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Evaluating Appraisers' Research: uncertainties and risks

This work was inspired by some of the ideas introduced during the CESET Meeting "Appraisal – University Education and Professional Practice", that took place in Rome on November 19, 2010. This meeting aimed at drawing a balance of the status of appraisal discipline.

In addition to that, the paper faces all the perspectives of research for this discipline following the reform of the University system in Italy. We will therefore offer some critical reflections developed in the light of the new measures adopted: regrouping of scientific-disciplinary sectors, introduction of national-scale qualification processes, definition of innovative criteria to evaluate research activities and their results.

Key words: *Appraisal*
University education,
appraisal research evaluation,
Italian University reform

1. Introduction

With the introduction of Law no. 240 of December 30, 2010 and subsequent Enacting Decrees the process of adaptation of the Italian university system has started. The innovations introduced are beginning to have their first effects, especially considering the new "competition sectors" and the public qualification procedures; moreover, thanks to the introduction of new indicators for the evaluation of scientific production, new rules for research evaluation are being decided. However, while in some disciplines the reform seems to proceed without relevant critical problems because in some sectors scientific research was and still is evaluated with bibliometric indices and is circulated chiefly through various international channels, other sectors are adopting the innovations slowly and with some difficulties as they are inconsistent with the features and nature of their sector's scientific products.

The appraisal sector is one of those most affected by the new regulations, because of a) its having been included in a competition sector together with other subjects which are quite different and with a strong identity, and b) the fact that said competition sector is one of those subject to a bibliometric evaluation,¹ a fact that

¹ The definition of "bibliometric sectors" and "non-bibliometric sectors" is made by the ANVUR (National Agency for the Evaluation of Universities and Research Institutes) in Decision no. 50/2012.

implies a modality of circulation of scientific works produced rather different from the one usually employed in this sector. The Directorate Decree no. 181 of June 27, 2012 started the procedure of setting-up of commissions for the first turn of national qualifications even if the debate on the competition sector, the use of bibliometric indices and the research products subject to be evaluated had just started.

This paper aims at pointing out the limited awareness of the effects the reform would produce and the risks the valuation sector would be exposed to if the measures taken and the changes brought about were not sufficiently consistent with the current modalities of scientific works production of this discipline. Luckily the regulations governing the reform provide for periodical institutional reviews of both the suitability and consistency of criteria, parameters and indices (Art. 9, Ministry Decree no. 76 of June 07, 2012 - "Decreto Abilitazioni" [Qualifications Criteria]) and the competition classes (Art. 5, Ministry Decree no. 336 of July 29, 2012 - "Determinazione Macrosettori Concorsuali" [Definition of Competition Sectors]). The need to make more consistent and sensible choices in the review stage is still a pressing one.

2. Appraisal in the Architecture and Engineering Faculties

Appraisal has always been a service available to economic justice and it is based on a corpus of interdisciplinary studies that integrates engineering and architecture skills with many and multi-varied knowledge including those in the fields of economics, statistics and financial mathematics. Over the last 30 years there has been a major expansion, both in quality and in quantity, in this discipline also following the globalisation and financialisation of economics, the technological development and the new operational fields that require those skills. The Private Appraisal sector has been joined by a Public one in which assessment of non-exclusive use assets has acquired a dominant role; Agricultural appraisal on has been joined by real estate, urban, environmental and cultural heritage appraisal. Lands and buildings are evaluated together with facilities, infrastructures and the landscape; the criteria of market value and cost value have been integrated with use value and total economic value. Competence in expressing "Choice judgments" has been added to competence concerning "Value judgments". Purely estimate-based approaches have broadened their scope towards encompassing financial analysis, cost-benefits analysis and multi-dimensional analysis, implementing the participatory evaluation processes. In the Engineering and Architecture Faculties appraisal research took a cross-disciplinary position.

Despite such a broadening of horizons of this discipline, which leads to an increase in the heterogeneity of the research themes, the scientific research community, going against the trend of the other communities at national level², is still a

² The number of University Researchers in Italy has grown considerably; an interesting snapshot by CINECA has proven that from 1990 to 2005 the number of researchers in Italy in-

small number as of today. Indeed, the Appraisal sector is, as of today, composed by 17 Full Professors (about 0.11% of the national total), 14 Associate Professors (about 0.09% of the national total) and lastly by 35 Researchers (0.14% of all Italian Researchers); the total of the three levels for the Appraisal sector (66 units) correspond to about 0.12% of all of the scientific-disciplinary sectors³. If we compare these data with the smaller set of the scientific-disciplinary sectors in Area 08 - Civil Engineering and Architecture, the weight of the appraisal sector is the following: Researchers represent about 2.3% of total researchers of Area 08, Associate Professors account for 1.3% and, lastly Full Professors are about 1.8%; as a whole, the teachers in this sector account for 1.9% of the Area total. While the number of the teaching staff in this scientific sector is small, the Italian Appraisal sector has always stood out for the recognisability and absolute relevance of its scientific production.

As regards the research activity, the appraisal production basically consists of chiefly national publications, namely of the following types:

- scientific papers, essays, books (with one or more authors);
- editing of books, characterised by the careful designing of the whole volume and the attention to consistency of the different contributions, by a substantial and well-articulated introduction or an introductory or final essay.

Evaluation of research quality usually took into account:

- criteria such as relevance of the subject, originality, innovation, theoretical relevance and methodological consistency;
- continuity of scientific production over time.

Little or no relevance has instead been assigned to the bibliometric indicators and indices or, more generally speaking, scientometric indicators. This consolidated tradition has been recently integrated with an evaluation based also on quality indicators of the publications at international levels but only in the early stages of the academic career and in special situations.

In other words, so far, the appraisal sector has never used bibliometric indicators because the sector rarely published on journals inserted in the international data banks. This is further confirmed by their limited presence in the main *international* databases⁴ of scientific products of the current 66 researchers and Full/Associated professors in this sector. Indeed, in the *Scopus* database there are a little more than 75 products that can be traced back to the current contributors in this

creased by 48% (from 14,456 to 21,531) while the number of Associate professors remained unchanged and the number of full professors has now reached the number of associate professors. As of today, the total number of Researchers is 24,954 (23,498 in State Universities and 1,096 in non-state owned Universities), i.e. there has been a 12.45% increase in researchers from 2005.

³ Data taken from the Ministry of University and Research, processed by us.

⁴ For the main international data bases we used as a reference the definition found in Art. 1 of the Decision no. 50/2012 of ANVUR, that is the data banks of ISI Web of Science and Scopus.

sector while in the *database ISI-Web of Science*, which is usually more selective compared to Scopus, there are about 34 scientific products of which more than a half comes from just three people⁵.

Teaching too has been reached by this enhancement of the discipline. Regardless of the decrease in the sheer size of university teaching staff⁶, the University Degree courses in Italian faculties containing Appraisal have increased and presently the discipline is found in 7 Second Level University Degree courses and in 5 First Level (3-year) Degree Courses. In order to have a better view of the presence of Appraisal in Area 08-Civil Engineering and Architecture please refer to the following data ⁷:

- the Appraisal courses are part of the Degree Courses in Engineering Faculties (40%), of the Degree Courses in Architecture Faculties (slightly more than 50%), of the Degree Courses in Land and Urban Planning Faculties (6%), and of the Degree Courses in other Faculties (4%);
- the Engineering Faculties have a smaller number of Appraisal courses which, however, reward students with a higher number of Credits compared to Architecture;
- about 47% of the Appraisal courses is part of the 3-year Degree Courses while 20% of them are part of the 2-year Specialisation Degree Courses and lastly 33% is part of the 5-year University Degree Courses (this basically consists of the Architecture Faculties in which Appraisal is a Core discipline, worth at least 8 credits).

Sadly, the credits assigned to Appraisal are rather inadequate for the educational purpose of complex professional figures like Architects or Engineers, both for the 3-year and 5-year degree courses especially if we compare them with the wide range of professional opportunities this discipline offers, a range which we can reasonably think will further broaden. Indeed, in the planning sector (including archi-

⁵ The number of scientific products has been detected by means of the insertion in the ISI and Scopus databases, of the names of the individual belonging to this sector by checking the academic institution the individual belongs to and the relevance of the proposed theme. The works made by more than one member of this field have been counted only once. Lastly, the two quantities (ISE and Scopus) cannot be summed together because the check on repeated scientific works was not made on both databases; in other words it has been presumed that the products in the ISI databases are found also in the Scopus database.

⁶ Considering the data provided by CINECA about 2005 and comparing it with current information in the University Ministry site, we can note that the number of Associated Professor shifted from 18,353 in 2005 to the present number of 16,475, which consists of a 10.2% drop. As regards Full Professors, there has been a drop from 18,412 (in 2005) to 15,173 (now) that is a drop of about 17.6%. In other words, while the number of Researchers over the last 7 years grew by about 12.5%, the number of associate and full professors dropped of about 14%.

⁷ Data supplied by Professor Vito Cardone (Chair of the Engineering Faculties Deans Committee) in the report submitted as part of the CeSET (Italian Association of Appraisers and Land Economists) meeting "Appraisal - University Education and the Professional Practice" that took place in Rome on November 19, 2010.

tectural, urban and restoration design, regional, landscape and environmental planning) Appraisal can prove to be significantly helpful in different stages of the work: from project development to actual planning (preliminary, final and executive), from the execution stage up to the management stage; and for all these operational activities valuation may be carried out *ex ante*, with a reviewing, estimating purpose, *in progress*, with a control and checking function, and *ex post*, for verification purposes. In the real estate investment sectors valuation has the key role of helping ascertaining suitability of measures which makes it necessary to provide broader and deeper cultural bases on the various elements that condition the investments, the market dynamics and the financial flows that can be generated in the light of the recent phenomena of globalisation and financialisation. Another key sector is that of evaluations for public interest or complex decision making purposes. All these skills would require a reinforcement of the role that Appraisal plays.

The appraisal of a real estate asset or a project may require not just economic skills, but also an accurate knowledge of aspects related to technology, construction science and techniques, history and so on. The Engineering and Architecture Degree Courses have the potential to fully respond to the training needs in the two knowledge areas described before. From this strong, unbreakable interaction and bond between the technical and economic aspects derives the key feature of Appraisal and therefore its autonomy and cross-disciplinarity in the Architecture and Engineering Faculties.

In addition to the need of increasing the key quantitative components of the appraisal sector it is necessary to work towards an increase in its quality, in particular considering the international scale of operations. Italy can prove itself also in this sector thanks to the quality of the contributions it can offer, based on recovering the history of the subject and opening up to innovative processes.

3. The University Reform: structure and effects on the appraisal sector

When Law no. 240 of December 30, 2010 was issued it was followed by Enactment Decrees, which had the function of further defining the Law's framework and making it executive, and a series of Decisions and Measures by the different bodies involved in the reform. In particular, the recently issued laws and regulations dealt with regulating the system to be used in future for granting qualifications for Professors (full and associated) and criteria for evaluating research as part of the qualification process. In this paper we will propose some of the most important innovations introduced, highlighting those who have a stronger impact on the appraisal sector (see Table 1).

The main effects of the University Reform on Appraisal (Scientific-disciplinary sector ICAR/22-Appraisal), can be summarised in the following two essential points:

- incorporating Icar/22 in a single competition sector (08/A3), together with sectors Icar/04-Roads, Railways and Airports and Icar/05-Transportation (as per the effect of the Ministry Decree no. 336 of July 29, 2011);

Table 1. Synoptic outline of the main laws and regulation of university reform.

LEGAL AND REGULATORY SOURCES	KEY INNOVATIONS INTRODUCED
<i>Law no. 240 of December 30, 2010</i> Regulations concerning the organisation of universities and academic staff and hiring; assignment of a mandate to the Government for introducing all measures aimed at increasing quality and efficiency of the University Education System	Reorganisation of the Departments, now entrusted with management and organisation of the Teaching sector • Reform of scientific-disciplinary sectors that shall be such as to allow the institution of a national scientific qualification system for Full Professors and Associated Professors • New criteria for access to the university and for evaluation of the teaching staff (criteria concern both those being evaluated and those entrusted with the evaluation) • Abolition of the “indefinite term researcher” • Establishment of teaching and scientific activity mechanisms strictly related to production output, internationality and fund-attraction capabilities
<i>Presidential Decree no. 76 of February 01, 2011</i> Regulation on the structure and operation of ANVUR	Reinforcing ANVUR’s role, with the assignment of the following tasks: a) evaluating quality of University activities basing on an annual programme approved by the Ministry of the University and Research; b) addressing, coordinating and monitoring the evaluation activities entrusted to internal evaluation units of the individual universities and research institutions; c) evaluating efficiency and effectiveness of the governmental programmes of funding and stimulating research and innovation activities
<i>Ministry Decree no. 336 of July 29, 2011</i> Definition of competition sectors as groups of scientific-disciplinary sectors	Definition of the Competition Sectors as groups of Scientific-Disciplinary Sectors • List of the Competition Sectors and descriptive statements of each sector, as per Annexes A and B to the decree • Inclusion of Sector Icar/22- Appraisal in Competition Sector 08/A3 together with sectors Icar/05 - Transportation and Icar/04 - Roads, Railways and Airports
<i>Presidential Decree no. 222 of September 14, 2011</i> Regulations on the granting of scientific qualification at national level, granting access to the professional category of university professors	National qualification granting and acquisition procedures • Annual public competitions for granting qualification • Term of validity of qualifications (four years) • Banning from participation to qualification procedures for two years after failure to qualify in a given year • Definition of the evaluation criteria basing on a Ministry Decree to be issued in the future considering the opinions of ANVUR and CUN (National Universities Council) • Regulations on National Commissions, composed by 5 ordinary members, 4 of which are chosen by a list of Full Professors with the necessary qualification to become examiners and one member nominated by random choosing from a list of foreign professors • Introduction of a principle binding the applicant examiners to comply with criteria and parameters consistent with those required for qualifications for Full Professor in the relevant competition sector

(Continued)

LEGAL AND REGULATORY SOURCES	KEY INNOVATIONS INTRODUCED
<p><i>Ministry Decree no 76 of June 7, 2012</i> Regulation containing criteria and parameters for evaluating candidates for the purpose of granting a qualification to access to Associated Professor and Full Professor roles and definition of modalities of ascertaining qualification of Examiners</p> <p><i>ANVUR Decision no. 50 of June 21, 2011</i> Modalities of calculation of indicators to be used for the purpose of evaluating and selecting applicant examiners and evaluation of candidates to national qualification</p>	<p>Criteria for evaluation of scientific titles and publications • Insertion of competition sector 08/A3 among bibliometric sectors, with the following indicators: 1) the number of articles published on journals contained in the most important international data banks; 2) the total number of citations, compared to the overall scientific production; 3) Hirsch index normalised according to academic age • Candidates evaluation modalities: for each indicator the median of distribution shall be calculated for Full and Associated Professors and for each competition sector or, in case distributions are multi-modal, for each scientific-disciplinary sector or homogeneous subsystem thereof; candidates whose indicators are higher than the median for two or more indicators obtain a positive evaluation of importance and impact of overall scientific production</p> <p>Modalities of calculation of indicators to be used for evaluating and selecting applicant examiners and evaluating national qualification candidates • Restricting the meaning of "main international data banks" as of Ministry Decree no.76 of June 7, 2012 to ISI-Web of Science and Scopus • Calculation and publishing of the numerical values of the medians of all indicators (bibliometric and otherwise) for each competition sector and/or Scientific-Disciplinary Sector, care of ANVUR • Defining scientific products to be used for evaluation in non-bibliometric sectors for the purpose of providing a better definition of what has been reported in Annex B to Decree no. 336 of 29.07.2011</p>

- the introduction of the new competition sector 08/A3- Infrastructures and Transportation Systems, Valuation and Appraisal (and, consequently, of Sector Icar/22) in the list of bibliometric sectors (Annex A. of Ministry Decree no 76 of June 7, 2012).

Incorporation with non-homogeneous sectors

As regards incorporation, it is necessary to spend some thoughts on the fact that in establishing the commissions for national qualification of teachers the criteria that will be followed will be based on selecting Full Professors belonging to all the Scientific-disciplinary sectors that constitute the Competition Sector 08/A3. This poses a first problem of technical, scientific and deontological nature: commission members, who come from very specific fields and sectors, will find it difficult to understand and evaluate the scientific works of candidates from one or more different sectors. And while this problem does not exist in competition

classes consisting of incorporation of similar and related subjects⁸, it conversely is a significant problem in competition sector 08/A3, because Appraisal has peculiarities, traditions, languages, tools, methods and approaches that differ greatly from those of the other two sectors. It is therefore legit to ask ourselves which tools should an Icar/22 sector examiner use to evaluate candidates from the other two sectors and, conversely, how an examiner coming from sectors Icar 04 and 05 may evaluate the weight and quality of scientific production of an Icar/22 candidate.

In addition to that, competition with the other two scientific-disciplinary sectors composing competition sector A3 may as well happen, as any subject shall take into account its own internal dynamics and the system of needs/requirements of its own scientific community. To further clarify this let us now analyse the composition of the competition sector 08/A3 and the scientific sectors that compose it, as per Table 2.

Compared to ICAR/22 the most evident feature is a larger number of Full professors in Sectors Icar 05 and 04 and a substantial equivalence in the number of Researchers; there is a larger difference in the number of Associated Professors that, in the Valuation sectors are less than half than in the other sectors (slightly less than a sixth of the total). Given this starting situation we can speculate that the larger number of Associated Professors that will compete for the promotion to Full Professor will come from Icar 04 and 05 sectors and that, once qualifications have been granted, the number of Full Professors in the Appraisal sector shall lose further weight compared to the other two sectors, and will likely be even less represented in the future commissions. It is easy to foresee that the dynamics of qualification processes in Competition Sector 08/A3 will be, in the years to come, unfavourable to Sector Icar/22.

Commissions formed by “mixing” members of the three sectors also pose a further serious risk for Appraisal discipline: it is reasonable indeed to suppose that in the years to come Researchers and Associated Professors, thanks to qualifications granted with mixed commissions, will be more inclined to lead researches in the disciplines making up this competition sector. There is a concrete risk that in the future the contributions in the valuation discipline will focus exclusively on planning-related products in the disciplines in the competition sector they belong to, in other words Appraisal will chiefly provide a contribution to the issues of the infrastructures and systems of transportation. Although this sector is of the utmost importance and is rich in valuation issues (cost assessment, financial and economic evaluations, choices of alternatives, feasibility studies and so on), focussing on Appraisal discipline only in this field would represent a drastic reduction of the wide spectrum of contributions the discipline may offer. Basically, if the situation created by the reform does not change, the contribution that the Appraisal sector has offered up to now to all the fields of Area 08–Civil Engineering and Architecture will be curtailed and Appraisal will be forced to integrate with the issues

⁸ We are referring here to some competition sectors in Area 08, for example competition sector 08/D1-Architectural planning, obtained by joining together Icar 14, 15 and 16 sectors or sector 08/F1 City and Territorial Planning obtained by joining together Icar 20 and 21.

the specific disciplines in this sector usually deal with. This attitude would lead Appraisal to slowly dilute in the specificity of a few other sectors and to gradually weaken, much to the detriment of its broad and multi-layered scientific background. The cross-disciplinarity and originality of Appraisal would therefore be strongly compromised, leading Appraisal to shut itself in a quite narrow cultural enclosure with dire consequences also on the educational path that would therefore cease to be able to prepare more open professionals capable to deal with the new needs of society.

Table 2. Members of competition sector 08/A3.

Role	Scientific-disciplinary sector		
	Icar 22 Valuation	Icar 05 Transportation	Icar 04 Roads, Railways and Airports
Full professors	17	21	24
Associated professors	14	37	31
Researchers	35	32	37
Total	66	90	92

Valuation via a bibliometric procedure

Insertion of Icar/22 among the so-called bibliometric sectors hides several dangers for the discipline's future evolution. We think it is important to point out that the whole system of evaluation of research based only on bibliometric indices (number of research products in the international *databases*, number of citations, *impact factor*, *Hirsch* index, etc.) has been heavily criticised in several academic circles, both national and international. In a January 17, 2011 report by the French Academy of Sciences to the Ministry of Higher Education and Research⁹, the Academy has clearly voiced its opinion on the dangers that may derive from using bibliometrics alone in evaluating Researchers; the document indeed states that "no indicator and no set of bibliometric indicator can, alone, express the quality of a researcher's production", adding also that "it is impossible to evaluate a researcher on a merely quantitative basis".

Criticism is also made to such mechanisms as the problem of "negative citation", that is: if a given scientific product "*x*", is available on an international *database*, any subsequent article that debunks, criticises, negates or disavows said work contributes to increasing the bibliometric values of the author of said article

⁹ The title of the report was "Du Bon Usage de la Bibliométrie pour l'évaluation Individuelle des Chercheurs" by Institut de France – Académie des Sciences - Rapport remis le 17 janvier 2011 à Madame la Ministre de l'Enseignement Supérieur et de la Recherche.

"x". Another problem is self-citation, that is the behaviour of such authors that, by quoting chiefly themselves in their works increase their own bibliometric indicators. There is also some criticism to the "shady" behaviour of some scientific groups that, via an internal agreement between their members, may plan to use the citation mechanism for the purpose of favouring one or more subjects, regardless of these subjects' scientific production.

Exclusive use of bibliometric indicators has an effect also on the modalities and contents of the research themselves; one of these methods, well known in the English speaking world, is the so-called "*salami slicing publication*" that is the habit of some researchers to "slice" their scientific production in many small products. In this way, the volume of the production increases without an actual evolution or increase in research quality. Another tactic is favouring "*mainstream*" themes and approaches, i.e. themes and approaches widely shared and accepted by the scientific reference community or articles that propose accurate reports or simple researches on well-established topics; this is made with the purpose of increasing the number of citations that favour a given author. This attitude, focussed on obtaining an increase of bibliometric values, leads to choosing consolidated search paths instead of experimenting original themes or innovative approaches.

There is also another issue concerning the *international* databases; the institutions that manage these instruments and that decide whether to accept or not a magazine or journal into them operate an assessment of the journal basing on criteria such as regularity of publishing dates, use of English language, the compliance to international publishing conventions, the use of the *peer review* or of an international scientific committee. These criteria are geared chiefly on quality of the "vehicle" chosen for scientific production used and not the quality of what is written in it; ruling that "good quality" scientific products are only those published on journals contained in international *databases* means, basically, *mistaking evaluation of contents with evaluation of its container*, excluding beforehand that scientific quality products might be published on different scientific "vehicles".

For all of these reasons, exclusive use of bibliometrics in research evaluation is not shared by many sectors in that they tend to prefer an exclusively quantitative interpretation of scientific production instead of focussing on the quality and considering the originality, importance and innovation of the contents, or on inherent factors of the research, not related to the language, place or accreditation in the publishing venue. Despite all of this criticism, the "first level" of selection required by the Ministry Decree no.76 of June 7, 2012 on admission requirements for national qualifications in bibliometric sector is represented by three indicators, exclusively quantitative in nature¹⁰ whose values shall be higher than the median

¹⁰ The indicators reported in Ministry Decree no. 76 of June 07, 2012 are the following: a) the number of articles published on journals contained in the most important international data bank; b) the total number of citations, compared to the overall scientific production; c) H index, or Hirsch index (an index related to the ration between number of publications and ci-

values obtained by the individuals of the same level the applicant is asking qualification for¹¹.

For what concerns Sector Icar/22 we have already pointed out that publication of articles on journals part of the main international databases is a type of scientific production that is not part of the tradition of appraisal sector, whereas scientific products in this sector are chiefly not valuable with the indicators under Annex A of Ministry Decree no.76 of June 7, 2012. The key scientific products in this sector are publishing on a journal (only recently the "international" status has begun to be taken into account), publishing of a paper as part of a book, publishing of a book, proceedings and editing of a book.

A simple reading of the new rules clearly points out that the indicators are not suitable to properly evaluate the scientific production that usually belongs to Icar/22. It is important to remember that almost half of the sectors (5 out of 12) belonging to Area 08-Civil Engineering and Architecture have been included in the non-bibliometric sectors: such is the case of 08/C1-Design and technological planning in Architecture, 08/D1-Architectural design, 08/E1-Drawing, 08/E2-Restoration and history of architecture, 08/F1-Urban and regional planning and design; in these sectors the international databases and bibliometric indicators have no relevance¹². This different regime of evaluation of research for Appraisal and most of the disciplinary sectors of Architecture and Engineering will inevitably lead to inhibiting any significant scientific collaboration. Until now there have been many studies and researches in which the topics of the aforementioned scientific sectors are supported by contributions from the Appraisal discipline (for example: renovations and the relevant costs, financial and economic analyses related to urban planning or building planning projects, multi-criteria approaches in landscape planning or environmental choices and so on). These paths have resulted in various shared scientific paths. After the university reform, should the status quo described above remain unchanged, the stimulus and opportunities for profitable collaborations will grow smaller, thus damaging the cross-disciplinary nature of Appraisal discipline in the Faculties of Architecture and Engineering. And in turn these same disciplines would end up being deprived of the vital support offered up to today by Appraisal.

tations received).

¹¹ In order to better understand the impact of the scientific production, please refer directly to the text in Annex B of Ministry Decree no. 76 of June 07, 2012 and ANVUR Decision no. 50 of June 21, 2012.

¹² The non-bibliometric sectors are regulated by Annex B of the qualifications decree and the scientific production indicators of non-bibliometric nature to be used in qualification procedures for full professors and associated professors are the following: 1) the number of books and articles on journals and chapters of books with an ISBN published over a ten-year period ending before the date of publishing of the decree under article 3, comma 1, of the Regulation; 2) the number of articles on journals belonging to Class A (under number 2), published over a ten-year period ending before the date of publishing of the decree under article 3, comma 1, of the Regulation.

A further paradox stemming from inclusion of Icar/22 in the bibliometric sector is also the comparison between the assessment modalities the reform requires for the Appraisal sector and for these areas for which Appraisal is a “bridge”, namely Architecture/Engineering and Economics. We have seen that 5 competition sectors out of the 12 belonging to Area 08 - Civil Engineering and Architecture have been included in the non-bibliometric sectors; the whole of Area 13 - Economic and Statistical Sciences has been included in the non-bibliometric sectors. It is a paradox that scientific production evaluation for the Appraisal discipline is based on methods that are totally opposite to those used in the two scientific areas Appraisal represents a “bridge” between.

4. Conclusions

As regards the incorporation of Icar/22 we think that Appraisal, because of its peculiarities and cross-disciplinarity may stand autonomously as it happened for some sectors in Area 08-Civil Engineering and Architecture and as allowed by the Law. Although it has been possible to group together some disciplinary sectors without any problem because of their evident homogeneousness¹³, other, due to their uniqueness and cross-disciplinarity have chosen to remain independent. The choice of remaining autonomous was not made only by disciplines with a high number of Full Professors as is the Scientific-Disciplinary Sector (SDS) Icar/08 - Construction Science (97 full professors) which became Competition sector 08/B2 - Construction Science; or like the Scientific-Disciplinary Sector Icar/09 - Construction techniques (84 full professors) which today has become 08/B3 - Construction techniques. This choice has been made also by disciplines with a smaller number of Full Professors¹⁴. It is evident that these Scientific-disciplinary sectors' decision of remaining independent was not made basing on the number of Full Professors they had but, more rationally, it stemmed from the relationship between the independence of the sector's scientific and disciplinary base (for example Drawing, Topography, Construction science and Geotechnics) and the sec-

¹³ We are referring to the following sectors:

Icar/01 - Hydraulics and Icar/02 Hydraulic and Maritime Constructions and Hydrology, competition sector 08/A1;

Icar/10 - Technical Architecture, Icar/11 - Constructions production, Icar/12-Technology of Architecture and Icar/13 - Industrial drawing, competition sector 08/C1;

Icar/14 - Architectural and City Planning Composition, Icar/15 - Landscape architecture and Icar/16- Interiors Architecture and Decoration, competition sector 08/D1;

Icar/18 - History of Architecture and Icar/19 - Renovation, Competition Class 08/E2;

Icar/20 - City planning technique and Icar/21 - City planning, Competition Class 08/E1.

¹⁴ An example of this is SDS Icar/07 - Geotechnics (39 Full Professors) that confirmed its independence becoming the competition sector 08/B1 - Geotechnics; of SDS Icar/17 - Drawing (37 full professors), today competition sector 08/E1 - Drawing; and lastly SDS Icar/06 - Topography and Cartography (31 full professors), today competition sector 08/E4 - Geomatics.

tor's ability to support all other disciplines (architectural design, drawing, restoration, urban planning).

As regards the criteria and indicators for research evaluation, we believe the Italian University needs solutions that are more consistent with the peculiarities of the different Scientific-disciplinary sectors. We believe the answers and proposals put forth by the reform's laws and regulation framework, focussed more on dealing with the issues from a merely quantitative and bibliometric standpoint, do not represent the most effective solution for research in the Appraisal sector. We believe quantitative and bibliometric indicators shall be integrated with criteria capable of correctly identifying, analysing and evaluating original, innovative and creative contributions even whenever those contributions do not receive immediate recognition in terms of citations by the reference scientific community or even if and when they are published on media which is not part of international databases. This document represents a very brief introductory outline of the problems the new regulations cause to sector Icar/22; it is likely that there may also be new situations that will arise in the future and issues that the scientific community shall necessarily have to deal with.

None of the measures adopted as yet is irreversible, indeed the regulations governing the reform provide for periodical institutional reviews of both the suitability and consistency of criteria, parameters and indices (Art. 9, Ministry Decree no. 76 of June 07, 2012) and the competition classes (Art. 5, Ministry Decree no. 336 of July 29, 2012 - "Determinazione Macrosettori Concorsuali" [Definition of Competition Sectors]). We firmly believe that, in view of the future stages of regulatory revision, the scientific community of the Appraisal sector shall take care to draft suitable indications for safeguarding the current autonomy and to develop suitable means to assess scientific production. Presently we will just list some operational proposal on which a debate may start to develop and reach shared solutions:

- establishing an autonomous competition sector for Icar/22;
- maintaining Valuation within the current competition sector but with evaluation processes based on the declaratory specifications of the scientific and disciplinary sectors referring to it;
- the passage of Icar/22 from bibliometric sectors to non-bibliometric ones;
- integration of current indicators introduced by the regulations in force with other, non-bibliometric ones proposed by the scientific community;
- broadening the range of scientific products to be subject to assessment;
- establishing an intermediate status, between bibliometric and non-bibliometric;
- establishing a transition stage during which both the candidate and the examiner may choose freely to be evaluated according to bibliometric or non-bibliometric criteria.

Bibliography

D.M. n. 336 del 29.07.2011 - *Determinazione dei settori concorsuali, raggruppati in macrosettori concorsuali, di cui all'articolo 15. Legge 30 dicembre 2010, n. 240.*

- D.M. n.76 del 7.06.2012 - *Regolamento recante criteri e parametri per la valutazione dei candidati ai fini dell'attribuzione dell'abilitazione scientifica nazionale per l'accesso alla prima e alla seconda fascia dei professori universitari, nonché le modalità di accertamento della qualificazione dei Commissari, ai sensi dell'articolo 16, comma 3, lettere a), b) e c) della legge 30 dicembre 2010, n. 240, e degli articoli 4 e 6, commi 4 e 5, del decreto del Presidente della Repubblica 14 settembre 2011, n. 222.*
- D.P.R. n. 222 del 14.09.2011- *Regolamento concernente il conferimento dell'abilitazione scientifica nazionale per l'accesso al ruolo dei professori universitari, a norma dell'articolo 16 della legge 30 dicembre 2010, n. 240.*
- D.P.R. n. 76 del 01.02.2010 - *Regolamento concernente la struttura ed il funzionamento dell'Agenzia nazionale di valutazione del sistema universitario e della ricerca (ANVUR), adottato ai sensi dell'articolo 2, comma 140, del decreto-legge 3 ottobre 2006, n. 262, convertito, con modificazioni dalla legge 24 novembre 2006, n. 286. (10G0098).*
- Delibera ANVUR n. 50 del 21/06/2012 - *Modalità di calcolo degli indicatori da utilizzare ai fini della selezione degli aspiranti commissari e della valutazione dei candidati per l'abilitazione scientifica nazionale.*
- Institut de France – Académie des Sciences, (2011), *Du Bon Usage de la Bibliometrie pour l'Évaluation Individuelle des Chercheurs* da - Rapport remis le 17 janvier 2011 à Madame la Ministre de l'Enseignement Supérieur et de la Recherche.
- Legge 240 del 30.12.2010 - *Norme in materia di organizzazione delle università, di personale accademico e reclutamento, nonché delega al Governo per incentivare la qualità e l'efficienza del sistema universitario.*
- Worrall J., (1989). *The Value of a Fixed Methodology. The British Journal for the Philosophy of Science* Vol.39, N. 2, pp.263-275.Oxford University Press on behalf of The British Society for the Philosophy of Science.

ANVUR – Agenzia Nazionale di valutazione del sistema universitario e della ricerca: <http://www.anvur.org>

Database ISI-Web of Science: <http://www.thomsonreuters.com>

Database Scopus: <http://www.scopus.com>

MIUR – Ministero Istruzione Università e Ricerca: <http://www.istruzione.it>