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An Evaluation of the Greek Universities Economics Departments

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Abstract

This study provides a ranking of Economics Departments of Greek Universities. Contrary to the existing literature, we look directly at the citations of the faculty members as a measure of academic performance and avoid the classification of journals. Additionally, the country of the PhD studies was found to be a significant variable that can explain the productivity of Greek economists. PhD holders from US and UK universities are characterised by higher productivity compared to the rest.

Keywords: Economics Department, ranking, Greece
JEL A11, A20

Introduction

A usual criticism in the classification of Universities is the inability to distinguish between research and teaching oriented Departments. Moreover, many universities are quite heterogeneous, containing both excellent and mediocre Departments. The aggregation (averaging) can influence the overall picture of an Institution. Consequently, the comparison and ranking of individual Departments rather than Universities is a worthwhile endeavour. The latter holds for Economics Departments as well as this could increase transparency and allocate funding more efficiently (see also Ulph et al. 2011). Naturally, it enhances the information available to students, particularly for the top performing ones that consider following an MSc or a PhD.

The aim of this paper is the classification of the Greek Economics Departments according to the published work of their academic staff and its impact. Based on the results, we will revisit the peculiarities of research in economics in Greek Universities. In addition, we will examine the extent to which research is affected by the comparison between "young" and "old" departments as well as their geographical allocation.

The crucial question remains: what is the optimal way of evaluating research activity. The existing literature suggests the following criteria: quantitative, bibliometric methods, via the analysis of citations, or qualitative methods, with the most indicative one being the "peer review" (Norris & Oppenheim 2007).

The advantage of the peer review method is that it derives from the opinion of experts that have thorough knowledge of both the scientific field and the specific publication pattern in each field. On the other hand, the disadvantages include: time-consuming with high cost due to the required processes (Holmes & Oppenheim 2001), the inevitable bias and partiality of critics, as well as the fact that there is incomplete information on specialised research work which is under review (Martin 1996).

Regarding the analysis of citations, the following are considered as advantages: the objectivity of measurements, the availability and low cost, the possibility of conducting measurements on an unlimited number of publications, as well as the possibility of using them in both individual and collective level (Wallin 2005). What is quite interesting is that, whenever there are available data from both methods on the same corpus publications, there is a positive cross-correlation between the peer review and the bibliometric measurements

(Holmes & Oppenheim, 2001 and Martin, 1996). The disadvantages of the method of the analysis of citations include: the incapability of having qualitative differentiation among citations, the lack of challenging and standardised indicators (Wallin 2005) and mainly the difficulty of making comparisons between different scientific fields, given the particular publication and citation pattern of each scientific field (Seglen 1998).

An alternative approach proposes the evaluation of published work according to the scientific value of journals where these publications have taken place, an indirect evaluation method. The reasoning behind this is that the scientific value of the relevant journals stems from citation analysis. Only in a rather extreme version of this method, journals ranking depends exclusively on experts opinions (Combes & Linnemer 2003).

More often we have a combination of opinions from experts and information from the analysis of citations (Coupe 2003, Kalaitzidakis et al. 2003 and 2011 and Lubrano et al. 2003). The advantage of this method is its flexibility regarding the number of journals that it can include. Necessary requirement nevertheless is that all these journals have already conducted an analysis of the citations alongside with the consequent evaluation,. This is also the weak point of this approach. The distribution of weights in journals varies among scholars. These divergences can influence rankings considerably (Neary et al. 2003).

The current ability to manage large volume data has rendered feasible and cheap the direct evaluation of published papers without the need to look at the journals that have been published. An evaluation using the system of citations implies an evaluation of papers in the same spirit as journals are evaluated. On the other hand, the use of the "peer" method of "peer" notes a significant decline (Norris & Oppenheim 2007).

Methodology and review of bibliography

The analysis for each faculty member of Economics Departments of Greek Universities is based on data retrieved from Scopus in September 2009. The faculty members were identified based on the website of each department (only Economists were considered). Bibliometric indicators were measured in the following four categories: global impact of the Department, productivity, impact disclosed by published papers, combined indicators.[1]

[1] *i. Global Impact of the Department*

The indicator refers to the number of citations per researcher and is indicative of the impact and influence of

The existing literature on rankings based on citations analysis is rather limited compared to those based on the evaluation of journals where the relevant papers have been published. Only recently, due to the progress in collecting and managing large volumes of information on publications and citations, this "direct" approach has been possible and therefore allowed the calculation / aggregation of various indicators. It is no coincidence that the proposal and application of the first synthetic indicators begun during the last five years. In addition, especially for the Economics Departments, such classification / ranking studies are still very limited. The most known are those of Ben-David (2010) for Israel, Cokgezn (2006) for Turkey, Ruan & Tol (2008) and Tol (2008) for Ireland, Clerides at al (2011) for the UK and Henkerson & Waldenstrom (2011) for Sweden respectively. For a comparison of rankings and the institutional framework between Italy and Canada see also Pelloni (2009).

For the case of Greece there are no corresponding studies. However, there have been some attempts, such as the recording of the published work of faculty members of the Economics

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the academic unit. Its disadvantages are: failure to differentiate in the time of publication as well as to the type of publication and subject areas / fields.

ii. Productivity

This refers to the number of publications per researcher and is the key measurement on which the whole analysis is based on. Disadvantages of the indicator are: failure to differentiate in the impact of publications and ignoring publications which are not covered by the reference database used.

iii. Impact disclosed by published papers / articles

It deals with the number of citations per publication and faces at least partially the problem of qualitative differentiation of journals included in the database. Its advantage is that it is not influenced by the size of the academic unit. Its disadvantage is failure to differentiate in the time of publication as well as to the type of publication and subject areas / fields. An additional problem is the alteration / corruption in departments with low productivity, where a small number of publications with high impact may alter its price.

iv. Combined indicators

They are indicators that attempt to capture both productivity and impact of a scientist's publications. Taking into consideration the citations in any published work, they partly face the lack of quality differentiation in the journals where these publications were made.

h-index

According to Hirsch (2005), "A scientist has index h if h of [his/her] Np papers have at least h citations each, and the other $(Np-h)$ papers have at most h citations each".

In a non-individual level (eg at a university department) the h-index can be calculated either globally (ie the department is regarded as one writer and the hg-index calculates the department's publications in total) or in a successive way (Prathap 2006 and Schumbert 2007). For example, a university department has an $h1$-index of $h1$ if it has $h1$ members with an h-index of at least $h1$. The disadvantages of the h-index are that it das not take into account: the h and type of publication, the size of the academic unit and the subject area. An additional drawback is that as a natural number it does not have great scalability. A key drawback is that it does not take into account publications with high impact. In order to address this problem Egghe (2006) introduced the g-index.

g-index

The g-index of a researcher is equal to the number g of the publications for which there are at least $g2$ citations. Later on Tol (2008) introduced a sequential g-index ($g1$) to measure the g-index in a non-individual level (eg university department). In such a case, a department has a $g1$-index equal to $g1$ if the $g1$-index is the (unique) highest number such that the top $g1$ faculty members have on average at least a g-index of $g1$.

departments at Greek universities in journals listed by JEL (Bitros 2005 and Psacharopoulos & Gerasimos 2003) and the first respective rankings. Kalaitzidakis et al. (1999) provides a ranking of Greek-speaking Economics Departments. This paper evaluates the published research work according to a classification of economic journals proposed by the authors. This classification / ranking is also based on the analysis of citations, in an indirect way though, since it lies in the use of citations at the journal rather than article level.

In general, the number of rankings of Greek Departments regardless the scientific field or sector using the method of analysis of citations is limited (see for instance Lazaridis (2010) for the Departments of Physics and Chemistry and Katsaros et al. (2008) for the Departments of Computer Science).

The vast majority of these studies use mainly combined indicators such as *h* and *g*, as well as some of their variants. They are derived from databases such as the Web of Science, Scopus and Google Scholar. Despite the individual preferences in the use of one of these databases, the best coverage is offered by Scopus and could be used as an alternative to the Web of Science as a tool to evaluate the impact in social sciences (Norris & Oppenheim 2007).

This paper aims to compare the results of separate indicators, highlighting strengths and weaknesses of the indicators used. Secondly, based on the results, we will discuss policy issues.

Results

The first indicators which we examined were (Table 1): citations per faculty member, papers per faculty member and citations per paper. The first of those, citations per faculty member is the product of the other two. The importance, in other words, of the impact of the research of a department's faculty members consists of the following two components: the average productivity of its members (papers per faculty member) and the average impact of these articles according to the citations they receive (citations per paper). High productivity and high impact result to a high reputation of the department in the research community. Variations in the productivity and the impact of publications have a combined result to its research reputation.

Table 1: Traditional Bibliometric Indices

	c/f	p/f	c/p	papers	citations	Faculty members
Athens University of Economics and Business (AUEB)	64,2	10,7	6,0	246	1476	23
University of Crete	35,9	9,5	3,8	189	717	20
University of Patras	30,4	8,0	3,8	104	395	13
University of Macedonia (UoM)	27,3	10,3	2,7	247	656	24
University of Thessaly	25,6	9,8	2,6	118	307	12
National and Capodistrian University of Athens (UoA)	17,3	5,3	3,3	229	745	43
University of Peloponnese	17,0	6,5	2,6	65	170	10
Aristotle University of Thessaloniki (AUTH)	9,1	4,9	1,9	68	127	14
University of Ioannina	4,8	3,6	1,3	58	77	16
University of Piraeus (UNIPI)	4,9	3,2	1,6	57	89	18

Note: c/f denotes citations per faculty, p/f papers per faculty and c/p citations per paper.

The Athens University of Economics and Business displays the higher impact with 64.2 citations per faculty member, given its comparatively high productivity (10.7 papers per faculty member), and also because these papers have on average a higher impact (6.0 citations per paper). In contrast, the Department of Economics at the University of Piraeus shows the lowest impact, since both the productivity of its members and the impact of their publications on average is low.

Besides those two extremes cases, there are Departments with high impact due to the comparatively high values of both components, such as the Economics Departments at the Universities of Crete and Patras. The Department of Economics at the University of Macedonia is characterized by a rather high productivity on the one hand and by lower performance of the average impact of the published research on the other. All other Departments have relatively lower performance regarding their impact on the research community. Two notable cases are those of the Departments at the Universities of Thessaly and Thessaloniki, which have comparatively high performance on one of the two components, but nevertheless are not capable to reverse their general position.

Table 2: *h* and *g* indices

	h1	*g1*	*h1*Δ	*g1*Δ	*h*-average	*g*-average
Athens University of Economics and Business (AUEB)	5	10	5,9	10,6	3,3	5,1
University of Crete	4	7	4,9	7,6	2,5	3,6
University of Patras	4	6	4,8	6,7	3,3	4,4
University of Macedonia (UoM)	5	7	5,5	7,5	2,8	3,8
University of Thessaly	3	5	3,7	5,5	2,1	3,1
National and Capodistrian University of Athens (UoA)	4	7	4,8	7,5	1,8	2,7
University of Peloponnese	3	4	3,3	4,8	2,0	3,2
Aristotle University of Thessaloniki (AUTH)	2	4	2,8	4,4	1,4	2,1
University of Ioannina	2	3	2,6	3,4	1,1	1,4
University of Piraeus (UNIPI)	3	3	3,3	3,7	0,9	1,7

The *h* and *g* indices presented in Table 2 (columns 1 to 4) confirm the overall picture previously described. The Economics Departments at the Athens University of Economics and Business and the University of Piraeus are once again the opposite ends of the scale. The Departments at the Universities of Crete, Patras and Macedonia continue to acquire high positions, whereas the Departments at Thessaly, the Peloponnese and Ioannina are further down in the list.

The departments that improve significantly their position are the Economics Departments of UoA and UoM. This results from the large number of their faculty members; these indicators are biased by the size of the Departments as Departments with large number of faculty members are favoured. The latter applies to all successive indicators. The distortion is in some cases even greater. The *hg* index (not reported in Table 2) for example leads to more biased results than the index *h1*, while the same stands for all variants of the *g* indicator compared to those ones of index *h*.

For these reasons we added two more columns (columns 8 and 9) in Table 2, with the arithmetic averages / means of the individual indices *h* and *g* of the faculty members of each department. These new indicators are not affected by the size of the departments. The derived classification from both columns is similar to the one produced in the first column of Table 1. Therefore, the use of arithmetic means of the indices *h* and *g* are superior to all other forms of successive indicators (Lazaridis 2010).

The previous analysis highlights the research potential of each department, based on the research publications that have been made throughout the research life of a faculty member. The presentation, however, of data for a more recent period is also enlightening. This is depicted in the following Table and the resulting picture shows some important differences. These differences affect more the top rather than the lower positions of the ranking / classification, as depicted in the first column of the table.

Table 3: Traditional bibliographic indicators (2004-2008)

	c/f	p/f	c/p	papers	citations	Faculty members
Athens University of Economics and Business (AUEB)	7,6	2,9	2,6	66	174	23
University of Crete	6,2	4,1	1,5	82	123	20
University of Patras	7,5	3,9	1,9	51	98	13
University of Macedonia (UoM)	8,2	4,0	2,1	96	197	24
University of Thessaly	6,1	4,0	1,5	48	73	12
National and Capodistrian University of Athens (UoA)	3,5	1,8	1,9	79	150	43
University of Peloponnese	6,4	4,3	1,5	43	64	10
Aristotle University of Thessaloniki (AUTH)	1,4	2,0	0,7	28	19	14
University of Ioannina	1,9	2,3	0,8	36	30	16
University of Piraeus (UNIPI)	2,1	1,6	1,3	28	37	18

From the relevant classification / ranking and the data of the individual indicators a relative bias of the indices *h1* and *g1* relating to the size of the Departments in terms of faculty members is confirmed, as well as the close relationship between the indicator "citations per faculty member" and the arithmetic mean of indices *h* and *g*.

Discussion

From a historical and geographical standpoint, Greece has old as well as newer Economics Departments, half of which are located in the two major cities and the others in the rest of the country. The historical and geographic diversifications as well as the criterion of size lead to the same grouping / clustering of Departments. All of the big and old Departments are located in Athens (AUEB, UoA, UNIPI) and Thessaloniki (AUTH, UoM). Likewise, the newer and generally less crowded Departments are located in other cities.

These distinctions dominate the choice of incoming students. The entry scores for the

Departments of the two major urban centers systematically supersede those of the other regions. Nevertheless, they do not respond to the ranking/ classification we have produced. Obviously the volume and quality of research work is not a selection criterion of a Department for undergraduates, at least, students.

It is certain, however, that the age or size of the Departments is not positively associated with its research performance. The creation of numerous Departments did not arise as the effect of special design and study, nor associated with the establishment of research clusters to exploit the positive externalities created; instead it was a de facto, following the settings of the Law 1268/82 (passed in 1982) which determined the course of direction of Higher Education.

In the absence of any objective or limit on the maximum size of a Department, permanent research and teaching assistants evolved into faculty members, through restricted and non-competitive procedures. A key parameter in interpreting the results of the majority of Central Universities seems to be inbreeding. Inbreeding obviously does not constitute a characteristic of Economics Departments only. Actually, it is found even more acutely in almost every old Department and especially the pre-existing ones (before 1982).

From what we have seen so far, the research activity of the Economics Departments we have analyzed does not appear to be influenced by neither the location nor the age nor the size of a department. Factors such as the institutional framework and the tradition of the Departments and Universities, led to selection policies of academic staff, which contributed to the present research picture. In other words, these factors have shaped a specific demand for research and teaching staff.

Given the evidence above, we turn out attention to the individual characteristics of the researchers. This would allow us to turn on the microscope on the determinants of their research performance.

In this paper we argue that one of the main factors determining the research profile of a faculty member is the place where she/he carried out the doctoral studies. The academic profile is formulated by the educational quality offered from different educational systems that shape the overall academic culture, the research ethos and the dominant scientific practices and habits. In addition, the duration of the research age, constitutes a second factor which is, ceteris paribus, positively or at least not negatively correlated with the number of publications and citations.

For this purpose we calculated the research age of the faculty members of the Economics Departments based on the years that have elapsed from receiving their doctoral degrees and simultaneously dividing them into four groups according to the location of their doctoral studies: Greece, the rest of Europe except Great Britain, Great Britain and the U.S. The differences in the educational systems and the research environment of these countries could justify such a distinction. Summing up, we examine the question whether differences in the number of publications, citations etc. can be interpreted by the different research age and by the country of completion of doctoral studies.

Three-quarters of Greek University Economists have carried out their doctoral studies abroad. The majority of them have a doctorate from universities located in the UK and the U.S., 33.5% and 26.2% respectively. The indicator "citations per faculty member" differs depending on whether the doctoral studies have been completed on the one hand, at the Department where they presently serve, in the rest of Greece and / or in a country of continental Europe, and on the other hand, in the UK or the US (including Canada and Australia). The average number of citations per faculty member for those with a doctorate from their own Department is 10.0, while this number triples (33.5 citations per faculty member) or quadruples (44.7 citations per faculty member) when the country of completion of the doctoral studies is the UK or the US respectively. Significant differences, also in the same direction, appear to the indices "papers per faculty member" and "citations per paper".

We, then, investigate using regression methods, the determinants of productivity and overall scientific impact of a researcher, as well as its average impact. As determinants we consider the academic age of a researcher and the country where the doctoral studies have been completed. For the first factor we use a continuous, in years, variable starting from the year of completion of the doctorate. For the second one, a dummy variable is constructed, which takes the values 1 or 0. We use slope dummies instead of intercept dummies because we believe that the country where the doctoral degree is completed affects the researcher's scientific evolution in time and does not start with the acquisition of the title. In other words, the underlying assumption is that all PhD holders start from the same point but their evolution differs according to the country they have completed their studies. If the latter is considered unrealistic, one should adopt intercept dummies.

The results are presented in Table 4. According to these, all three equations have adjusted R^2 that vary from 0.08 to 0.13. The F-stats for all three equations are statistically significant at a

very high level of significance, i.e. greater than $\alpha = 0.01$.

Table 4: Regression results

	p/f	c/f	c/p
Constant term	1.080 (0.44)	-17.784 (-1.52)	-0.457 (-0.61)
$D_1 \cdot t$	0.759*** (2.62)	5.098*** (3.68)	0.305*** (3.44)
$D_2 \cdot t$	0.847*** (2.53)	5.324*** (3.32)	0.287*** (2.79)
$D_3 \cdot t$	0.910*** (3.13)	5.594*** (4.01)	0.307*** (3.44)
$D_4 \cdot t$	1.163*** (4.02)	6.737*** (4.86)	0.358*** (4.03)
$D_5 \cdot t$	1.196*** (4.02)	7,022*** (4.92)	0.373*** (4.08)
t^2	-0.0309*** (-4.07)	-0.173*** (-4.77)	-0.0086*** (-3.694)
$\overline{R}^2$	0.13	0.15	0.08
F_{stat}	5.83**	6.43**	3.92**
Prob (F_{stat})	0.0	0.0	0.001

Notes:
D_1: dummy variable, for internal Greek Ph.D holders equals to 1, for all others equal to 0.
D_2: dummy variable, for other Greek equals to 1, for all others equal to 0.
D_3: dummy variable, for continental Europe equals to 1, for all others equal to 0.
D_4: dummy variable, for UK equals to 1, for all others equal to 0.
D_5: dummy variable, for US, Canada, Australia, Ph.D equals to 1, for all others equal to 0.
t: years since getting the PhD.
*** 1% significance level, ** 5% significance level. t-ratios in brackets, Bootstrap standard errors available upon request.

The estimated parameters of all equations are, with the exception of the constant term, statistically significant at the 1% S.L. At this point we should draw our attention to the fact that the statistical significance increases for the variables referring to studies in the UK, as well as the group of countries: USA, Canada, Australia (higher t-ratios).

From the first equation (papers per faculty) it can be argued that holding a Greek doctorate from his/ her own Department has an average of 0.76 publications per year. Another colleague, for example, with a doctorate from the UK is expected to have 1.16 publications per year, i.e. [1.16:0.76] 52% more. Moreover, if we compare the performance of the D1 (Greek PhD) with D5 (US PhD), then we get a 58% increase in productivity.

A similar picture is also revealed by the second equation (citations per faculty), which is more positive for doctorate holders from the UK and the US. For instance, a holder of an American doctorate is estimated to have, an average per year 38% $\left(\frac{7,022}{5,098}x100\right)$ more citations to her/his published work.

Finally, according to the third equation (citations per paper), an owner of an American doctorate has 0.373 citations per paper over 0.358 of the "British" counterpart. This means that a PhD from the US will have 23% $\left(\frac{0,373}{0,305}x100\right)$ more citations per paper per year than those of a Greek PhD holder.

Conclusions

This study examined the performance of the Greek Universities Economics Department. In contrast with the existing literature, it looks directly on the citations of the faculty members as a measure of their academic performance. The citations were used to rank the Economics Departments. Additionally, for each faculty member the hypothesis that the country that their PhD studies took place determines their productivity was examined. This variable was found to be significant and the conclusion is that economists with PhD from the US and the UK are characterised by higher productivity compared to the rest.

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