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European Universities as Complete Organizations? Understanding Identity, Hierarchy and Rationality in Public Organizations

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Abstract

This article investigates the form of European universities to determine the extent to which they resemble the characteristics of complete organizations and whether the forms are associated with modernization policy pressure, national institutional frames and organizational characteristics. An original data set of twenty-six universities from eight countries was used. Specialist universities have a stronger identity, whereas the level of hierarchy and rationality is clearly associated with the intensity of modernization policies. At the same time, evidence suggests limitations for universities to become complete, as mechanisms allowing the development of some dimensions seemingly constrain the capability to develop others.

Key words

Identity, hierarchy, rationality, modernization policies, NPM, Neo-Weberian state, universities

INTRODUCTION

Universities have been portrayed for decades as a specific kind of organization, loosely coupled and with weak decision-making from governing bodies. Universities resembled the characteristics of an 'arena', a non-complete organization guided by external interests and with a blurred hierarchy, where discipline structures were far more important than the university enterprise as a source of norms and values (Brunsson and Sahlin-Andersson 2000; Clark 1983). Such an organizational form seemed coherent with the characteristics of academic activities and the consensus-based nature of scholarly communities (Cohen, March, and Olsen 1972; Pfeffer and Salancik 1974; Weick 1976). However, from the early 1980s onwards, the uniqueness of the university was not taken for granted anymore. Universities were increasingly assimilated to other public entities and modernization reforms aimed to reinforce their autonomy and make them accountable, enabling stronger leadership and increasing environmental competition (Ferlie et al. 1996; Pollitt and Bouckaert 2000; Paradeise, Reale, Bleiklie, et al. 2009; Braun and Merrien 1999). In turn, some scholars argued that modernization reforms promoted in the eighties and nineties could be interpreted as attempts to transform public sector organizations into more 'complete' organizations with a well-defined identity, a hierarchical structure and capacity for rational action (Greenwood and Hinings 1996; Brunsson and Sahlin-Andersson 2000).

On the one hand, the capability for universities to become complete types of organizations is highly disputed, and more generally, the actual capability of policies to affect organizations, especially when pressure is incoherent or conflicting with organizational features and goals (Oliver 1991; Brunsson and Olsen 1997). On the other hand, empirical evidence regarding the form of universities and the association with policy pressure is still limited and patchy. Hence, this article employs the results of a large survey administered to academic leaders and managers from twenty-six universities in eight European countries to explore the extent to which European universities display the characteristics of complete organizations, and whether variations are associated with differences in policies, national systems or university characteristics.

The article is organized as follows. The 'Theoretical framework' section introduces the theoretical framework and develops hypotheses from extant literature. The 'Data and methods' section presents the data sources, the operationalization of the concepts, as well as our empirical strategy. The 'Empirical results' section analyses variations across dimensions and universities, while the final section 'Conclusions' discusses the main findings.

THEORETICAL FRAMEWORK

The dimensions of forms

The organizational form can be studied along the three key dimensions of identity, hierarchy and rationality. We select these dimensions as they were targeted by

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modernization policies, which aimed at developing and rendering the organization more 'complete' (Brunsson and Sahlin-Andersson 2000). Studies on organizations (Albert and Whetten 1985; Weick 1995; Whetten and Godfrey 1998; Gioia, Schultz, and Corley 2000) and universities (Välilmaa 1998; Henkel 2000; Stensaker 2004) provide a definition of organizational identity that emphasizes the symbolic and cognitive side of organizations. A complete organization is expected to reflect on its specificity, its peculiar mission and approaches, and on what makes the organization different from other organizations in the field. Identity is also enforced by establishing autonomy, controlling collective resources and constructing boundaries that protect the organization from external influence on key decisions (de Boer, Enders, and Leisyte 2007). Likewise, the construction of a hierarchy is seen as necessary to coordinate action and as the key ingredient for organization building (Thompson 1967; Mintzberg 1979). Constructing hierarchy takes place through the centralization of duties and responsibilities and the strengthening of managerial roles, which direct action and develop an organizational strategy and profile (Bonaccorsi and Daraio 2007). Finally, rationality refers to the process of emphasizing organizations as means-end structures. The attainment of collective goals in complex organizations is made possible by the adoption of formal and rational means (Weber 1968). Rationalized organizations are 'intentional'. They forecast goals, objectives and preferences, action alternatives and their consequences, and they measure results and performances (Scott 1987; Quinn 1988). Thus, a rationalization process entails the introduction of quality assurance, evaluation, accountability measures and incentive systems (Whitley and Glaser 2007; Frolich 2011), aimed at establishing impersonal rules which allow top management to assess results and control the behaviour of employees without the overt use of their power (Clegg, Courpasson, and Phillips 2006).

Can universities become complete organizations?

While some scholars argued that modernization reforms were intended to remove peculiar characteristics from universities and transform them into more complete organizations, others have underlined possible limitations to this process.

Universities are characterized by peculiar governance arrangements, which are nevertheless crucial to balance curiosity-driven orientation and utilitarian concerns (Enders 2002). Changing governance arrangements would also mean changing the functioning of the organization, including how and what activities are performed, which could result in unintended consequences (Birnbaum 2004). The efficacy of managerial tools for evaluation and control has also been questioned, because they lead to an 'oversight explosion' (Power 1997). Their efficacy is limited by the fleeting, uncertain outcomes and complex nature of academic activities (Hood, James, and Peters 2004), while assessment measures are challenged because they oversimplify

the representation of academic duties (Ball and Wilkinson 1994; Paradeise, Reale, Bleiklie, et al. 2009). A vicious cycle may emerge, as declining trust leads to increasing rational management, further reducing trust in the faculty (Gumport 2000).

Musselin (2007) points out that interactions between entities belonging to different disciplines, or located in different units, are not 'natural' and this reduces the possibility of conceiving the university as a unit. Furthermore, teaching and research are complex and difficult to describe and reproduce, meaning new devices aimed at controlling them are challenged through existing structures and procedures (Mignot-Gérard 2006; Musselin 2007). In the same vein, Whitley (2008) argues that a strategic actor is supposed to develop peculiar problem-solving routines and organization-specific knowl-edge. This process requires employees to share goals, resources and knowledge in the joint pursuit of organizational purposes. University leadership has limited coordination and steering potential because research activities are uncertain, and it is the scientific community that establishes research priorities and evaluates results (Whitley 2008). In turn, universities would be inherently bottom-heavy institutions, as academics possess key expertise necessary to take strategic decisions (Dill and Peterson Helm 1988). Finally, hierarchical power is not always supposed to be exploited by formal instru-ments of command and control. Rather, the top hierarchal positions are often awarded to reputed professionals, who stimulate and coordinate by means of soft steering, legitimacy and prestige, instead of authority (Bleiklie et al. 2011a).

From the empirical point of view there is contrasting evidence. According to several authors, change occurs in the form of universities, as they are moving from being administrated towards a 'managed professional' model (Kogan et al. 2006; de Boer, Enders, and Leisyte 2007). While following some managerial principles of efficiency, cost-effectiveness and central strategic control, this model also retains traditional professional values and practices (Cooper et al. 1996; Hinings, Greenwood, and Cooper 1999). The so-called 'wannabes' are cited as extreme cases of adoption of policies and structures of the managed university. These universities aim to increase their performance in order to reach the group of the so-called 'World Class Universities' (WCUs), by reducing spaces for shared governance, centralizing power in the hands of university managers and using ranking metrics for strategic orientation. In doing so, they also undermine internal cooperation and reduce personal commitment (Tuchman 2009). Instead, the WCUs have maintained rather traditional characteristics: they appear internally decentralized; governance is co-shared between the faculty and the administration, and a high level of socialization among academics is maintained (Paradeise and Thoenig 2011). In mature higher education systems, professors perceive a decline of their individual influence in the last two decades. Nevertheless, the net gainers have been middle managers rather than top-level managers, and the individual faculty is still the primary decision-maker on most academic matters, especially regarding research activity. In some European countries, collegial governance still runs deep and hierarchical power implies a large deal of persuasion, negotiation and motivation (Fulton 2003; Larsen 2003; Locke, Cummings, and Fisher 2011).

While this review suggests that organizational features might not be uniform, there is however, a lack of systematic inquiry concerning differences between individual uni-versities and the sources of variations across multiple contexts.

The form of public entities in the modernization frame

In the last decades, the Western European public sector has been subjected to a steady flow of reform processes, and several models have emerged for its understanding and investigation.

From a theoretical point of view, it is important to focus on those policies specifically addressing the form of public entities. In particular, 'modernization' policies depicted in Brunsson and Sahlin-Andersson (2000) and operationalized in de Boer, Enders, and Leisyte (2007) were precisely oriented to change intra-organizational management. Modernization policies encompass policy initiatives that are in line with the New Public Management – marketizing approach as well as the Neo-Weberian state-modernizing one. In fact, the Neo-Weberian model offers an alternative set of conditions under which policies similar to New Public Management ones are promoted, with these policies developed by strong states demonstrating their ability to adapt to changing conditions, but at the same time reaffirming the role of the state and its core institutions such as representative democracy and administrative law (Pollitt and Bouckaert 2011; Paradeise, Reale, Goastellec, et al. 2009). Research on the subject has identified other policy models and approaches. However, these models do not specifically focus on the form of the public entities, but on the administrative processes in the traditional Public Administration approach, as well as the inter-organizational relationships and the efficacy of public service delivery systems in the Network model and the New Public Governance (Kickert 1995; Ferlie, Musselin, and Andresani 2009; Osborne 2006, 2010; Bleiklie et al. 2011b).

From an empirical perspective, it is important to note that policies often require decades to produce measurable impacts, especially regarding complex issues such as the form of public entities. While modernization policies might be in decline since the outset of the 00's and being gradually replaced by other approaches, on the other hand they have dominated public sector reform for more than two decades, and their impact is still visible across countries of various politico-administrative backgrounds (Meek 2003; Osborne 2006; Gualmini 2008). More recent policy approaches have been in place for a rather shorter period of time, their impact being still less visible and measurable.

Modernization reforms leverage concepts of autonomy, competition and account-ability, which are expected to influence the form of public entities. In the following, we reflect on the association between form and modernization policies, and how this link may be weakened when pressures are somehow ambiguous, conflicting with each other or with the peculiar features of the sector.

In terms of identity, a complete entity is expected to possess a perception of being special from the other competing entities, to control internal resources and possess clear boundaries that protect from external influence (de Boer, Enders, and Leisyte 2007). On their side, modernization pressures are rather ambivalent. The strong emphasis on autonomy is oriented to strengthen the organization as a unit, reinforcing the organizational level with respect to the disciplinary structures, and competition is also supposed to spur the development of a stronger identity, in a virtuous cycle (Braun and Merrien 1999). However, it has been argued that governments have not retreated from ruling, but rather changed the way they rule (Capano 2011). In fact, a key modernization principle is that the ministry improves its capability to steer and control via goal setting and accountability instruments, while in turn weakening organizational boundaries (Locke and Bennion 2011; Enders, De Boer, and Weyer 2013). Moreover, competition can spur mimetic isomorphism and prevent the development of a peculiar identity (DiMaggio and Powell 1983), as is the case with ambitious universities ('wannabes') trying to emulate an imaginary model of a WCU (Paradeise and Thoenig 2011). On the other side, the definition of stronger boundaries conflict with the interconnected and open nature of research activities, which requires collaboration with external actors. Hence, we expect no association between modernization influence and identity elements, both because of policy ambiguity and the characteristics of the academic activity.

Modernization principles and pressures are straightforward and coherent in terms of rationality and hierarchy. Both early and later modernization models foresee a strong hierarchy, enforced and legitimized via mechanisms such as a system of top-down appointment, more formal power to the leadership and rationality by goal setting and evaluation of results (Ferlie et al. 1996). Constructing hierarchy implies the centralization of coordination and control powers in a coherent and stratified pattern of 'leaders and led', where managerial roles are strengthened to direct action and develop organizational strategies. Leadership, departments and individuals are supposed to have specific responsibilities within a process of accounting to a superior, and there is a strong management oriented by a managerial culture. Rational public entities should forecast goals as well as measure results and performances (de Boer, Enders, and Leisyte 2007; Bonaccorsi and Daraio 2007).

Hierarchy and rationality are expected to be associated as mutually reinforcing. The uncertainty of the activity is a key source of power for employees (Crozier 1963); the introduction of rationality instruments reduces uncertainty and the power of professionals while strengthening leadership, and vice versa, as a strong leadership has more chances to introduce instruments of rationality. The association between hierarchy and rationality is expected to point out two distinct types of universities with respectively lower and higher levels of hierarchy and rationality, which have been long identified in the literature and correspond to the traditional and the managerial university (Waugh 1998). At the same time, complexity represents a natural limitation to rationalization processes (Haveri 2006). At the system level, for instance, evaluation instruments are designed and implemented by governmental agencies which involve and often depend

upon academics, while setting goals and research priorities also require the expertise of researchers (Bleiklie et al. 2011a). The uncertainty of academic activities cannot be fully tamed, and rationality instruments are better suited for ex post evaluation than for assessing the potential of a line of inquiry. Hence, the steering capability of leadership may remain limited for decisions that require field-level knowledge and leadership (Seeber 2013).

The role of the country and organizational features

Two other potential sources of form variation are considered.

Higher education has strong national dimensions as resources, meaning relationships and policies mostly originate at this level. Hence, while European countries may have adopted the same policies to a similar extent (Paradeise, Reale, Bleiklie, et al. 2009), nevertheless other system features and pressures may affect the forms or interact with the modernization prescriptions (Christensen and Laegreid 2001; Currie et al. 2003; Kickert 2007; Ongaro 2009).

The form of a public entity may also be related to the specific organizational features (Brunsson and Olsen 1997). Each discipline entails specific responses to external pressures and capability of being steered (Reale and Seeber 2011; Seeber 2013) so that the university disciplinary profile and specialization can affect the capability to develop a peculiar identity and establish a strong hierarchical structure (Clark 1998; Becker, Krücken, and Wild 2012). With respect to organizational size, it may be argued that small universities can manage complexity even without a strong hierarchical structure, whereas large universities would require a stronger hierarchy and rationalized practices. However, large universities may be more difficult to transform into complete organizations, precisely because of their complexity. Organizational age is often regarded as a relevant factor for the functioning of an organization. The form of older universities may have been shaped in a period when pressure for completeness did not yet exist, meaning they may be more resistant to new forms when compared to those established early. According to the modernization rhetoric, more complete universities are supposed to be more efficient and research productive, while so far the scholarly debate has not recognized such links (Aghion et al. 2010; Nieminen and Auranen 2010; Paradeise and Thoening 2011).

DATA AND METHODS

The empirical analysis adopts the conceptual scheme developed by de Boer, Enders, and Leisyte (2007), which develops a set of specific indicators to assess the level of identity, hierarchy and rationality. Based on a large-scale survey of academic leaders and

managers in European universities, we construct quantitative measures as indicators of these dimensions. The survey was undertaken as part of the project 'Transforming Universities in Europe' (TRUE), a large-scale international research collaboration aimed at understanding the organizational transformation of universities in Europe. Questions addressed the current characteristics and practices of universities, while we do not hold longitudinal data. In Spring 2011, the survey was administered to five groups – rectors, central administrators, board and senate members and deans – resulting in 687 respondents and a response rate of 48 per cent, which is fairly high for similar types of inquiries (Baruch 1999).

The sample includes twenty-six public universities in eight European countries (Germany, Italy, Netherlands, Norway, Portugal, Switzerland, the United Kingdom and France), and it is representative of different types of institutions in terms of size, age, quality level and discipline profile (Table 1). Coverage of countries is reasonably representative of the European landscape, but the number of universities per country (from two to five) is too small to draw conclusions on patterns specific to individual systems.

Responses

The selected questions are mostly on an ordinal scale and are close ended, and use five-point Likert scales. The averages of individual responses inside each university are computed as scores on hierarchy, rationality and identity indicators, and they range between '0' and '1', where a value of '1' means 'fully complete.' Indicators regard concepts like influence, power and identity, for which there is hardly an objective external measure as they are social constructions. Accordingly, these concepts are measured by considering individuals' perceptions. This choice raises some epistemological and statistical issues.

On the one hand, perceptions represent useful information per se; for instance, the formal power foreseen by the hierarchical position provides an incomplete picture of the actual power, whereas perceptions synthesize power derived from formal structures, relationships and status, and may better reflect (and determine) the actual power.

On the other hand, perceptions are especially valuable when responses are homogeneous, so that the mean value is reliable, and close to the real value (valid). Most of the selected responses satisfy standards of inter-rater agreement (high reliability), and indicators are based on the aggregation of several questions so that possible biases of the single questions are likely counterbalanced (Snijders and Bosker 2004). The overall number of respondents is high for all questions, ranging from 205 to 667. For one indicator, the perception of being special as a university, the questions were submitted only to rectors; nevertheless, we decided not to exclude this indicator because its

Table 1: Sample composition and main features

ID	Country	Influence NPM	Size	Discipline concentration	Age of the university	Research quality
1	Norway	Medium	Large	Generalist	Old	1.5
2	Norway	Medium	large	Generalist	Old	1.6
3	Norway	Medium	Small	Generalist	Recent	1.3
4	Norway	Medium	Large	Generalist	Old	1.4
5	Italy	Low	Medium	Generalist	Recent	1.4
6	Italy	Low	Large	Generalist	Old	1.4
7	Italy	Low	Medium	Specialist	Old	1.4
8	Portugal	Medium	Small	Generalist	Recent	1
9	Portugal	Medium	Medium	Generalist	Old	1.3
10	Portugal	Medium	Small	Generalist	Recent	1.2
11	Netherlands	Strong	Medium	Specialist	Recent	1.7
12	Netherlands	Strong	Medium	Specialist	Old	1.7
13	Netherlands	Strong	Large	Generalist	Old	1.8
14	Germany	Medium	Large	Generalist	Old	1.6
15	Germany	Medium	Large	Generalist	Old	1.6
16	Germany	Medium	Medium	Generalist	Recent	1.1
17	Switzerland	Medium	Medium	Generalist	Old	1.7
18	Switzerland	Medium	Large	Specialist	Old	1.9
19	Switzerland	Medium	Large	Specialist	Recent	2
20	Switzerland	Medium	Small	Specialist	Recent	1.7
21	Switzerland	Medium	Medium	Generalist	Old	1.8
22	United Kingdom	Strong	Large	Generalist	Old	1.8
23	United Kingdom	Strong	Medium	Generalist	Recent	1.2
24	United Kingdom	Strong	Small	Generalist	Old	1.3
25	France	Low	Large	Specialist	Recent	1.5
26	France	Low	Small	Generalist	Recent	1

Note: The variables of NPM influence, size, concentration, age and research quality are defined in the following sections.

robustness is supported by the aggregation of seven items and the fact that rectors are expected to have a comprehensive view on these issues. Validity may be low because of a systematic bias caused by factors that shift answers in a particular direction. A first type of bias emerges in the case of a 'social desirability' towards a particular type of response, for instance, if interviewees perceive that universities were expected to turn into more complete entities. Yet the survey was framed to address university practices and features in general, where only some questions may be related to issues of completeness and only indirectly, whereas there is no mention of a given normative frame or policy. Moreover, the survey was administered online, which has a much

lower tendency to induce ‘social desirability’ bias since social desirability tends to manifest itself in face-to-face interviews (Kreuter, Presser, and Tourangeau 2008). Perceptions may have been influenced by the role of the respondent so that the mean value would be affected by the composition of the sample. We controlled for role variation with ANOVA tests, which exclude significant differences by role; further, academics and external members have not been interviewed as such, nevertheless several members of the senate are indeed academics or externals and no systematic difference in their responses was found when compared to other members.

In sum, the consistency of the tests’ results, the adequacy of inter-rater agreement indexes and the lack of systematic biases make us confident about reliability and validity, and that the rate of response is sufficiently high.

Operationalizing organizational dimensions and variables

Indicators were built from selected questions in order to suitably represent the considered dimensions. The conceptual scheme developed by de Boer, Enders, and Leisyte (2007) has been adopted to assess the degree of identity, hierarchy and rationality (Table 2).

A variable identifies three levels of modernization pressures: low (1), medium (2) and high (3). Four main criteria were considered (Paradeise, Reale, Bleiklie, et al. 2009): timing: it measures how long the modernization narrative has influenced the reform discourse in higher education; competition: it considers the share of public funds allocated via competitive streams of formula and projects; accountability: it is a proxy for the relevance of teaching and research evaluations promoted by ministries and agencies; autonomy: it is estimated by how leadership is selected (appointed or elected), and what is the power of the university to reorganize itself, e.g. by changing the statute, creating new faculties and courses, etc. (Table 3).

Selected organizational features are constructed using European Micro Data, a large database containing the structural characteristics of European universities of 2,457 Higher Education Institutions (HEIs) in 28 European countries (Bonaccorsi et al. 2010).

The level of disciplinary concentration is determined by the Herfindahl index, which considers the share of students enrolled in each of the nine subject domains of educational statistics (General programmes, Education, Arts and Humanities, Sciences, Engineering Manufacturing Construction, Agriculture, Health Welfare, Services, Social Sciences):

$$\text{Discipline Concentration} = \frac{1}{n} \sum_{i=1}^n \left(\frac{x_i}{n} \right)^2$$

where x_i

represents the number of students enrolled in discipline i .

Table 2: Concepts and measures of identity, hierarchy and rationality

Dimension	Indicator	Concept and measures
Identity	Constructing boundaries	Boundaries protect the organization from external influence. The existence of boundaries can be observed, indirectly, by controlling whether organizational decisions and strategies are set autonomously or implemented according to the will of external actors. For this purpose, two questions were selected to explore (i) whether rectors and board members implement decisions made by the national government or by themselves and (ii) the extent to which organizational strategies are influenced by external actors.
	Controlling collective resources	The control of resources is operationalized by measuring (i) the influence of the government in the budgeting process (financial resources) and (ii) the power of internal members in setting employment conditions for a new chair (human resources).
	Being special as an organization	This indicator pertains to the cognitive side of identity, and questions addressed how the rectors perceived the university to be special when compared to other universities along seven dimensions: research; teaching and learning; students/alumni; innovation/technology transfer; regional/local involvement; internationalization; third mission.
Hierarchy	Central coordination and control	Powers and responsibilities should be distributed across different levels in a coherent pattern of 'leaders and led', with an authoritative centre and planned action. Accordingly, tests assess central coordination and control in terms of (i) the influence of the leadership on the definition and implementation of the university strategy, (ii) the importance of procedures in the allocation of resources to institutional sub-units (e.g. faculties) and (iii) the decision-making power of the central and faculty versus the academics as to the selection of people at various levels, setting evaluation rules and defining budgets.
	Allocating responsibility	Leaders are supposed to bear more responsibility, and units and individuals are supposed to have specific duties. Accordingly we measure (i) the influence of the university leadership as to managerial, research and teaching affairs, and the decision-making power of faculty and central levels to (ii) set goals and (iii) research themes of the units and power of faculty and academics to (iv) evaluate individual performances.

(continued)

Table 2: (Continued)

Dimension	Indicator	Concept and measures
	Constructing management	Chief executives are not professional bureaucrats (civil servants) but managers; take discretionary decisions and bear a managerial culture. We measure (i) the prevalence of managerial versus collegial culture, (ii) the extent to which middle management bears the responsibility of their actions or is a mere executer and (iii) the power to define policies for the management of the academic staff.
Rationality	Setting objectives	We assess the importance of setting objectives for steering by measuring the relevance of (i) target agreements between units and the central level and (ii) contracts between chairs, researchers and units.
	Measuring results	We consider (i) how systematically the university compares the different units and (ii) the power of faculty and chairs to assess individual performances.

The continuous variable ranges from 1/9 when all subject domains are equally represented within the university, to 1 when only one subject domain exists. Universities with an index above 0.35 were considered specialized ($n = 7$), the other universities were considered as comprehensive ($n = 19$).

Size is measured through the number of students; an ordinal categorical variable identifies three ranges in the sample: six universities are small (below 1,000 students), nine are medium (between 10,000 and 20,000 students), and eleven are large (above 20,000 students).

Two categories of age were set: foundation after 1968 – recent ($n = 10$); before 1968 – old ($n = 16$). The rationale is that European universities established after 1968 were created in the course of a massification process of higher education (Bonaccorsi and Daraio 2007). In fact, in our data set no university was founded in the period between the Second World War and 1968.

The indicator of research quality has been derived from the Scimago Ranking (year 2011), the most complete world ranking in terms of organizational coverage that includes more than 1,000 Western European research organizations. We used the Normalized Impact indicator which measures the universities' average scientific impact normalized by subject field, type of document and time frame. The world average is 1. Universities in our sample have an average impact above the world mean. An ordinal categorical variable was constructed according to three quality levels: between 1 and 1.30 – medium ($n = 7$), between 1.31 and 1.69 – high ($n = 10$), above 1.70 – very high ($n = 9$).

Table 3: NPM level

	Timing: NPM narrative influence on reform discourse*	Competition for funding: formula + project**	Accountability: Top-down evaluation of HEIs research and teaching performance*	Autonomy: leadership selection, decision-making on organization and profile*	Overall NPM influence
Norway	Last decade (2)***	45% + 20% (2)	Evaluation system based on reports produced by HEIs (2); teaching programme externally evaluated (2)	Appointed leaders at faculty and department level (2); HEIs have the right to decide on internal organization (3)	Medium (2)
Portugal	Last decade (2)	90% + 3% (but formula only on teaching output) (2)	Research evaluation and assessment and accreditation of HEIs and their study cycles done by independent agencies (2)	Mostly elected leaders (2). Power to reorganize within the legal framework, creation of courses submitted to the accreditation agency (2)	Medium (2)
Italy	Last decade (2)	7% + 3% (1)	Research assessment but limited impact (1); central accreditation (2)	Leaders elected by academics (1); HEIs can reorganize, teaching courses must satisfy law requirement (2)	Low (1)
Germany	Last decade (2)	Federal + project 12% (2)	Excellenzinitiative (2) accreditation agencies (2)	In some lander leaders may be appointed; most are still academics (1 +) reorganization power limited (1)	Low–medium (2)
France	From mid-2000 (1)	Contract + project 30% (2)	Recent establishment of agencies for HEIs evaluation (2); timid evaluation of courses (1)	Leaders elected by academics (1), reorganization power is limited, although growing (2)	Low (1)

(continued)

Table 3: (Continued)

	Timing: NPM narrative influence on reform discourse*	Competition for funding: formula + project**	Accountability: Top-down evaluation of HEIs research and teaching performance*	Autonomy: leadership selection, decision-making on organization and profile*	Overall NPM influence
Switzerland	Last decade (2)	Federal + project 21% + (2)	No HEI-wide teaching or research evaluation, which is up to each HEI (1)	Rectors appointed but often have limited powers (1/2); some liberty to reorganize but also strong state intervention capability (1/2)	Low–medium (2)
UK	Since eighties (3)	59% + 29% (3)	Research assessment exercise with strong impact (3); market-oriented accreditation (2)	Strong university leadership (appointed by board) and autonomy to reorganize (3)	Very high (3)
The Netherlands	Since mid-eighties (3)	90% + 10% (3)	Research evaluation for internal allocation (2); central accreditation (2)	Vertical system of appointment (3), within given national boundaries HEIs are free to reorganize (3)	High (3)

Notes: HEI = higher education institution.

*Source: Paradeise, Reale, Bleiklie, et al. (2009).

**Share of funding allocated via formula and project; sources: Reale and Seeber (2013), Chinchilla-Rodríguez et al. (2012), Lepori et al. (2005).

***1 = low; 2 = medium; 3 = high.

There are some significant correlations between the considered variables, in particular, between size and age (larger universities being older, -0.60 , p -value = 0.001^{**}), and the research quality is higher in specialized universities (0.46 , p -value = 0.018^{*}), older (-0.55 , p -value = 0.04^{**}) and larger (0.57 , p -value = 0.02^{**}).

Methods

The analysis considers broad patterns between dimensions and standard empirical tests as well as a more in-depth study informed by insights on variation of national institutional frames. Pearson correlations are employed to study the associations between indicators. ANOVA and Mann–Whitney non-parametric tests are developed to look for significant variations between and within groups identified by variables.¹ These tests were also run by changing the classification of countries by modernization level and the results do not change significantly, supporting their robustness.² Cluster analysis is used to identify distinct groups, in addition to a Mann–Whitney non-parametric test meant to provide statistical evidence of the differences between the groups.

EMPIRICAL RESULTS

Although absolute values should be interpreted cautiously, the results suggest that identity and hierarchy develop to a similar extent and variability, whereas the rationality dimension displays the lowest values and largest variability (Table 4).

Table 4: Indicators: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. deviation
ID Boundaries	26	0.4	0.69	0.51	0.07
ID Controlling resources	26	0.38	0.92	0.67	0.16
ID Being special	24	0.39	0.88	0.63	0.14
H Central coordination	26	0.52	0.79	0.67	0.08
H Allocating responsibility	26	0.53	0.79	0.65	0.07
H Constructing management	26	0.34	0.77	0.56	0.10
R Setting objectives	25	0.14	0.79	0.42	0.17
R Measuring results	26	0.27	0.78	0.52	0.13
IDENTITY	26	0.49	0.8	0.60	0.08
HIERARCHY	26	0.5	0.78	0.62	0.07
RATIONALITY	26	0.24	0.78	0.47	0.14

Table 5: Matrix of correlations between indicators and dimensions

	I			H			R	I	H
	CB	CR	BS	CC	AR	CM	SO		
I Constructing boundaries									
Controlling resources	.41*								
Being special	0.10	0.02							
H Central coordination	0.24	.48*	-0.07						
Allocating responsibilities	0.19	.57**	-0.25	.59**					
Constructing management	0.15	0.28	-0.12	.72**	0.35				
R Setting objectives	-0.05	-0.11	0.07	.53**	0.23	.55**			
Measuring results	-0.09	0.18	0.06	.76**	.41*	.73**	.67**		
HIERARCHY								0.28	
RATIONALITY								0.00	.73**

The identity dimension is weakly correlated with the other two dimensions, whereas the hierarchy and rationality dimensions are significantly correlated with each other. The indicators are positively correlated when they refer to the same dimension, with the only exception of the indicator measuring the perception of being special (Table 5).

In the following section, we carefully analyse the information provided by the indicators, the associations between them and whether variations are possibly associated to policy pressure, national institutional frames and organizational features.

Complete identity

The indicators of identity are not related to modernization pressure and display different trends. The university perception of being special is weakly correlated to all other indicators and is basically linked to the discipline profile; specialist universities display significantly higher scores than generalists, and one 'technical' university, which is generalist according to our measure, also scores high for being special. This finding is consistent with literature which finds that specialized (mostly technical) universities have a distinct organizational identity (Becker, Krücken, and Wild 2012).

The strength of the boundaries and the control of internal resources both represent proxies of university autonomy. The indicators are significantly correlated with each other (0.41, p -value < 0.05), and they are stronger among universities in federal countries, Germany and Switzerland, than universities in unitary countries (0.57 against 0.48; Mann–Whitney p -value < 0.01 for boundaries and 0.76 against 0.63 for controlling resources, p -value < 0.05). Probably, when competences on Higher

Education are divided between central and regional governments, neither of them manage to exert a strong influence, and universities enjoy more autonomy in respect to public authorities.

The control of resources is also associated with the degree of hierarchy (0.50, p -value < 0.01), while the boundaries are not stronger in more hierarchical universities. In fact, a stronger hierarchy and better control of internal resources often derive from governments' arm's length, which at the same time increase their external influence. For instance, in the Netherlands there is a vertical chain of appointment in place as the government appoints a supervisory board that chooses the executive board members, the executive board appoints the faculty deans, who are in charge of appointing the chairs. Hence, the strong hierarchical power within the university appears to be partly an emanation of the government's power, while autonomy may be reduced. In fact, Dutch universities display a significantly stronger hierarchy (0.75 vs. 0.62 of the whole sample, Mann–Whitney p -value < 0.01) and at the same time a stronger influence from the government (0.61 vs. 0.51, p -value < 0.01).

The indicator on boundaries display low and homogeneous values (mean 0.51, standard deviation 0.07), which is consistent with the expectation that the peculiar inter-organizational pattern of collaborations and norms characterizing the academic activities preserves the permeability to external influence.

In sum, two main factors emerge as relevant for shaping the identity dimension: weak central political power favours a clearer definition of university boundaries and less government intrusion, and subject specialization strengthens the perception of the university as being special. Modernization pressure as well as other organizational features are not linked to significant variations according to ANOVA tests.

Completeness of hierarchy and rationality

All dimensions of hierarchy are significantly correlated with each other, suggesting the existence of a similar underlying pressure. As a matter of fact, the most evident finding is that levels of modernization pressure are associated with a large proportion of the variance in hierarchy (ANOVA 65 per cent of variance, p -value < 0.001). Five of the six most hierarchical universities are British and Dutch – which are subject to strong modernization, whereas French and Italian universities are subject to weak modernization – and all are among the least hierarchical. Universities in medium modernization countries are in between: Swiss and German universities tend to be less hierarchical, with the exception of two technical universities, while Portuguese and Norwegian universities are in the upper end. In sum, constructing hierarchy involves practices whose adoption are mostly related to modernization pressure, whereas ANOVA tests do not show other meaningful variations related to groups of universities by size, age, quality of research and discipline specialization.

In terms of rationality, the practices of setting goals and measuring results are strongly associated (0.66, sign. < 0.01), and the modernization pressure explains a large proportion of the variance (ANOVA 60 per cent, p-value < 0.001). The association with modernization is particularly relevant in terms of measuring results. For instance, the six Dutch and British universities occupy six of the first seven positions. Instead, the adoption of the practice of setting objectives is also influenced by national institutional frames. Target agreements between faculty and the central level are common in countries like France and Germany, where agreements are also established between universities and national or regional governments (Reale and Seeber 2013). Performance-based contracts between faculty members and sub-units are clearly associated with modernization, but some variations can be related to country traditions as well, for instance they are very rare in German universities, where chairs have traditionally been powerful and still retain considerable influence (Park 2013).

Hierarchy and rationality are strongly and significantly correlated (0.73, p-value < 0.001), which is consistent with the hypothesis that they are mutually supportive: a stronger leadership has more chances to introduce rationality instruments that, by reducing uncertainty, they also reduce the power of the academics and strengthen the leadership, in a self-reinforcing cycle. At the same time, there are clear limitations to this process: the rationalization is the least developed dimension, while no university in our sample displays a hierarchy where academics are excluded from decision-making.

Groups and types of universities

We observe significant variation in the level of organizational ‘completeness’ across our sample (Figure 1).

If we consider the two strongly associated dimensions of Hierarchy and Rationality, two main groups can be identified with a cluster analysis, which resemble ideal–typical models often depicted in the literature of the ‘traditional’ and the ‘managerial’

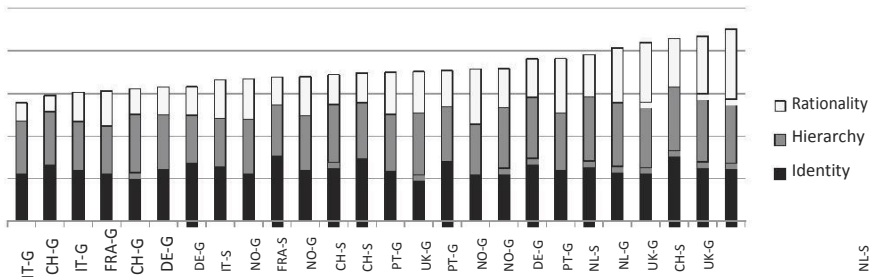


Figure 1: Distribution of the universities in the spectrum from less to more complete organizations
Note: G = generalist; S = specialized.

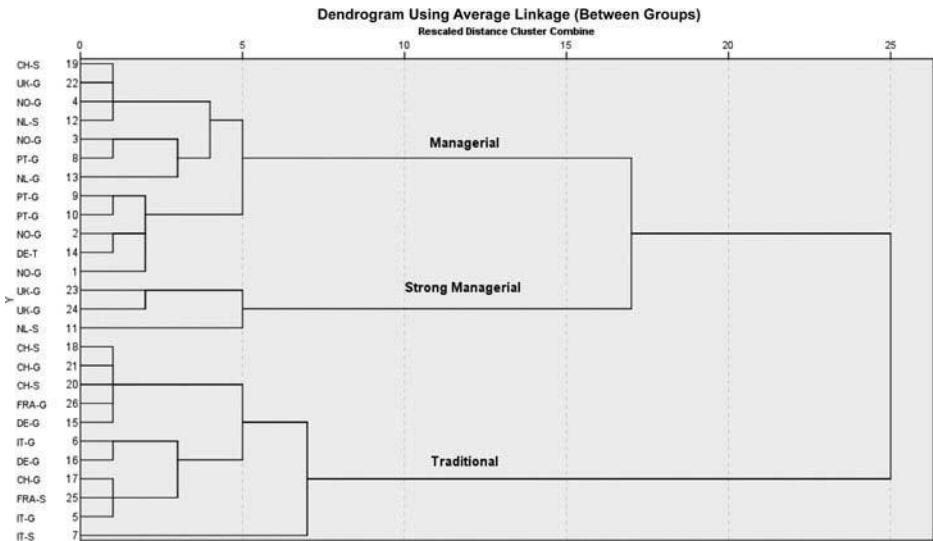


Figure 2: Hierarchical cluster analysis – method: between groups, squared Euclidean distance
 Note: G = generalist; S = specialized.

university. The ‘traditional’ group is characterized by lower levels of hierarchy (0.57 vs. 0.67 p-value < 0.001) and rationality (0.34 vs. 0.57 p-value < 0.0001) and includes universities in weak modernization countries like Italy and France, as well as most of the German and Swiss universities. One technical German and one Swiss university, and all the Norwegian and Portuguese universities are managerial universities. The most hierarchical and rationalized universities are located in the United Kingdom and the Netherlands, countries strongly affected by modernization policies, and three of them clearly stand apart with even stronger hierarchy and rationality (Figure 2).

CONCLUSIONS

This article studies the form of universities along the dimensions of identity, hierarchy and rationality. The analysis made use of a large amount of survey data from a sample of twenty-six universities in eight European countries, and of an analytical model of modernization policies based on the conceptualization of Brunsson and Sahlin-Andersson (2000) and the operationalization of de Boer, Enders, and Leisyte (2007). The analysis aimed at understanding to what extent universities resemble the characteristics of a complete organization, and whether variation can be related to the influence of modernization policies, national system characteristics or organizational features. The data employed have some limitations as they describe the present form of the

universities and, due to the fact that we do not possess longitudinal data, do not allow detecting causal relationships. Information is mostly elaborated on perceptions while our tests support that they are valid and reliable against the main sources of bias. The results of this study improve our understanding of the complex dynamics driving the development of organizational forms, and suggest some questions for future research in the fields of public management and higher education studies.

The findings show that universities display the characteristics of complete organizations to very different extents. The development of forms is not homogeneous across dimensions, and emerges as a complex process which cannot be reduced to the complete–incomplete dichotomy, neither can the study of organizational responses be limited to the adoption–resistance axis. This has clear implications for the current debate on the form of the university, as it does neither confirm accounts of universities being transformed through an ineluctable global process (Krücken and Meier 2006), nor accounts of universities being bounded to a loose structure (Musselin 2007; Whitley 2008).

Two groups of universities emerge from our analysis which correspond to the ‘managerial’ and the ‘traditional’ types often depicted in the literature, with respectively higher and lower degree of rationality and hierarchy. In fact, there is a clear association between the modernization pressure and the levels of hierarchy and rationality. At the same time, evidence shows that public entities like universities can hardly become fully complete organizations even when modernization policies have been strong. This finding is consistent with claims that the study of intra-organizational management should not be the sole focus of public policy analysis, and that it would be better subsumed to the study of the public service delivery as a whole and the governance of inter-organizational relationships (Osborne 2010). Moreover, we observed that policy implementation is complex and may unleash counteracting forces. The model employed for the analysis, in particular, helped to identify the several policy components and their possible internal inconsistencies. Increased competition, for instance, may stimulate the pursuit of a peculiar profile, but in fields characterized by uncertainty of outcomes it also spurs mimetic behaviour. Further, unintended interactions can emerge between reform components, so that pressures and instruments conducive to the development of some dimensions may limit the capability to develop others. For instance, according to a ‘steering from the distance’ approach, governments retreat from detailed regulation and set organizational goals. Public entities are expected to become both more autonomous in deciding how to pursue these goals, as well as more accountable. Hence, some governments established a vertical chain of appointment from the government down to the academic chairs in order to strengthen the hierarchical structure of the universities while preserving a certain level of control. Our findings indicate that in the systems where this process occurred, the intra-organizational hierarchy and the procedural autonomy of universities are high, while the substantial autonomy and the organizational boundaries are low.

The heterogeneity of forms observed in our study, as well as the coexistence of strongly developed dimensions with less developed ones, seem to support previous studies suggesting that in professional organizations the professional values and practices are not replaced by managerial ones, but they are rather blended (Cooper et al. 1996; Hinings, Greenwood, and Cooper 1999; Currie et al. 2003). Despite some evidence that hybridization is a complex and even problematic process (Fulton 2003), yet managerialism is not necessary at odds with collegial influence on decision-making and substantial professional autonomy (Meek 2003). Future research should then try to understand how the blending process works or may work properly. Research on the extent to which rationality and hierarchy are introduced, can be complemented by an analysis of how they are introduced, whether rationality is coercing or enabling employees (Adler and Borys 1996), whether vertical decision-making possibly retains a consensus seeking approach.

Scholarly work has shown that the characteristics of the politico-administrative regimes affected the penetration and implementation of modernization concepts (Painter and Peters 2010; Christensen and Laegreid 2001; Ongaro 2009; Bouckaert 2007). Our results point out that meaningful variations in the form of universities are to a large extent linked to the degree of modernization influence, while the characteristics of the national institutional frames play a limited role. In particular, the autonomy of universities is somehow stronger in federal states, arguably because the division of the competences on higher education between central and regional governments weakens the public steering. Consistently with isomorphic explanations of university behaviour, the adoption of specific instruments within the university may be favoured if similar instruments are adopted in the relationship with the public authority, as shown by the use of target agreements in France and Germany. Overall, empirical evidence suggests that the main role of the national institutional frames has been indirect, in affecting the pace of penetration of political narratives, while having a secondary influence on the content of the policies. Hence, an interesting question emerges as to what elements drive the interaction between broad policy narratives and national institutional frames. Future research, for instance, may be oriented to gain a systematic understanding of what characteristics of a regime affect its capability to moderate the influence of a policy narrative either mediate and change its content.

Organizational features like size, age and research quality were not found to be associated with any dimension of the universities' form. However, respondents from universities with a specialized disciplinary profile have a stronger perception of being special, confirming evidence in previous studies that members of specialized universities have a distinct organizational identity (Becker, Krücken, and Wild 2012).

Finally, our findings are consistent with organizational research, which has long indicated that the peculiar technology and norms of a field may influence the introduction of new organizational arrangements (Gouldner 1954; Crozier 1963). The uncertainty of academic activity seems to favour a mutually supportive relation between

rationalization practices and hierarchy. The reduction of uncertainty via rationality instruments diminishes the power of professionals and strengthens the leadership, and this in turn can introduce even more incisive rationality instruments. Yet, the complexity of academic activities may not be fully controlled and the normative system of academic institutions might lead to resistance to the development of rationality and hierarchy (Townley 1997; Musselin 2007). In turn, policy design should not be based on generic narratives and instruments assuming homogeneity across different policy fields and rather take systematically into account field-specific properties, i.e., specific norms and characteristics of activity. Consequently, future research should focus on understanding how these two factors, norms and characteristics of activities within a sector influence the varying impact of policies across different sectors.

NOTES

- 1 Variables significant in one-way ANOVA have been tested together in crossed and hierarchical ANOVA to disentangle their relative importance.
- 2 We tested the following alternative in the modernization classification: (i) Norway as strong modernization, (ii) Germany and Switzerland as low modernization, (iii) France as medium modernization; all tests confirmed highly significant results (AVOVAs p-value below 0.001).

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