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Giacomo Degli Antoni,
Magalì Fia, Lorenzo Sacconi



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ABSTRACT

In the debate surrounding various reforms in higher education systems, performance, along with how universities should be governed, have been main issues. We argue that the demand for shared governance, i.e., faculty participation in decision-making vs. concentrated or top-down decision-making, is driven by the characteristics of academic transactions. Especially in universities, shared governance prevents that the unilateral allocation of authority paves the way to the abuse of authority, which would depress incentives to undertake optimal idiosyncratic investments in human cognitive resources, or prevent cooperation in a context characterized by contractual incompleteness and transactions involving multiple specific investments and coessential resources. To empirically analyze our hypothesis, we collect original survey data of Italian universities in 2015. We find that shared decision-making processes are correlated with better performance.

¹ Department of Law, Politics and International Studies, University of Parma, via Università 12, Parma, Italy and EconomEtica, c/o University Milano-Bicocca, via Bicocca degli Arcimboldi 8, 20126 Milan, Italy.

² Department of Management, Economics and Industrial Engineering (DIG), Politecnico di Milano, Via Lambruschini 4/B, 20156 Milano, Italy.

³ Department of Public and Supranational Law, University of Milan, via Festa del Perdono 7, 20122, Milan, Italy and EconomEtica, University Milano-Bicocca, via Bicocca degli Arcimboldi 8, 20126 Milan, Italy.

1 INTRODUCTION

Performance has been taken as the main issue of various reform trends in higher education (HE) systems. In fact, the increasing attention to the difference in the performance of the universities goes along with the debate on how universities should be governed. Starting from the 1990s, European policy-makers adopted the governance model of Anglo-American universities as a benchmark and advocated a more firm-like governance for European universities under the flag of more competitive advantages in terms of performance (Aghion et al., 2010).

The new public management (NPM) paradigm has marked European public sector reform trends since the 1980s (Pollitt, 2009; Pollitt and Bouckaert, 2017) and provides a theoretical framework for the firm-like view of HE institutions (De Boer et al., 2007; Braun and Merrien, 1999; Deem et al., 2007, Bleike et al. 2011). With respect to these institutions, NPM aims at transforming both the external governance (i.e., the relationship between universities and the state) and the internal governance (i.e., governing bodies' role, structures, responsibilities, and decision-making process). This should be done both by focusing on accountability and efficiency measures, in the form of performance measurements and pay for performance schemes (Ferlie et al., 2009, Paradeise et al. 2009) and by introducing a top-down internal chain of command that clarifies responsibilities and speeds up the decision-making process (De Boer et al., 2007, Paradeise et al. 2009). To increase effectiveness and responsiveness in the achievement of the established performance target, the collegial decision-making mode should be substituted by hierarchical processes and well-defined leadership roles (Donina et al. 2015). In such a structure, the state indirectly regulates public universities by steering and supervising them and setting

output targets and accountability measures linked to government funding (Neave, 2012; Aghion et al. 2010, Ferlie et al. 2009, Amaral et al. 2013).⁴

However, whether the archetypical governance form of firms suits universities better than the shared governance models has been challenged by Masten (2006), whose work brings a new perspective to the debate with the fundamental idea that the demand for democracy, i.e., faculty participation in decision-making vs. concentration or top-down decision-making, is driven by the characteristics of academic transactions. He argues that democratic governance guarantees the incentive to invest of individuals who operate within academic institutions, where the unilateral allocation of authority cannot be counterbalanced by the mobility of individuals and the threat of collective actions against self-serving behaviors. That is where specific investments reduce individuals' mobility, and the heterogeneity of interests makes collective actions too costly. According to Masten (2006, 2013), democratic decisional rules force administrators to consider the interests of other individuals interacting with the institutions. Hence, notwithstanding the appearance that US universities are run like firms, Masten provides empirical evidence that their governance is closer to a constitutional order of checks and balances similar to a constitutional democracy.

⁴ The NPM and opponents of shared governance in the debate that marked the other side of Atlantic supports the use of simplified P-A models that operate at essentially two levels: external (referring to the relationship between the state and the universities) and internal (the relationship among different constituencies within the university). In the first case, universities are seen as the agents of the state and therefore should be provided with clearly stated goals and controlled through the introduction of pay-for-performance measures (Bleiklie, 1998). The second case refers to the internal organization and, specifically, to the definition of a clear chain of command in which the rector/president (externally appointed) acts as principal of the deans/DCs, who, in turns are the agents that should respond to him/her.

The presence of different theoretical approaches corresponds to the mixed empirical evidence about the relationship between university performance and democracy in the decision-making process. The early contribution of McCormick and Meiners (1988) finds that the concentration of control in the hands of administrators is associated with better performance in terms of decision quality, while faculty governance leads to worse decisions. A subsequent work by Brown (2001) criticizes McCormick and Meiners' work for using a single measure of "governance" based on the faculty participation in different decisions. He then finds that faculty participation in decisions regarding academic issues leads to higher-quality decisions, but administrator control over financial decisions and day-to-day management is desirable. A further work that focuses on the financial performance of universities (Cunningham, 2009) finds that faculty governance, serving as a monitoring tool for administrators' operations, is correlated with higher performance when associated with faculty personnel decisions and student affairs, while faculty involvement in financial planning and administrative personnel decisions weakens institutional performance. Kaplan (2004) tests the claim that faculty governance yields decisions that are favorable to faculty members and not in the interests of the institution and finds a weak effect of faculty governance on the financial performance of (Kaplan, 2004).⁵

⁵ Other empirical studies have focused on the relationship between the degree of universities' autonomy from the state and performance. While this issue has an impact on the governance of academic transactions, affecting the incentives to invest and leading to principal-agent and moral hazard problems?, in this paper, we focus more on the checks and balances that mark the internal allocation of authority. However, interested readers can see Volkwein (1986a, 1986b, 1987, 1989), Volkwein and Malik (1997) and Aghion et al. (2010).

To go deeper in the debate outlined above, in this paper, we offer a different theoretical interpretation and related empirical evidence on the role of governance in affecting research performance within universities.

Our theoretical perspective on university governance is grounded in the theory of the firm. However, we extend it to account for the problem of coordinating transactions characterized by multiple investments and complementary resources in the context of a unilateral allocation of authority. In this context, shared governance - vs. autocracy - becomes a coordination device that, as noted by Masten (2006), may exceed the benefits of unilateral allocation. Following Williamson (1975,1986) and Aoki (2010), we stress the role of human cognition within the university context and the primary role of governance mechanisms to enhance the pattern of interaction that exists between cognitive assets. We argue that universities can be interpreted as teams of individuals who hold the essential and complementary cognitive assets for conducting research and teaching activities and undertake specific investments whose main effect is to increase human cognitive assets, which can be seen as the fruit of specific investments in knowledge.⁶ The allocation of authority affects both the patterns of specific investments and the interaction among agents who hold human cognitive resources, consequently affecting the performance of academic activities. Thus, the governance of academic transactions should be characterized by a shared approach to sustain the mutually beneficial

⁶ Obviously, other types of specific investments exist, such as equipment for certain types of research or medical universities. In this paper, we focus on the importance of human capital investment.

opportunities of cooperation.⁷ Accordingly, we hypothesize that governance mechanisms that mirror the relationships among essential cognitive resources and protect specific investments in human capital perform better.

To empirically analyze our hypothesis, we use original data collected through a wide-ranging survey conducted among Italian universities in 2015. We find that shared decision-making processes are correlated with better performance.

In Section 2, we develop our theoretical argument. In Section 3, we present our data describing the construction of variables used in the empirical analysis and show the empirical results. We then discuss caveats and conclusions in Section 4.

2 CORPORATE GOVERNANCE AND PERFORMANCE

2.1 THE THEORETICAL BACKGROUND

The new-institutional theory and Aoki's view

In the tradition of the new institutional economic theory of the firm, grounded in the property rights approach and transaction cost economics, firms are intended as means to govern economic transactions through hierarchy vs. market coordination (Coase, 1937). When contracts are incomplete and entail specific investments, opportunistic behavior can affect the distribution of value among the parties through exploitation of the unilateral or mutual dependence that investments create in their (idiosyncratic) relationships (Williamson, 1986). Under these assumptions, market transactions are

⁷ As Masten shows, US research universities require democratic governance as a commitment against potential opportunistic behaviors that can expropriate the benefit of faculty members' investments (Masten, 2006).

doomed to failure in terms of efficiency loss. The normative solution proposed by the new institutional theory suggests a mechanism based on the allocation of authority (Williamson, 1975, 1986, Grossman and Hart, 1986, Hart and Moore, 1990; Hart, 1995; Hansmann 1988, 1996). Authority demarcates firms from markets (Simon, 1951; Arrow, 1974) and is understood as the right to decide on matters not covered by the ex-ante contract (residual rights of control) that affect the distribution of the value jointly produced. The optimal allocation of property rights in contexts of unforeseen contingencies and relation-specific investments is a matter of the parties' incentives (Grossman and Hart, 1986; Hart and Moore, 1990). Specifically, authority should be assigned to the subject who has the opportunity to make the specific investment in order to maintain the investment incentives. However, in the presence of multilateral specific investments, the unilateral allocation of authority does not prevent the "abuse of authority" (Sacconi, 1999, 2000, 2011a). In fact, the subject endowed with authority can protect him/herself and expropriate the benefit of the joint surplus from other parties. In this context, unilaterally allocating authority is not efficient as long as it provides the corrective incentives to the party with authority but prevents the other parties from performing specific investment at an optimal level (Grossman and Hart, 1986). That is, the possibility of ex-post bargaining and reallocation causes suboptimal results. Accordingly, the discretionary power of the party with the authority should be counterbalanced by a commitment to respect the legitimate interests and rights of all the stakeholders. The respect of this commitment is guaranteed by governance and accountability measures, e.g., in the form of participation and information rights in the decision-making process.⁸

⁸ For a deeper discussion of how authority can be conceived as the set of rights and duties that protect the investments undertaken by the parties that participate in the joint production, see Sacconi (2010), Fia and Sacconi (2018).

Another way to interpret the role of corporate governance - and in particular, the role of shared governance in the case of productive organizations, such as firms - has been provided by Aoki's conception of corporations as an *associational cognitive system (or group-level cognitive system)* among the cognitive assets of investors, managers and workers (physical asset: PHA; management cognitive asset: MCA; workers' cognitive assets: WCA) (Aoki, 2010). In this view, corporate governance is seen as a means to sustain the *organizational architecture*, i.e., the underlying relationships among cognitive assets and the pattern of interaction among the assets, which permits joint production. In particular, in the case in which the cognitive assets of managers and workers are mutually essential, the managers need the cooperation of the workers to be able to use the physical assets in a productive way; at the same time, the latter need the strategies of the managers to use their cognitive assets (Aoki, 2010). This mutually indispensable relationship is therefore of primary importance because, as claimed by Aoki, neither party can benefit from control over physical assets (PHA) until mutual cooperation is achieved. In particular, cooperation is achieved through a process of codecision-making between the holders of essential cognitive assets and where the owners of physical assets take a role of supervision. In conclusion, shared governance that favors cooperation among an organization's stakeholders provides incentives for the contribution and development of strategic assets.

2.2 THE ACADEMIC CONTEXT

We argue here that specific investments and the relationships among cognitive resources are the fundamental elements to derive governance considerations for the allocation of authority within academic institutions. In fact, the allocation of authority sustains the underlining organizational architecture that characterizes academic interactions and affects the distribution of the benefits that

derive from team production in the context of contract incompleteness. The idea is that the specific investments in universities are undertaken to different degrees by various stakeholders, including professors, researchers and administrative staff. Multiple specific investments are fundamental for the production of research, teaching and third mission activities and simultaneously provide individuals with competencies that are coessential for making decisions that affect the value of the investments and the distribution of the resulting joint surplus.

Specific investments

With respect to faculty and researchers, the specificity of the investment is here mainly intended as investment in human capital with respect to a scientific research program that restricts alternatives and reduces mobility towards other programs. A research program requires a commitment that may be held for years before achieving results and whose early interruption may require high sunk costs. Furthermore, most research programs require teamwork; hence, a professor may need the help of various individuals to make a research project valuable. This involves the investment of time and effort in a project that, once approved by an institution, is difficult to replicate elsewhere. To be more precise, a research program involves a high initial human capital investment, e.g., specific language, basic assumptions, and heuristics, that is specific to the team working on that program and cannot be moved to a different program. Similarly, mobility towards a similar program is theoretically possible, but it can be costly, e.g., moving an entire team from Italy to the US may incur large costs. Additionally, technical-administrative staff undertake specific investments linked to the complexity of the work environment. The staff must, in fact, learn highly specific processes connected to the complexity of the university system, i.e., the specific administrative part of a large research program, training activities and general student organization.

Coessentiality and organizational structure

The coessentiality within universities can be explained by referring to the notion of distributed knowledge, defined as “knowledge that is not possessed by any single mind but belongs to a group of interacting agents, somehow emerges from the aggregation of the (possibly tacit) knowledge elements of the individual agents, and can be mobilized for productive purposes” (Foss and Michailova, 2009, p.109). Furthermore, “knowledge still ultimately resides in the heads of individuals; however, when this knowledge is combined and ‘aggregated’ in certain ways, it means that considered as a system, a set of agents possesses knowledge that they do not possess if separated” (Foss and Michailova, 2009, p. 119). The role of faculty members seems to be fundamental because they are holders of knowledge necessary to evaluate decisions on curriculum, new research and teaching programs and general faculty decisions. Administrators, on the other hand, have competences that are necessary for addressing financial matters (Brown, 2001). At the same time, different subjects contribute to the production of research and training, for example, the set of necessary competences of technical-administrative staff, professors and researchers in the management and development of research activities. Moreover, looking at the relationship between advanced training (PhD students) and research, it is clear that the cognitive resources of students and professors are also mutually essential to the production of high-quality services.

Governance model and performance: the theoretical hypothesis

As noted in section 2.1, in the presence of contract incompleteness and multiple specific investments, the unilateral allocation of authority does not prevent the abuse of authority. This, in turn, does not guarantee the optimal incentives to undertake the investments or favor cooperation among coessential resources. In fact, the idiosyncratic nature of the (cognitive) resources in universities with

respect to the topic and the research program creates the possibility of the expropriation and/or destruction of investments. The combination of human resources within research teams working on a research program generates interdependencies and joint productivity. If one joins a team and invests time and effort in specializing for the team's needs, becoming coessential with respect to the other members of the team (e.g., acquiring skills and knowledge specific to that team/research program), or if a team of coessential individuals is created to achieve a certain research program and at a certain point, the team lacks the resources to survive (e.g., the researchers leave because they cannot be hired), the effect is the loss of investments made that could have yielded results and cannot be recovered.⁹ For example, let us consider the case in which the leader of a research team cannot affect the decisions about the resource allocation for a research program or for new hires/career advancements. The teams' members may lose the benefit of their investments to those who hold the

⁹ These considerations can be also extended to specific investments concerning specific applications; e.g., in universities committed to applied research, specific investments may be undertaken to build up university-industry relationships for technological advancements. Examples are related to the demand for scientific knowledge aimed at technological application, which is backed by specific investments of researchers and firms. The governance of these transactions can occur through various types of university-firm relationships, such as contracts for services (i.e., professional consultancy), patenting, or venture capitalism (see Antonelli, 2005, Freitas et al. 2013). In the absence of a university structure devoted to technological transfer activity and support, the specific investment undertaken by the scientists can hardly be transferred; thus, scientists' investment is subject to potential abuses. Some types of specific investments involved in HE deal with scientific research that may also require very expensive equipment, laboratories, and personnel that cannot be easily replicated elsewhere except at large cost. In addition, research that addresses a particular local issue (for example, the state of the local economy) may be location specific, as may be courses designed for a particular institution's programs (e.g., a PhD program linked to a broad research project or to local economic needs).

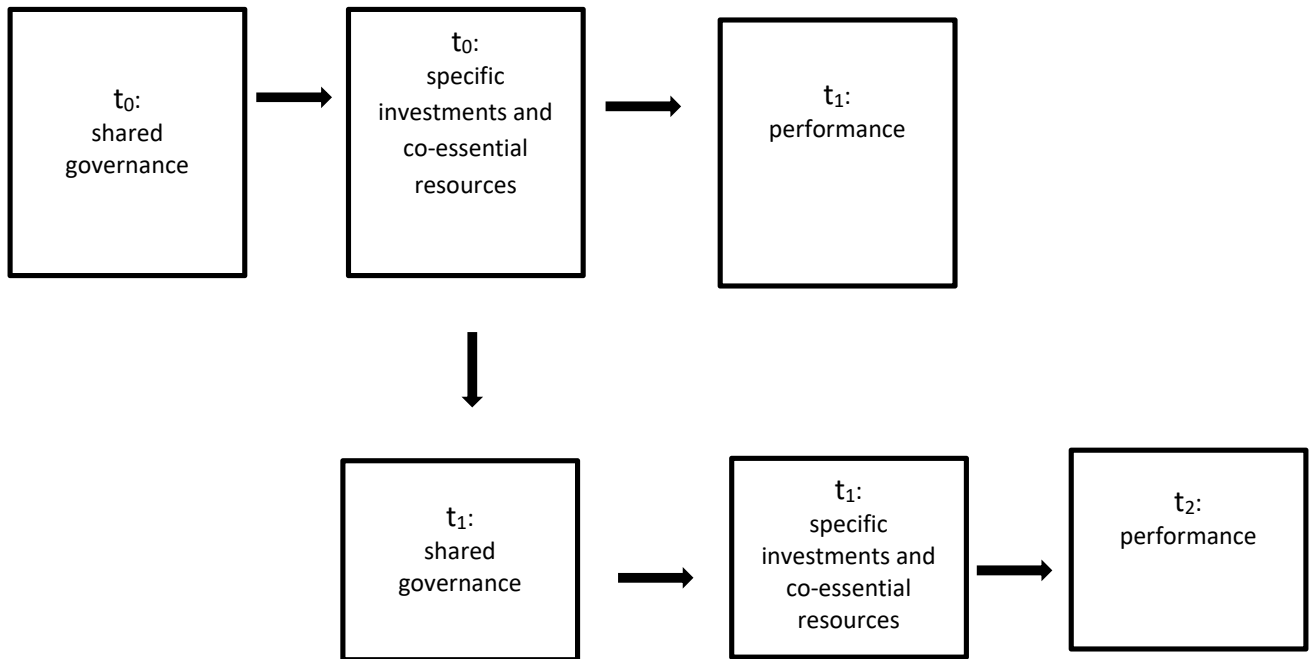
decision-making authority and have different interests. This may prevent the team members from investing in the research program at an optimal level, which in turn undermines efficiency.

Therefore, we hypothesize that *the governance model affects the performance of academic institutions* and that it performs better when the decision-making power is distributed among different members of the organization rather than being concentrated in the hand of a single agent. In fact, the undertaking of specific investments and the maintenance of coessential resources is the result of a governance structure that ensures adequate incentives and favorable performance. Decentralized and shared decision-making power provides the necessary counterbalance that reflects the characteristics of cognitions and investments, thus preserving the incentives to undertake investments and supporting the cooperation among the members of the organization by protecting from possible abuses.

Starting from the previous arguments, Figure 1 illustrates the theoretical connections between the governance model, specific investments and coessentiality of resources and performance, highlighting the temporal dimension. Given an underlying organizational architecture made of coessential resources and individuals undertaking specific investments sustained by a shared governance mode at t_0 , we expect to see better performance at t_1 (for example, concerning publications and research projects) than in a case in which governance is concentrated (Figure 1, upper part). Moreover, following Masten (2006), we suppose that there is a virtuous circle between shared governance, specific investment/coessentiality among human resources and performance. In fact, if a set of individuals undertake specific investments and have complementary essential human resources in t_0 , they tend in t_1 to build or maintain (if they have the freedom to decide) a governance architecture that protects these investments, thus reflecting complementarity among resources (for a similar argumentation based on political system theory, see Masten 2006) (Figure 1, lower part).

Figure 1. The relation between governance, coessential resources, specific investments and performance

Specific investments undertaken at t_0 , if supported by shared governance, induce good performance at t_1 . They also contribute to the maintenance or the emergence of shared governance at t_1 . Shared governance promotes the incentive of subjects holding coessential resources to invest and cooperate, and this, later on (at t_2), favors the continuation of good performance.



3 EMPIRICAL ANALYSIS

Our empirical analysis is aimed at providing evidence on the theoretical model discussed in the previous section. To do so, we investigate the relationship between different models of governance and proxies of performance. Although the effect of governance on performance is mediated by the level of specific investment and the management of coessential resources, our choice is driven by a main reason and validated by theoretical considerations. On the one hand, the difficulty of finding reliable proxies for the level of specific investments or for the degree of coessentiality prevents us from including these elements in our empirical model. On the other hand, our theoretical arguments clearly identify the effect (despite being mediated) of shared governance on performance.

3.1. THE UNIT OF ANALYSIS

The analysis is focused on Italian university departments. The small number of Italian universities (65 public universities and 18 private universities) led us to avoid performing a multivariate analysis on this sample. Therefore, to control for variables that may affect the relationship between governance and performance in HE institutions, we opted to focus on the 911 university departments belonging to Italian universities. From a theoretical point of view, we deem that the department can be seen as the lifeblood of academic work (Dearlove, 1997) and is where the research team gathers and joint production is carried out. In particular, departments are aimed at developing scientific research, teaching and training activities and third mission activities. Moreover, serving as a representative unit in academic government (Moodie and Eustace, 2011), they represent the first building block of university governance. They consist of not less than 35 members, including professors, temporary researchers and lifelong researchers (minimum 40 members for major universities), departments can be viewed as single coalitions but more usually as a set of subunits (subcoalitions) engaged in team production. Within departments, the stakeholders, faculty members in particular, may undertake specific investments to carry out research, teaching and third mission activities. Whenever the individuals are not protected by contracts or by their mobility (see also Masten, 2006), they require protection in terms of the governance architecture to achieve the benefits from their investments. At the same time, when such resources are reciprocally essential, a governance system that favors cooperation versus a hierarchical top-down chain of control is able to sustain the underlying relationship that fosters team production. Therefore, at the departmental level, checks and balances serve to protect department members who undertake specific investments (professors and researchers as well as administrative staff who are represented in the department council) from the potential abuses of a powerful department chair. Namely, the strong decision authority of the department chair

can allow the maintenance of the chair's own competences, e.g., in terms of innovative capacity, but to prevent such authority from being detrimental to the specific investments of the other members of the department, the department chair must be placed side by side with influential team representatives of different research groups (typically professors) to prevent the potential abuse of authority.

3.2. THE DATA SOURCE

Our database includes governance indexes describing the patterns in the allocation of decision authority, proxies of the performance at the departmental level and control variables (see Section 3.3. below). The previous variables are from different sources.

Governance models - The survey on Italian universities

Because no measure of the locus of authority after the recent reform existed for Italian universities, we surveyed all 83 Italian universities. These universities are spread across the 20 Italian regions and vary in terms of the number of students, affiliation (private versus public), and presence of different research and teaching disciplines. The investigation was conducted between June and November 2015 and was based on computer-assisted web interviewing (CAWI).¹⁰ A total of 911 questionnaires were administered to the department chairs of the Italian universities, with 835 questionnaires addressed to the department chairs of public universities and yielding a response rate

¹⁰ The survey on Italian Universities was conducted with the scientific and financial support of EconomEtica (an inter-university research center based in Milano Bicocca University), the department of Sociology and Social Research at the University Milano Bicocca, and the POLIS department of the University of Piemonte Orientale, and it was sponsored by the Conference of Italian Universities' Rectors (CRUI).

of 38.7%, and with 76 questionnaires addressed to the department chairs of private universities and yielding a response rate of 27.6%.

The survey questions are divided into five sections: A) General structure/institutional bodies. The focus here is on defining the role of different stakeholder categories operating in the academic senate. B) Decision-making process at the institutional level per decision type. This section is inspired by the survey conducted by the American Association of University Professors that was used in Masten's analysis (Masten, 2006) and aims to capture the allocation of decision authority by decision type. C) General structure at the departmental level. This section is aimed at providing an overall picture of the main characteristics of scientific heterogeneity, resources, personnel, staff and so on. D) Decision-making process at the departmental level. This section analyzes the decision-making process within the department council. E) Overall impression of the mandate of the department chair. This section captures qualitative information of the department chair's perception of his/her mandate.

Indices of performance

As proxies of performance, we use the index elaborated by the Italian Agency for the Evaluation of Universities and Research Institutes (ANVUR) based on the research products published by members of the departments of public Italian universities in 2016 and the ranking of the Italian Social Investments Research Facility (CENSIS), from which we derive an index based on the success in receiving funding for research projects (see Table A1 in the appendix for a detailed description and explanation of the data sources).

Control variables

Control variables have been collected by or elaborated from different sources. University characteristics were provided by ANVUR, CINECA (a consortium of universities operating in support of the Italian Ministry of Education, University and Research: MIUR) and other selected survey items, and the context variables were taken from the Italian National Institute of Statistics (ISTAT), Italian Ministry of Economy and Finance, and the Ministry of the Interior.

3.3 THE DESCRIPTION OF VARIABLES

Governance indexes

Italian university departments have their own deliberative body that addresses functions related to teaching and research. The department council is the governing unit at the departmental level, and formal decisions within departments should be approved by the council. It is composed of the department chair, full professors, associate professors, researchers, temporary researchers, technical-administrative staff representatives, and student representatives.¹¹ The department chair

¹¹It is worth noting that the actors involved in the decision-making process do not have the same influence on all the decisions undertaken. For example, full professors are endowed with decision-making rights on appointments and promotions concerning all faculty. Conversely, researchers do not have decision-making rights on appointments and promotions concerning full professors and associate professors, and technical-administrative staff representatives and student representatives do not have decision-making rights on appointments and promotions concerning faculty.

is assisted by an executive committee,¹² and the presidents of degree courses represent another important category for teaching activities at the departmental level.¹³

The process of construction of the governance indexes that identify the locus of decision authority was an in-depth process of aggregating core information provided by selected survey items. The questions we used to build our governance indexes at the departmental level asked the respondent about the perception of the *de facto* influence of various categories of stakeholders in the decision-making process of the department council. The department chairs were asked, "Beyond the provisions under the law, please characterize your impression of the level of influence of the categories listed

¹² Presidential Decree 382/1980 art 84 established the department chairs, d department council and executive committee as the governing units of the departments. The executive committee is composed of at least three full professors, three associate professors and two researchers, the director and an administrative secretary with a consultative vote. The executive committee supports the department chair in the implementation of the department council's deliberations and activities. Among the departments' activities are the preparation of funding requests, annual research plan of the department, preparation of an annual reports on the results, organization of the means for conducting research and teaching activities, and proposals for new hiring.

¹³ The hypothesis still holds in the case where the agent endowed with decision-making power is elected among faculty members, as in the Italian universities. In fact, if the power is concentrated in the hand of the elected leader (e.g., a department chair) and is not counterbalanced by the controlling powers of others, the possibility of keeping the department chair accountable (and eventually being replaced or not re-elected) is precluded. Obviously, the more the power is distributed, the more re-election escapes direct control, and this may expose the leader to the risk of corporatist bargaining. However, the idea of an enlightened autocrat is not sustainable, and therefore, it is always better that the powers in an organization are balanced.

below in the decision-making process in the department council: department chair, department executive committee, presidents of degree courses, full professors, associate professors, researcher, temporary researcher, technical-administrative staff representatives, student representatives". The possible responses for each category were "a great deal", "much", "enough", "little", and "none". Therefore, our indexes do not simply replicate formal authority (even if they are obviously affected by it); rather, they capture the allocation of substantial authority in the decision-making process that is not always ascribable to formal voting rights. This methodology for understanding the implementation of governance according to the informed respondents' perceptions of how power is allocated beyond the outline in the formal rules, represents a consolidated methodology in university governance studies (Kaplan 2004, Masten 2006).¹⁴

At the end of the aggregation process, we identified six indexes at the *departmental level*: *Leader*, *Balanced hierarchy*, *Representative*, *Multiple balances*, *Unstructured hierarchy* and *Flat* (Table 1).

¹⁴ Our governance indexes are aimed at capturing the degree of shared governance at the departmental level, from an extreme in which the authority is essentially concentrated on the department chair to the other extreme in which it is widely spread among different stakeholder categories. Following our theoretical argument, we expect that departments characterized by very concentrated governance perform worse. Even though bias related to a "demand effect" on respondents' answers may exist, we argue that it would not provide empirical support to our theoretical arguments. In fact, department chairs belonging to departments with high performance should be more willing to reveal themselves as the "leader" of the department. Vice-versa, the department chairs of departments that do not have high performance may tend to declare themselves as less influential than they actually are. Both these effects tend to contradict the empirical evidence that supports our theory.

Table 1. Independent variable definition: governance indexes at the departmental level

Variable	Description
<i>Leader</i>	The department chair (having more than “enough” influence) is more influential than any other stakeholder category (having no more than “enough” influence).
<i>Balanced hierarchy</i>	The department chair and full professors are endowed with decision authority (having more than “enough” influence) as long as the remaining members do not have more than “enough” influence.
<i>Representative</i>	The department chair together with one of the other representatives, that is, the executive committee or presidents of degree courses, has strong influence (having more than “enough” influence) in the decision-making process as long as the remaining members do not have more than “enough” influence.
<i>Multiple balances</i>	The department chair together with at least two categories among full professors, executive committee or presidents of degree courses have more than “enough” influence in the decision-making process, as long as the remaining members do not have more than “enough” influence.
<i>Unstructured hierarchy</i>	The index groups two possible cases: at least one stakeholder among researchers, temporary researchers, technical-administrative staff representatives, and student representatives has more than “enough” influence, irrespective of the degree of influence of the other categories; full professors, executive committee or presidents of degree courses have more than “enough” influence in the decision-making process, as long as the department chair does not have more than “enough” influence.

<i>Flat</i>	The index groups two possible cases that capture different forms of participation by including influence thresholds of various stakeholders. First, department chairs with full professors, executive committee, presidents of degree courses, and associate professors have more than “enough” influence. Second, department chairs with full professors, executive committee, presidents of degree courses and at least one other category have the same level of influence.
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Leader indicates the case when the department chair is more influential than other stakeholder categories and represents the *de facto* concentration of authority in the hand of the departmental leader, suggesting a lack of protection for human capital specific investments.

Balanced hierarchy indicates a governance structure in which underlying joint-producing subteams are represented in the decision-making process. Specifically, the influence of the full professors as subunit representatives provides a balance to the department chair’s decision authority. This index captures a less concentrated allocation of power in the decision-making process with respect to the *Leader* index outlined above and suggests a governance pattern in which the subjects that have substantial investment in human capital at stake (full professors) have a strong role as team representatives.

Representative identifies a situation in which the department chair together with the presidents of degree courses *or* the executive committee are the most influential individuals. This captures an allocation of authority in which the authority of the department chair is balanced by stakeholders who, because of their institutional role, represent various subteams. They belong to the different courses (in

the case where the presidents of degree courses are considered) or to the department as a whole (in the case where the executive committee is considered). This more teaching-oriented or program control governance structure is still consistent with the logic of protecting specific investments, as innovation in programming and developing courses of study involves a substantial amount of specific investments, idiosyncratic relationships and complementary cognitive human assets. In fact, within research universities, teaching is strictly related to research activities.

Multiple balances represents a governance structure in which balances are even higher with respect to the previous situations represented by the *Balance hierarchy* and *Representative* indexes. In this case, more than a single category of stakeholders provides a balance to the department chair's decision authority. This represents a situation in which the specific investments of multiple subteams operating in the department can be protected against the risk of abuse of authority through the representation of the different interests at stake.

It is worth noting that the three indexes *Balanced hierarchy*, *Representative* and *Multiple balances* represent three different ways to implement checks and balances to the authority of the department chair.

Unstructured hierarchy represents a situation in which the authority of the department chair is not clearly recognized within the department. This happens because other categories have more power than the department chair or because a category that usually does not act as a subunit representative has a relevant power position. This may suggest that interests are represented in an unstructured manner and decisions may be made on the basis of temporarily influential individuals rather than on representation mechanisms.

Flat indicates a more decentralized governance pattern where no clear distribution of authority exists. The unclear allocation of authority may generate the perception in the different subunit teams that they do not have any substantial authority. Therefore, this allocation of authority may not be effective in incentivizing specific investments.

Table 2 provides descriptive statistics concerning the presence of departments characterized by the different governance models within our sample. Note that the dummy variables for the governance indexes are equal to zero for 36 departments; therefore, these departments cannot be classified within our governance indexes.

Table 2: Decision-making authority at the departmental level
(number of departments and percentage)

Leader	Balanced Hierarchy	Representative	Multiple balances	Unstructured Hierarchy	Flat	Non classified
71 (20.64%)	79 (22.97)	36 (10.47)	62 (18.02)	48 (13.95)	12 (3.49)	36 (10.47)

The picture painted by this categorization and illustrated in Tables 1 and 2 shows that in a system of academic self-governance, one can find considerable variation in the allocation of authority.

Performance indexes

We use two performance indicators related to research activities. The first indicator (*Publications*) concerns productivity in publication activity. This indicator is particularly suitable for studying the determinants of productivity at the departmental level. In fact, it takes into consideration both the heterogeneity in the composition of departments in terms of academic fields and disciplines and the differences in the results of the evaluation of the research products of researchers belonging

to different academic disciplines (see Table A1). The second indicator (*Projects*) concerns the success in obtaining financing for research projects. Tables A1 and A2 in the appendix provide a description of the two indicators and descriptive statistics, respectively.

Control variables

In addition to the indexes of governance and performance, a number of controls are considered in our analysis. We control for institutional characteristics, such as heterogeneity (number of different discipline-based departments, distinction between hard and social science departments), complexity and dimension of the university the departments belong to (number of departments, number of students and faculty members, affiliation - public or private); context variables at the territorial level, such as income per capita, population and population density in the area and proxies linked to aspects concerning immaterial factors capable of favoring cooperation and development in the area, such as participation in the referendum and the recycling rate; geographical location of departments, distinguishing between departments located in northern, central and southern Italy and the islands. Table A1 describes the control variables, and Table A2 provides descriptive statistics.

3.4. RESULTS

We now present the results from multiple regression analysis, in which the performance variables are regressed on dummy variables for each of the governance indexes and control variables.

After categorizing each department using the indexes presented in the previous section (*Leader*, *Balanced hierarchy*, *Multiple balances*, *Representative*, *Unstructured Hierarchy* and *Flat*), we incorporate them in the model as qualitative independent variables (dummies). The omitted index is *Leader*, taken as the base group. The dependent variables are the two performance indexes at the

departmental level: *Publications* and *Projects*. Note that we drop from the analysis the departments that are not classified in our governance indexes. The results are presented in Table 3.

Equation 1 considers the index based on productivity in terms of publications as a dependent variable. The positive significant values assumed by the coefficients of *Balanced hierarchy*, *Representative* and *Multiple balances* show that departments with a more democratic pattern of decision authority perform better in terms of the *Publications* index than departments whose governance index is *Leader*. Namely, the governance *Leader* performs worse than the case in which the department chair cooperates with at least one other stakeholder category among full professors, executive committee or presidents of degree courses. Moreover, the t tests on the equality of the coefficients of *Unstructured Hierarchy* and *Flat* and the other three indexes - *Balanced hierarchy*, *Representative* and *Multiple Balances* - reveal that departments have a worse performance when the authority of the department chair is counterbalanced by many (more than three) categories of stakeholders (*Unstructured Hierarchy*) or when the authority of the department chair is not clearly recognized within the department (*Flat*), as when the authority of the department chair is counterbalanced by one or two categories of stakeholders among full professors, executive committee or presidents of degree courses.¹⁵ In other words, governance models in which the authority of the department chair is counterbalanced by the full professors and/or by the president of degree courses and/or the executive committee lead to better performance in terms of publications than the models in which the department chair has greater authority than all other stakeholder categories, in which

¹⁵ The exception is the lack of significance of the t test on the equality of the coefficients of *Multiple balances* and *Unstructured hierarchy*.

more categories of stakeholders assume greater authority in the decision-making process, or in which the authority of the department chair is not fully recognized within the department. With respect to the control variables, there is a significant and negative effect of the number of departments within the university on the index relating to the number of publications. Conversely, a positive effect emerges with respect to the recycling rate, which is taken as a proxy for immaterial factors capable of favoring cooperation and development in the territorial context of the department and the two regional dummy variables that identify departments located in northern and central Italy.

Equation 2 concerns the performance variable for the success in obtaining financing in research projects within different programs. We do not find any difference between our governance indexes with respect to this variable, which seems to be particularly affected by the type of department, with hard science departments obtaining more financing than social science departments. Additionally, with respect to this performance index, departments located in northern and central Italy perform better than those located in the other regions.

Table 3. OLS results at the departmental level

Equation	1 (OLS)	2 (OLS)
	Dependent variable	
	Publications	Projects
Balanced hierarchy	15.624** (6.238)	2.372 (1.576)
Representative	20.006** (7.880)	3.291 (2.017)
Multiple balances	16.037** (7.288)	0.411 (1.821)
Anarchy	3.675 (7.253)	1.461 (1.839)
Flat	-13.444 (13.034)	1.442 (2.999)
Hard_science_department	-0.348 (4.591)	3.215*** (1.164)
Plu_dip	-1.873 (1.339)	-0.053 (0.338)
Enrolled_1314	0.000 (0.001)	0.000 (0.000)
Faculty_14	0.032 (0.022)	0.006 (0.006)
Num_dip	-2.206*** (0.751)	-0.083 (0.188)
Income_pc	0.001 (0.001)	0.000 (0.000)
Referendum	0.095 (0.290)	-0.015 (0.074)
Recycling_rate	0.463* (0.272)	0.020 (0.068)
Pop_province	0.000 (0.000)	0.000 (0.000)
Density	-0.001 (0.002)	0.000 (0.000)
North	28.011*** (9.773)	5.250** (2.522)
Central	25.329*** (9.389)	6.683*** (2.422)
Affiliation ^a		4.294 (5.576)
Constant	-2.789 (17.104)	68.207 (7.069)

Table 3 - continues

t test on the equality of the coefficients <i>Balanced hierarchy</i> and <i>Representative</i>	-4.382 (7.544)	-0.919 (1.956)
t test on the equality of the coefficients <i>Balanced hierarchy</i> and <i>Multiple balances</i>	-0.413 (6.893)	1.961 (1.748)
t test on the equality of the coefficients <i>Balanced hierarchy</i> and <i>Anarchy</i>	11.949* (6.956)	0.911 (1.790)
t test on the equality of the coefficients <i>Balanced hierarchy</i> and <i>Flat</i>	29.069** (12.928)	0.930 (2.968)
t test on the equality of the coefficients <i>Representative</i> and <i>Multiple balances</i>	3.970 (8.324)	2.880 (2.116)
t test on the equality of the coefficients <i>Representative</i> and <i>Anarchy</i>	16.331* (8.504)	1.830 (2.189)
t test on the equality of the coefficients <i>Representative</i> and <i>Flat</i>	33.451** (13.769)	1.849 (3.223)
t test on the equality of the coefficients <i>Multiple balances</i> and <i>Anarchy</i>	12.362 (7.801)	-1.050 (1.978)
t test on the equality of the coefficients <i>Multiple balances</i> and <i>Flat</i>	29.481** (13.202)	-1.031 (3.059)
t test on the equality of the coefficients <i>Anarchy</i> and <i>Flat</i>	17.119 (13.341)	0.019 (3.111)
Observations	264	281
Adj R-squared	0.2684	0.153

^a *Affiliation* is not included in equation 1 because the *Publication* variable is available only for public universities.

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

4 DISCUSSION

Anecdotal evidence, together with still few economists' studies on the institutional environment, seems to suggest that a standard framework, i.e., simplified principal-agent models, can be applied to the academic context. In this paper, we suggest a different approach. Our starting point is the pioneering work by Masten (2006), which suggests an alternative theoretical framework grounded in the new institutional theory of the firm and political system theory. The main idea is that individuals operating in universities face mutually beneficial opportunities for cooperation. In a context in which academic transactions are subject to the problem of contract incompleteness, causing the renegeing and hazardous problem, such beneficial opportunities are taken effectively thanks to the allocation of decision rights. Namely, authority represents the effective power to influence the decisions that affect such opportunities. Along the same line of reasoning, in our theoretical discussion based on Williamson and Aoki's view of the firm, we suggest that a governance structure that takes into account the characteristics of academic transaction and the relationships among cognitive resources is of primary importance for achieving good performance.

Many academics in a university undertake specific investments, and the joint action of academic groups entails both cooperative advantages and conflicting interests on distributive issues. Moreover, whoever controls the decisions in a university, whether an academic, a group of academicians, or an external stakeholder, e.g., private investors, public agencies, local government officials or politicians (such as the Ministry of Higher Education), may try to expropriate these investments by renegeing on incomplete contracts and commitments that cannot be protected from opportunism. Anticipation of the effect of abuses of authority convinces academicians that undertaking specific investment and mutually advantageous cooperation is not worthwhile. Hence, the inherent institutional form of

university governance requires shared governance and some level of participation in the decision-making concerning the allocation and distribution of resources (affecting a specific investment) for all the academic groups that are responsible for significant specific investments and essentially complementary for the achievement of the university missions. Sharing powers and participating in the decision process allow the relevant academics to counterbalance any attempt of the stakeholders in a position of authority to abuse their position. This, in turn, has positive effects on the human resource investment and cooperation and finally on scientific productivity. This view in this work is applied to the governance of the basic organizational unit of a university, the department, where specific investments and complementary cognitive human resources are mainly found.

The results presented in Section 3 point towards a significant positive effect on departmental performance in terms of the number and quality of publications under a governance model where the decision authority is shared among the department chair and the holders of essential resources for conducting research and teaching activities. Vice versa, the more the decision authority is concentrated in the hand of the department chair, the worse the performance.

The theoretical arguments presented above and in Section 2 suggest that the decision-making power of the department chair needs to be counterbalanced by the power of other faculty representatives to sustain the investment in human capital and the interdependent nature of cognitive resources. In fact, publications, as the result of research activities, are a typical example of team production among the holders of different human resources. Moreover, publications can be interpreted as the results of specific investments and coessential resources that require protection and support to be productive. Then, we can argue that a shared governance structure in which team members' representatives influence the decision-making process (counterbalancing the department

chair's authority) supports both specific investments and the underlying organizational architecture among cognitive resources.

We now come to a second result of our empirical analysis. The balancing of authority must have certain characteristics to improve performance. In fact, performance is not positively affected by governance structures in which many (more than three) categories of stakeholders have the same authority as the chair or in which the authority of the department chair is not clearly recognized within the department. This suggests the need for a governance structure in which the distribution of influence is coherent with the specific investments and coessential resources. That is, granting great influence to many categories in the decision-making process may have detrimental effects as long as the decentralized power results in an unclear distribution of authority that generates the perception among the different stakeholder categories that they have no substantial authority in the decision-making process.

In summary, the arguments noted above suggest that an optimal pattern for the distribution of decision authority should consider the distribution of the specific investments undertaken and the relationships between cognitive resources. Thus, the checks and balances for counterbalancing the authority of the department chairs must reflect the organizational architecture of the specific investments and the coessentiality of human resources in the joint production within the department.

Our results are particularly relevant in the debate surrounding university governance and HE sector reforms. Specifically, our evidence challenges the HE reform trend in Europe based on the NPM narrative, aiming at transforming universities' internal governance that mirrors archetypical corporate-like structures and uses metrics (e.g., scientific publications) as a key steering device (Aghion et al. 2010,

Ferlie et al. 2009, Amaral et al. 2013). In fact, the NPM narrative emphasizes metrics as the accountability device that legitimates a top-down internal chain of command. In contrast, our perspective recognizes the role of scientific productivity in making universities accountable in terms of their scientific publications,¹⁶ but we do not find that accountability must be connected to a top-down governance structure. The reason is that higher productivity is connected with higher self-control of the department by the academicians who invest their human resources in team production. This promotes a shared governance in which the individuals undertaking the largest specific investments and having complementary cognitive assets have a say in the decision-making process affecting the value of their investment.

Finally, our empirical analysis reveals no positive effect of shared governance on a second proxy of performance, based on the number of financed projects, which seems to be essentially explained by the type of disciplines characterizing the departments (hard vs. social science departments). A possible explanation is that research projects (and in particular those characterized with higher budget) may be more likely to be financed if supported by a large coalition within the department. These coalitions are more likely to emerge in very homogenous departments characterized by the leadership of the department chair.

Future research could shed light on the different mechanisms that drive the effect of the shared governance structure on different activities and performance measures, not only in terms of research projects but also with respect to teaching activities.

¹⁶ At the same time, we acknowledge the limitations of using metrics for evaluating scholars' value; among others, see Seeber et al. (2019), Mueller (2017), Frey (2016), Osterloh (2010).

APPENDIX

TABLE A1: – VARIABLE DESCRIPTIONS AND DATA SOURCES

Variable	Description	Source
Publications	<p>“The ISPD (the name of indicator used for the departmental performance) value assigned to a particular department will be determined on the basis of its positioning in the class of all departments with the same disciplinary composition (i.e., the same structure in terms of SSD (Academic fields and discipline)] of the members) that can be composed by permuting the members present in those SSDs in Italian public institutions on 1 January 2017 (Virtual department 1). ISPD will therefore be obtained only by direct comparison between the departments with the same disciplinary composition, and this comparison will be made in terms of the degree of success in the last VQR (Research Quality Assessment) note].” (from the Methodological note on the calculation of the indicator - https://www.miur.gov.it/dipartimenti-di-eccellenza). “The VQR is divided into 16 Research</p>	<p>ANVUR ranking 2016</p>

	<p>areas; for each area, ANVUR has set up a group of evaluation experts with the task of evaluating the products of the research. The number of products to be proposed for evaluation by research staff varies according to their role and the type of institution, as indicated in the VQR Call for Proposals. The evaluations are based on the peer review method and, for articles in bibliometric areas indexed in the Web of Science and Scopus databases, on bibliometric analysis.” (from http://www.anvur.it/attivita/vqr/vqr-2011-2014/)</p>	
Projects	<p>Average number of research units that have been financed by the PRIN program (research projects of national interest financed by the Ministry of Education University and Research) in the three years of 2009, 2010 and 2012 to the number of full professors.</p> <p>Average financing level obtained from research units within the PRIN program in the three years of 2009, 2010 and 2012.</p> <p>Number of projects submitted for co-financing under the PRIN program to the number of full professors.</p>	<p>CENSIS ranking 2015-2016</p>

	<p>Rate of success in the participation in the PRIN program in the three years of 2009, 2010 and 2012.</p> <p>Research projects funded by the Seventh Research Program and other research projects (Horizon, AIRC, AISM, Cystic Fibrosis Foundation, research Italy - large projects, telethon) to the number of full professors</p> <p>FIRB, Ministry for Foreign Affairs - International agreements, PNRA research Italy - large projects, telethon) to the number of full professors.</p>	
Hard_science_department	Dummy variable taking the value of 1 if the department is related to hard science.	ANVUR 2013, Authors' elaboration
Plu_dip	Number of scientific areas (CUN classification) within the department	ANVUR 2013, Authors' elaboration
Enrolled_1314	Number of students enrolled a.a.13-14 – University level	MIUR Statistics Office 2013-2014
Faculty_14	Number of full professors and associate professors – University level	MIUR Statistics Office 2013-2014
Num_dip	Number of departments – University level	CINECA 2016
Affiliation	Public or private institution – University level	CINECA 2016
Income_pc	Income per capita – 2009 - municipality level	Calculated using income tax data from the Italian

		Ministry of Economy and Finance
Referendum	Participation in the referendum- 2009 - province level	Ministry of the Interior
Pop_province	Resident population as of 31.12.2009 - municipality level	ISTAT
Density	Population density (inhabitants / square km) in 2009 - municipality level	ISTAT
North	University location - North of Italy	ISTAT CLASSIFICATION
Central	University location – Center of Italy	ISTAT CLASSIFICATION

Note. With respect to the control variables at the territorial level, we opted for data at the municipality level when available. Otherwise, we considered the province in which the university is located. MIUR (Ministry of University and Education), ANVUR (the Italian Agency for the Evaluation of Universities and Research Institutes); CINECA (Consortium of Universities operating in support of the MIUR) and other selected survey items for university characteristics; ISTAT (the Italian National Institute of Statistics).

TABLE A2 – DESCRIPTIVE STATISTICS (CONCERNING CLASSIFIED DEPARTMENTS)

Variable	Mean	Std. Dev.	Min	Max
Leader	0.206	0.405	0	1
Balanced hierarchy	0.230	0.421	0	1
Representative	0.105	0.307	0	1
Multiple balances	0.180	0.385	0	1
Anarchy	0.140	0.347	0	1
Flat	0.035	0.184	0	1
Publications	51.511	41.193	0	100
Projects	86.667	10.088	66	110
Hard_science_department	0.526	0.500	0	1
Plu_dip	3.369	1.805	1	11
Enrolled_1314	36255.19	26163.25	752	105885
Faculty_14	1179.536	848.562	3	3555
Num_dip	19.302	13.123	1	63
Affiliation	0.945	0.229	0	1
Value_added	16641.36	3365.149	10409	22360
Referendum	25.259	10.306	10.892	50.431
Pop_province	603989.7	755296.2	28023	2590650
Density	2750.416	2438.505	78.290	8211.308
Recycling_rate	31.723	12.768	4.402	60.829
North	0.464	0.500	0	1
Central	0.253	0.436	0	1

REFERENCES

- Aghion, P., Dewatripont, M., Hoxby, C., Mas-Colell, A. & Sapir, A. (2010), 'The governance and performance of universities: evidence from Europe and the US', *Economic Policy* 25(61), 7 -59.
- Amaral, A., O. Tavares, and C. Santos. (2013). Higher Education Reform in Portugal: A Historical and Comparative Perspective of the New Legal Framework for Public Universities. *Higher Education Policy*, 26, 5–24.
- Antonelli, C. (2005). Models of knowledge and systems of governance. *Journal of Institutional Economics*, 1(1), 51-73.
- Aoki, M. (2010). *Corporations in Evolving Diversity: Cognition, Governance, and Institutions*. Oxford University Press, Oxford.
- Arrow, K. J. (1974), 'Limited knowledge and economic analysis', *American economic review* 64(1), 1-10.
- Bleiklie, I. (1998). Justifying the evaluative state: New public management ideals in higher education. *Journal of Public Affairs Education*, 4(2), 87-100.
- Bleiklie, I., Enders, J., Lepori, B. and C. Musselin (2011). New public management, network governance and the university as a changing professional organization. in T. Christensen and P. Laegreid (eds) *The Ashgate Research Companion To New Public Management*, Ashgate, 161–176.
- Braun, D., and Merrien, F. X. (Eds.). (1999). *Towards a new model of governance for universities?: A comparative view*. J. Kingsley.
- Brown, W. O. (2001), 'Faculty participation in university governance and the effects on university performance', *Journal of Economic Behavior & Organization* 44(2), 129-143.
- Coase, R. H. (1937). The nature of the firm. *Economica* 4(16), 386-405.
- Cunningham B.M.(2009), Faculty: Thy administrator's keeper? Some evidence, *Economic of Education Review*, 28,444-453.
- De Boer, H., Enders, J. & Schimank, U. (2007), On the way towards new public management? The governance of university systems in England, the Netherlands, Austria, and Germany, Springer.
- Dearlove, J. (1997). The academic labour process: from collegiality and professionalism to managerialism and proletarianisation?. *Higher Education Review*, 30(1), 56.
- Deem, R., Hillyard, S., Reed, M., & Reed, M. (2007). *Knowledge, higher education, and the new managerialism: The changing management of UK universities*. Oxford University Press.
- Donina, D., Meoli, M., & Paleari, S. (2015). Higher education reform in Italy: Tightening regulation instead of steering at a distance. *Higher Education Policy*, 28(2), 215-234.
- Ferlie, E., Musselin, C. and Andresani, G., (2008), The steering of higher education systems: a public management perspective, *Higher Education*, 56:325-348.

- Fia, M., & Sacconi, L. (2018). Justice and corporate governance: New insights from Rawlsian social contract and Sen's capabilities approach. *Journal of Business Ethics*, 1-24.
- Foss, N. J., and Michailova, S. (Eds.). (2009). *Knowledge governance: Processes and perspectives*. Oxford University Press.
- Freitas, I. M. B., Geuna, A., & Rossi, F. (2013). Finding the right partners: Institutional and personal modes of governance of university–industry interactions. *Research Policy*, 42(1), 50-62.
- Frey, B. (2016). Withering Academia. *Analyse & Kritik*, 32(2), pp. 285-296.
- Grossman, S. J. & Hart, O. D. (1986), 'The costs and benefits of ownership: A theory of vertical and lateral integration', *The Journal of Political Economy* pp. 691-719.
- Hansmann H.1996, *the Ownership of Enterprise*, Harvard University Press.
- Hansmann, H.: 1988, 'Ownership of the Firm', *Journal of Law Economics and Organisation* 4(2), 263–304
- Hart, O. (1995). *Firms, Contract and Financial Structure*, Clarendon Press, Oxford.
- Hart, O. and Moore, J. (1990). Property rights and the nature of the firm. *Journal of political economy*, 1119-1158.
- Kaplan, G. E. (2004), 'Do governance structures matter?', *New directions for higher education* 2004(127), 23-34.
- Masten, S. E. (2006), 'Authority and commitment: Why universities, like legislatures, are not organized as firms', *Journal of Economics & Management Strategy* 15(3), 649-684.
- Masten, S. E. (2013), 'The enterprise as community: firms, towns and universities', *Handbook of Economic Organization: Integrating Economic and Organization Theory* p. 96.
- McCormick, R. E. & Meiners, R. E. (1988), 'University governance: A property rights perspective', *JL & Econ.* 31, 423.
- Moodie, G., & Eustace, R. (2011). *Power and authority in British universities*. Routledge.
- Muller J.Z,(2017), *The Tyranny of Metrics*, Princeton U.P.
- Neave, G. (2012). *The evaluative state, institutional autonomy and re-engineering higher education in Western Europe: The prince and his pleasure*. Palgrave Macmillan UK
- Osterloh M. (2010). Governance by Numbers. Does It Really Work in Research?, *Analyse & Kritik*, 267-283.
- Paradeise, C., Reale, E. Bleiklie, I. and Ferlie, E. (eds.) (2009). *University Governance: Western European comparative perspectives*. Dordrecht: Springer.
- Pollitt, C. (2009). Bureaucracies remember, post-bureaucratic organizations forget?. *Public Administration*, 87(2), 198-218.

- Pollitt, C., and Bouckaert, G. (2017). *Public management reform: A comparative analysis: A comparative analysis*. 4th edition. Oxford, UK: Oxford University Press.
- Sacconi, L. (1999). Codes of Ethics as Contractarian Constraint on the Abuse of Authority within Hierarchies: A Perspective from the Theory of the Firm. *Journal of Business Ethics* 21(2-3), 189-202.
- Sacconi, L. (2000). *The Social Contract of the Firm Economics, Ethics and Organization*. Springer, Berlin.
- Sacconi, L. (2011a). A Rawlsian view of CSR and the game theory of its implementation (part i): the multi-stakeholder model of corporate governance. In L. Sacconi, M. Blair, R. E. Freeman and A. Vercelli (eds.) *'Corporate Social Responsibility and Corporate Governance: The Contribution of Economic Theory and Related Disciplines'*, Palgrave Macmillan, Basingstoke.
- Seeber, M., Cattaneo M., Meoli M., Malighetti P. (2019), Self-citations as strategic response to the use of metrics for career decisions, *Research Policy*, 48(2), 478-491.
- Simon, H. A. (1951), 'A formal theory of the employment relationship', *Econometrica: Journal of the Econometric Society* pp. 293-305.
- Volkwein, J. F. (1986a) State financial control of public universities and its relationship to campus administrative elaborateness and cost: Results of a national study. *Review of Higher Education* 9(3): 267-286.
- Volkwein, J. F. (1986b) Campus autonomy and its relationship to measures of university quality. *Journal of Higher Education* 57(5): 510-528
- Volkwein, J. F. (1987) State regulation and campus autonomy. In J. C Smart (ed.) *Higher Education Handbook of Theory and Research* (pp. 120-154) New York: Agathon Press.
- Volkwein, J. F. (1989) Changes in quality among public universities. *Journal of Higher Education* 60(2): 136-151.
- Volkwein, J. F., and Malik, S. M. (1997) State regulation and administrative flexibility at public universities. *Research in Higher Education* 38(1): 17-42.
- Volkwein, J. F., Malik, S. M. and Napierski-Prancl, M. (1998) Administrative satisfaction and the regulatory climate at public universities. *Research in Higher Education* 39(1): 43-63.
- Williamson, O. (1975). *Market and Hierarchies*, The Free Press, New York, NY.
- Williamson, O. (1986). *The Economic Institutions of Capitalism*, The Free Press, New York, NY.