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## **Ranking Higher Education to boost competition: toward entrepreneurial universities or new form of centralism? The case of Italy**

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## ABSTRACT<sup>1</sup>

The practice of ranking public entities is not widespread in Italy. Although assessments of the quality of public services are made more and more often and the demand for public accountability is growing, neither local governments nor hospitals and local health agencies are ranked in official lists.

In this context, Universities are an exception: the paper first discusses what are the causes of this different treatment. The metrics used to rank Universities and the effects of the methods are then analysed. This discussion allows to highlight how the purpose and the destination of the rank influence the whole process. Some references to the international practice are also given.

One more aspect which is considered concerns the effects of rankings on the higher education institutions (HEIs). The variables used to rank institution are de facto assuming the role of key performance indicators. The strategy of each institution is therefore strongly influenced by centrally stated factors: this raises a question on the feasibility for Universities to develop their own plans and competitive strategies.

**KEYWORDS:** Higher Education, Ranking, Performance measurement, Entrepreneurialism

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## 1. Purpose and plan of the paper

This article examines the practice of rankings in the Italian Higher Education system. A comparative approach is also used to discuss the suitability of performance indicators adopted to rank Faculties: the international perspective focuses, in particular, on rankings finalized to providing students with information.

Ranks represent a branch of a broader object, i.e. performance measurement. Mainly, rankings are used for inter-organizational comparisons. Performance measurement has gained relevance on the wave of New Public Management, which relies on market orientation by observing market rules and on the improvement of effectiveness and efficiency through managerial techniques. The same trends are observable in the Higher Education systems of many countries, where *“autonomy and responsibility of the single HEI are continually aiming at improved competitiveness, more efficient and effective use of state money and an improved capacity to meet market needs. The traditional governmental funding of HEIs is being questioned. (...) The central government establishes broad politics, combines them with budgetary issues, but transfers responsibility for growth, innovation, performance and output to the decentralised institutions. Catchwords such as competition, strategy development, result and goal orientation, customer orientation, market orientation have become frequent and common in the public sector at large and are well recognised in fields of higher education”* (Strehl, F., S. Reisinger and M. Kalatschan 2007).

Performance measurement deals with different problems which are relevant in the field of public administration. According to the analogy of supply and consumption, the main questions regard the production process of the information on one hand and the use of the information on the other hand. Moreover, the effects of performance measurement and the causes and conditions which determine the development of performance measurement systems can be analysed. (M. Sterk, W.van Dooren, 2004)

This paper deals with three of these four aspects with reference to higher education. The following questions are here addressed:

1. From the perspective of “causes and conditions for performance measurement: Why Higher Education Institutions are ranked in Italy, while this practice is not used for most of the other branches of the public sector? The first part of the article examines which are the conditions that have led to the development of ranking systems for Universities. The attempt to answer this question is also used here as an expedient to describe the context in which Universities operate in Italy.
2. From the perspective of the “production process”: which variables are used to rank Higher Education institutions? To what extent are these variables influenced by the purpose and the destination of the ranking? These issues are discussed in the second and the third part of the article, where we analyse two different kinds of rankings.
3. From the perspective of the “effects”: how effective is the practice of rankings as change driver? Which is the impact of centrally stated performance measures on the strategies of Universities? In particular, we describe the reaction of HEI to funding incentives based on ranking procedures. This question is discussed in the second part of the article.

## 2. Theoretical framework

### *Introduction*

A widespread literature on the «entrepreneurial university» has been developing since the 80's, but nevertheless there is no complete agreement on this concept. Different kinds of entrepreneurialism in Universities have been described:

1. «Inward oriented entrepreneurialism»: entrepreneurialism is essentially the capability to increase funding through new sources, like recruitment of fee paying students, contract research, letting out university buildings for external conferences and so on. The overall goal is the financial sustainability of the development of the Institution.
2. «Outward oriented entrepreneurialism»: the adaptive capacity and novel thinking to meet present demands and to take advantage of future developments in various ways, by offering new lines of study and courses and developing new areas of research, or by creating new enterprises in a close collaboration with the surrounding society. This interaction with the society and the improving of the social impacts of the research results are the distinctive aspect of this form of entrepreneurialism, which is no more seen as a support for traditional activities, but become itself a new part of the mission (a «third role») of Universities, beside teaching and research. The overall goal is to be an agent of social and economic development.
3. «Intrapreneurialisms»: «entrepreneurialism, however, needs to be seen not only as an institutional characteristic. There is a substantial literature (quoted in Kirby, 2003) devoted to “intrapreneurs” in the world of business, that is entrepreneurial individuals who are able to innovate within traditional large organisations, and who do so by challenging bureaucracy and creating successful operations in spite of, rather than in line with, the organisational culture and strategic aims of the company. Perlman et al., (1988) use the title “academic intrapreneur” to identify managerial change agents in a university». (quoted from Shattock, 2005)

### *The use of ranking in the Italian context: the exception of universities*

The Italian citizen is in general much less accustomed, compared with citizens of other European countries, to see official assessments of public services. This depends on a deep cultural heritage of Italian Public Administration, which has become substantially self-referential. However, Public Administration is emerging from this situation quickly enough. On the one hand, the introduction of quasi – markets (Lapsley, 1992) pushes public institutions to behave as competitors for the acquisition of public and private funds and, consequently, to improve their performance and to compare them with other competitors. On the other hand, the deployment of performance measurement systems for managerial purposes and to make external evaluations of the services, is allowing data production on public institutions' performance.

Two instruments are used in the public sector for performance evaluation and/or communication:

- Increasingly local governments, hospitals, chambers of commerce, universities, and other public institutions publish reports and programs that diffuse the results and desired outcome of their action: social reporting, performance based budgeting, participatory budgeting...
- The rules themselves increasingly state the presence of control bodies requiring no longer a mere control of the financial performance, but rather an incisive control on effectiveness of policies. Evaluation committee, distinct from financial auditors, have nowadays established in most of the Italian public institutions.

In this context, resulting from greater social pressure on public institutions, the use of ranking has not found a wide implementation.

Although the efficiency, the effectiveness and the quality of public services are assessed more and more often, and the demand for public accountability is growing, neither local governments nor hospitals and local health agencies are ranked in official lists. Universities are an exception: in this case, the comparison of performances aims at making choices of destination of public funds (from the Department's point of view) and at giving the potential addressees of the service comparable information on the providers (which is the purpose of the ranking made by the CENSIS-Repubblica). Notwithstanding many similarities can be found among education and other public services - in the funding system, as well as in the delivery of the service and in the relationship with the addressees - rankings remain a prerogative of universities.

This depends on a series of factors concerning the general context of the University system and the characteristics of the service:

- Universities are mainly financed through fund transfers from the central government, while other institutions (namely hospitals and health agencies but also local authorities) are now mostly – if not exclusively – locally financed by regional governments. Regions' financing systems do not use ranking because this would require a delicate and expensive structure for benefits evaluation, which currently regions do not have. Rather, in those cases the funding is based on *per capita* values or on a predetermined standard cost. Incentive mechanisms are guaranteed mainly by additional funds, specifically intended for the implementation of policies and projects promoted by regional government bodies. The regions, moreover, have rather reduced spaces to influence the performance of the municipalities, which act with great autonomy and on a different institutional level. On the contrary, universities form a system which is financed mainly by one subject: the Department, which can deeply influence the management through specific rules. Local subjects' autonomy is, in this case, absolutely minor. The Department, having the possibility to deeply influence universities' management, has developed in the course of time a system of performance measurement, promoting objectives of national policy achievement.
- The ranking of public services can be done, and assume meaning, provided that the target population is homogeneous. In the case of the hospitals, outcome of service depends greatly from patient's initial conditions. Also in the local governments case the results of pursued policies highly depend on the social context, so the idea of producing summary measures of performance to compare very different situations is refused. On the contrary, in the case of universities there is a certain level of

homogeneity in the population served, and therefore the results of the service are more easily comparable.

- In the case of local governments, rankings are not done also because this would involve, implicitly, a comparison between different political positions. Territory administration and delivery of services are perceived as the most pragmatic policy action, but not necessarily the prevalent. Political bodies are, in fact, the trustees of voters' moral values and tensions: they are not perceived only as responsible of the territory government, but also as guarantors of a heritage of values. This represents a serious disincentive to the production of rankings, since citizens themselves would probably not accept it. In the case of universities instead, this aspect is not important.
- Practice of ranking has spread to higher education for a very pragmatic reason: families are used to make comparisons among schools. Even more, when it comes to decide about higher education, families need official information. The university study is seen as an investment – the most crucial – on the future of the young man/girl. Finally, it is likely that the practice of a universities' scoreboard, now established in several countries, has been echoed in Italy.

#### *Evolution of the funding system of HEI in Italy*

The Italian higher education system finances itself through a cost sharing model that involves both public and private funds: public funds come from the Government and other public institutions; private funds come from tuition fees, dismissals, contracts and agreements with enterprises and other private entities. Public contribution represents the major part of the funding system of universities: it varies from 78,6% in 2002 to 64% in 2004, showing the growing relevance acquired by private funds (mainly tuition fees) in the recent years (Agasisti & Catalano, 2006 ).

In 1993 the system through which the Italian Government finances public universities underwent a change. Before 1993 universities received from the Government specific sums that were to be used each for a specific destination, with the consequence that eventual savings would turn into a loss of funds as sums could not be diverted to other purposes: this turned out to be an implicit incentive to spend all the resources assigned, regardless of the actual need of them.

The new system, developed to overcome this and other inconveniences, has split the public financing of universities in three main funds:

- fund for the ordinary functioning of universities (FFO);
- fund for the construction of university buildings;
- fund for the planning of the university system development.

Since 1995, the FFO has been composed of two different parts: the “base amount”, which is distributed among universities on a historical basis and the “balancing amount”, which is distributed among universities according to criteria, defined by the Department of Higher Education (from now on DHE), related to standard production cost per student and to research qualification goals. The “balancing amount” also aims to reduce the differences in standard production costs among the various academic disciplines, considering the peculiarities of the various disciplines and the European standards.



From 1995 on, the base amount of the FFO was supposed to gradually decrease while the balancing amount was supposed to gradually grow till the entire FFO was to be finally distributed on a formula base.

While the balancing amount constantly grew in the period 1995-2003, it has not continued to grow in the recent years (Fig. 1); this is probably the consequence of the debate raised over the sustainability of the model due to the growing amount of fixed costs for permanent personnel and to the significant variations introduced in the formula since 2004, when the metrics started to consider measures related to research activities.

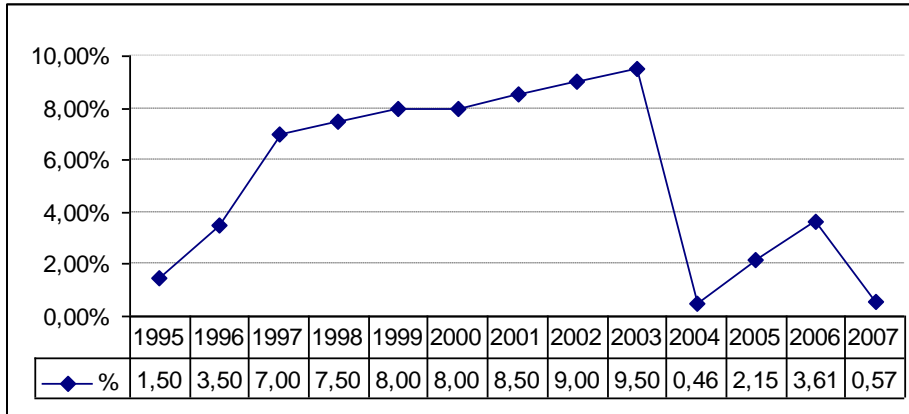


FIG. 1. Percentage of the balancing amount of the FFO over the entire fund

The balancing amount of the FFO serves a double purpose:

- on one side, it aims at a balanced distribution of resources among universities in order to grant students an equal amount of resources and services throughout the system;
- on the other side, it seeks to lead universities to improve their performance on a given set of goals (CNSVU, 2003).

The provision of financial incentives and disincentives represents the most effective means through which the DHE may govern the university system (CNSVU, 2004).

The formula based upon which the balancing amount of the FFO is distributed changed twice over the years. However, regardless of the metrics used, the method consists in determining the value the specific university assumes based on the application of the formula and in determining the weight of the value of the single university over the value of the entire system<sup>2</sup>: funds are therefore transferred based on the weight of the single university. The weight of each institution depends on a list of parameters, which have been changed over the last ten years. These metrics are used by the Department of Higher Education to rank the universities and distribute, on this basis, the FFO. This ranking explicitly aims to boost competition on public funds and, by doing this, achieve the Department’s policy goals.

The evolution of the universities’ assessment for public funding purposes

The approach adopted by the DHE for the distribution of funds has been evolving without interruptions since 1995. This evolution was stimulated by the context of increasing

<sup>2</sup> i.e.: the sum of the values assigned to the single institution.

accountability of all public agencies, as a consequence of people’s request for better public services at lower cost. From a first phase when the whole balancing fund was transferred on a cost basis, through a second stage where the volume of students and their learning results were introduced as competitive factors, the funding system has evolved in the last years into a third phase, where the number of students has lost most of its relevance in favour of research productivity.

TABLE 1 – Distribution criteria of the balancing amount from 1995 through 2007

| Years 1995-1997   | Years 1998-2003   | Years 2004-2007  |
|---|---|--|
| <ul style="list-style-type: none"> <li>▪ 100% based on the standard cost per student</li> </ul> | <ul style="list-style-type: none"> <li>▪ 70% based on the demand for higher education</li> <li>▪ 30% based on the result of higher education</li> </ul> | <ul style="list-style-type: none"> <li>▪ 1/3 based on the demand for higher education</li> <li>▪ 1/3 based on the results of higher education</li> <li>▪ 1/3 according to measures related to research activities</li> </ul> |

THE FIRST PHASE: FUND TRANSFER ON A STANDARD COST BASIS

In the years 1995-1997, the balancing amount of the FFO was distributed on the basis of the standard cost per student of the single university, compared to the cost of the entire system<sup>3</sup>.

The standard cost per student was determined through regression techniques and took into account activity levels (measured by the number of students), input prices (measured by the variance of average cost per professor compared to national values), technological characteristics of production units (measured by the existence of scientific degrees and the existence of students enrolled in medicine and veterinary medicine degrees) and process and product quality (measured by the number of exams taken per student, the number of square metres per student and the percentage of “regular”<sup>4</sup> students).

The variables were corrected in order to consider regional factors and to provide specific incentives, such as incentives for the decrease of the average time spent in order to graduate and for the reduction of the number of drop outs after the first year of enrolment.

<sup>3</sup> The formula was proposed by the Technical Committee for Public Expenditure (CTSP).

<sup>4</sup> i.e. students who are enrolled for a number of years that does not exceed the theoretical time needed to graduate

This formula had two limits: on one hand, it did not help to reduce the differences in standard production costs among the various academic disciplines<sup>5</sup>; on the other hand, it did not take into account research activities<sup>6</sup>.

The metrics were mainly focused on input measures, aiming at determining the amount of resources employed by the single institution in providing students with the requested services: the Government refunded the costs that universities had faced in responding to students' demands, applying, this way, an indirect voucher approach (Agasisti & Catalano, 2006). This approach emphasised efficiency: funding based on an average cost per student stimulated cost reductions in inefficient universities, since incomes from public funds covered expenses only within a certain amount. Neither process nor output or outcome measures were considered in the assessment, with the exception of the average time spent to graduate. Universities were still not accountable for results. There were two main reasons for this: (a) performance measurement systems suffered many shortcomings in all the public sector, and (b) the assessment of the output and outcome of the work of academic staff was perceived as a limit to the autonomy of higher education institutions and of the academic staff. More over, this funding approach reflected a bureaucratic approach to higher education, where fair use of public resources is emphasized instead of customer (addressee) needs and satisfaction.

## THE SECOND PHASE

From 1998 through 2002, 70% of the balancing amount of the FFO was distributed according to the demand for higher education and the remaining 30% according to the results of higher education.

As the new model also took into account output measures and partially replaced demand measures with results indicators, it represented a milestone in the evolution of the public financing model, which showed a shift from an indirect voucher approach to a performance rewarding logic.

The proposal of the CNVSU (National Council for University System Evaluation) originally foresaw a different distribution: 55% according to the demand of higher education, 20% based on the results of teaching and 25% according to the results of research activities. Since this kind of distribution implied a systematic evaluation of actual rather than potential research activity, which was not then available, the balancing amount was distributed as mentioned before<sup>7</sup>. Reforms often suffer the limits of the system which needs to be reformed: the increased awareness of the importance to consider research productivity in the assessment found a limit in the higher education system, which was not ready for this.

The distribution according to the demand for higher education was based on the standard cost per student in each academic discipline. Each "regular" student was assigned a standard cost index<sup>8</sup> which was composed of two parts: a fixed one and a part variable

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<sup>5</sup> Which is a goal of the distribution of the balancing amount of the FFO (art. 5, c. 8, l. 537/1993)

<sup>6</sup> See: The distribution of the balancing amount in 1996. Evaluation of model proposed by the Technical Committee for Public Expenditure, Observatory for the Evaluation of the University System, March 1997, p. 7

<sup>7</sup> The distribution of the balancing amount of the FFO: proposals for the years 1998-2000, Doc. 03/98, Observatory for the Evaluation of the University System, June 1998, p. 5-6

<sup>8</sup> Determined through regression analysis. See: The distribution of the balancing amount of the FFO: proposals for the years 1998-2000, Doc. 03/98, Observatory for the Evaluation of the University System, June 1998, p. 11

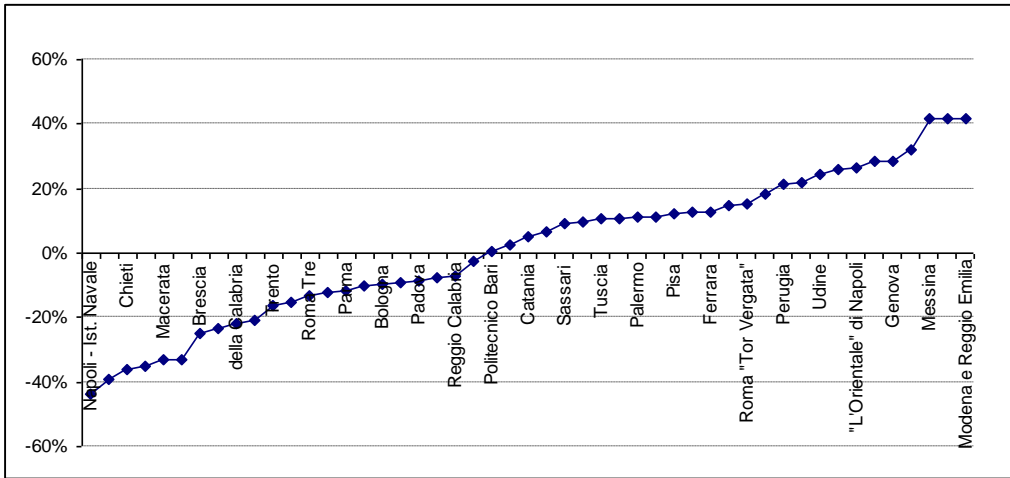
depending on the academic discipline, in order to take into account technological specificities and the different values of professors over students ratio. Also, in order to consider the effects of economies of scale, the standard cost index in each academic discipline lowered when the number of students went beyond a certain value.

The distribution according to the results of higher education was based on the number of “equivalent student” which was the rate between the number of exams passed and the average number of exams per year requested by the curricula. The formula therefore provided incentives for the increase of students’ productivity.

In 2003 the DHE invited the CNVSU to propose new criteria in order to take into account the innovations introduced in higher education organization<sup>9</sup> and to consider international standards in the evaluation process. Since the data available in 2003 did not allow analysing the effects of the new higher education organization, the formulation of new proposals was postponed to the following year.

As each year the balancing amount of the FFO was distributed among universities according to a ranking list based on this formula, its application - although limited to a small part of the entire FFO - forced universities to compete with each other<sup>10</sup>. Universities started adopting strategies more coherent with the goals set by the DHE, which resulted in a gradual reduction of the differences between the actual amount of the FFO and the theoretical one (i.e. the amount that the universities would have received if the whole amount of the found had been distributed according to the ranking list). As a matter of fact, if the distance from a balanced situation varied between -/+ 40% in 1998, the range of variation reduced to -/+ 20% in 2003.

The graphs below show, for each university, the distance from a balanced situation in 1998 (Fig. 2) and in 2003 (Fig. 3). Each point on the graph represents a university, although only a few are mentioned on the x-axis. Universities with a positive value are the ones who received an amount of funds higher than the theoretical one: the percentage expresses the rate of the difference between the effective and the theoretical amount of the fund over the theoretical amount of the fund.



<sup>9</sup> The higher education system has been organized, with this reform, in two levels:: first level degrees (that have a three years duration) and second level degrees (that have a two years duration)

<sup>10</sup> The distribution of the balancing amount and incentives from 1995 to 2002 and hypothesis per 2003 measures, Doc. 2/03, April 2003, p. 10

FIG. 2. Distance from a balanced situation in 1998

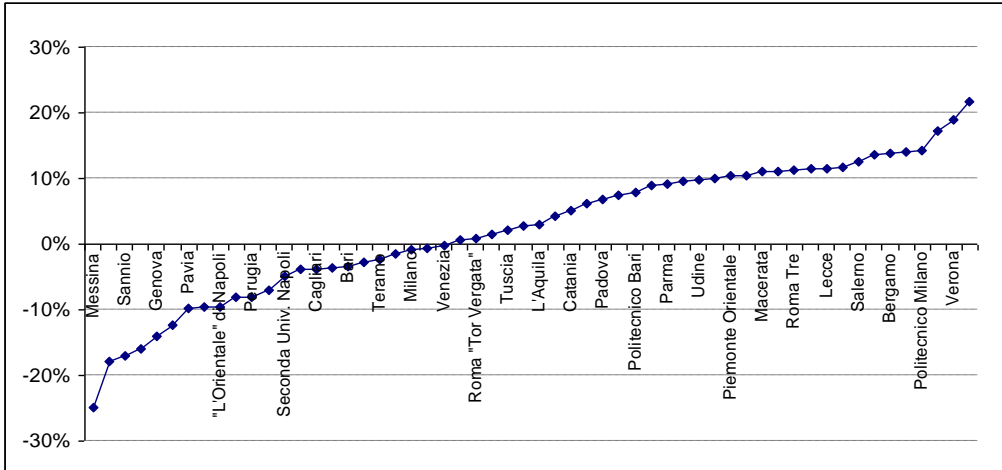


FIG. 3. Distance from a balanced situation in 2003

### THE THIRD PHASE

In 2004 the CNVSU proposed the adoption of a new formula. Based on this proposal, the balancing amount of the FFO is presently assigned according to the following criteria:

- 1/3 driven by the demand for higher education;
- 1/3 driven by the results of higher education;
- 1/3 driven by metrics related to research activities<sup>11</sup>.

The demand for higher education is expressed by the number of students enrolled in a single university, which is represented, in Italy, by the number of students who regularly pay tuition fees. Since different classes of degrees require a different amount of human and structural resources in order to function, the number of students is weighted differently based on the class of degree in which they are enrolled. The number of students enrolled for the first year is not counted, in order to discourage communication campaigns by universities pointing at the enrolment of students who are not eligible for the degrees and who would reasonably drop out after the first year and to encourage, on the other hand, student guidance before enrolment and tutoring afterwards<sup>12</sup>.

The weighted demand is then corrected by multiplying it by two different factors: the first one considers the number of degrees which meet minimum requirements in terms of resources, the other one considers the assessment of the degrees based on the results of a survey by the Evaluation Committees, which considers the following aspects:

- the availability of information concerning the degree;

<sup>11</sup> For 2006 distribution criteria, see: DM 28 March, 2006, prot. n. 207/2006, Act on the FFO distribution criteria in 2006

<sup>12</sup> Proposals for the construction of a new model for "theoretical" distribution of FFO among public universities, Doc. 1/04, CNVSU, January 2004, p. 13

- the existence of a stable group of professors to whom to refer to for matters regarding the degree;
- the provision of other quality measurement systems besides students' satisfaction surveys.

The results of higher education are expressed, for one third, by the number of credits gained each year by students and, for two thirds, by the number of students who annually graduate from each university, weighted in order to take into account the years of delay in gaining the degree. Universities are therefore pushed to attract a higher number of students in order to increase their weight in the system and, therefore, the amount of marginal resources transferred from the Government through the balancing amount of the FFO: in order to achieve this goal, they are likely to pay more attention to students' needs and to offer higher quality services.

On the other hand, universities might be tempted to accept lower level of performance by students, in order to increase their productivity measures and, therefore, the amount of funds transferred by the DHE. If productivity measures were balanced with outcome measures, such as the opinion of enterprises and other entities over the competence of the graduates they have hired, such behaviours would probably be prevented.

Since a quantitative and qualitative evaluation of research activity is an extremely complex and delicate process and, furthermore, very resource and time consuming, the CNVSU has opted for a different approach: it has provided for a formula that immediately takes into account measures related to research activities, in order to avoid the risk of an undetermined deferral.

The metrics related to research activities consider both input and output measures. Input measures are expressed by the research potential, which is given by the sum of all the human resources potentially dedicated to research activity (weighted differently depending on the kind of relationship with the institution) and by research funds raised by universities (CNSVU, 2004).

In order to take into account the productivity and the activity level, the research potential is then corrected by multiplying it for the average of two different factors: the first one considers the number of researchers who have received a positive answer to the PRIN (Research Programs of National Interest) research grants application; the second one considers the judgement expressed in the 2001-2003 evaluation of research products by CIVR (Research Evaluation Addressing Committee).

The research funds raised by universities are divided by the standard annual cost of an Assistant Professor, estimated in 50.000 €, in order to make it comparable with the research potential.

The formulas to estimate the demand for higher education, the results of higher education and the results of research activity are shown in the Appendix 1.

From 1999 on, the DHE has also distributed additional resources through three kinds of incentives assigned based on a series of goals set by the DHE itself. Therefore, these performance measures are additional to the metrics used for the distribution of FFO: although these measures don't result in any ranking, they complete the overview of variables considered by the DHE in order to assess the performance of universities. These metrics certainly influence the functioning of the higher education quasi-market and the universities policies.

The first kind of incentives refers to the results of education, research and management activities.

TABLE 2. Incentives assigned on the basis of the goals set by the DHE, in the 1999-2007 period

| Actions  | 1999 | 2000 | 2001 | 2002 | 2003   | 2004 | 2005 | 2006 | 2007 |
|--|------|------|------|------|--|------|------|------|------|
| Reduction of drop outs from 1st to 2nd year of enrolment                       |      | X    | X    | X    | The first three incentives have not been provided after 2002, as they have been absorbed in the new formula for the distribution of the balancing amount of the FFO. |      |      |      |      |
| Less time to gain the degree   |      | X    | X    | X    |  |      |      |      |      |
| Higher commitment of the university in research activity                       |      | X    | X    |      |  |      |      |      |      |
| Lower percentage of fixed costs for permanent personnel over FFO <sup>13</sup> | X    | X    | X    |      |  |      | X    | X    | X    |
| Higher quality standards in higher education offer                             |      |      |      |      |  |      | X    |      |      |
| Students' national register data base  |      |      |      |      |  |      |      |      | X    |

<sup>13</sup> The law nr. 449 of 1997 requires universities to keep the fixed costs for permanent personnel below the limit of 90% of the fund for the ordinary functioning (FFO). Universities that do not meet the requirement can hire new permanent personnel only within 35% of the resources released from turnover.

As a matter of fact, the formula for the demand of higher education does not consider the students enrolled for the first year, therefore providing an incentive for the reduction of the number of drop outs after the first year of enrolment; the formula for the results of higher education weights graduates differently based on the years of delay at graduation, therefore providing an incentive for the reduction of the number of years spent in order to graduate. Finally, from 2004 on, the formula begins to take into account measures related to research activities.

A specific incentive also regards the amount of fixed costs for permanent personnel and responds to the DHE's concerns over universities' efficiency, due to the continuous increase of such costs over the years.

The second kind of incentives (see Table 3) has been assigned in order to support particular actions. The DHE has contributed to the financing of a series of measures, requiring ex ante or ex post evaluation. The results of ex post review have determined, through the years, the amount of the incentive to become steadily assigned.

These incentives must be accounted for when examining the set of goals the DHE has assigned to the university system and the performance measures used for its evaluation; although they are not part of the model for the distribution of the balancing amount of the FFO, they still contribute to define the framework in which universities operate, which therefore also encourages:

- scholars' career development through mobility among universities within the Country;
- scholars' international work experiences;
- international cooperation.

TABLE 3.- Incentives assigned in order to support particular actions, in the 1999-2007 periods<sup>14</sup>

| Actions  | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|--|------|------|------|------|------|------|------|------|------|
| Professors mobility within the Country                               |      | X    |      |      |      |      |      |      |      |
| Reduction of students over professors ratio                          |      | X    | X    | X    | X    | X    | X    | X    | X    |
| Contracts with scholars and experts steadily engaged for work abroad |      |      | X    |      | X    | X    | X    |      | X    |

<sup>14</sup> For the years 1999-2002, see: The distribution of the balancing amount and incentives from 1995 to 2002 and hypothesis per 2003 measures, Doc. 2/03, April 2003, p. 7; for the years 2003-2007, see the Acts on the annual distribution of the FFO.



|  |   |  |   |  |  |  |   |   |   |
|--|---|--|---|--|--|--|---|---|---|
| Direct hiring of foreign or Italian scholars and experts engaged for work abroad |   |  |   |  |  |  |   | X | X |
| Direct hiring of world famous scholars   |   |  | X |  |  |  |   |   |   |
| Measures for people with disabilities  | X |  |   |  |  |  |   | X | X |
| Start of higher education reorganization   |   |  | X |  |  |  |   |   |   |
| University international cooperation   |   |  |   |  |  |  | X | X | X |

The third kind of incentives has been assigned in connection with particular organizational and environmental situations and generally has become steadily assigned thereafter.

TABLE 4 - Incentives assigned for particular situations, in the 1999-2007 period<sup>15</sup>

| Actions   | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
|---|------|------|------|------|------|------|------|------|------|
| Universities with social and economical problems      | X    | X    | X    |      |      |      |      |      |      |
| Newly born universities and other particular measures |      | X    | X    | X    | X    | X    | X    |      | X    |
| Increase of the resources                             |      | X    | X    | X    |      | X    | X    | X    |      |

<sup>15</sup> For the years 1999-2002, see: The distribution of the balancing amount and incentives from 1995 to 2002 and hypothesis per 2003 measures, Doc. 2/03, April 2003, p.8; for the years 2003-2007, see the Acts on the annual distribution of the FFO

|                             |  |  |  |  |  |  |  |   |   |
|-----------------------------|--|--|--|--|--|--|--|---|---|
| assigned to Special Schools |  |  |  |  |  |  |  |   |   |
| Consortiums of universities |  |  |  |  |  |  |  | X | X |

*Ranking, competition and entrepreneurialism*

We probably don't need one single definition, or description, of «entrepreneurial universities»: we can just realize that there are different kinds of entrepreneurialism, or different stages of development of the same phenomenon. It might be represented as a segment, delimited on one side by an extreme where single academics are change agents, while on the other end the whole institution operates as a company. The risks of the activity increase, together with profit opportunities and financial autonomy, along this segment (Fig. 4).

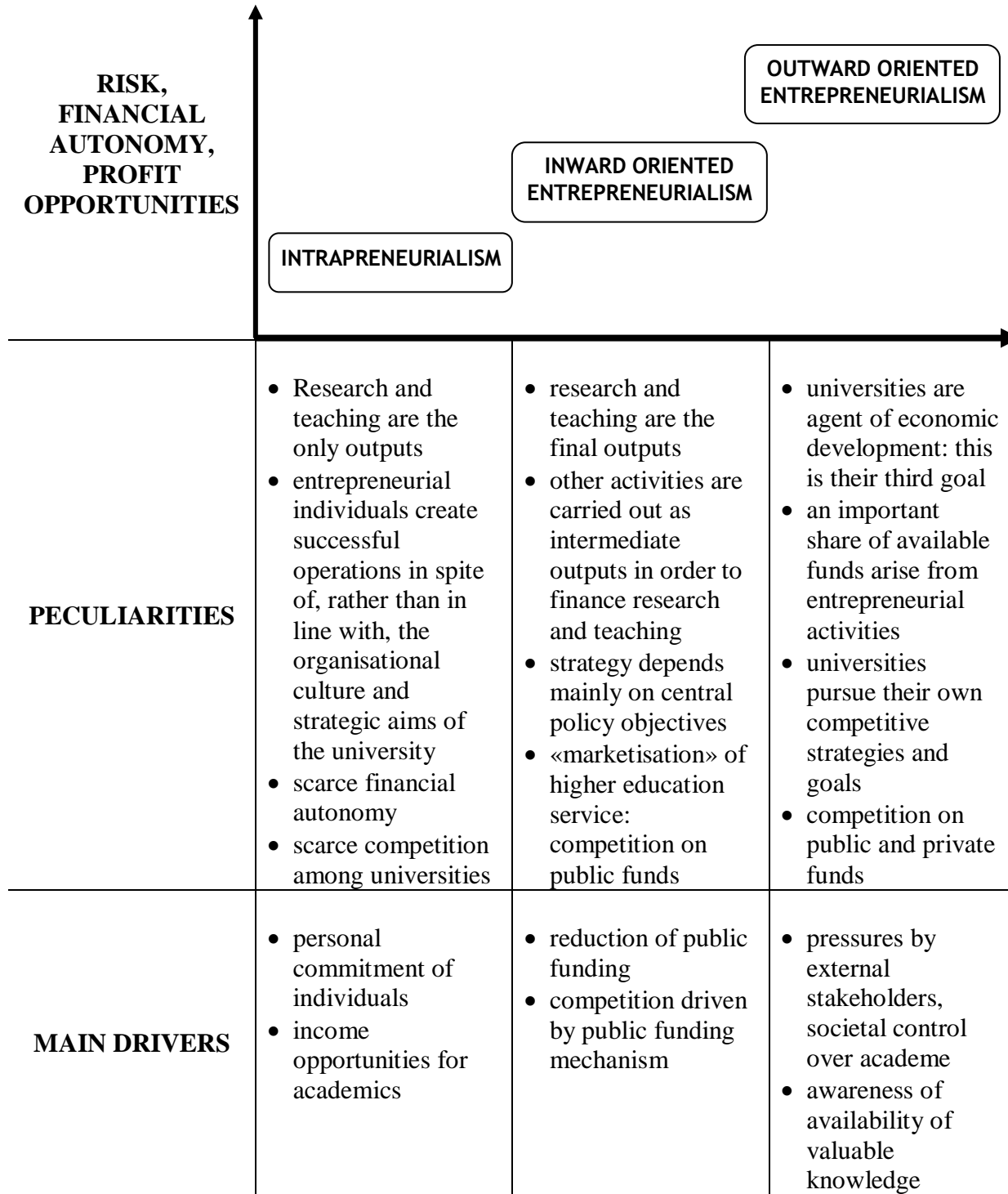


FIG. 4. Forms of entrepreneurialism in universities

In the Italian higher education system, entrepreneurialism is actually driven by two main factors:

1. as well as many other EU countries, Italy reports sharp reductions in public funding per student since 2000. Deficiency of available funds is an important driver of entrepreneurialism within the higher education system (Williams and Kitaev, 2005): since public funding and students' fees cover only just the ordinary, current level of activities and part of the needs of new properties and equipment, universities are induced to find new sources of funding. Italian universities can no more rely only on these sources of funding for the development of new research or teaching initiatives (hire young researchers, develop new international relationships, offer new courses and so on...).

The straitened circumstances are slowly producing a «cultural change» of higher education institution: their role is shifting from «public agencies», where public money is employed for teaching and research, to «entrepreneurs of knowledge», which can take advantage of their human capital in order to secure financial resources and produce public value. Nevertheless, there is a strong resistance within the academic community against this change: first, this new “entrepreneurial culture” implies departments to be managed by objectives, both in teaching and research activities. But assignment of objectives and performance measurement would make more accountable the academic class, which actually lives in a protected niche and doesn't want to lose this privilege.

Resistance to change arises also from the fear that if higher education shifted toward marketisation, and universities had to take care of their market position, their scientific and cultural autonomy would decline. The price for increased financial autonomy would be a loss in cultural and scientific autonomy: and many academics consider this price too high. Entrepreneurialism could, in this sense, be destructive of academic work, reducing research to consultancy, subordinating academic teaching to low level repetitive performance for financial return and encouraging an approach to university management based solely on financial criteria.

2. the second reason that gives impulse to entrepreneurialism in Italian universities is competition driven by the Government's funding policy. As mentioned before, the funding mechanism has shifted from a “*cost reimbursement*” system, where only efficiency was rewarded, to a “*multiple goals*” system, which was progressively widened to include objectives referring to demand of education, teaching results and research productivity. This mechanism has increased competition among institutions, stimulating the development of strategies to secure more public funds and students' fees. But, on the other hand, strategies are deeply influenced by central policy's objectives. As an effect of the actual funding system, all universities converge toward common strategic goals.

There is a sort of paradox in this phase of development of the higher education system in Italy: on one side, the policy of the DHE boosts competition and entrepreneurialism, while on the other hand, by influencing the goals of institutions, it hinders the birth of different models of universities. If the essence of entrepreneurialism is self directed autonomy (Shattock, 2003) then the expectation must be that it will produce greater institutional diversification within system-wide models. If universities become more market-oriented, more driven by individual initiative, more subject to risk taking, this should also lead to

greater diversity of mission and organisation. But, in the case of Italy, this diversification process didn't already start: almost all institutions aim at bigger dimension, increased number of students, and reduced average time for graduation. And to achieve these goals, universities tend to lower the standard of difficulty for students and to spend more public money in advertising campaigns. So, competition on public funds and students' fees implies a risk of "impoverishment" of the delivered service and a distorted use of resources, which should be spent for research or teaching improvement instead of communication.

The introduction of research productivity in the funding system is too recent to produce any observable effect, although it is likely that in few years it will have a profound impact on universities' strategies and culture. Competition on research productivity and the institution of an independent auditing board for the assessment of the quality of research are the leverages that can lead Italian universities toward a more complete and effective form of entrepreneurialism. The extension of funding rewards to the research activity will allow each university to choose its own model of growth, focusing on its points of strength. So, if on one hand the «multiple goals» funding system exert a strong influence on universities' strategy, by making all of them converge toward centrally stated goals, on the other hand the increase in the number of policy objectives will allow universities to develop their own strategy, choosing among a larger number of competitive factors. The third phase of the funding mechanism, with the introduction of research productivity in the metrics used to rank institutions, identify a new age of the higher education system in Italy, where each institution will autonomously state its own strategy. Managerial competencies will gain relevance in the government of the institutions, since the governing bodies will be expected to develop and communicate within the organization a precise strategy, according to the mission and the vision of the institution and based on a SWOT analysis.

As Fig. 2 and 3 demonstrate, the higher education system reacts quite quickly to the DHE ranking system: the behaviour of universities is strongly influenced by the metrics, even though the balancing amount of the FFO is only a little share of the whole transfer of public funds. A change in the metrics can therefore produce big improvements in the higher education system. Nevertheless, this process is far to be complete. Some other distortions of The Italian higher education system still need to be removed:

- the first one is an intrinsic characteristic of the system: it is definitively "domestic". Foreign researchers can rarely benefit of financial resources and in many fields research publications are debated within the Italian academy but do not in the international arena. As mentioned above, the Department of Higher Education has introduced incentives in order to overcome this weakness, but these measures are not enough incisive to change this scenario.
- the second distortion, which is probably not only Italian, is the incongruence between the competences requested by the labour market and the courses chosen by students. The policy of the Department of Higher Education does not provide incentives to students in order to influence their choices toward "scientific faculties", which particularly suffer reductions in the number of enrolments. Job opportunities are the only incentive for students to choose these faculties, while the DHE policy aims just at reducing the differences in students' fees of different faculties and courses. In this context, Universities behave like competitors: new courses offered aim at satisfying prospective students' ambitions in order to attract as more students as possible, but the negative impact of this policy can be easily forecasted.

However, the very recent act (DM 07.03.2007 n. 362) on the programming of universities for the period 2007-2009, represents a clear shift towards a more comprehensive kind of entrepreneurialism. Based on this act, universities are asked, from now on, to adopt strategic plans for the next three years, within the framework set by the DHE in terms of general goals and priorities; in doing so, universities are also encouraged to apply a SWOT analysis approach prior to developing the strategic plans.

The plans must be organized in the following five areas:

- a) higher education offer;
- b) research activities;
- c) support and services to students;
- d) international activities;
- e) human resources.

The single university can assign a different weight to each of the five areas within a range that goes from a minimum of 10% to a maximum of 30%: this should leave universities a higher level of autonomy in developing individual strategies. The DHE will measure the performance of universities during and at the end of the planning period based on a set of indicators that will be defined by the DHE; the assignment of part of the funds will also be linked to the improvements in the performance of the single university. It can therefore be said that there is a shift from the model of state control to the model of state supervision (Rinne and Koivula, 2005).

#### *The ranking of Censis-Repubblica (CRUG)*

As mentioned above, Italian Universities are ranked also by Censis SpA. The purpose of the analysis is not explicitly declared in this case, but its impact on Universities' reputation is clear. The results of the Censis analysis are published every year by one of the most popular Italian newspapers («la Repubblica») as a “Student's guide to Universities” (from now on: *Censis-Repubblica University Guide: CRUG*) which is distributed with the newspaper. This experience is neither new, nor typical of the Italian context: other famous headings, like «the Times» in UK and «die Zeit» in Germany have been distributing similar guides to prospective students since many years. The broad diffusion of the guide and the reliability of the source make this ranking very important for the reputation of Universities.

One can therefore say that, although the purpose of the ranking is not declared, the newspapers' editor aims at providing reliable information to students who need a guide into the higher education labyrinth. The goal of profitability is, probably, non secondary and should therefore be mentioned. The guide is used by students as the most important source of information on the quality of the service: since the final report gives the rank of each Faculty and Institution, the quality concept adopted in this analysis is not “absolute” but “comparative”. It is not surprising, therefore, that higher education institution tend to consider the Censis-Repubblica ranking as an important mean to increase Faculty reputation, attract more students and, consequently, more funds.

Two different rankings are made, one for Faculties and one for Universities. Since students are the main addressees of the analysis, more emphasis is given to the Faculties' ranking: services to students are, in fact, mainly delivered by Faculties.

Five attributes of the service are considered in this ranking. Each aspect is described and measured using some indicators, which are described in Table 5<sup>16</sup>:

TABLE 5. Indicators used in the Censis-Repubblica Ranking

| Family              | Indicators  |
|---------------------|---|
| Productivity<br>(P) | <ol style="list-style-type: none"> <li>1. % of students which continue the studies after the first year of enrolment</li> <li>2. % of credits gained by students on total available credits</li> <li>3. % of “regular” students</li> <li>4. % of students who got the degree within 3 years (first level degree)</li> <li>5. % of students who got the degree within 5 years (system before Higher education reform)</li> </ol>   |
| Teaching<br>(T)     | <ol style="list-style-type: none"> <li>1. n.° of course of study</li> <li>2. number of courses</li> <li>3. n.° of lecturers and professors on number of courses</li> <li>4. n.° of lecturers and professors on number of students</li> <li>5. number of seats on number of students</li> </ol>  |
| Research<br>(R)     | <ol style="list-style-type: none"> <li>1-3. n.° of research teams which got a grant from the DHE on number of Professors (in each of the last 3 years)</li> <li>4-6. % of academics who applied for a grant in the last 3 years</li> <li>7. % of successful applications for DHE grants in the last 3 years</li> <li>8. average value of grant received for research activities (in each of the last 3 years)</li> <li>9. number of research projects funded by EU</li> </ol> |

<sup>16</sup> The formulas used to measure each attribute of the service are described in appendix 2.

|                            |  |
|----------------------------|--|
| Professors' Profile (PP)   | <ol style="list-style-type: none"> <li>1. average age of lecturers and professors</li> <li>2. average age in 2006 – average age in 2001</li> <li>3. number of students involved in ERASMUS on number of professors</li> <li>4. % of courses delivered by non academics</li> <li>5. n.° of Italian researchers working abroad who came back to Italy taking advantage of DHE funds</li> </ol> |
| International outlook (IO) | <ol style="list-style-type: none"> <li>1. % of students who took advantage of a study period abroad in the year</li> <li>2. incoming ERASUMS students on total number of students</li> <li>3. n.° of hosting foreign universities</li> <li>4. n.° of academics' international experiences arising from European and bilateral programs</li> </ol>  |

Only data which are official (published by an institution), uniformed (obtained with a common methodology) and certified (definitive) are considered in this assessment.

The procedure to obtain the final ranking is simple:

- a) First, each attribute of the service is evaluated: for this purpose, the average of the standardised values of indicators is adopted. The standardisation is necessary in order to make comparable the indicators of different Faculties or Institutions on a 1 to 1000 scale. Let's assume, for instance, that the “% of regular students” indicator varies in a range between 55% and 80%. In such a context, a Faculty where 62% of students are regular, would record the following score:

$$((0,62-0,55)/(0,80-0,55) \times 1000 = 280$$

- b) Once each attribute of the service has been assessed, the average of the standardised value of each attribute is calculated in order to get the final score of each Faculty:

$$Score = \frac{std(P) + Std(T) + std(R) + std(PP) + std(IR)}{5}$$

The ranking of Universities ensues from a similar procedure. Of course, different families of indicators are considered:



4. *services to students*: number of meals delivered compared to number of students, accommodation (number of rooms; number of grants for accommodation), sport structures each 1000 students.
5. *number of scholarships each 100 students*
6. *structures*: number of seats in the classrooms compared to the number of students, number of seats in the libraries, and number of available places in the laboratories (on the number of students)
7. *web site*: a score is assigned by Censis SpA to the web sites of universities, on the basis of their functionality and contents.

This short description let us understand that this ranking is not comparable with the DHE's one. The two assessments measure different aspects of the performance. Therefore, a comparison between the two rankings would simply make no sense.

*Performance measurement, ranking techniques and objectives of the assessment: in search of a coherent approach*

This ranking methodology raises some important questions, on the appropriateness of the «ranking technique» and on the coherence between the «conceptual background» adopted and the objectives of the analysis. These are only apparently distinguished issues. The «ranking technique» should always be chosen in the light of the objective of the assessment.

Measurement is rarely an objective activity: never, when it refers to performances. Neither evaluation criteria nor the objects of evaluation are univocally determined. For instance, the carrying amount of a property in the balance sheet depends both on the destination of the property and on the objectives of the financial statement, which can vary depending on the situation of the company (going concern, business combination...). Moreover, the income of a company can change, depending on the perspective adopted in the evaluation: for income tax calculation purposes or for annual reporting to investors. Similarly, the performance measures of a responsibility centre depend on the budgeted goals and, after all, on the strategic objectives of the company. Because of the different objective characterising profit and non profit organizations, public institutions have adopted mainly cash-based accounting, while companies use accrual accounting to measure their performance. We could do many more examples. So, it is not surprising that performance measurement is not an objective science and that performance measures must be chosen coherently with the objective of the assessment.

Ranking is a particular kind of measurement, and it is never objective. The metrics of the ranking depend on the assessment's objectives, which are stated by the ranker. This subject must choose:

1. *which aspects of the performance to consider*: in the case of University ranking, which attributes of the higher education service. By choosing the attributes to be measured, the ranker implicitly provides its own definition of the performance or, in other words, which are its relevant dimensions.
2. *which measures, or indicators, can better explain each particular aspect of the performance*: usually, the attributes of a service (i.e. quality of teaching) depend on

- many factors, all of which need to be measured in order to achieve a more comprehensive and meaningful evaluation;
3. *whether some indicators are more important than others in the evaluation of a particular aspect of the performance*: in other terms, whether indicators should be weighted or not;
  4. *whether a synthetic formula should be adopted* in order to give a comprehensive evaluation of the performance as a whole; the alternative would be to keep separately each single aspect of the performance, and give a multidimensional evaluation.

Therefore, the problem of the ranking technique instigates debate about the appropriateness and weight of indicators (point 2 and 3), and about the opportunity to rank all institutions using a “total score” as the synthesis of all indicators (point 4). But, on the other hand, the choice of the ranking technique implies a description of the analysed phenomenon (point 1): and this description cannot be made without considering the objectives of the analysis.

The indicators adopted to rank universities, therefore, let us understand which concept of quality underlies the rank or, in other terms, how the ranker has described it. The CRUG takes into account input, process and output measures, but ignores students’ perception of the service and reputation within the academic community: this is surprising, for a ranking which addresses to prospective students. Many indicators, like the «number of professors compared to the number of students» can be reasonably considered as a quality driver, but in the meanwhile there is no doubt that quality in higher education depends first of all on individual teaching skills and many other “behavioural aspects”. This raises an important question on the appropriateness of formula-based rankings to give a comprehensive description of such a complex service. Does this kind of ranking provide reliable information to prospective students who need a guide for the choice of the Faculty? The risk of giving «distorted signals» cannot be ignored, also because a very small difference in one or two indicators can sometimes produce a big distance in the ranking of two similar faculties.

The type of indicators chosen by CRUG suggests some interesting element of analysis on the profile of «higher education quality» which comes out of the assessment:

1. Although students are not direct addressees of the research activity, the productivity of the academic staff is considered as an important signal of the vitality of a Faculty. Therefore, research is not ignored in the ranking<sup>17</sup>. This demonstrates that teaching and research are still perceived in Italy as inseparable activities of the higher education system. Research and teaching are considered complementary: students’ education, at university level, cannot excel if it is not accompanied by research activity
2. *Outcome indicators are almost ignored*: with the exception of the «% of retirements», outcome indicators do not play any role in defining the quality of the

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<sup>17</sup> Faculties are ranked taking into account also the research activity, which is however carried out by Departments. These are inter-faculties structures, where academics of different Faculties can interact in a common field of research. Faculties, on the other side, are deputed to the organisation of the teaching activities and other collateral services to students (internships, exchange programs...). Therefore, the output of one research project could be ascribed to different Faculties. To overcome this problem, the research output is simply attributed to all Faculties which contributed to the project.

service. This is particularly evident and relevant for research activities: the number and the average value of grants are used as synthetic indicators of quality and productivity of research, while the number of citations and/or of publications on high impact factor international journals are not considered. This can give rise to distorted information. So, the assumption underlying the CRUG analysis is that more “regular students”, more (and younger) professors, more courses, and so on, mean more quality. Namely, this ranking methodology assumes that the quality of a Faculty (or, we can say, of services provided) can be measured as (and ascribed to) the combined effect of available resources (inputs, e.g. number of professors), characteristics of the teaching process (e.g. number of credits gained) or of the volume of output (e.g. % of graduates): and, to assess the quality of the service, only indicators of input, process and output are considered.

This approach is frequently adopted, in many fields of Italian public administration, for the selection of public services’ suppliers: to be accredited as suppliers, companies must observe some standards, which are set using input, process and output indicators. But in that case, standards evocate a minimum quality level, which every entity must assure in order to be considered as a potential supplier of social services. This *ex-ante* requirement represents a “boundary control system” (R.Simons, 1995), and states “what should not be done” (to choose a public services supplier which does not observe a standard). It is then often followed up by customer satisfaction surveys, which are *ex-post* controls aiming at evaluating the performance or, in other words, the achievement of goals: surveys can be considered, therefore, a kind of “diagnostic control system”.

The CRUG ranking is based on input, process and output indicators: it is not adequate as diagnostic control system for the assessment of a complex service like higher education, simply because it is incomplete. And incomplete performance measures led to opportunistic behaviours, aiming at system cheating. The development of system wide measures that do not encompass the full range of outcomes may be neither valid nor accepted as a legitimate representation of system-wide performance.

Performance measures used by Censis-Repubblica can assess whether, and how, universities respect some prerequisites for service delivery: but the use of these indicators to compare the performances of different institutions, and not just to check whether some minimal conditions are observed, can produce distorted signals. The exclusion of outcome indicators from the assessment represents an advantage in terms of objectivity, but in the meanwhile it is a strong shortcoming, if we only consider that higher education is an «experiential service» (Minelli, Rebora, Turri, 2005), which quality (i.e. learning, knowledge...) depends first and foremost on behavioural aspects, like the relationships between professors and students, the «way of teaching and studying», or the «net of relationships a student can benefit».

A concise comparison among the Italian experience (CRUG ranking) and alternative approaches used in other countries (Strehl, Reisinger and Kalatschan, 2007), will allow us to do some other remarks on the ranking methodology analysed here. University rankings are quite common in many countries. The analysis is always multidimensional, in the sense that families of indicators are used in order to evaluate different attributes of the service. This

approach is well-established and widespread; this confirms that rankings are internationally legitimated as measurement systems. Nevertheless, there are many remarkable differences among ranking methodologies.

Probably, the two most known rankings in Europe are the Times Higher Education Supplement (THES) and the CHE Ranking which is distributed by the newspaper “die Zeit” in German speaking Countries.

The THES considers Universities from all over the world. Therefore, it is much broader than the Italian assessment: this is the first and more evident distinction. But differences in the methodology are more relevant for our purposes:

1. THES gives much more relevance to research quality (60% of the final score) than the CRUG assessment does. The other families of indicators refer to “graduate employability” (10%), international outlook (10%) and teaching quality (this score is based on student/faculty ratio: 20%). Outcome indicators (reputation, research citation, graduate employability...) play a more important role in this ranking than in CRUG;
2. 40% of the Research Quality assessment (which weight is 60% of the total score) is a composite score drawn from peer review (which is divided into five subject areas). This methodology is absolutely absent in the Italian approach. The assessment criteria of the THES are more subjective and face criticism due to this approach.

The CHE ranking in Germany considers a longer list of families of indicators: peculiarities and number of students, results of the learning process, international orientation, research, teaching, equipment and other structures, graduate employability, location of the University and housing conditions, general judgement by students and academics.

Most of these attributes are considered also in the CRUG assessment. The main difference between the German and the Italian experience is the use of subjective data, i.e. peer evaluation and students’ satisfaction surveys, which is absent in CRUG assessment. Two are the reasons of this choice of the CRUG: (a) the collection of subjective data is very expensive and time consuming, and (b) the requisite of objectivity is one of the fundamental principles adopted in the CRUG approach.

A costs-benefits analysis of the adoption of subjective measures for ranking purposes should be done: subjectivity might reduce the reliability of the assessment while, on the other hand, “objective” data (input, process and output measures) might be inadequate for the construction of a comprehensive diagnostic performance measurement system. This trade-off can be get through with a strict (and costly) methodology for the collection of subjective information.

A second important difference between the German and the Italian experience is that CHE approach refuses the adoption of a synthetic indicator to assess the effectiveness of each institution as a whole. CHE uses therefore a multidimensional analysis, where each attribute of the higher education service is analysed separately. This results in a report where weaknesses and strengths of faculties are reported, instead of a ranking list with losers and winners as happens in Italy. This kind of analysis and reporting is more painstaking: as a metaphor, we might use the case of the comparison of two companies with the same ROE (a synthetic performance measure). Every saver knows that similar ROE do not mean necessarily similar performance: everybody would consider the financial position, or the revenues trend, and so on... Although synthetic indicators summarise many aspect of the performance of an organization, they often hide relevant information. *Institutions should not*

*be ranked as a whole but on their various functions taken separately including the different aspects of research and teaching, and the different disciplines, locations and discrete service functions, The system of rankings should be based on a transparent balance of facts about performance and perceptions of performance based on peer review. Ranking methods should generate information relevant for different stakeholders and provide data and information that are internationally accessible and comparative. Because quality is in the eye of the beholder, ranking should be interactive for users, particularly students. Users should be able to interrogate the data on institutional performance using their own chosen criteria (Marginson and van der Wende, 2007)*

So, why do most Universities rankings all around the world use a synthetic indicator? The main reason is simplicity: students - as “inexperienced investors” looking at ROE - need simple measures that can be easily understood. They are used to reading rankings: on sports, movies, music and so on. And the newspaper editors know this attitude: therefore, they sacrifice the scientific rigour of the assessment in favour of more “user friendly” information, which serve the editors’ purpose: to sell copies and to make profit. Nevertheless, even a “distorted signal” can stimulate virtuous behaviours in universities: the pressure of external assessments may produce positive changes, insofar as some important attributes of the service become object of goal settings by institutions. And, in this perspective, the Censis-Repubblica ranking has the merit of considering also the international outlook.

### 3. Conclusions

Although assessments of the quality of public services are made more and more often, and the demand for public accountability is growing, rankings are not widely used in Italy. The higher education institutions, instead, are ranked with two different metrics, for different purposes and from different perspective.

The reasons for this different treatment of Universities are various, and depend both on the characteristics of the service (perceived as an investment for the future; no political implications) and of the system (the Department can strongly influence the choices of universities; the addressees of the higher education constitute an homogenous population).

The rankings analysed in this paper, both the DHE and the Censis Repubblica one, apply different metrics for different purposes: the first one analyses universities’ performance, the second one focuses mainly on Faculties. The use of a ranking in the financing system creates, on one side, a *quasi - market* situation as it forces universities to compete with each other in the access to public funds, favouring, this way, universities’ entrepreneurialism. Meanwhile, however, rankings influence significantly universities’ strategic goals, restricting their autonomy in developing an individual strategy, which represents the key element of entrepreneurialism.

In a managerial approach, the mission and strategy provide the focal point for development of the measurement approach. Rankings stimulate the opposite dynamic: the measurement approach becomes the basis for strategy development.

In the Italian system, where a management by objectives approach is not yet widespread, this isn’t altogether negative, even though it cannot represent the final stage of universities’ path towards entrepreneurialism. The DHE ranking can therefore help

universities' evolution to a new stage of entrepreneurialism. This will gradually enhance the importance of managerial abilities within universities.

From this point of view, ranking can be interpreted as an external measurement system over universities' performance which aims at the development of an internal control system over results. This mechanism can work as far as the ranking (which applies the same metrics to all subjects) encourages the development of individual strategies and, therefore, of individual performance measurement systems based on indicators coherent with the individual strategy adopted by the single university.

The Censis Repubblica ranking has instead the purpose to advice potential students who are about to enrol in a Faculty. The measurement system is based on input, process and output indicators, which are more objective and more easily measurable. The evaluator seems to prefer parameters that are likely to grant a higher level of objectivity because they can assure the precision and reliability of the measurement system. However, the lack of outcome measures makes the analysis of a complex service, such as that of higher education, rather rough and reduces considerably the significance of the ranking. Besides, the use of a single synthetic indicator that summarizes in a single figure the judgement over the various activities of a Faculty should be rejected: as a matter of fact, it may cause potential students to rely upon a single performance measure that inevitably hides relevant aspects that should be considered. It would be much more effective to apply a multidimensional approach, as it happens for the German CHE, where the final report highlights the strengths and the weaknesses of each Faculty instead of offering a snapshot of the overall performance of the single Faculty that pretends to be objective and synthetic at the same time.

## APPENDIX 1

**Metrics used by the DHE in the third phase****1. Formula to estimate the demand for higher education**

*(Source: Proposals for the construction of a new model for “theoretical” distribution of FFO among public universities, Doc. 1/04, CNVSU):*

$$\text{Demand} = K_A \times [\alpha_1 \times FTE_{RA} + \beta_1 \times FTE_{RB} + \gamma_1 \times FTE_{RC} + \delta_1 \times FTE_{RD}]$$

Where:

$\alpha_1, \beta_1, \gamma_1, \delta_1$  = weights applied to the four groups of degrees

$FTE_{RA}, FTE_{RB}, FTE_{RC}, FTE_{RD}$  = number of “regular” full time equivalent students referred to the four groups of degrees

$$K_A = K_{A:RM} \times K_{A:Q}$$

$K_{A:RM}$  = Nr. of degrees that meet minimum standard requirements / Total nr. of degrees

$K_{A:Q}$  = Nr. of degrees with a positive judgment / Nr. of degrees under evaluation\*

The original proposal by the CNVSU also requires:

1. part time students to be separately accounted for based on the number of credits they commit for each year; as part time students also determine higher level of costs, the CNVSU recommends to increase their number by a certain percentage
2. to consider other corrective factors: one for newly born universities, one for universities that offer degrees referred to a limited number of classes, and one for small universities.
3. to use lower weights for students enrolled in second level degrees, and to increase by 50% their number in case they have graduated from a different university, in order to favour students’ mobility within the Country when passing from first to second level degrees.

This part of the model is not yet implemented.

\* By the Evaluation Committee of the single university

**Formulas to estimate the results of higher education:**

*(Source: Methodological observations and corrective proposals for a first application of the “Model for the theoretical distribution of FFO among public universities”-CNVSU (DOC 1/04), CRUI, 2004)*

**I) Number of credits:**

$$\text{Results (credits)} = K_A \times [\alpha_2 \times Cfu_A + \beta_2 \times Cfu_B + \gamma_2 \times Cfu_C + \delta_2 \times Cfu_D]$$

Where:

$K_A$  = average of selected corrective factors (so far equal to one)

$\alpha_2, \beta_2, \gamma_2, \delta_2$  = weights applied to the four groups of degrees (so far equal to one)

$Cfu_A, Cfu_B, Cfu_C, Cfu_D$  = Nr. of credits gained by the students considered in the “demand” part of the formula, belonging to the four groups of degrees

The original proposal by the CNVSU requires the number of credits gained by foreign students or by Italian students abroad on international exchange programs to be increased by 50%. However, this part of the model is not yet implemented.

**II) Number of graduates:**

$$\text{Results (graduates)} = K_A \times F_{QD} \times [\alpha_2 \times NL_{corrA} + \beta_2 \times NL_{corrB} + \gamma_2 \times NL_{corrC} + \delta_2 \times NL_{corrD}]$$

Where:

$NL$  = Nr. of graduates

$NL_{corr} = (C_R) (C_D) NL$

$C_R = (0,7)^{AR}$

$AR$  = delay at graduation compared to the theoretical duration of the degree

$C_D = D/3$

$D$  = theoretical duration of the degree

$K_A$  = average of selected corrective factors (so far equal to one)



**Formulas to estimate the results of higher education:**

$$\text{Results of research activity} = Pot_{ric(corr)} + RIC_{FE}$$

Where:

$$Pot_{ric(corr)} = Pot_{ric} \times F_{corr}$$

$$F_{corr} = \text{average} (F_{PRIN}; F_{CIVR})$$

$Pot_{ric}$  =  $\sum$  weighted human resources potentially involved in research activity

$$F_{PRIN} = \left( 1 + \frac{1}{3} \sum_{i=1}^{14} w_i \frac{K_{Ateneo,i}}{K_{nazionalei}} \right)^2$$

$$K_{Ateneo,i} = \frac{m_{i,j}}{D_{i,j}}$$

$$K_{nazionalei} = \frac{m_i}{D_i}$$

$D_{ij}$  = Nr. of researchers in research area “i” in university “j”

$m_{ij}$  = Nr. researchers in university “j” participating in a PRIN project in research area “i” with a positive evaluation

$F_{CIVR}$  = (Nr. of weighted projects / Total nr. of projects) / Ratio average

$$RIC_{FE} = FE_{ric}/50.000$$

The original proposal by the CNVVSU foresees the research potential to be used only in 2004 distribution of funds. As a matter of fact, from 2005 on, the research potential was meant to be replaced with the number of productive personnel as resulting from national research data base. However, delays in the construction of the national research data base have prevented the DHE from applying the formula as originally foreseen.

**APPENDIX 2: metrics used by CRUG****The Productivity index is:**

$$P = \frac{stdP1 + stdP2 + stdP3 + std[(stdP4 \times n1 + stdP5 \times n2)/(n1 + n2)]}{4}$$

Where stdPn are the standardised values of the 5 variables described in the text P(1...n) and n1, n2 are the number of students, respectively of the bachelors' degree courses (BA) and of the AM (master of art) degree courses .

**The Research productivity index is:**

$$R = \frac{std\{[std(R1) + std(R2) + std(R3)]/3\} + std\{[std(R4) + std(D5) + std(R6)]/3\} + std(R7)*0,5 + std(R8)*0,5}{4} *k$$

If std(R9)=0 k = 1,000

If 0 &lt; std(R9) ≤ 333 k = 1,050

If 333 &lt; std(R9) ≤ 666 k = 1,075

if 666 &lt; std(R9) k = 1,100

**The Academics' Profile index:**

$$AP = \frac{std\{[std(AP1) + std(AP2)]/2\} + std(AP3)*0,5 + std(AP4)*0,5}{3} *k$$

If AP5 =0 k = 1,00

If AP5 &gt;0 k = 1,05

**The formula for the assessment of the International Relationships is:**

$$IR = \frac{std(IR1) + std(IR2) + std(IR3)}{3} *k$$

if std(IR4)=0 k = 1,000

If 0 &lt; std(IR4) ≤ 333 k = 1,050

If 333 &lt; std(IR4) ≤ 666 k = 1,075

If 666 &lt; std(IR4) k = 1,100

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