouraging the spread of accreditation and QA systems in Europe is associated with the Bologna Process. In the process of establishing a European Higher Education Area (EHEA), the need of common elements at the European level whilst keeping national education systems autonomous translated into the fact that the acceding countries were requested to have national accreditation systems (Van der Wende & Westerheijden 2001; Huisman and Westerheijden 2010). For this purpose, the European Network of Quality Assurance Agencies (ENQA) was firstly established and then the European Standards and Guidelines (ESG) were drafted to provide the requirements that the national QA systems have to adopt in relation to the internal quality assurance of universities and the external quality assurance of national agencies (Sin et al. 2017). Another step forward in this direction was the creation of the European Quality Assurance Register for Higher Education (EQAR) for the QA agencies adopting the ESG.

In reality, the theoretical notion of accreditation in the higher education sector is rather vague (Erichsen 1999; Surssock 2000; Haakstad 2001; Schwarz and Westerheijden 2004). For the purposes of this paper, accreditation is meant as a national QA programme that has an impact on universities and degree programmes in terms of recognition by the national government and, ultimately, ability to operate. The final stage of the accreditation process consists in a site visit of a pool of evaluation experts within the academia (academic peers) that is in charge of verifying whether a university has a series of qualitative standards in relation to a specific degree programmes or the entire university; the accreditation is then issued by a supervisory body following a formal verification and assessment procedure (in this paper, QA is intended in a broader sense including all evaluation activities). The definition used in this paper is intended to exclude from the

analysis international or discipline-based accreditation procedures, thus focusing on national level accreditation.

The difficulty of defining accreditation is also linked to the large number of meanings that it can assume in university systems, both in terms of functions and in terms of political/bureaucratic processes included in the spread of accreditation. With regard to functions, Jeliaskova and Westerheijden (2002) identify incremental phases of the development of quality assurance systems at a national level, by highlighting how the first phase is aimed at verifying educational standards, the second at verifying the efficiency of an institution, the third at promoting innovation, the fourth is focused on stimulating the culture of quality, and the final phase is focused on the knowledge and skills of graduates as an indicator of performance of the curricula. In relation to the political and bureaucratic level, Stensaker (2011) highlights how accreditation can be linked, among other things, to consumer protection in the market, to increased influence of administrative and managerial functions on teaching and to networked governance.

Despite the different paths taken by the USA and Europe, a certain vagueness in defining it and the multiple aspects linked to it, there is a leading theme throughout these accreditation processes: the debate on whether these systems can really lead to and improve the quality of higher education (Newton 2013; Cardoso et al. 2016).

This is not only an unresolved debate but also a methodological gap since the field of measuring the effects of QA in higher education is still under-theorised and under-researched, the spectrum of the methodologies that can be used has hardly been investigated; moreover, little attention has been paid to students' experiences (Newton 2013; Leiber et al. 2015).

This paper sets out to contribute to this debate by discussing how accreditation systems can provide a faithful and robust representation of the pre-established standards and, more specifically, how the outcome of the ad hoc accreditation procedures is influenced by the characteristics of degree programmes and by sue performance. Italy, the latest Western European country to launch a broad accreditation programme of universities and curricula in 2013 (Turri 2014), is the case study of this paper. In particular, the Italian case gives access both to the data on the results of the accreditation process and to the data on the characteristics of degree programmes.

The purpose of this paper is twofold. First of all, it is methodological; usually, although the literature discusses limits and failures of accreditation systems, the analysis is often based on anecdotal evidence or without evidence-based data on the relationship between teaching process and accreditation results. Conversely, this paper explores this relationship by analysing to what extent and how the outcomes of the accreditation process are linked to the inherent characteristics and performance of degree programmes.

Secondly, although there are a few limits that will be explained in “Data and methods”, the analysis here conducted focuses on the fact that the results of the accreditation process in Italy are influenced by the characteristics of degree programmes, their performance, and the characteristics of the incoming students.

## **All that glitters is not gold: shadows of the accreditation systems**

The theory analyses accreditation systems from multiple viewpoints that are partly opposing and partly converging. Two among various fields of research are particularly significant:

- The theories of neo-institutional sociology
- The studies focusing on the spread of the so-called New Public Management (NPM) and the limits of this view

New Institutionalism, based on environmental drives and organisational behaviour (DiMaggio and Powell 1983), emphasises that accreditation systems are aimed at reducing the uncertainty structurally affecting the higher education sector. Without unambiguous and recognised metrics of the quality and effectiveness of education, such systems act as quality stamps (Cret 2011). In this view, accreditation and, in general, QA processes are interpreted as a case of institutional isomorphism. In New Institutionalism, there is a special focus on QA mechanisms as a case of state delegation of power. In this context, there is a risk that QA systems respond to a mere need of external legitimacy and that their internal management is conversely associated with real organisational processes, so much so that their organisational potential is decreased or even abolished (Meyer et al. 1991; Power 1997). Therefore, universities create a buffer interface with external accreditation bodies to ensure the legitimacy of processes (Power 1997).

NPM, which is inspired by experiences and practices of the for-profit sector to improve the public sector (Hood 1995; Deem 1998), has the improvement of accountability and evaluation systems as one of its main operational implications (Talib 2003; Ferlie et al. 2008; Pollitt 2009; Frølich and Caspersen 2015). In other words, the goal of NPM, also through the use of tools such as accreditation, is to combine the benefits of trade in terms of efficiency and consumer freedom with the benefits of the State in terms of solidarity and rights of access to services (Van de Bovenkamp et al. 2013). In the context of HE, accreditation systems constitute, in particular, a tool aimed at assisting the transition from a state control model to a state supervisory model (Meek and Davies 2009). Whilst the government's traditional intervention mechanisms were hierarchy and authority (by means of the law), following the NPM reforms the State adopts new tools such as standards and intermediary bodies in charge of the quality of services (Westerheijden 2007).

However, unlike private undertakings (Thomas 2004), in public organisations, such as typically universities in Europe, the definition of the expected outcome is particularly complicated. NPM postulates that it is always possible to track the causal and rational link leading to certain factors, generating desired outputs and outcomes (Noman 2008; Van Dooren et al. 2010). This assumption clashes with the nature of the outputs of the public sector (Behn 2003; Noordegraaf and Abma 2003), such as higher education. Thus, there is a wide range of literature criticising the effectiveness of these principles and models, by highlighting a growing gap between theory and practice in evaluation mechanisms (Perry et al. 2009; Diefenbach 2009). There is a risk that accreditation systems may increase administrative requirements, but their ability to improve services effectively may not be so evident (Pollitt and Bouckaert 2004). For these reasons, accreditation and QA systems are more vulnerable to the above-mentioned isomorphism.

In relation to the specific features of higher education, in addition to the two above-mentioned fields of research, it should be added that the study of accreditation systems must take into account the specific organisational aspects of universities.

According to Clark (1983), universities are characterised by a double-structured organisation with disciplinary and institutional levels. Becher (1989) points out that the disciplinary components, the so-called academic tribes, show marked differences in relation to culture, practices and values. Thus, convergent disciplines, such as medicine, follow shared and

uniform practices and rules and tightly control their “territories”. Divergent disciplines, such as the humanities, are loosely interrelated, and their boundary work, concerning both intra- and interdisciplinary boundaries, is weak (Becher 1989).

In connection with the above-mentioned organisational peculiarities, various authors highlight how disciplines influence not only the implementation but also the impact of QA systems (Canning 2005; Lomas 2007; Haapakorpi 2011).

Despite the differences in viewpoints, there is a consensus in the literature that the spread of accreditation and QA systems in universities may have limitations.

The 2015 white paper on accreditation of the US Senate “Higher Education Accreditation Concepts and Proposals” openly states that not only “accreditation has not always produced or improved educational quality” (p. 3), but also “accreditation can inhibit innovation and competition” (p. 5) and “accreditation can be costly, burdensome and inefficient” (p. 8).

Although accreditation systems were implemented to ensure the quality of teaching and to encourage improvements, there are few studies discussing the link between external QA systems and improved teaching and learning (Stensaker 2011; Rosa and Amaral 2012). Various authors identify a link between external QA and internal managerial and organisational processes obtaining an advantage in terms of strengthening; however, there is still little evidence about their real ability to impact on teaching and learning, which is ultimately the students’ direct and concrete experience (Westerheijden, Hulpiau, and Waetens 2007; Stensaker 2008; Stensaker 2014; Cardoso et al. 2016). It is no coincidence that the literature is focusing on whether QA has moved away from the core academic activities and has become a mostly bureaucratic and mainly compliance-oriented process (Harvey 2005; Harvey and Newton 2004, 2007; Ratcliff 2003; Morley 2003; Harvey 2016). Huisman and Westerheijden (2010) state that internal QA systems in Europe could be a good example of *decoupling*, as described by Power (1997), i.e. a buffer complying with the requirements of external evaluation bodies by creating verifiable performance measures that are unrelated with real organisational processes. As Harvey and Williams state (2010, p.107) “the link between external processes, internal processes, and improvements in teaching and learning seems to be tenuous and patchy”.

Moreover, the majority of studies on the impact of QA are generally anecdotal and often based on no empirical evidence (Harvey 2006; Shah 2013; Shah and Stanford 2013). The only exceptions to this are a few studies collecting the opinions of the actors involved on the benefits of QA systems (e.g. Stensaker 1997, 2011; Shah 2013, Cartwright 2007; Veiga et al. 2013; Cardoso et al. 2016).

## Italy’s degree programme accreditation system

The Italian university system is one of the most extensive in Europe with over 1.6 million enrolled students, over 300,000 graduates every year and 90 universities, 61 of which are public universities and 29 of which are private universities (11 of them are online universities). Only since 2013, the Italian universities have adopted an accreditation system for institutions and degree programmes (Ministerial Decree no. 47 of 30 January 2013). The QA model called AVA (self-evaluation, periodic evaluation and accreditation) is explicitly inspired by ESG. Although the first national accreditation system in Italy took place in 2013, some quality assurance measures had already been implemented at national level in the past (Rebora and Turri 2011). At the disciplinary level, in engineering degree programmes, the Conference of

Engineering Deans implemented an accreditation system, which was later integrated in the European system EUR-ACE (EUROPEAN ACcredited Engineer) and a sector-based evaluation agency called QUACING (agency for quality certification).

At national level, on the basis of the previous experiences developed in the accreditation of engineering courses, CRUI (Conference of the Rectors of the Italian Universities) tried to promote a process to accredit degree programmes on a voluntary basis; this accreditation system was terminated when the originally granted public funds were exhausted.

The last exercises before AVA, at the national level, the Ministry promoted a system to verify compliance with certain minimum quantitative requirements (essentially based on the ratio of students/teachers) to authorise universities to create new degree programmes. The procedure had no connection to ESG and included no on-site visits.

The assumption behind the launch of AVA is a broad reform (Law 240/2010 called Gelmini Law) that has introduced major changes in the governance of Italian universities and imposed a reorganisation of the evaluation system in order to operate all teaching and research evaluation functions from the National Agency for the Evaluation of Universities and Research—ANVUR (for further details on the introduction of AVA procedures, see Turri 2014 and Capano et al. 2016).

AVA consists of three stages: (1) internal QA carried out by each university at the level of both entire institution and individual degree programmes, (2) external QA conducted by ANVUR, and (3) a final accreditation stage after the Education Ministry has received the results of ANVUR's evaluation. In relation to the internal QA stage, every university is required to define its objectives and procedures for quality and improvement and to conduct an annual review for each degree programme. The internal QA process must comply with the quality standards established by ANVUR. The external QA process consists in that a CEV (Evaluation Expert Committee) appointed by ANVUR visits each university every 5 years. A CEV involves a variable number of experts according to the size of the university under examination: a chairperson, some QA experts (called system experts), some experts in the subjects of the degree programmes (called disciplinary experts), and a number of evaluating students. The operations of CEV are designed in such a way that the role of the chair and the experts is crucial in their influence on the evaluation of requirements. In fact, the evaluation documents are drawn up by the chair of CEV, who employs subcommittees coordinated by a QA expert to evaluate degree programmes.

At the end of the visit, a CEV issues an assessment of the compliance with the quality standards. These visits are aimed at examining the effectiveness of the internal QA system in the university and in about 10% of its degree programmes. An evaluation is given for each standard according to the following rating scale: A, excellent practice; B, approved; C, accepted with recommendation; D, not approved because of major critical issues.

Once the individual evaluations are collected, a degree programme receives an overall evaluation based on the following scale: fully satisfactory, satisfactory, conditional and not accredited. The first two ratings result in a full accreditation; “conditional” entails that the critical points highlighted in the visit must be addressed with corrective actions within a time limit; conversely, “not accredited” leads to the termination of a degree programme.

Based on the evaluations obtained by the university and its individual degree programmes, ANVUR recommends whether the Ministry of Education should accredit a university. The evaluation report is finally issued. In general, although the Italian standards and the accreditation process are based on the ESG, they are influenced by the previous experiences in the field of Engineering as shown by the terminology used

and by the fact that ANVUR involved the heads of QUACING in designing the standards and the first evaluations.

After ENQA had issued the new ESG (ESG 2015), ANVUR, also on the basis of a preliminary examination of the accreditation activities already underway, started a process to update the AVA system, which resulted in new guidelines issued in December 2016 and implemented in 2017 (Ministerial Decree no. 987 of 12 December 2016). According to ANVUR, the revision of the AVA system aims to (ANVUR 2017):

- reduce the number of quality standards from 57 to 30
- enhance the self-evaluation stage of universities before the visits
- decrease the number of degree programmes to visit by maximising the QA of each university
- create a stronger link between the outcomes of the QA process and the performance of a degree programme also by including student career indicators

The first results of the accreditations after the changes were available in 2018 and have therefore not been taken into account in this article (only the results of six universities have been published thus far).

## Data and methods

One of the most challenging aspects of *evidence-based* studies is the difficulty of identifying a causal relationship between external QA and its impact on institutions, students, and academic staff (Harvey 2006). This study sets out to contribute to this debate by exploring the relationship between data, which were generated by the accreditation process, and the data normally available and used for monitoring degree programmes. Among these, variables related to the characteristics of the incoming students and the performance of the degree programmes in terms of retention and employability were considered. In addition to these data, other aspects were taken into account, i.e. the characteristics of the degree programme in terms of geographical location, disciplinary area, type of degree programme and the public or private nature of universities.

From 2014 to 2016, visits were carried out in 26 universities (5 of which were online universities), and 229 degree programmes (44 of which were in online universities) were evaluated. It is possible to analyse 21 universities and 185 degree programmes. Online universities were not taken into account in this analysis due to their organisational peculiarities and because the accreditation scheme involves partially different requirements for these institutions. The 185 degree programmes under examination range across all disciplines. Four of them were classified as “fully satisfactory”, 54 “satisfactory” and 126 “conditional”, and only one degree programme was not accredited.

Among the evaluating members of CEVs visiting universities, engineers are predominant and have key roles in the committees (Table 1; Table 2): an engineer was the chairperson in over 60% of the CEVs, whereas 40% of the system experts belonged to the engineering disciplinary field.

Every degree programme obtained an evaluation in the 15 standards listed in Table 3. Moreover, CEVs also gave every degree programme an overall evaluation summarising all 15 marks.

**Table 1** ERC disciplinary area and type of institution of origin of the chairperson and system experts in CEVs

ERC macro-areas	CEV chairs*	% of total	System experts (from private universities)	% of total
Physics and engineering (PE)	16	76.19	30	52.63
Whereof engineering	13	61.90	24	42.11
Life sciences (LS)	2	9.52	5	8.77
Social sciences and humanities	3	14.29	17 (4)	29.82
Administrative and technical staff	–	–	5 (2)	8.77
Total	21	100.00	57 (6)	100

A member of the committee may have carried out more than one visit and is therefore counted more than once

\*None from private universities

In order to answer the research question, the evaluations of all 173 degree programmes for each quality requirement by CEVs were analysed in relation to (the number of programmes examined is 173 and not 185 due to missing values in the variables under examination, in particular employment rate and percentage of students graduating within the prescribed duration of degree programmes):

- Programme type (bachelor's degree, master's degree, single-cycle degree);
- Location of the universities (north, centre, south);
- Specific ERC macro-area (physics and engineering—PE; social sciences and humanities—SH, life sciences—LS);
- The public or private nature of the universities;
- Two input indicators that give a representation of the characteristics of the incoming students according to their final grade and the type of secondary school (theoretical or technical/vocational) since, for historical reasons, in Italy there are three types of secondary schools, subsequently divided into further specialisations: lyceums (theoretical, university-oriented), technical schools, vocational schools; for the purposes of this paper, only the distinction between theoretical and technical/vocational schools is considered;
- Two indicators of student persistence: the retention of students in the same degree programme in the year 2 with over 39 ECTS (European Credit Transfer System) credits (%) and the percentage of students graduating within the prescribed duration of degree programmes; both indicators express how a degree programme promotes and favours student learning;
- The employment rate 1 year after graduation was analysed as an indicator of how degree programmes can prepare a student for the labour market.

**Table 2** Origin (i.e. location of institution of origin) of CEV members

Members*	Chairs	Percent	System experts	Percent
Northern Italy	11	52.38	39	68.42
Central Italy	6	28.57	13	22.81
Southern Italy	4	19.05	5	8.77
Total	21	100.00	57	100.00

A member of the committee may have carried out more than one visit and is therefore counted more than once



**Table 3** Quality standards for degree programmes (ANVUR, 2014)

Standards	Item	Description
Level of up-to-date educational offer		
AQ5.A.1	Consulted parties	Representativeness of the national and international social parties consulted with respect to the effectiveness of the degree programme
AQ5.A.2	Consultation mode	Adequacy of the timing of consultations
AQ5.A.3	Functions and competences	Completeness and clarity in the definition of career opportunities
Design of degree programmes		
AQ5.B.1	Entry-level required or recommended knowledge	Verification of the entry-level knowledge required to succeed in a degree programme and verification of remedial actions
AQ5.B.2	Consistency between learning demand and learning results	Consistency between intended learning outcomes and career opportunities
AQ5.B.3	Consistency between teaching and learning results expected by degree programme	Consistency between teaching contents, methods and instruments and intended learning outcomes
AQ5.B.4	Learning evaluation	Consistency between evaluation criteria and intended learning outcomes
Self-evaluation of degree programmes		
AQ5.C.1	Data analysis and issue identification	Ability to identify problems based on collected data and observations
AQ5.C.2	Identification of the causes of issues	Ability to analyse the causes of issues
AQ5.C.3	Solutions to address the identified issues	Effectiveness and adequacy of proposed solutions in terms of resources and accountability for their implementation
AQ5.C.4	Implementation and evaluation of the identified solutions	Adequate implementation of improvements and monitoring their outcome
Student satisfaction		
AQ5.D.1	Publicity of students' opinions on the degree programme	Adequacy of the way in which students' opinions are publicised
AQ5.D.2	Reports from students	Effective monitoring and evaluation of the teachers-students joint committee
AQ5.D.3	Acknowledgement of the students' opinions	Ability of the course to receive the requests and observations of the students with consistent actions
Career opportunities		
AQ5.E.1	Effectiveness of education	Level of involvement of external stakeholders for the monitoring of the programme
AQ5.E.2	Employment support for graduates	Adequacy of the actions aimed at improving the employability of students

The source of the data and clarifications regarding them are shown in Table 4.

The use of this data set has a few limits. The analysis was carried out in 173 degree programmes which do not ensure representatively of all degree programmes in Italy. Tables 5, 6 and 7 show respectively the distribution of degree programmes in relation to ERC sector, geographical area and whether the university is private or public.

**Table 4** Sources of data

Data	Source	Website (last access on 8 October 2018)	Further information
Composition of CEV	Periodic accreditation report CINECA teachers database	<a href="http://www.anvur.it">http://www.anvur.it</a>	<a href="http://cercauniversita.cineca.it/">http://cercauniversita.cineca.it/</a>
Outcome of the accreditation procedure and scores: Characteristics of degree programmes	Periodic accreditation report	<a href="http://www.anvur.it">http://www.anvur.it</a>	
Secondary school final grade and school type	Student database, Ministry of Education, Universities and Research	<a href="http://anagrafe.miur.it">http://anagrafe.miur.it</a>	
Student retention indicators	Upon the authors' request to ANVUR	–	The academic year 2012–2013 was chosen as a reference. The retention of students in the same degree programme in the year 2 with over 39 ECTS (European Credit Transfer System) credits (%) and the percentage of graduates within the prescribed duration of degree programmes
Employment rates	AlmaLaurea. As shown in the standard description document of each degree programme required by ministerial procedures	<a href="https://www.universitaly.it/">https://www.universitaly.it/</a>	The AlmaLaurea survey for the year 2013 has been used.

Secondly, the indicators used in this paper can be subject to criticism and limitations because they do not fully represent the characteristics of a degree programme. It is important to highlight that the data refer to a degree programme and not to individual students. The relevance of the dimensions analysed in relation university-level studies (in particular the characteristics of incoming students, student retention and employability) is discussed extensively in the literature, by way of example see Trow (1973), Tinto (2006) and Marginson (2016).

Obviously, if microdata (i.e. data referring to students such as cultural capital and social status) were to be employed, the analysis could be expanded further. Similarly, research intensity could be considered to verify whether and how the presence of more productive researchers influences the outcome of accreditation procedures.

**Table 5** ERC sector of degree programme

ERC Sector	Degrees	%
LS	41	22
PE	50	27
SH	94	51
Total	185	100

**Table 6** Location of institution of origin of degree programme

Location	Degrees	%
Northern Italy	73	39
Central Italy	27	15
Southern Italy	85	46
Total	185	100

However, the main aim of the article is to discuss the robustness of accreditation systems and therefore an approach to data analysis at the level of degree programme with a focus on the educational aspects is considered appropriate.

In order to answer to the research questions, the 15 quality standards have been grouped into two categories 1 (A, excellent practice; B, approved) and 0 (C, accepted with recommendation; D, not approved because of major critical issues) and then a multivariate logistic regression model was applied considering the quality standards (one model for each standard) as the response variable, the characteristics of the degree programmes—ERC Sector (PE, SH, LS), bachelor's/master's/single-cycle degree, geographical area (north/centre/south), the public or private nature of the university—as explanatory variables (control), and the input characteristics of students (secondary school final grade and percentage of lyceum students) as predictors of performance indicators (retention, employment).

The same model has been applied to the overall evaluation, also dichotomised in 1 (fully satisfactory, satisfactory) and 0 (conditional, not accredited). The results can be found in the following section.

## Results

Table 8 shows the results of the multivariate logistic regression for all standards and for the overall evaluation.

The last column of Table 8 shows the estimated model for the overall evaluation. The disciplinary characteristics of the degree programme and the secondary school final grade significantly influence the probability of a degree programme to obtain a satisfactory overall evaluation.

The two negative coefficients in relation to the ERC sector show that the accreditation system rewards degree programmes in certain disciplinary areas compared to others. In particular, life sciences programmes are less likely to receive a positive evaluation than physical sciences and engineering, which is the reference category (degree programmes in social sciences and humanities do not differ significantly from physical sciences and engineering).

The data show that the characteristics of the incoming students affect the overall assessment of the CEVs. In particular, the degree courses that attract students with the best performance in

**Table 7** Public/private nature of institution of origin of degree programme

Nature of institution	Degrees	%
Private	43	23
Public	142	77
Total	185	100

Table 8 Multivariate logistic regression models (coefficients and standard errors)

Variables	AQ5.A.1	AQ5.A.2	AQ5.A.3	AQ5.B.1	AQ5.B.2	AQ5.B.3	AQ5.B.4	AQ5.C.1	AQ5.C.2
ERC LS	-1.704** (0.860)	-2.333*** (0.658)	0.123 (0.545)	-0.547 (0.561)	0.267 (0.719)	-0.746 (0.557)	-1.428*** (0.525)	-1.061 (0.727)	-0.244 (0.568)
ERC SH	-0.805 (0.788)	-1.389** (0.595)	0.179 (0.466)	0.378 (0.506)	-0.116 (0.568)	0.264 (0.509)	-0.733 (0.458)	-0.761 (0.610)	-0.124 (0.485)
Master degree's	-1.811 (0.991)	-0.00541 (0.603)	-0.258 (0.609)	0.417 (0.622)	-0.211 (0.732)	-0.830 (0.641)	-0.543 (0.558)	0.321 (0.714)	-0.594 (0.614)
Bachelor's	-0.286 (1.018)	0.248 (0.661)	-0.0620 (0.662)	0.173 (0.631)	0.717 (0.734)	-0.535 (0.707)	-0.693 (0.613)	0.124 (0.719)	-0.343 (0.659)
South area	-3.001*** (0.786)	-0.669 (0.620)	0.134 (0.562)	-0.261 (0.568)	-0.773 (0.620)	-1.533*** (0.599)	0.0348 (0.573)	-1.005 (0.676)	-1.246*** (0.592)
North area	0.0143 (0.636)	0.596 (0.436)	0.689 (0.418)	1.198*** (0.452)	0.494 (0.504)	-0.0599 (0.466)	-0.285 (0.423)	-0.463 (0.558)	0.618 (0.463)
Private university	-0.364 (0.591)	-0.624 (0.495)	-0.742 (0.460)	-0.289 (0.505)	-0.996 (0.609)	-0.919 (0.478)	-0.273 (0.508)	-1.160 (0.628)	-0.342 (0.534)
Retention	0.00617 (0.0147)	0.0230** (0.0110)	0.00829 (0.0101)	-0.00888 (0.0105)	0.00726 (0.0130)	-0.0138 (0.0104)	0.00633 (0.00985)	-0.0440*** (0.0147)	-0.0212 (0.0110)
Employment rate 1 year after graduation	3.619*** (1.296)	1.316 (0.855)	1.003 (0.770)	-0.0648 (0.0883)	-0.0779 (1.563)	0.475 (0.851)	0.259 (0.880)	1.772 (1.200)	1.041 (0.961)
Students graduating within the prescribed duration of a degree programme	-2.976*** (1.034)	-1.142 (0.688)	-0.869 (0.615)	0.0640 (0.119)	0.414 (1.461)	-0.315 (0.701)	0.240 (1.172)	3.171** (1.551)	0.235 (1.245)
Secondary school final grade	3.722 (2.857)	1.832 (1.801)	1.153 (1.675)	5.810*** (2.028)	4.661** (2.324)	0.672 (1.681)	0.725 (1.545)	6.494*** (2.494)	3.822** (1.788)
Secondary school (lyceum)	-0.837 (1.853)	-1.151 (1.495)	0.290 (1.374)	0.252 (1.414)	1.796 (1.563)	-0.695 (1.527)	-2.682 (1.419)	0.591 (1.766)	-1.176 (1.492)
Constant	3.785** (1.922)	1.022 (1.329)	-0.0678 (1.239)	-0.814 (1.272)	-1.437 (1.537)	3.179** (1.409)	2.740 (1.415)	0.127 (1.652)	1.606 (1.501)
Observations	173	173	173	173	173	173	173	173	173
Pseudo-R <sup>2</sup>	0.349	0.241	0.0881	0.152	0.150	0.103	0.0941	0.185	0.115

Table 8 (continued)

Variables	AQ5.C.3	AQ5.C.4	AQ5.D.1	AQ5.D.2	AQ5.D.3	AQ5.E.1	AQ5.E.2	Overall
ERC LS	-1.083 (0.658)	-0.396 (0.591)	-0.0511 (0.608)	0.678 (0.745)	-0.259 (0.672)	-1.264 (0.759)	-1.123 (1.360)	-1.525*** (0.640)
ERC SH	-0.573 (0.580)	-0.397 (0.504)	-0.154 (0.511)	-0.0761 (0.552)	-0.394 (0.559)	-0.318 (0.709)	0.149 (1.254)	-0.279 (0.463)
Master degree's	0.523 (0.619)	0.294 (0.587)	0.397 (0.635)	0.105 (0.636)	0.820 (0.667)	0.433 (0.821)	-2.244 (1.596)	0.356 (0.679)
Bachelor's	1.450** (0.695)	0.681 (0.619)	0.535 (0.701)	1.271 (0.708)	0.882 (0.689)	0.388 (0.869)	0.00332 (1.405)	1.112 (0.761)
South area	-0.656 (0.598)	-1.770*** (0.632)	0.380 (0.662)	-1.000 (0.699)	0.277 (0.661)	-1.811*** (0.660)	-0.437 (1.093)	0.0810 (0.733)
North area	0.567 (0.495)	0.504 (0.443)	1.535*** (0.472)	0.156 (0.550)	0.120 (0.513)	0.186 (0.569)	1.821 (1.371)	0.772 (0.445)
Private university	-1.768*** (0.611)	0.299 (0.561)	-2.638*** (0.594)	-0.143 (0.602)	-0.687 (0.583)	-1.527*** (0.582)	-2.602*** (1.062)	-1.227 (0.652)
Retention	-0.00754 (0.0117)	-0.0368*** (0.0117)	-0.0138 (0.0114)	-0.0313** (0.0142)	-0.00931 (0.0126)	0.00677 (0.0134)	-0.0355 (0.0249)	0.0129 (0.0115)
Employment rate 1 year after graduation	0.195 (0.997)	-0.0865 (0.140)	0.465 (0.845)	2.322 (1.271)	2.596** (1.146)	3.048*** (1.087)	4.810 (2.536)	-0.0441 (0.0990)
Students graduating within the prescribed duration of a degree programme	3.476** (1.429)	1.513 (1.308)	-0.343 (0.680)	-0.769 (1.564)	-0.983 (1.435)	-2.540*** (0.875)	0.454 (2.587)	-0.361 (1.266)
Secondary school final grade	4.841** (2.003)	7.504*** (2.011)	6.059*** (1.921)	4.320** (2.113)	2.133 (1.995)	-1.566 (2.221)	6.147 (5.037)	7.866*** (1.855)
Secondary school (lyceum)	1.150 (1.582)	-1.463 (1.481)	0.164 (1.563)	-2.046 (1.787)	0.728 (1.611)	4.103*** (1.774)	2.455 (2.909)	-3.091 (1.581)
Constant	-2.877 (1.583)	0.725 (1.407)	-0.784 (1.372)	2.250 (1.785)	-0.00884 (1.638)	0.0871 (1.642)	1.035 (3.170)	-1.694 (1.510)
Observations	173	173	173	173	173	173	173	173
Pseudo-R <sup>2</sup>	0.186	0.180	0.270	0.163	0.109	0.279	0.368	0.202

Standard errors in parentheses

\*\*p &lt; 0.05; \*\*\*p &lt; 0.01

terms of final secondary school grade have better results; however, the data on the type of school of origin (lyceum or other) shows that this holds true regardless of the type of the secondary school.

When examining the first three indicators (AQ5.A.1, AQ5.A.2, AQ5.A.3), which show how updated a degree programme is, it can be noticed that ERC macro-area has a significant impact in determining the evaluation of the CEVs (indicators AQ5.A.1, AQ5.A.2). According to CEVs, degree programmes in some ERC areas perform better consults than courses in other areas. As regards the indicator AQ5.A.1 (Representativeness of the social parties consulted), the data show that CEVs have verified that the ability to organise consultations with the social partners is greater in degree programmes that are not in southern Italy, which have good results in terms of employment of graduates and that have a high number of students not graduating within the prescribed duration of a degree programme (this could be linked to the number of working students).

The second set of indicators concerns the design of a degree programme (AQ5.B.1, AQ5.B.2, AQ5.B.3, AQ5.B.4). Secondary school final grades are positively related to AQ5.B.1 and AQ5.B.2 indicators. The fact that a degree programme is positioned in Northern Italy is positively linked to the ability of ascertaining entry-level required knowledge (AQ5.B.1), whereas degree programmes in Southern Italy are significantly negatively related to consistency between teaching and learning results expected by degree programme (AQ5.B.3). AQ5.B.4 indicator is negatively affected by belonging to life sciences ERC area.

The third set of indicators (AQ5.C.1, AQ5.C.2, AQ5.C.3, AQ5.C.4) concerns the self-assessment capacity of a degree programme and presents significant implications for each disciplinary area. The ability to attract students with higher secondary school final grades significantly impacts on the positive evaluation of CEVS.

The degree programmes based in the South of Italy have the lowest self-assessment performances (significant test for the indicators AQ5.C.2 and AQ5.C.4) as well as degree programmes with higher retention rate (significant test for indicators AQ5.C.1 e AQ5.C.4) and degree programmes with higher number of students graduating within the prescribed duration of a degree programme (significant test for indicators AQ5.C.1 e AQ5.C.3).

The fourth set of indicators (AQ5.D.1, AQ5.D.2, AQ5.D.3) focuses on student satisfaction surveys. The degree programmes with the highest employment rate are the ones that perform best in the CEV evaluation (indicators AQ5.D.1, AQ5.D.2). Degree programmes in Northern Italy and in public universities publicise the results of student surveys more widely (AQ5.D.1). The degree programmes with best employment prospects are those that are most likely to receive the requests and observations of the students with consistent actions (AQ5.D.3).

The fifth set of indicators (AQ5.E.1, AQ5.E.2) concerns employment opportunities. Degree programmes with a better employment rate are more successful (only AQ5.E.1). Degree programmes in Southern Italy and in which students graduate within the prescribed duration of a degree programme (only AQ5.E.1) and degree programmes in private universities (both AQ5.E.1 and AQ5.E.2) have worse results.

Reading the results on the rows (i.e. the impact of the variables on the indicators), with reference to the 16 individual indicators and the overall indicator, we can observe that:

- Life sciences programmes has four significant coefficients with a minus sign.
- The South of Italy has five significant coefficients with a minus sign.
- Private universities have four significant coefficients with a minus sign.
- Retention has four significant coefficients, whereof three with a minus sign.

- Employment rate has three significant coefficients with a plus sign.
- Students graduating within the prescribed duration of a degree programme have four significant coefficients with a variable sign according to the indicator.
- Secondary school final grade has nine significant coefficients with a plus sign.

This confirms that, all other things being equal, the quality of incoming students (measured in terms of secondary school final grade) has a very significant impact on the evaluations of accreditation, i.e. CEVs reward the degree programmes that attract the best students. The employment rate 1 year after graduation is also positive impact, even if less extensive.

On the other hand, degree programmes belonging to the ERC area of life sciences, in Southern Italy and in private universities, receive significantly negative evaluations by CEVS.

The variables Retention and Students graduating within the prescribed duration of a degree programme have different effects on different indicators.

## Discussion and conclusion

The analysis based on multivariate logistic regression models shows how it is possible to deal with the issue of the limits of accreditation and QA systems with an evidence-based approach instead of a purely anecdotal approach.

It is possible to compare the results of accreditation and quality assurance procedures with the characteristics of degree programmes and students. From a methodological point of view, this may help evaluation agencies and universities obtain evidence-based elements to discuss the progress of the accreditation system and verify if there is room for improvement. This is a concrete chance to rethink and improve accreditation and QA systems by acknowledging the different meanings that an evaluation exercise can acquire within organisations.

There are two reasons why this possibility is valuable, given that the effectiveness of accreditation systems is not universally acknowledged: first of all, it highlights and possibly validates the objections to the accreditation systems; secondly, and even more importantly, they represent a tool to identify possible weaknesses of accreditation systems to address.

For example, the analysis carried out on AVA shows that the degree programmes in the ERC PE area, excluding any other consideration regarding the quality of the students or the characteristics of the degree programmes, have obtained better ratings. The links between the outcomes of the accreditation process and the disciplinary specialisation of degree programmes raise the question of whether or not discipline-based accreditation models, such as the model under examination, are valid. As we have seen, this issue is widely discussed in the literature (Canning 2005; Lomas 2007; Haapakorpi 2011). Questioning this link has advantages both because it allows assessment agencies to verify any disciplinary bias of accreditation systems and because it provides the possibility of a debate about the increased reliability of discipline-based accreditation systems. Again, the results could lead to a reflection on the multidisciplinary background of CEVs, given also the strong disciplinary connotation of CEV chairs as illustrated in Table 2.

In higher education, it is well known that disciplines have a role in mediating and interpreting the introduction of managerial tools, i.e. instruments that typically try to get people to do things they might not do otherwise (Schneider & Ingram 1990). Recent studies show how learning outcomes (which were employed in compliance with the AVA model) not only encounter various levels of resistance but also assume meanings and functions that vary

across the disciplinary areas where they are employed (Bleiklie et al. 2017; Michelsen et al. 2017).

Through evidence-based analyses, it is possible to overcome the opposition between supporters and detractors and to refine the systems of accreditation and quality assurance.

Besides methodological issues, this paper provides another contribution. This quantitative analysis can actually provide observations on the factors that result in best results in the accreditation process in Italy. These observations, however, are clearly in line with the limits that the literature attributes to accreditation systems.

This second contribution, however, has only an exploratory character as already explained in “[Data and methods](#)”. In full awareness of the limitations of this study, the results of our analysis show that more positive results in the accreditation procedure for Italian degree programmes are overall associated with the quality of incoming students and the ERC sector of degree programmes.

As already explained, the analysis of the individual indicators shows that the presence of students with a higher secondary school final grade is by far the factor that is most strongly connected with higher CEV evaluations. A positive relation is also found in the employment rate 1 year after graduation.

The significance of the secondary school final grade in determining the outcome of the evaluation reveals an input orientation inasmuch as that the accreditation system risks replicating the quality evaluation received by the students, thus confirming the choices of the best graduates.

The strong connection of some factors inherent to the nature of the degree programme (e.g. geographical position of the university, belonging to specific ERC sectors, being a public university) and the simultaneous weak connection with factors regarding the performance of the degree programmes (retention and students graduating within the prescribed duration of a degree programme) raise the question whether the accreditation system rewards degree programmes with certain structural or input characteristics or those that manage to obtain better results in teaching processes. The presence of a positive connection of three indicators with the employment rate can be interpreted as an element in contrast to this analysis (a good graduate rate is a performance of the degree programme) or as a tendency to reward the degree courses that are more oriented to the labour market and therefore a confirmation that the CEVs reward a particular type of degree courses, which can attract the best students, located in Northern Italy and involving business-oriented disciplines.

The research conducted on the difficulties of NPM-based evaluation systems highlights that evaluation systems generally tend to favour (i.e. give better evaluations to) the public services that can more easily be framed in a business perspective (Pollitt and Bouckaert 2004; Noordegraaf and Abma 2003). It is not surprising that the degree programmes that are naturally more prone to interact with the corporate sector and that have first implemented accreditation systems enjoy an advantage in terms of evaluation.

On the basis of the classification of Jeliaskova and Westerheijden (2002), the Italian system is still stuck in the early stages (the first and the second stages in particular) and may have difficulties in promoting innovation and a culture of quality. In this sense, the adoption of AVA seems to be affected by the previous experiences of quality assurance in Italy, which mainly focused on the verification of teaching inputs (Turri 2014).

As explained in “[Italy’s degree programme accreditation system](#)”, ANVUR has launched a review of the AVA system and, on the basis of this review, new visits have been conducted since 2018. One of the new features is a stronger link between the outcomes of the QA process



and the performance of a degree programme through the consideration of student career indicators. On the basis of the results of this analysis, this increased focus on aspects such as student persistence could go in the right direction, which may help to better balance the accreditation system, thus mitigating the tendency to reward degree programmes in certain subject areas and degree courses that attract better students. More generally, the use of evidence-based analyses such as the one proposed in this study can help verify the differences between old and new exercises and establish the effects of the changes on the evaluation of CEVs.

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