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## **An institutional mechanism to reduce internal competition? A hypothesis about the diffusion of satellite universities in Italy**

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This paper sheds light on the development of a peculiar organizational form in the Italian higher education system: satellite campuses. In comparison with other European countries, the Italian system shows peculiarities in terms of differentiation and power distribution among institutional actors. Building on the idea that the opening of a satellite campus might be the result of a convergence of interests among two actors (the academic oligarchy, that is, tenured faculty members, and local governments) at the expenses of a third (the state), the paper provides evidence about a statistically significant and robust association between the level of internal ‘academic crowding’ at a university and the chances of opening one or more satellite campuses. This supports the hypothesis that the creation of satellite campuses may have been welcomed and favored by tenured professors for diverting internal competition for academic posts and preserving the distribution of power in the parent university.

**Keywords:** tertiary education; university governance; academic staff; professor; institutional change

### **Introduction**

In this paper we focus on a peculiar organizational form that emerged as the Italian higher education field expanded: satellite campuses, or cloned universities that remain administratively and financially dependent on their mother universities. While the expansion of the field of higher education in many countries has been the subject of intense research, the peculiar form that such expansion took in Italy has attracted comparatively little attention. This paper aims to develop a simple interpretative scheme for understanding the mechanisms behind the diffusion of satellite campuses.

Before introducing our argument, it is necessary to take a step back. The Italian higher education system is characterized by a strong, personal rulership: professors are civil servants, with tenured positions and salaries that depend on the general budget of the State. They enjoy a high level of autonomy and personal power – based ideologically on the idea of freedom in research and teaching and functionally

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rooted in the need for freedom to ensure creativity and criticism (Clark 1983). While the roots of academic freedom are not unique to Italy, Italian professors also enjoy some unique circumstances that reinforce their autonomy. Italian professors have a guild-like organization, inherited from the medieval origins of the university, that has produced a shared culture of weak external accountability (Clark 1983). In the context of a general lack of control at the central level, due to the traditional weakness of governments in Italy, academic freedom coupled with a strong self-governing body has made Italian professors similar to an oligarchy within the university, whose power has almost no checks (Ballarino 2011). The autonomy and power of the academic oligarchy is a central part of our explanation of the development of satellite campuses.

We will present evidence that the academic oligarchy within the parent university may have favored the birth of satellite campuses as an opportunity to allocate junior scholars and thus control competition within the parent university for positions and resources. The allocation of junior faculty to satellite campuses, we claim, helped preserve the status quo within the parent university. As we will argue in greater detail, the regulatory framework of the country made opening satellite campuses almost costless for the parent university by shifting cost toward the central state. The bulk of the expansion happened amidst strong support from large segments of the public. Politicians, elected officials, student organizations and pundits all framed the opening of satellite campuses in egalitarian terms, as a way to expand access to higher education (Animali and Seri 2009; Graziosi 2010; Vaira 2011).

As in most other countries, Italy's expansion of higher education occurred in response to a greater demand for education after World War II. Yet while most European countries responded to the advent of the mass university system by differentiating their educational institutions in order to accommodate a larger and more diverse population of students (Trow 1974), Italy did not. Italian higher education kept a unitary model (Meek et al. 1996), with universities as the only institutions providing tertiary-level education.<sup>1</sup> Furthermore, the Italian system lagged the expansion of other national education systems. While the beginning of the Italian expansion can be traced back to the 1960s, it was only in the 1990s that satellite campuses spread widely throughout the peninsula.

Besides contributing to a better understanding of the Italian field of higher education, our paper sheds new light on the literature on higher education by pinpointing how micro-level forces (the behavior of the academic oligarchy, strong public support) might have influenced macro-level mechanisms (the diffusion of a new organizational form) that impacted the whole field. Though much attention has been paid to micro-level issues such as inequality in access to higher education, little attention has been devoted to the connection between micro-level mechanisms and macro-level consequences.

This paper is organized as follows. We first review previous work on the transformation of the field of higher education in the second half of the twentieth century, focusing particularly on European countries. This provides the background against which we will highlight the peculiar characteristics of the Italian case. Then we move toward the main object of our study – the emergence of satellite campuses from the late 1980s onward. We use original data to extract evidence that we then use in a quantitative analysis. In the conclusion, we summarize our findings.

### **Theoretical background**

Beginning in the 1960s, most Western countries experienced a significant and enduring generalized expansion of enrollments in their higher education systems. As Trow

(1974) famously and correctly predicted, this occurred in three main stages, though their timing varied by location. Initially, a national higher education system can be defined as an 'élite system' where university students are less than 15% of their age cohort. The second stage is defined as 'mass system' wherein the percentage is between 15% and 35%. In this stage, the traditional model of the university as the place where élites receive their socialization via the cultural codes created and administered by the academic oligarchy no longer applies. Instead, graduate employability becomes the major concern of university administrators, if not faculty. The focus on employability increases in the third phase of the transition, when the system provides 'generalized access' and more than 35% of a cohort attend higher education institutions.<sup>2</sup> In the great majority of Western countries, these transformations were accompanied and at least partially driven by the advent of an enormous and heterogeneous mass of students with different socioeconomic and educational backgrounds and with different ambitions and expectations for the university experience.

The early classification of institutional diversity in higher education built by Birnbaum (1983) is the main reference for our argument, although several other authors further developed the topic of differentiation in higher education (Rhoades 1983; Huisman 1995; Huisman and van Vught 2009; Vaira 2009). Birnbaum distinguished between internal diversity (differentiation *within* the institutions of higher education) and external (*between* institutions); among the latter he then identified several categories: *Systemic diversity* (differences in institutional type, size and control within a higher education system); *structural diversity* (differences in historical and legal foundations, or in the distribution of authority among institutions); *programmatically diversity* (differences in degree levels, comprehensiveness of programs or institutional mission); *procedural diversity* (differences in the provision of teaching, research and other services); *reputational diversity* (differences based on status and prestige); *constituent diversity* (differences in students served and other institutional constituents); and *value and climate diversity* (differences in social environment and culture) (Birnbaum 1983; Van Vught 2009).

### ***The European model of expansion***

Given the scope of this article, our argument develops within the boundaries of what Birnbaum identified as 'systemic diversity', that is, a process of differentiation that brings about differences in type, size and control within the institutions of higher education. Further, we refer to some works (Regini and Colombo 2013; Regini and Goglio 2013) which argue that, in the field of higher education in Europe, the processes of differentiation have gone through two main stages and in two different directions. A first wave of differentiation, which can be called horizontal differentiation, began in the late 1960s. At that time most European countries introduced a vocational track of tertiary-level institutions, more closely linked to labor demand, to supplement their pre-existing academic institutions, which remained unchanged. Several Continental countries went so far as to formalize a 'binary' system of higher education: in Germany *Fachhochschulen*, or Universities of Applied Sciences, were founded in 1971; also in the 1970s, the Netherlands and Belgium (*Hogescholen*), Sweden (University Colleges) and Finland (Universities of Applied Sciences) founded similar institutions. Austria and Switzerland adopted this approach in the 1990s. The resulting institutions offer professional programs in the applied arts and sciences, to prepare for a specific career, but they do not award PhDs and may focus only on applied

research. Other European countries pursued horizontal differentiation without implementing a fully binary system. At the end of the 1960s, the UK established the Polytechnics to offer vocationally oriented degree programs (although some already existed, the entire sector was re-organized). This track was ranked below universities because of the lack of degree-awarding powers and the concentration on applied education for work, meaning that the Polytechnics produced less research than universities. In the mid-1960s, France introduced the *Instituts universitaires de technologie*, which are still part of the university system but prepare students for a two-year technical diploma. Outside Europe, it is worth mentioning the case of community colleges in the USA, which resulted from the rationalization of preexisting forms of vocational higher education and in the period from 1960 to 1980 absorbed the greatest part of the transition from mass to universal access to higher education (Kerr 2001; Rosenbaum, Deil-Amen, and Person 2009). Community colleges are publicly funded institutions providing one- or two-year educational certificates, but also offering the possibility of transferring to university.

Over time however, these borders blurred, with lower-track institutions granted the status of universities (as happened in UK for Polytechnics in 1992) or granted the possibility of offering the whole set of tertiary qualifications (as for German *Fachhochschulen* and *Hogescholen* in the Netherlands, which were allowed to open doctoral schools; and as for community colleges that were allowed to offer full degree programs). In face of this ‘academic drift’ (Neave 1979), a second stage of differentiation began to take shape in the mid-1990s. This vertical integration was based on the diffusion of performance and research assessments and competitive rankings and funding schemes (Regini 2013a). Differences based on reputation and status have always existed, but before vertical differentiation they were not formalized and in some cases were even denied. Starting in the mid-1990s, deliberate, top-down policies carried out by several European governments changed this situation. The *Research Assessment Exercise* (RAE) was first introduced in the UK in 1996 with the aim of rationalizing the allocation of public funds to universities. At the same time, the RAE served as a tool for formalizing the differences that already existed between ‘research-intensive’ and ‘teaching’ universities. In Germany, national policies explicitly meant to introduce vertical differentiation appeared in the 2000s: the *ExzellenzInitiative*, largely based on research performance, was first introduced in 2005. As the RAE did in the UK, the *ExzellenzInitiative* had a profound influence on the universities’ research strategies by creating an internal reputational ranking for the system. In response to French universities’ poor performance in international rankings, the French government fostered vertical differentiation by forcing universities, *Grandes Écoles* and CNRS laboratories to merge into wider and internationally competitive ‘poles’ (PRES) and then following the German approach to selecting the top institutions.

### ***The Italian anomaly***

This framework for the expansion of higher education in most European countries does not hold true for Italy. Contrary to other cases, Italy responded to the increasing demand for higher education by simply expanding the old élite model. Some attempts to introduce a binary system were launched in the 1960s, but they systematically failed both for ideological reasons and because of the opposition of non-tenured university professors (who feared the career effects of being shifted to lower-status institutions) (Regini and Colombo 2013). As a consequence, the Italian field of higher education retained a

unitary model (Meek et al. 1996) in which universities were the only institutions entitled to issue higher education qualifications. There was also – at least formally – equality of status among all universities, which were centrally administered by the Ministry of Education.

Some scholars have pointed out this lack of differentiation as one of the reasons for the depth of the crisis of Italian higher education (Cavalli and Rositi 2008; Graziosi 2010). Recently, however, a modicum of differentiation has occurred. The first attempt to introduce evaluation in the university system was law n.537/1993, which established a two-level system of evaluation: internal centers of evaluation in each university (*nucleo interno di valutazione*) and a central national committee.<sup>3</sup> In 2006 the central body was officially replaced by *Agenzia nazionale per la valutazione della ricerca* (ANVUR), an agency specifically oriented to the evaluation of research. However, there was a long delay in the switch; ANVUR's first evaluation exercise (called VQR, or evaluation of research quality) was implemented in 2012 (Rostan 2011).

Lacking any encompassing reform or strategic vision for the future of the field (Capano 2000; Graziosi 2010; Vaira 2011), Italy's higher education system has taken two main approaches to addressing the disruptions caused by an increasing and heterogeneous demand for higher education: increasing the number of universities and giving universities more autonomy. The growth in the number of universities included both the opening of new universities and the creation of fully dependent satellite campuses. In the three decades from 1960 to 1990, the total number of universities increased by half, from 40 to 60 units, 90% of which were public universities; in the next two decades (1990–2010), more than 30 units were added, giving a higher growth rate, accompanied by an increase of the share of private universities (Rossi 2010). At the same time, the number of satellite campuses doubled between 1980 and 1990 (from 12 to 23) and then boomed with an increase of 400% in the following two decades: from 23 in 1990 to 114 in 2010 (Goglio 2013). Meanwhile, from the late 1980s onward Italian governments increased universities' autonomy, allowing them to determine their internal organization and the allocation of the public funds they received from the Ministry of Education.

Scholars of the Italian higher education field have paid particular attention to this increased autonomy and the dysfunctional incentives it generated. The Ruberti reform,<sup>4</sup> named for the Minister of Education who introduced it in 1989, gave universities the autonomy to write their own statutes and regulations for the organization of teaching activity and loosened the national requirements for opening new degree programs. The budget law of 1994<sup>5</sup> pushed the trend even farther, giving universities financial autonomy, meaning the freedom to allocate the funds they received from the central government according to their own preferences, and no longer according to strict budget directives. Before 1994, public funding from the Ministry was clearly divided into subsections allocated to specific activities (professors, libraries, etc.). Afterward, universities were free to allocate their funding on the basis of their preferences, given some guidelines. Universities also gained autonomy in setting student fees (within some strict limits decided centrally by the Ministry; that is, student fees cannot represent more than 20% of the funding received from the Ministry).

Yet as several scholars have pointed out (Miozzi 2003; Vaira 2011; Regini 2013b), a high level of centralization persisted, and the process of the devolution of autonomy remained incomplete. Indeed, the Ministry of Education still maintained control of key organizational, financial and administrative aspects of the universities. Particularly relevant for our argument, the two basic elements of competition and performance

assessments were lacking in the Ruberti reform (and still are lacking in more recent acts<sup>6</sup>), resulting in a model that can be characterized as ‘autonomy without responsibility’. For example, the decision to multiply degree programs was costless for universities (and the academic oligarchy), even when the effects were economically unsustainable at the collective (central) level. In some extreme cases, degree programs enrolled only three or four students. The lack of reward for good decisions or punishment for senseless financial or academic decisions in the Ruberti reform (and successive modifications) made it *de facto* possible for universities never to pay the consequences of their choices.

The shortcomings of the Ruberti reform were not clear to the general public at its onset. Instead, an ideological debate on whether access to higher education was to be considered a social right of Italian citizens contributed to the boom in openings of satellite campuses around the country. From this perspective, satellite campuses were viewed positively, as a way to bring access to universities to underserved areas of the country. Thus, rather than framing the discourse around issues of efficiencies and accountability, many segments of the public, as well as politicians and student organizations, championed the opening of satellite campuses as a way to reduce inequality.

The broad support for the opening of satellite campuses was not accompanied by a process for evaluating local demand. As Animalì and Seri (2009) highlighted, investigation of the actual needs of the territory and of the local economy were required only for the establishment of brand new universities, not for satellite campuses. Indeed, the Ruberti reform gave the Ministry of Education little supervision on the opening of satellite campuses (Animalì and Seri 2009, 43). The formal recognition of satellite campuses consisted exclusively in their inclusion in the Ministry’s recurring three-year programmatic plan. The legislative procedure behind the writing of this plan occurred largely behind closed doors and was influenced by the pressure of academic oligarchies and local interests.

While much attention has been paid to the incompleteness of the Ruberti Reform and to the ideological debate about access to higher education, there has been little systematic investigation of the effects of the reform at the level of the whole field of higher education and, in particular, on the explosion of satellite universities that began in the 1990s. Strikingly, while scholarly work is lacking, public debate about the field of higher education is growing. In the late 2000s a harsh political debate attacked the surplus of university campuses compared to real demand. In a reversal of the dominant position up to then on access to higher education as a social right, the economic sustainability and social legitimacy of satellite campuses came under question in the context of a general retrenchment of public expenditure precipitated by the financial crisis.

This paper thus fills a gap by turning systematic inquiry to the dynamics that created the expansion of satellite campuses.<sup>7</sup> Our argument is not that the Ruberti Reform created satellite campuses. Rather, we aim to show that faculty and administrators within parent universities may have taken advantage of the incentives created by the reform to reduce internal crowding among faculty.

### **The emergence of a new organizational form**

An analysis of satellite campuses from early experiences to more recent developments (Goglio 2013) suggests focusing on three actors:

- (a) The parent university: the university generating the satellite campus, which is dependent on the parent;

- (b) Local institutions: generally the province- and town-level administrations, often accompanied by religious associations, religious and secular charities, and cultural associations; and
- (c) The national state: responsible for planning, organizing and financing the higher education system.

Broadly stated, our argument is that the opening of a satellite campus brings benefits to the first two actors at the expense of the third. Below we review the benefits and costs that the opening of a satellite campus brings to each of the three actors.

By opening its own satellite campus, the parent university enjoys a series of benefits: it increases the number of students (with positive consequences in terms of tuition received and the public resources available to it); it improves its coverage of the geographical area where it is located; and it increases its size, in terms of both students and personnel, compared to other (competing) universities. Furthermore, the parent university's academic oligarchy may benefit because the opening of a satellite campus creates new teaching positions. These new positions can be filled with junior scholars, representing a relief valve that reduces internal competition for academic jobs in the parent university. Competition in this sense takes place horizontally and not vertically: it occurs at lower levels of the pyramid, with junior scholars competing with each other for career advancements; at the same time it occurs at the top level of the pyramid with full professors striving to maintain their power niche by promoting 'their own' scholars.

The reforms of the early 1990s both incentivized this type of horizontal competition and increased the need for relief valves. Greater autonomy meant that when a position was needed in a school, and the school had the money to cover it, the university simply opened a competition and created a selection committee to fill the position (Ballarino and Perotti 2012). Although the original intent of the reform was to simplify the recruitment process, the consequence of the reform was the strengthening of internal career paths. Evidence shows that the academic oligarchy within the parent university used its power mainly to unlock the advancement of existing positions (from assistant to associate and from associate to full professor) rather than to recruit new personnel. Indeed, the marginal cost of an internal candidate was much lower than the cost of an external candidate (Rostan 2011, 30). Satellite campuses may have contributed to the process by allowing the allocation of the newly promoted scholars without causing disruption inside the parent university.

Besides the advantages that satellite campuses bring to the academic oligarchy of the parent university, the opening of a new campus also brings legitimacy, prestige and power to local governments and lobbies. The presence of a university in a territory can be exploited for electoral purposes: the university can be shown to electoral constituencies as a political achievement by local politicians, potentially bringing advantages in the next electoral round. During the 1990s, the rhetoric of local development and of the knowledge society filled the speeches and documents of local administrators, at the regional but especially at the provincial level. It seemed as if every province, every town in Italy needed – and had the right to claim – knowledge, research and innovation as the pillars of local economic development and the basis for its competitiveness. But in this never-ending race toward specialization and uniqueness, a disconnect occurred between the political ambitions of local administrators and the resources available in a territory. The economies of the Italian



provinces were hardly in a position to receive and exploit innovative scientific research chiefly because their economic structure remained centered on small firms, often family-run, and focused on traditional productive sectors characterized by low levels of specialization and innovation.

In contrast to the case of the parent university, the satellite campus is not completely cost-free for local governments, which often pay for the infrastructure that supports teaching (buildings, maintenance, etc.). The financial contribution that a local government must make to support the creation of a satellite campus (in both the form of monetary contribution and in making buildings available to the university) represents the cost of becoming a 'city with a university'.

While some of the resources for opening a satellite campus come from the local governments, most of the costs are covered by the central government. The costs associated with opening new teaching and research positions in the satellite campus are borne by the state, since academic positions are paid by the Ministry, through the university. Within the budget constraints of public funds coming from the state (and within the rule that expenses for personnel cannot be more than 90% of the overall public funding received), each university was set free to identify its own personnel needs and to recruit for them directly, as previously highlighted (Rostan 2011).

While the costs to the state are concrete, the benefits are more elusive. In the short run, a satellite campus helps meet the demand for higher education. Yet, without financial and academic checks in place to discourage bad decisions, the short-run benefits of more infrastructure yield to the long-run costs of increased personnel and more bureaucratic complexity. However, Ministries and high-ranking officials in the central government may benefit from the opening of a satellite campus in the eyes of their local constituencies in an almost classic case of pork-barrel politics. As previously discussed, an ideologically driven debate that framed access to higher education as a social right created further incentives for politicians seeking to be re-elected to support the opening of satellite campuses.

Drawing on these premises, our analysis focuses on an internal institutional mechanism capable of explaining the emergence of a new organizational form. We will show that the academic oligarchy may have exploited the spread of satellite campuses as an easy tool for reducing internal competition for academic positions, with the result that the diffusion of this organizational form was favored at the macro level. Because mother universities had the autonomy to decide whether to open a local branch but the central state had the burden of financing it, the expansion presented many advantages for the dominant academic hierarchy within the mother university. The opening of a satellite campus may have served as a tool to divert competition from inside the mother university to outside, leaving untouched the distribution of power at the local level.

This paper investigates how this dynamic unfolded from 1980 to recent years (up to 2011), and presents evidence of the link between the level of internal faculty 'crowding' at a given university and the number of satellite campuses opened. We hypothesize that where the level of internal competition for academic positions is high, local professors are more likely to support the opening of a satellite campus. In order to test this hypothesis we focus on a specific indicator that can be considered a proxy for measuring internal pressure or crowding: the ratio between the number of professors at the bottom and the top of faculty pyramid. We expect to find, even when controlling for other characteristics, a positive relationship between high levels of crowding and the odds of opening a satellite campus.

## Data and methods

The empirical analysis is based on a unique data set about Italian universities and satellite universities, which includes primary data collected from various sources. The unit of analysis is the individual university (public or private) operating in Italy, according to the list provided by the Ministry of Education (Ministero dell'Istruzione, dell'Università e della Ricerca, hereafter MIUR). For the scope of this paper, we define a university as an organization that confers degrees of tertiary-level education, at both the undergraduate and graduate level, using mainly the traditional method of in-person learning. We thus excluded online universities, universities for foreign students and institutes of higher studies. We have a grand total of 75 universities.

Our dependent variable 'event' is a count variable recording the total number of satellite campuses that a parent university opened in the period 1980–2011 (a university's event count may start later if it was founded after 1980). Since an institutional reference list is not available, this database represents the first attempt at a systematic census of satellite campuses in Italy. Data was collected from various sources: university websites, phone calls to university registrar's offices and a few bibliographic sources.

Table 1 shows the total number of satellite campuses in Italy and their evolution through time. The table reports data from before 1980 for reference, even though the satellite campuses that existed at that point are not included in our analysis. Before the 1990s the number of satellite campuses increased at a slow rate. During the 1990s the phenomenon boomed and continued to grow until the first half of the 2000s. Starting in the mid-2000s the trend began to decline, and the number of satellite campuses operating in the country even decreased.

The key explanatory variable 'crowding' is the ratio of assistant professors to full professors, indicating the level of crowding in each university. A high ratio indicates that there are many assistant professors competing for a fixed number of full professor positions, while a low ratio indicates the reverse. Before describing how we built this variable, we explain the procedures we followed for putting together the ratio for each university in our set.

In the 1960s and 1970s, Italian academic positions were traditionally organized on a chair scheme: full professors were responsible for their related chairs and were helped in their duties by assistants (*assistente*, not to be confused with assistant professors; the former is a temporary and subordinate position directly dependent on the full professor in all aspects of the job, while the assistant professor is a permanent and autonomous position.) A reform introduced in 1980<sup>8</sup> rearranged this organization into a three-step hierarchy with two categories of professors (full and associate) and a third category made up of *ricercatori*, a tenured teaching and research position that can be thought

Table 1. Number of satellite campuses (net, including closures).

	1960	1980	1985	1990	1995	2000	2005	2010	2011
<i>Italy</i>	<b>4</b>	<b>12</b>	<b>12</b>	<b>23</b>	<b>54</b>	<b>85</b>	<b>115</b>	<b>114</b>	<b>109</b>
North-West	0	6	5	11	25	29	34	33	29
North-East	2	3	2	6	10	14	17	18	18
Center	2	2	2	2	9	17	27	30	30
South	0	1	3	4	10	25	37	33	32

Source: Our elaboration.

Note: The bold significance indicates total values for Italy.

of as analogous to the position of assistant professor in the American system.<sup>9</sup> Each of these positions has the status of a civil servant (public employee), and recruitment occurs through open competition (*concorso*) established at the central level. In the 1990s, after the abovementioned reforms toward financial autonomy,<sup>10</sup> a new reform allowed individual universities to design the structure and size of their own workforces and to recruit their own personnel directly. Recruitment continued to be competitive but was now managed at the local level by the university (Rostan 2011).<sup>11</sup> Given that the new position of *ricercatore* was introduced slowly starting in 1980, for the first decade of observation (1980–1990) we combine the categories of *ricercatore* and *assistente* into the variable ‘assistant professors’.

The numbers of assistant professors are very well recorded in the official statistics and, perhaps more relevant given the scope of this paper, their governance as civil servants allows for an easy comparison over time. With this in mind, we use data from the National Institute of Statistics (ISTAT) for 1980–1997 and from the MIUR for 1997–2010 to compile the ratio between assistant professors and full professors (crowding).

It should be noted that the choice of assistant professors as an indicator of pressure for resources in the parent university is far from ideal. In particular, the huge population of research fellows, PhD candidates and postdocs would have been a better measure of the pressure for resources and the level of internal competition. However, these roles are often underestimated in national statistics (or do not figure at all) and are regulated by a wide variety of contracts changing over time, both factors that make them unsuitable for constructing a variable. Because it excludes this larger segment of higher education population, our ratio underestimates the pressure for resources.

Since the number of assistant and full professors varies with time, we calculated the ratio between the two positions for each year in our data. We collapsed the yearly ratios into a grand mean for each university covering the whole period of observation. Due to the heterogeneity of the population, we selected a group of universities that may be defined as points of leverage and thus bias the estimates. We found that all of the universities having crowding ratio values lower or greater than a standard deviation from the mean are private universities, small in terms of students (less than 0.4% of all students in Italy) and recently founded. The only exception was Catholic University of Milan. Given the historical importance and the weight in terms of students of the latter, we kept the Catholic University of Milan in the analysis but excluded all the other, smaller universities.

We then weighted the variable ‘crowding’ by the size of the university, operationalized as the percentage of students attending the university among the total number of Italian university students. The source of data for the size of the university is the ISTAT. The rationale behind weighting is that the effect of the level of crowding cannot be the same in all universities, irrespective of their size. It is likely that the level of crowding in a big or huge university might result in more conflictive behaviors because assistant professors might be more organized compared to those in small universities. In turn, in small universities conflict might be better controlled or mediated, or assistant professors might be fragmented and unorganized. Furthermore, big universities are able to mobilize more economic resources and power compared to small universities, leading to potentially greater capacity to diffuse conflict.

Figure 1 is a scatterplot of the dependent (event) and independent (weighted crowding ratio) variables: the *x*-axis indicates the values that the variable ‘weighted crowding

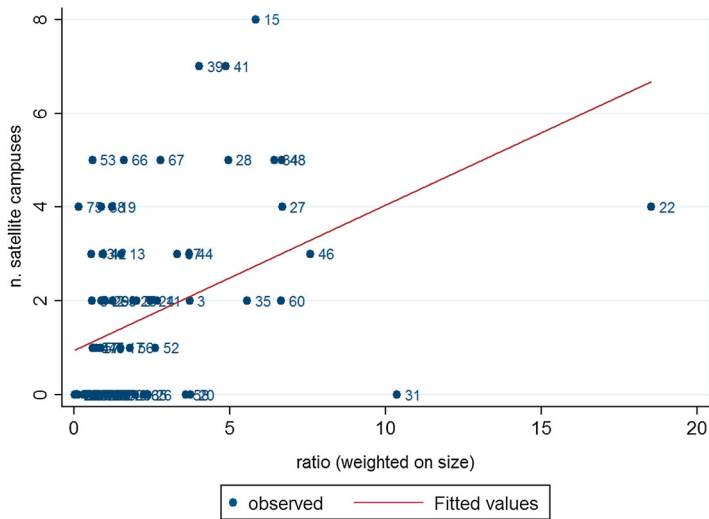


Figure 1. Scatterplot of the number of satellite campuses by weighted ratio ( $N = 75$ ). Note: Label 22 indicates University of Rome La Sapienza.

ratio’ can assume; the  $y$ -axis indicates the total number of satellite campuses opened; and the dots represent the universities as the units of analysis.

The figure suggests a positive relationship between the crowding index and the number of satellite campuses. Here the University of Rome La Sapienza (number 22 in the plot) emerges as an additional point of leverage, associated with a relatively low number of recorded events. We thus decided to remove it from the quantitative model. Hence the final number of universities that we analyze is 67, instead of the universe made up of 75 universities. Nevertheless, considering the size of La Sapienza (the biggest university in Europe), we retained it as part of our reasoning, as we will explain further below.

Descriptive statistics for the dependent variable show that 43% of the universities in our analysis never opened a satellite campus in the period 1980–2011. Among the universities that opened a satellite campus, 29% opened two campuses and 23.7% opened 5 or more campuses (Table 2).

Other covariates included in the model as control variables are related to the characteristics of the university:

- Age: a dummy variable for a new university, indicating whether the university was opened after 1980.
- Origin: a dummy variable indicating whether the university was born itself as a satellite campus and then gained the status of autonomous university;
- Isolation: a variable divided into four categories (referring to the quartiles of the distribution) that measures the distance to the next closest university. Universities in higher quartiles are more geographically isolated. We used the Route Atlas of Italy (Touring Club Italiano 2011) and Google Maps as sources for this variable. This variable allows us to measure the extent to which the claim that providing access to higher education to underserved areas of the country was a concern in the decisions to open a satellite campus. Thus, we expect that universities

Table 2. Number of universities with satellite campus.

	<i>N</i>	%
Universities with:		
No event	29	43.3%
At least 1 event	38	56.7%
Total	67	100%
<i>Universities with at least one event:</i>		
No. events	<i>N</i>	%
1	7	18.4%
2	11	28.9%
3	7	18.4%
4	4	10.5%
5	6	15.8%
7	2	5.3%
8	1	2.6%
Total	38	100%

Source: Our elaboration.

that were more isolated, that is, more distant from other universities, would be more likely to open a satellite campus.

- Private funding: a dummy variable that indicates whether the university is primarily funded by private institutions (high value) or the state (low value);
- Geographical area: a dummy variable that indicates if the university is located in the South of Italy;

Since the dependent variable event is a count variable that follows a Poisson distribution but is characterized by over-dispersion (the variance is 2.4 times greater than the mean), we opted for a negative binomial regression as the method of analysis. Like Poisson regression, negative binomial regression is suitable for count data, but unlike Poisson uses a dispersion parameter to account for the dispersion of the estimated variance of expected counts (Cameron and Trivedi 2010).<sup>12</sup>

Finally, we also performed a robustness check on the main finding of the negative binomial model by applying a *cloglog* model (complementary log–log for discrete time model) to the temporal opening of satellite campuses. Because part of our argument implies that the internal dynamics of the parent university influence not just the overall number of satellite campuses but also when a new satellite opens, we used a *cloglog* model to test the robustness of the cross-sectional analysis to a temporal process. We used a temporally sensitive model to predict the likelihood of the first satellite campus to open in a given year for each of the universities in our data set.

## Findings

Before presenting the results of the negative binomial regression, we will explore the bivariate relations between the covariates listed above and the weighted crowding ratio. At first sight, the variable ‘distance’ seems to suggest a positive effect on the opening of a satellite campus: increasing levels of isolation (in particular for universities in the fourth quartile) correlate with a greater chance of generating satellite campuses. Similarly, being an old university (founded before 1980) and being a

Table 3. Cross-tabulation for event > 0.

	Universities with at least one satellite campus	Total (all universities)	
	<i>N</i>	%	<i>N</i>
<i>Founded &gt; 1980</i>			
Not	32	71.1%	45
Yes	6	27.3%	22
Total	38	56.7%	67
<i>Previously satellite</i>			
Not	32	55.2%	58
Yes	6	66.7%	9
Total	38	56.7%	67
<i>Source of funding</i>			
State	35	60.3%	58
no state	3	33.3%	9
Total	38	56.7%	67
<i>Geographical area</i>			
North	21	61.8%	34
South	17	51.5%	33
Total	38	56.7%	67
<i>Distance (to next university)</i>			
First quartile (0–25 km)	6	40.0%	15
Second quartile (26–55 km)	9	52.9%	17
Third quartile (60–87 km)	10	52.6%	19
Fourth quartile (90–215 km)	13	81.3%	16
Total	38	56.7%	67

Source: Our elaboration.

state-funded university seem to increase the chances of having a satellite campus. The variables ‘previously satellite’ and ‘geographical location’ suggest only slight differences in likelihood of establishing a satellite (Table 3).

Table 4 shows the results of the negative binomial regression model: we first tested the hypothesis of a bivariate relationship between the number of satellite universities and the weighted crowding ratio, then added the control variables. The estimates of the bivariate relationship support our hypothesis: a unit increase in the weighted crowding ratio increases the chances of opening a satellite campus, and this effect is highly significant. The difference in the logs of the dependent variable ‘event’ would be expected to increase of 0.22 units against a one-unit increase in crowding.

When the control variables are added, the effect of the explanatory variable remains positive and significant, though with a decreased value of the coefficient. Being a new university (opened after 1980) has a significant negative effect on the chances of opening satellite campuses. This variable emerges as the most relevant control variable in the model. The control variables distance and geographical location are only borderline significant and show that higher levels of isolation are associated with a higher number of satellite campuses, while universities located in the South of Italy have lower chances of opening a satellite campus. Finally, being a private university has a negative effect, although this is not significant.

Model 6 includes all the control variables and shows that the positive effect of the weighted crowding ratio holds and is statistically significant: when all controls are

Table 4. Estimates for negative binomial regression.

	(1)	(2)	(3)	(4)	(5)
Ratio	0.2247**	0.1472*	0.1442*	0.1358*	0.1300*
(weighted)	(0.0704)	(0.0700)	(0.0644)	(0.0653)	(0.0614)
Founded > 1980		-0.9470*	-1.0072**	-0.9962**	-0.8816*
		(.3877)	(0.3737)	(0.3735)	(0.3680)
<i>Distance to next university (ref=0–25 km)</i>					
26–55 km			-0.1068	-0.2349	-0.4087
			(0.4220)	(0.4561)	(0.4502)
60–87 km			0.6258	0.4987	0.3492
			(0.3910)	(0.4266)	(0.4181)
90–215 km			0.6712 <sup>+</sup>	0.5454	0.7129 <sup>+</sup>
			(0.3921)	(0.4263)	(0.4204)
No state funds				-0.3898	-0.4028
				(0.5423)	(0.5227)
South of Italy					-0.5379 <sup>+</sup>
					(.3116)
Constant	-0.0297	0.3721	0.0284	0.1866	0.4518
	(0.2302)	(0.2662)	(0.3804)	(0.4376)	(0.4493)
lnalpha_cons	-0.1762	-0.4250	-0.7290	-0.7411	-0.9806 <sup>+</sup>
	(0.3812)	(0.4283)	(0.5055)	(0.5063)	(0.5888)
<i>N</i>	67	67	67	67	67
<i>p</i>	0.0015597	0.0003588	0.0004503	0.0008393	0.0005642
<i>r</i> <sup>2</sup>	0.041	0.065	0.092	0.094	0.106

Note: SE in parenthesis.

<sup>+</sup>*p* < 0.10, \**p* < 0.05, \*\**p* < 0.01.

added, for a one-unit increase in the weighted crowding ratio, the difference in the logs of expected counts of satellite campuses is expected to increase by 0.13 units.

In summary, the hypothesis that the internal level of crowding at a university might affect the probability of opening one (or more) satellite campus is supported by the model. The positive and highly significant relationship between the number of satellite campuses and the ratio of assistant professors to the total number of full professors, weighted on the size of the university, supports the idea that where the level of crowding in the academic hierarchy is high, faculty members may support opening a satellite campus as a tool for diverting the pressure for academic jobs.

### *A temporal process*

A main assumption behind our findings is that the internal dynamics of the parent university (as captured by the crowding ratio) play a fundamental role in understanding the proliferation of satellite campuses. In the model presented above, the crowding ratio is constructed as an average across time for each of the university in our data. However, our main argument has also a temporal component. To better capture the temporal dimension and to further test the robustness of the previous findings, we applied a *cloglog* model to predict the likelihood that a university opens its first satellite campus in a given year.

For each year in our data set, we estimated the probability that a parent university decided to open its first satellite campus conditioned on its crowding ratio lagged by three years. Universities that opened their first satellite campus were then removed

Table 5. Complementary cloglog model for discrete time.

	(1)
Ratio weighted (3 years lag)	0.0789* (0.0336)
Constant	-3.694** (0.246)
<i>N</i>	678
<i>p</i>	0.0190

Note: Robust SE in parenthesis.

\* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

from the risk set for the following years. We used a lag of three years as a reasonable time span needed for the actual opening and functioning of the satellite campus.<sup>13</sup> Finally, we clustered the standard errors of the estimates by university. The results are presented in Table 5.

The coefficient for the lagged crowding ratio is positive and significant. Its interpretation is relatively simple considering the analogy between the *cloglog* model and a traditional event history model for continuous time intervals. Thus, for a one-unit increase in the weighted ratio (lagged), we expect to see about an 8% increase in the probabilities of opening the first satellite campus.

The estimates of Table 5 are thus in line with the results of the model presented in Table 4. Whether analyzed with a temporal model (*cloglog*) or a cross-sectional model (negative binomial), the fundamental findings do not change: the opening of the first satellite campus as well as the overall number of satellites opened were significantly related to the crowding ratio of the parent university.

### *The University of Rome La Sapienza*

As mentioned before, we excluded the University of Rome *La Sapienza* from the quantitative analysis due to its extremely large size and relatively low number of satellite campuses that made it a point of statistical leverage which biased the estimates of the model. Currently, *La Sapienza* is the biggest university in Italy, with about 113,500 students in the academic year 2011–2012 (6.5% of the total population of Italian university students); the second largest university, the University of Naples, has 85,600 students (4.5% of the total) (MIUR 2012).

Longstanding tradition places the origin of *La Sapienza* in the thirteenth century. Prior to the unification of Italy it was under the control of the Papal State and the direct jurisdiction of the Pope. With the incorporation of the former Papal State into the new Italian state in 1870, the University of Rome was transformed in accordance with the liberal ideals and aspirations of the new Italian state, and it gained the status of the university of the national capital. The number of students increased steeply starting in the mid-1930s, making *La Sapienza* one of the most populous universities in Italy.

Enrollment increased again in the period immediately after World War II and then again in the late 1960s. Given its size, its visibility and its status as the university of the national capital, *La Sapienza* became a national-level stage for the political mobilization and protests of 1968 (De Simone 2007). In the 1980s the level of student crowding became unsustainable, with the University collecting 14.6% of the national population of students (a.y. 1985/1986). Currently *La Sapienza* is the largest university



in Europe in terms of students and the second largest worldwide, after Cairo University (De Simone 2007).

Given its size, competition for resources started earlier at *La Sapienza* than at other Italian universities. In fact, the Ministry of Education authorized the opening of a new university in Rome in 1982, several years before the Ruberti reform gave universities the power to open satellites. Ten years later, a third university opened in Rome. Thus, at the outset of the reform that we claim created the institutional framework for the opening of satellite campuses, *La Sapienza* had already generated two brand-new universities in the Italian capital: Roma Tor Vergata and Roma III. These two new universities were not satellite campuses, but rather independent entities no longer under the control of the professors and administrators of *La Sapienza*. True satellite campuses of *La Sapienza* began appearing in the mid-1990s in cities close to Rome (i.e. Latina, Rieti, Civitavecchia and Pomezia), and their number was low given the size of the university.

*La Sapienza's* two-step process for dealing with internal competition and overcrowding is consistent with our argument that the academic oligarchy inside the mother university interpreted the regulatory framework created by the Ruberti reform as a means of reducing internal competition for resources without ceding control. From this perspective it becomes quite telling that no new independent universities were opened in Rome (only satellite campuses nearby) after the Ruberti reform was passed, despite the persistent massive size of *La Sapienza*.

## Conclusions

This paper uses original data and a simple analytical framework to make sense of a complex phenomenon of organizational dynamics – the opening of satellite campuses throughout the Italian peninsula from the 1990s onward. We show results consistent with our hypothesis that professors and administrators of the parent university used the incentives of the Ruberti Reform of 1990 to reduce the internal level of crowding and competition among faculty. We argue that since the parent university did not have to support its own satellite campuses financially, this process of competition reduction took place at the expense of the state.

While the simplicity of our analytical framework sheds new light on a largely understudied phenomenon (and offers a cautionary tale of the perils of incomplete reforms in the field of higher education), it also suffers from being a one-size-fits-all analysis. We would have liked to have direct evidence for how professors and administrators interpreted the reforms of the 1990s. We would have also liked to have better ways to capture the reaction of the central state. However, our findings support the hypothesis that, on average, a significant relationship existed between faculty crowding inside the parent university and the opening of a satellite campus.

The Ruberti reform played a crucial role in igniting this dynamic: its incompleteness created the institutional incentives that the academic oligarchy within the parent university exploited. Thus, while it would be wrong to say that the Ruberti reform created satellite campuses, it is undeniable that the reform set the institutional incentives that encouraged their formation. In this respect, the case of *La Sapienza* is illuminating. Before the 1990s, professors and administrators within *La Sapienza* were twice forced to release their control of academic resources in Rome and two new, independent and competing universities were created. After 1990, though *La Sapienza* opened several satellite campuses, no new universities opened in Rome.

The peculiarities of the Italian field of higher education predate the reforms of the 1990s. Unlike most education systems in industrialized countries, Italy maintained a unified and largely centralized system while other countries diversified and stratified; and satellite campuses reinforced the uniqueness of the Italian system. Indeed, unlike in the majority of European countries, attempts to differentiate the Italian system were never considered politically viable, due to strong ideological opposition to any measure that could have constricted access to university. Egalitarian ideals of access to university as a social right received vast support before and after the reforms of the 1990s (Vaira 2011).

We think that the spread of satellite campuses represents a unique ‘Italian way’ to differentiate the field of higher education. At the formal level, no Ministerial document states that satellite campuses represent a lower track of tertiary education and the Ministry makes every attempt to show parent and satellite universities as equal. But on an informal level, it is a widespread belief that ‘good students’ tend to enroll in the parent university while students with weaker educational and family backgrounds, as well as working students, tend to concentrate in satellite campuses. Judging whether this belief is accurate – that is, evaluating the quality of satellite campuses against that of their parent universities, or evaluating the economic or cultural returns to widening access to higher education – is outside the scope of this article.

What this paper does is highlight the reshaping of the field of higher education in contemporary Italy and the emergence of a new organizational form that benefitted the academic oligarchy within the parent university. Nevertheless, it is unclear how long the current situation can last. The current financial crisis has seriously jeopardized the capacity of the state to continue ignoring the economic viability (or lack thereof) of the country’s system of higher education. The ‘Italian way’ of addressing greater demand for higher education while preserving the status quo within existing universities may be in crisis.

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### Notes

1. Together with a few other Southern European countries, such as Spain.
2. In 2011, the average entry rates to ‘tertiary-type A institutions’ (basically universities) was 60% in OECD countries and 59% in the EU-21 countries (OECD 2013).
3. Originally the *Organismo per la valutazione del sistema universitario*, established in 1996, but replaced by *Comitato nazionale di valutazione del Sistema universitario–CNVSU*–in 1999.
4. Law n. 168/1989, accompanied by law n. 342/1990.
5. Budget law n. 537/1993.
6. Even the 2010 Gelmini reform confirms an excessive level of government control over details and insufficient institutional responsibility for crucial issues (Regini 2013b).
7. There are a few case studies on the economic impact of satellite campuses (Cassone 2009; Rossi and Goglio 2013) and the role they can play in equality of opportunity and entrance into the labor market (Bertolini 2010; Goglio 2011), but research on the mechanisms behind the process of expansion is scarce.

8. D.P.R. n.382/1980
9. With the very important difference that assistant professors in the US system are not tenured.
10. Law n.537/1993 in particular.
11. The reform introduced in December 2010 by Minister Gelmini further differentiated the category of assistant professors, particularly by abolishing tenure for incoming assistant professors. However, this reform does not impact our data since these new positions have been put in place only very recently (since 2011–2012).
12. We also tested the results of the negative binomial regression against the Poisson regression, which confirms the better fit of the negative binomial model.
13. A time lag of 5 years has also been considered, leading to similar results.

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