Short and Long Run University Rankings: The Case of Greek Departments of Economics

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University rankings historically have been based on a number of criteria, the most common being research output and quality. Different approaches have been developed which are surrounded by controversy; nevertheless, university rankings remain popular. It can be noted that due to the global economic recession, they receive further interest since it is believed that education is one of the sectors that countries should invest to improve economic development. The present paper presents a methodology for ranking universities based on research output and quality using as criterion by the CHC (Core of Human Capital) of universities demonstrating how the different positions of academic members of staff can contribute to the evaluation of their institutes at different time periods. The case study is the Greek Departments of Economics. Different scenarios are examined regarding the size of the department and time. The results offer conclusions in terms of university evaluation and strategic recruitment. In this respect, decision-makers can identify where they need to improve and if they are satisfied with their position on the education map.

Keywords: university rankings, academic position, Greek Departments of Economics, economist

Introduction

The use of rankings in HE (higher education) is an attractive but also controversial subject. Although the history of rankings is not long, it began in 1983 in the US, they have become an important feature in the decision- and policy- making in HE. They serve different purposes and address different audiences. As Benito and Romera (2011) explained, rankings serve to produce a discussion on what quality in HE means influencing the perceptions on university excellence. In this respect, rankings complement the work undertaken by public and independent accrediting agencies in the context of quality assessment and review. Although rankings may not be universally accepted, it is increasingly acknowledged that they are an important tool for students, parents, academics, potential employers, and the public in general.

As such, nowadays, it is almost impossible to discuss about the evaluation of institutions and compare them without the use of rankings, particularly when the scientific community itself acknowledges that its output must be quantified to allow for comparisons and fair allocation of resources and funding. Many authors (for example, Bernardino & Marques, 2009) pointed out that, although institutions do not generally like to be ranked or compared with others, and despite the criticism that academic rankings receive, the mission for several of them is to be at the top of an academic ranking table. This is because top-class rankings offer good

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reputation and free publicity to the institutions and therefore attract the best students. They also assist funders in their decisions as to which university provides the best "investment". For example, Boeing announced that it will use university performance data to determine which institutes will share US$100 million available for training and other activities, and in the same respect, Deutsche Telecom has admitted that its decision on professional chairs is influenced by rankings (Hazelkorn, 2009). Furthermore, the success of departments to rankings is often employed as decision-making criteria by university marketing divisions to allocate education funds (Kalaitzidakis, Mamuneas, Theofanis, & Stengos, 2003).

The use of rankings has led to many discussions about the benefits and costs of their use. Academic rankings are frequently criticized on the indicators employed, weighting and normalization methods applied (Boulton, 2011; Benito & Romera, 2011; Harvey, 2008). There are also several questions about the quality, impact and actual "value" of the outputs and thus on the conclusions produced. Considering that universities are complex organizations with strengths and weaknesses that vary across their different departments, it is clear that excellence in each case is based on different criteria and indicators which causes concern on the consistency of results and nevertheless justifies the diversity of ranking approaches.

In recognition of the these concerns on rankings, the UNESCO-CEPES (United Nations Educational Scientific and Cultural Organisation European Centre for Higher Education) and the Institute for Higher Education Policy initiated in 2004, the IREG (International Ranking Expert Group) which developed a set of principles of quality and good practice in Higher Education Institute rankings—the Berlin Principles on Ranking of Higher Education Institutions (CHE (Centre for Higher Education Development), UNESCO-CEPES, & IHEP (Institute for Higher Education Policy), 2006). Sixteen descriptive and prescriptive principles for ranking are included in the principles and cover four aspects which are: the purpose and goal of ranking; the design and weighting of indicators; the collection and processing of data; and the presentation of ranking results. The principles aimed to shift the interest away from the ranking problems. The focus was placed on the benefits that can drive from rankings and included a set of recommendations about what should be done when an organization produces a ranking which provides useful conclusions to all interested parties (Benito & Romera, 2011).

National rankings have been created in over 40 countries (Hazelkorn, 2009). International rankings are less in number and more recent but they have become more influential. The most famous and respected HE rankings are the THES (Times Higher Education) which began in 2004 and the SJTU (Shanghai ranking) commenced in 2003. The two rankings differ largely in their evaluation method. The THES ranking (which recently started co-ordination with Thomson Reuters) places significant importance on subjective evaluations by experts and recruiters, directed towards the prestige and power of the university. More analytically, there are five basic categories under which most criteria are classified namely teaching, research, citations, industry income, and international outlook. This approach is heavily criticised by Marginson (2007) who supported that the THES ranking does not examine the research dimension in depth and as a result produces tables that do not express the quality of education. Conversely, the SJTU does not have any indicator measured by surveys and opinions. All the Shanghai indicators are quantitative measures rather than qualitative ones.

Europe, in response to the legitimate concerns on rankings and their weaknesses, has initiated two projects: The U-Map which aims to map the diversity of institutions and the U-Multirank which aims to produce international ranking of university performance in dimensions similar to those used to map diversity. Although the value of these approaches is recognized, they are treated with skepticism recognizing the difficulty in

collecting the large volumes of pertinent data and the use of inter-country statistics (Boulton, 2011).

Very often, the indicators of most academic rankings are based on what can be measured, such as publications, citations, and indicators that are less tangible, such as educational quality, are neglected (Meredith, 2008). As such, the research performance of academics has always been an important indicator for the ranking evaluation since it is relatively easier to measure, for example, the number of articles published in international peer review journals, than less tangible indicators, such as the teaching quality. By focusing however primarily on research intensity, the rest of dimensions, i.e., teaching, innovation, staff/student ratios, and social and economic impact are overlooked. As Butler (2010) indicated, the recent trend to university rankings approaches shifted away from basic assessment methodologies and towards more subtle assessments using more criteria (even purely qualitative factors, such as educational excellence) providing an overall better guidance to all interested parties. He further argued that it is rather narrow to evaluate institutes only on their research performance because in this case institutes are isolated from the totality of benefits that offer to society. As the LERU (League of European Research Universities) strongly claims, research cannot be the only benefit that universities offer to society and thus evaluation methods should extend their criteria to factors other than research. Frey and Rost (2010), for example, admitted that rankings based on publications and citations do not necessarily effectively reflect research quality, and proposed an alternative ranking based on membership on academic editorial boards of professional journals.

Nevertheless, at present, in the US, the basic evaluation criterion for a member of staff is the research productivity based on the number and quality of publications (impact factor, citations) and the evaluation takes place internally. In Europe, and in particular, in the UK and the Netherlands, the research evaluation is undertaken by scientific committees of recognizable scientific work on the subject and besides research, other indicators such as contribution to society and other positions are considered. A comparative study between the US and European ranking systems is presented by Frey and Eichenberger (1993). Whether the evaluation of departments should take place in house or be outsourced is another issue of controversy which is not within the scope of the present discussion (for more information on the subject see Enserink, 2007). In the Greek academic environment, it is only recent the legislation according to which universities will be evaluated by a third party; before this, there was no consistent way of ranking universities, at least dictated by a central governmental body. It is yet to be seen how this legislation will come into force and how the actual application will take place.

Several types of university rankings exist, as will be discussed in the next section, the majority of which examine only the research indicator (for an extensive discussion see Boulton, 2011). A methodology which is widely accepted and satisfies public interest, students, and academics has not yet been developed. The present research acknowledges that research indicators alone are too narrow to be used for the ranking of universities. For this purpose, the researchers have supported a unified system of assessment which takes into consideration both research and education quality (Giannias & Sfakianaki, 2011). However, the present paper exploits further the research dimension which can be integrated in the proposed unified system at a later stage. In particular, it examines an indicator which is very little discussed in the literature and is related to the importance of the research performance of different academic positions, i.e., professors, assistant professors, etc., within an institution at different time periods. In this respect, the methodology originally developed by Giannias and Sfakianaki (in press) will be extended and conclusions and guidance will be brought in for an approach to a Greek ranking since the research will be applied to the Greek Departments of Economics. The research

provides contributions for the literature since ranking issues using different academic positions and their research performance in due time, is hardly exploited. The ranking is developed on the basis of results derived from the EconLit and SSCI (Social Science Citation Index) for publications over the period of 1969–2004 and the citations they received since their publication respectively.

University Rankings

The strong interest in HE rankings by academics, employers, students, and society in general, as a need to evaluate academic output, has been demonstrated in the previous section. The basis of most methods has been founded on measures such as citations and impact factors. A detailed presentation of most of the important methods and the indicators employed is presented by Giannias and Sfakianaki (2011). In this respect, in the present paper the pertinent discussion is short.

Ranking methods based on research evaluation use several criteria, the most important of which is the journal in which the publication is included, the number of publications and the number of citations. For example, Kalaitzidakis, Mamuneas, and Stengos (1999) in an influential paper, used publications in a core set of 10 economic journals from 1991 to 1996 to rank European economics institutions and countries. Their research demonstrated the three leading universities in Europe and the three top-ranked countries. Coupé (2002) in his report employed performance indicators available in the literature (e.g., weighted journal ranking) to assess the work of individual researchers concluding on the ranking of economics departments on an international basis. The database of the research covers the period of 1969−2000 for economists and the period of 1990−2000 for institutions. Scott and Mitias (1996) and Dusansky and Vernon (1998) presented US Economics Department rankings whereas Jin and Yau (1999) and Jin and Hong (2008) presented rankings of Asian departments. Canadian rankings are discussed by Lucas (1995) and Davies, Kocher, and Sutter (2008); Australian by Towe and Wright (1995) and Neri and Rodgers (2006); European by Lubrano, Bauwens, Kirman, and Protopopescu (2003).

Jin and Hong (2008), in their research on ranking economic research in East Asia, used 60 journals over the period of 1990−2005 using EconLit for their database. The selection of the 60 journals was based on a number of sources, such as the selection proposed by Dusansky and Vernon (1998), the selection proposed by Scott and Mitias (1996), and three best regional journals in Asia. Kalaitzidakis et al. (1999), in their research focused on 10 journals, such as *AER (American Economic Review)*, *Econometrica*, *Journal of Political Economy*, etc., tried to overcome the issue of journal quality, for the period of 1991−1996. The uncertainty that is inherent in the methods described above is the period of examination. More specifically, the proposed criterion, where a pre-defined list of journals is used, is convenient if the period of examination is short. On the contrary, if the period is long, then the validity of this indicator is disputed since it is difficult to evaluate the quality of a journal in the long-term. In this case, simple recording of publications listed in the EconLit is sufficient irrespective of the journal of publication and its impact factor.

The number of publications and/or the pages per publication is a factor that is of significance in evaluation methods. The challenge in this case is how the pages are counted since journals have different page sizes and naturally, quality. One way to overcome this problem is the conversion of all journal pages to equivalent units using the *AER* size of page as a standard to unify size. Kalaitzidakis et al. (1999), for example, employed the Laband-Piette approach and believed that the counting of pages per article using this conversion method reflects better the quantity of the research work produced and the overall effort (Laband & Piette, 1994).

Dusansky and Vernon (1998) also applied the Laband-Piette approach in their publication-based approach where the top 50 US economic departments are presented. Jin and Hong (2008), for the articles published in the 60 journals selected, counted the total number of pages and converted the total pages published to the equivalent length of page of the *AER*. In the same respect, Jin (2005) also counted the pages of articles published, during his ranking having ensured however that articles employed are being referred.

The number of citations is also frequently used when evaluation is based on research. Kalaitzidakis et al. (1999) suggested, as an alternative way to measure the quality of articles, the use of the actual citation impact of each article. Although the authors have expressed their preference to the number of pages per article, they argued that citations could indicate institutions which produce relatively few articles which are highly cited compared with institutions which produce a lot of articles that do not stay long in the citations index. Further, Coupé (2002) proposed the use of impact factors (available for 273 journals) that derive after counting the number of citations for an article published in a journal. The measurement takes place one to two years after publication. A difficulty with this measure is that citations are weighted equally; the contribution of a citation from a top journal is considered the same as a citation from a lower ranked journal. Considering that citations require time to build up, this criterion is an asset for the old articles compared to recent ones. The present research supports the use of simple count of citations of individual articles and avoids any weighting of journals. In this respect, a measure of the quality of the article is provided (while the impact factors provide a measure of the quality of the journal where an article is published).

Methods which use other indicators besides research, such as educational quality, staff/student rations, exam entry scores, have also been developed to a lesser extend however (see Giannias & Sfakianaki, 2011; Lukman, Krajnc, & Glavic, 2010; Jin, 2005). Bitros and Karayiannis (2000) developed a well-structured framework aimed to the Greek academic environment where they take into consideration not only the research productivity of the member of staff, but also the teaching quality, the administration work undertaken, and the social contribution. The methodology although well documented, requires the collection of different sources of data, in some cases non-tangible. Although, as Butler (2010) supported, the trend of ranking universities moves towards the direction where research is not the only indicator to examine in developing rankings, in countries, such as Greece where there is no tradition in ranking universities and there is no officially established system, the collection of data proposed by Bitros and Karayiannis (2000), can be a difficult and also controversial issue.

Irrespective of the indicators employed, in all cases of evaluation, departments are being evaluated on the performance of the total number of academic members irrespective of their position. It seems that there is not yet a methodology that examines the contribution of each position of academic members of staff in different time periods as will be further defined in the next section.

A Conceptual Model for Ranking Universities

Giannias and Sfakianaki (in press) presented a conceptual model for the ranking of the Departments of Economics in Greece. The evaluation of departments was based on the research output and quality records[1] of all academic members of each department who have tenure or are on a tenure track. In the present study, the basic research hypothesis is still the same, i.e., the research employs research output and quality, however, in the current study, the assessment of the Greek departments is implemented separately for each period of

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[1] The research output was quantified by the per capita number of articles published in EconLit listed articles and citations shown in SSCI for publications over the period of 1969–2004.

academic staff for four periods of time. The hypothesis is therefore extended to demonstrate the short- and long- term impact of each position in the overall assessment of the department. The indicators employed for the development of the research is the number of EconLit P (publications) irrespective of the journal of publication, its impact factor, and the number of pages; and the number of C (citations) per publication without assigning any impact factors.

For each Department of Economics in Greece and for each position of academic staff, PA, we compute its mean research output $P(PA)$ and its mean quality of EconLit publications $C(PA)$, where:

$$P(PA) = \frac{\sum_{1}^{n} p_i(PA)}{n} \tag{1}$$

$$C(PA) = \frac{\sum_{1}^{n} c_i(PA)}{n} \tag{2}$$

$i = 1, ..., n$ refers to the full-time academic members of staff of position PA of a department, PA refers to the academic position; $PA = PR$ (professor), AP (associate professor), AsP (assistant professor), and L (lecturer)[2], $p_i(PA)$ is the number of publications of faculty member i of position PA, $c_i(PA)$ is the number of citations that the publications of author i of position PA have received.

All values are mapped in to a 0–100 scale; where, 100 is mapped to the best value of a variable, and 0 to the worse as shown in Equation (3):

$$X^* = \frac{(X - Xmin)}{(Xmax - Xmin)} * 100 \tag{3}$$

where, $X = P(PA), C(PA)$.

To accommodate our comparisons, we introduce a composite index, $CI(PA)$, for each position, PA, which combines the weighted mean of $P(PA)$ and $C(PA)$ values for each department using the w_p and w_c weights respectively. These are obtained from an expert's opinion survey[3], and are the following:

$$w_p = 0.60 \text{ and } w_c = 0.40$$

Subsequently, the following Composite Index, $CI^*(PA)$, is computed for each Department of Economics, where:

$$CI^*(PA) = w_p P^*(PA) + w_c C^*(PA) \tag{4}$$

In terms of t (time), four periods are considered dividing time in current and long-term periods. More specifically, first we examine the SR (short run) period; we may think of it as being the current situation ("today"). $LR1$ period (Long Run Period One) follows which is defined as the period in which the professors of period SR have been retired and the remaining academic staff holding a position in period SR have been advanced to the next rank; that is, an associate professor in period SR has been promoted to professor in period $LR1$, an assistant professor in period SR has been promoted to associate professor in period $LR1$, and a lecturer

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[2] The four positions of academic staff in Greek universities, by state law, are: PR (professor), associate professor (AP), AsP (assistant professor), and L (lecturer). Professors and associate professors have tenure whereas assistant professors and lecturers are on a tenure track. It is important to mention that with the recent law change in the educational sector (September 2011), the academic positions that are on a tenure track have decreased from two to one.

[3] Thirty Greek experts participated in a survey undertaken by the authors, each of which: (1) had a minimum of 10-year research experience in social science research; and (2) was a member of a committee for the evaluation of applicant for teaching positions in more than five occasions.

in period *SR* has been promoted to an assistant professor in period *LR1*. *LR2* period (Long Run Period Two) is the next period: It is defined as the period in which the professors and the associate professors of period *SR* have been retired and the remaining academic staff holding a position in period *SR* have been advanced to the second higher rank; that is, an assistant professor in period *SR* has been promoted to professor in period *LR2*, and a lecturer in period *SR* has been promoted to an associate professor in period *LR2*. *LR3* period (Long Run Period Three) is the final period: It is defined as the period in which the professors, the associate professors, and the assistant professors of period *SR* have been retired and the remaining academic staff holding a position in period *SR* have been advanced to the third higher rank; that is, a lecturer in period *SR* has been promoted to professor in period *LR3*.

Given Equation (4) and taking the weighted mean of the *CI*(PA)* for a Department of Economics, we obtain its *OCI** (Overall Performance Composite Index), according to our criteria as illustrated in Equation (5):

$$OCI^* = \sum_{PA} X(PA) \times CI^*(PA) \tag{5}$$

where *X(PA)* is the number of academic staff of position *PA* in period *t*, as a percentage of the total number of academic staff of the same period *t* where *t = SR, LR1, LR2, LR3*.

Clearly, Equation (5) can be employed to compute the *OCI** score of a department at any time period; namely, *OCI*(SR)*, *OCI*(LR1)*, *OCI*(LR2)*, and *OCI*(LR3)* for periods of *SR*, *LR1*, *LR2*, and *LR3*, respectively. The applicability of the conceptual model was tested for the nine Departments of Economics in Greece. These are the Departments of Economics of: AUEB (Athens University of Economics and Business), UCRE (University of Crete), CAPO (National and Capodistrian University of Athens), UMAC (University of Macedonia), UTHE (University of Thessaly), UPAT (University of Patras), UPIR (University of Piraeus), UIOA (University of Ioannina), and ARIS (Aristotle University of Thessaloniki).

In the next sections, the performance of each department in periods of *SR, LR1, LR2*, and *LR3* is evaluated. For these evaluations, the following assumptions have been made; the research output productivity (in terms of both quantity and quality) of each academic staff remains constant through time, academic staff do not move but only retire, and the number of members of academic staff that a department has at period SR is taken as a basis for the application of Equation (5) at all time periods. The evaluation of the nine Greek departments, which is presented in the following section, is based on their research output and quality using 2004 EconLit and SSCI data.

Results

Short and Long Run Rankings Based on an Evaluation of the CHC (Core of Human Capital) of Each Greek Department of Economics

In the following, we evaluate departments at various periods (present and future) using the Composite Index, Equation (5), considering only those academic members who belonged to the department in period *SR*. To do this we have assumed that the CHC (Core of the Human Capital) of a department in subsequent periods consists of members who were in the department in period *SR*[4]. The basic assumptions of the present analysis are the following:

(1) The CHC in period *SR*, *CHC(SR)*, consists of the *PR*, *AP*, *AsP*, and *L* of period *SR*;

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[4] The quality of the CHC of a period (as it is evaluated herein) determines the recruiting needs for new academic staff.

(2) The CHC in period *LR1*, *CHC(LR1)*, consists of the *PR*, *AP*, *AsP*, of period *LR1* who were (presumably) *AP*, *AsP*, and *L* in period *SR*;

(3) The CHC in period *LR2*, *CHC(LR2)*, consists of the *PR*, *AP* of period *LR2* who were (presumably) *AP*, *AsP* in period *LR1* and *AsP*, and *L* in period *SR*;

(4) The CHC in period *LR3*, *CHC(LR3)*, consists of the *PR* of period *LR3* who were (presumably) *AP* in period *LR2*, *AsP* in period *LR1*, and *L* in period *SR*.

For example, the *OCI** value for the UTHE is based on the structure of its CHC in each period, which is illustrated in Table 1; the figures in parenthesis give the members of staff per academic position as a percentage of the total.

Table 1

Structure of CHC per Period and Academic Position for the UTHE, Department of Economics—Number of Academic Members Changes With Time

		UTHE, Department of Economics Number of members of staff per *PA* and *t*		
Period *SR*				
PR	*AP*	*AsP*	*L*	Total
3 (0.33)	1 (0.11)	4 (0.44)	1 (0.11)	9 (1.00)
Period *LR1*				
	PR	*AP*	*AsP*	Total
	1 (0.17)	4 (0.67)	1 (0.17)	6 (1.00)
Period *LR2*				
		PR	*AP*	Total
		4 (0.80)	1 (0.20)	5 (1.00)
Period *LR3*				
			PR	Total
			1 (1.00)	1 (1.00)

Table 2 presents the *OCI** values for the CHC of the nine DEPT (Departments of Economics of Greek Universities) for the four periods of time under consideration. These values were obtained after applying Equations (1)−(5). For each period, universities are ranked (*R*) from higher to lower values and a comparison between the *SR* and *LR3* was undertaken; in the case that the department falls into a lower position then it is marked grey whereas in the case that it moves to a higher position it is marked with horizontal hatch. Finally, when the rank remains the same, there is no color marking. Ceteris paribus, the higher the position of a department, the higher is the contribution of today's members of staff (period *SR*) in the future position of the department in the relevant rankings (periods *LR1*, *LR2*, and *LR3*). Ceteris paribus, the lower the position of a department on the ranking is, the greater the needs to attract the relative best candidates for the open positions through recruiting.

In an attempt to quantify the difference between the "best" department and the rest, the percentage difference between the first and each of the rest is evaluated for each period under examination. In each case, universities are ranked using their *OCI** values from best to worst. The results are presented in Table 3 for the periods of *SR*, *LR1*, *LR2*, and *LR3* respectively. In the first case (*SR*), it is clear that the gap between the first (AUEB) and the last (ARIS) is large and reaches approximately 94%. The universities, based on their difference from the best one, can be divided into four groups: difference 37%−48% for the UCRE, CAPO, and

UPAT, difference from 56%-61% for the UMAC and UIOA, difference 75%−79% for the UTHE and UPIR, and more than 90% for the ARIS. The standard deviation of *OCI** in period *SR* is 24.52 and indicates well spread values around the mean which in turn illustrates the differences in performance between the various departments.

Table 2

OCI* Values for CHC for the Four Periods (SR, LR1, LR2, and LR3) and Comparison of Ranking Between SR and LR3

DEPT	SR		LR1		LR2		LR3	
	OCI*	R	OCI*	R	OCI*	R	OCI*	R
AUEB	89	1	72	1	70	1	76	2
UCRE	55	2	45	4	36	6	17	6
CAPO	53	3	49	3	42	4	43	4
UPAT	47	4	56	2	59	2	79	1
UMAC	39	5	39	5	48	3	26	5
UIOA	36	6	36	6	38	5	57	3
UTHE	22	7	16	8	7	8	0	8
UPIR	19	8	29	7	24	7	0	8
ARIS	6	9	4	9	5	9	11	7

Table 3

Percentage Difference (Δ%) Between the Best and the Rest Based on the OCI* Values for the Departments of Economics of Greek Universities for Periods SR, LR1, LR2, and LR3

R	SR			LR1			LR2			LR3		
	DEPT	OCI*	Δ%	DEPT	OCI*	Δ%	DEPT	OCI*	Δ%	DEPT	OCI*	Δ%
1	AUEB	89		AUEB	72		AUEB	70		UPAT	79	
2	UCRE	55	37.91	UPAT	56	21.54	UPAT	59	16.17	AUEB	76	4.16
3	CAPO	53	40.48	CAPO	49	31.72	UMAC	48	31.38	UIOA	57	28.64
4	UPAT	47	47.25	UCRE	45	37.8	CAPO	42	40.37	CAPO	43	45.93
5	UMAC	39	56.36	UMAC	39	45.91	UIOA	38	45.14	UMAC	26	67.06
6	UIOA	36	60.03	UIOA	36	50.42	UCRE	36	48.84	UCRE	17	78.04
7	UTHE	22	75.86	UPIR	29	59.82	UPIR	24	65.98	ARIS	11	86.47
8	UPIR	19	78.2	UTHE	16	78.01	UTHE	7	90.37	UTHE	0	100
9	ARIS	6	93.21	ARIS	4	93.78	ARIS	5	93.32	UPIR	0	100

In the case of *LR1*, the gap between the first (AUEB) and the last institutes (ARIS) remains large and reaches again approximately 94%. For *LR1*, the universities, based on their difference from the best one, can be divided into the following groups: difference 21%−23% for the UPAT, difference 31%−38% for the UCRE and CAPO, difference 45%−60% for the UMAC, UIOA, and UPIR, difference 78%−79% for the UTHE, and more than 90% for the ARIS. In this case, the standard deviation is 20.50 which is lower than in the case of *SR*, but only slightly and thus the conclusions remain the same.

In the case of *LR2*, the divisions of groups is as follows: difference 16%−18% for the UPAT, difference 31%−33% for the UMAC, difference 40%−49% for the CAPO, UIOA, and UCRE, difference 65%−67% for the UPIR, and more than 90% for UTHE and the ARIS. In this case, the distance between the first and the last university remains large and concerns the same institutes, the first two universities are the same as in cases of *SR* and *LR1* and the standard deviation is similar to *SR* and *LR1*, approximately 22.

In the case of *LR3*, the first and the last institutes are now different. More specifically, the first is the UPAT with AUEB being very close, whereas the last are the UTHE and UPIR. The rest of the groups are formed as follows: difference 4%−6% for CAPO, difference 28%−30% for the UIOA, difference 45%−47% for the CAPO, difference 67%−87% for the UMAC, UCRE, and ARIS, and 100% for UTHE and UPIR. In this case, the standard deviation is 31 indicating a greater spread of values around the mean than in the cases of *SR*, *LR1*, and *LR2*; which shows that in the long-period *LR3* the differences are enlarged.

Short and Long Run Rankings Based on an Evaluation of the CHC of Each Greek Department of Economics Within a Department of Fixed Size

The second application examines only those academic members who were members of a department in period *SR*, assuming however in this case that the size of the department does not change through time. *OCI** values are calculated using Equation (5) and an example of the structure of CHC per period and academic position is demonstrated in Table 4 for the UTHE; the figures in parenthesis give the members of staff per academic position as a percentage of the total.

Table 4

Structure of CHC per Period and Academic Position for the UTHE, Department of Economics—Number of Academic Members Does Not Change With Time

UTHE, Department of Economics Number of members of staff per *PA* and *t*				
Period *SR*				
PR	AP	AsP	L	Total
3 (0.33)	1 (0.11)	4 (0.44)	1 (0.11)	9 (1.00)
Period *LR1*				
	PR	AP	AsP	Total
	1 (0.11)	4 (0.44)	1 (0.11)	9 (0.67)
Period *LR2*				
		PR	AP	Total
		4 (0.44)	1 (0.11)	9 (0.56)
Period *LR3*				
			PR	Total
			1 (0.11)	9 (0.11)

The results in Table 5 show the contribution of the CHC to the *OCI** of each department for a given size (that of period *SR*). For each period, universities are ranked from higher to lower values and a comparison between the *SR* and *LR3* is undertaken; in the case that the department falls into a lower position, then it is marked grey whereas in the case that it moves to a higher position, it is marked with horizontal hatch. Finally, when the rank remains the same, there is no color marking. Assuming the size of the department remains the same as in period *SR*, the lower the position of a department on the ranking, the greater the needs to attract the relative best candidates for the open positions through recruiting.

Universities are ranked using their *OCI** values from best to worst and the difference between the "best" department and the rest are calculated using the percentage difference between the first and each of the rest for each period *t*. The results are presented in Table 6 for all periods. For period *SR*, the results remain the same, as presented in Table 3, since the number of members of staff for this time period has not changed in the assumptions of this case.

Table 5

OCI* Values for CHC for the Four Periods (SR, LR1, LR2, and LR3) and Comparison of Ranking Between SR and LR3

DEPT	SR		LR1		LR2		LR3	
	OCI*	R	OCI*	R	OCI*	R	OCI*	R
AEUB	89	1	28	5	24	3	15	3
UCRE	55	2	29	4	17	4	1	7
CAPO	53	3	33	3	16	5	8	4
UPAT	47	4	20	6	4	7	1	6
UMAC	39	5	11	8	4	8	0	8
UIOA	36	6	17	7	9	6	0	8
UTHE	22	7	3	9	3	9	3	5
UPIR	19	8	45	1	35	1	32	2
ARIS	6	9	36	2	35	2	33	1

It is interesting to notice that in the case that the number of academic members does not change through time, the results are quite different in all cases. For example, although the gap between the first and the last remains the same (approximately more than 90%), the institutes that are now best and worst are very different from the ones examined in section "Short and Long Run Rankings Based on an Evaluation of the CHC of Each Greek Department of Economics". More specifically, in the cases of *LR1* and *LR2*, the best institute is UPIR and the worst is UTHE. In the case of *LR3*, the best institute is ARIS and the worst is UIOA. It is worth mentioning that UPIR and ARIS are ranked towards the end of the list in the application of section "Short and Long Run Rankings Based on an Evaluation of the CHC of Each Greek Department of Economics". In the analysis of this section, where the number of member of staff remains unchanged through time, the groups are formed in the following way. For *LR1*, difference 21%−27% for the ARIS and CAPO, difference 35%−38% for the UCRE and AUEB, difference 55%−64% for the UPAT and UIOA, difference 76%−78% for the UMAC, and more than 90% for the UTHE. In this case, the *SD* (standard deviation) is 13.12 which is much lower than in the case of *SR*, showing that the values around the mean are less dispersed and thus there is convergence on the performance of the various departments.

Table 6

Percentage Difference (Δ%) Between the Best and the Rest Based on the OCI* Values for the Departments of Economics of Greek Universities for Periods SR, LR1, LR2, and LR3

R	SR			LR1			LR2			LR3		
	DEPT	OCI*	Δ%	DEPT	OCI*	Δ%	DEPT	OCI*	Δ%	DEPT	OCI*	Δ%
1	AUEB	89		UPIR	45		UPIR	35		ARIS	33	
2	UCRE	55	37.91	ARIS	36	21.01	ARIS	35	0.02	UPIR	32	3.91
3	CAPO	53	40.48	CAPO	33	26.18	AUEB	24	31.18	AUEB	15	55.72
4	UPAT	47	47.25	UCRE	29	35.87	UCRE	17	52.14	CAPO	8	76.8
5	UMAC	39	56.36	AUEB	28	38.72	CAPO	16	55.54	UTHE	3	89.51
6	UIOA	36	60.03	UPAT	20	55.04	UIOA	9	74.23	UPAT	1	96.56
7	UTHE	22	75.86	UIOA	17	63.42	UPAT	4	88.14	UCRE	1	96.9
8	UPIR	19	78.2	UMAC	11	76.64	UMAC	4	89.36	UMAC	0	100
9	ARIS	6	93.21	UTHE	3	92.33	UTHE	3	90.15	UIOA	0	100

In the case of *LR2*, the divisions of groups are as follows: difference less than 1% for the ARIS, difference 31%−33% for the AUEB, difference 52%−75% for the UCRE, CAPO, and UIOA, difference more than 88% for the UPAT, UMAC, and UTHE. In this case, the standard deviation is similar to *LR1*, approximately 12.73 and enhances the conclusion of the convergence on the performance as in the case of *LR1*.

In the case of *LR3*, the groups are, difference 4%−6% for the UPIR, difference 55%−77% for the AUEB and CAPO, difference more than 89% for UTHE, UPAT, UCRE, UMAC, and UIOA. In this case, the *SD* is 13.34, which is a similar to *LR1* and *LR2*. Table 6 indicates again that there are many universities with low scores and thus greater difference from the top university, which is more evident for periods further in time we examine (*LR3*). However, in this application, the distance from the top university has been reduced in some occasions (for example, ARIS in *LR2*).

When the results from Tables 3 and 6 are being compared, it is concluded that the results are quite different and it is worth emphasizing that although UPIR and ARIS are very low ranked in Table 3, their position in Table 6 has been considerably improved. On the contrary, AUEB is not the first or even close to the first universities whereas UTHE remains low ranked in both tables. The impact of the basic assumption whether the number of members of staff changes or not through time influences significantly the ranking of most universities.

The results of Tables 3 and 6 should be investigated jointly in order to reach conclusions for a specific institution. For example, a high position in Table 3 and low position in Table 6 may be the result of high quality academic staff, the majority of which was retired at the end of period *SR* (so that the remaining are still good but very little relevant to the size of the department). On the contrary, a low position in Table 3 and high position in Table 6 may be the result of low quality academic staff, the majority of which was retired at the end of period *SR*, while the remaining are of pretty good quality and quite a few relevant to the size of the department.

Recruiting Needs Based on *OCI** Figures

This section investigates the relative difficulty with which a department can retain its *OCI** performance of present (*SR* period) in the future (periods of *LR1*−*LR3*). Based on the results of Table 5, the following differences are calculated:

$$\Delta LR1 = OCI*(LR1) - OCI*(SR)$$
$$\Delta LR2 = OCI*(LR2) - OCI*(SR)$$
$$\Delta LR3 = OCI*(LR3) - OCI*(SR)$$

which are illustrated in Table 7. The greater (lower) the *ΔLRi* value for a department where i = 1, 2, 3, the greater (lower) its ability to achieve its objectives in period i, namely, to retain its *OCI** performance of present (period *SR*) in period *LRi*. Furthermore, the lower the *ΔLRi* value of a department, the greater the need to attract the best teaching and research staff for reaching its objective (holding its *OCI** performance to the *OCI** level of period *SR*). The results are demonstrated in Table 7.

Once, the results of Table 7 are shorted as illustrated in Table 8, the following conclusions derive: (1) The position of the departments in the four higher positions of the above ranking (ARIS, UPIR, UTHE, and UIOA) remains stable. The same holds for AUEB that holds the lower position in the above ranking in all periods; (2) From periods *LR1* to *LR3*, UMAC improves its position in the above ranking; (3) From periods *LR1* to *LR3*, UCRE's position in the above ranking is lowered; and (4) From periods *LR1* to *LR3*, the position on the

relevant ranking of UPAT remains unchanged; however, its position in the above ranking is lower temporarily in *LR2*.

Table 7

Difficulty to Retain OCI* Performance in the Future

DEPT	*ΔLR1*	*R(ΔLR1)*	*ΔLR2*	*R(ΔLR2)*	*ΔLR3*	*R(ΔLR3)*
AUEB	-62	9	-65	9	-75	9
UCRE	-26	6	-39	7	-54	8
CAPO	-20	5	-37	6	-45	6
UPAT	-27	7	-43	8	-46	7
UMAC	-28	8	-35	5	-39	5
UIOA	-19	4	-27	4	-36	4
UTHE	-18	3	-18	3	-18	3
UPIR	26	2	16	2	12	2
ARIS	30	1	29	1	27	1

Note. R: rank.

Table 8

Conclusions on the Positioning of Greek Departments of Economics—Future Cases

Rank	DEPT	*ΔLR1*	DEPT	*ΔLR2*	DEPT	*ΔLR3*
1	ARIS	30	ARIS	29	ARIS	27
2	UPIR	26	UPIR	16	UPIR	12
3	UTHE	-18	UTHE	-18	UTHE	-18
4	UIOA	-19	UIOA	-27	UIOA	-36
5	CAPO	-20	UMAC	-35	UMAC	-39
6	UCRE	-26	CAPO	-37	CAPO	-45
7	UPAT	-27	UCRE	-39	UPAT	-46
8	UMAC	-28	UPAT	-43	UCRE	-54
9	AUEB	-62	AUEB	-65	AUEB	-75

Assuming the size of the department, as well as its *OCI** score, remains that of period *SR*, the lower the position of a department on the ranking, the greater its needs to attract the relative best candidates for its open positions through recruiting.

Conclusions

Rankings have received a lot of criticism which is based not only on the method adopted but also on the philosophical approach. University rankings have changed the way higher education institutions are perceived, presented, and assessed and their need is not disputed. The methodology developed herein focuses on research as a basis for comparison using data published in international databases by extending previous work of the authors. The present paper examines an indicator that has hardly been investigated and that of the CHC of departments. It demonstrates how the different positions of academic members of staff can contribute to the research evaluation of their institute at different time periods. The methodology proposed takes into consideration the contribution in terms of mean number of *P* and *C* listed in EconLit for the different positions of academic members of staff. It then produces an overall performance Composite Index which is the weighted mean of *P* and *L* for a specific academic position expressed as a percentage of the total number of academic staff at different time periods and finally ranks institutes.

The research examined initially the scenario where the CHC of a department in subsequent periods consists of members who were in the department at period *SR* only and subsequently the case where the CHC does not change through time. Clearly, there are many more combinations that can be investigated. The results of the case studies demonstrated in the first scenario that the AUEB is constantly first in rankings with the exception of the last period (*LR3*). Some universities improve, although at low position at present (*SR*), and others do not manage to maintain their position in time, and drop in ranking. In the case of the second scenario, the results are quite conflicting since the universities that were low on the first case, such as ARIS and UPIR are now on the top ranks. It is clear therefore that the assumptions of the CHC is a very sensitive factor and can dramatically influence the overall ranking of institutes.

Although the methodology presented can be further enriched including data from other databases used more recently, such as Scopus, it certainly offers a basis for discussion and evaluation. It provides to institutes a tool, besides the actual ranking, for benchmarking, monitoring, and future improvement. Ultimately, such a methodology could help decision-makers to focus on strengths and roles within the national system and perhaps more than that, even at a European level, establishing a policy framework for development.

In the Greek context, although the principle of evaluation is not yet common practice in Greece, it is evident that as it happens elsewhere, evaluations of academic members will become a standardised practice in the near future. Considering that (see section "A Conceptual Model for Ranking Universities"), with the recent law change in September 2011, which alters the positions that can have a tenure or tenure track from 4 to 3, the research can move a step further to re-evaluate the academic map and observe where this change modifies the conclusions produced in the present paper.

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