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Abstract

We examine the research productivity of Australian economics professors in teaching departments for the periods 1988-2000 and 1994-2000 using the journal articles that are included in the ECONLIT database. Two different ranking criteria are used - one based on citations and the other based on perceptions of journal quality. We find that the two criteria yield quite different results. On a per capita basis, economics professors are found to be more productive than all economic academic staff (lecturers and above) at most, but not all universities using both criteria.

JEL Categories: A140, O110

Introduction

In Australia, professors occupy a special place. Unlike the United States, professors are not normally appointed by promotion in Australia. These positions are advertised externally. Established professorial positions are called chairs, although increasingly, a number of universities have created positions of personal chairs and professorial fellows¹. Professors, personal chairs and professorial fellows represent approximately 12.6 percent of total academic staff (lecturers and above) (Sinha & Macri 2002). In contrast, professors in the United States represent approximately 35 percent of total faculty members, on average, for all disciplines (Association of American University Professors 2001). There has also been a significant increase in the proportion of professors in Great Britain – much more so than there has been in Australia. However, only Israel has a similar proportion of professors to that of Australia.

Professors in Australia are expected to provide leadership, particularly in research. The motivation for this study is to assess the extent in which the professors in economics departments in Australia meet that expectation.

In this paper, we look at the research productivity of the Australian economics professors and provide rankings on the basis of such research productivity. However, we examine one measure of productivity, namely publications in journals that are included in the ECONLIT database of the American Economic Association. This has been widely used as a measure of research productivity in many studies. For example,

¹ For most universities in Australia, personal chairs are awarded via an internal process. Applications for personal chairs are invited from time to time. Professorial fellows, on the other hand, are awarded on the basis of accomplishments of the academic staff.

Towe and Wright (1995) adopt this to measure the research productivity of Australian university economics departments. Bairam (1996, 1997), Gibson (2000) and King (2000) adopt the same methodology for the New Zealand university economics departments.

This paper differs from previous studies in a number of important ways. Firstly, to our knowledge, there has been no study that has examined the research productivity of the economics professors for any country. In fact, the only study relating to Australian economics professors is by Anderson and Blandy (1992) who provide rankings of economics departments based on a survey of Australian economics professors. Secondly, this study uses data for a longer time period than for any other ranking study. Thirdly, in our rankings, we take into account more journals than any other studies. This will be discussed in more detail in the data and methodology section of the paper. Fourthly, we provide a variety of rankings. Economics journals have been ranked not only on the basis of citations but also on the basis of perceptions. In our rankings, we incorporate both of these types of journal rankings. In addition, we produce average rankings by combining the two measures of rankings.

Data and Methodology

As mentioned previously, we use journals that are included in the ECONLIT database, which is published by the American Economic Association. Data are for the 13-year period from 1988 to 2000. We use the March 2001 version of the ECONLIT database.

There are two basic approaches to using publication data for rankings. A flow approach involves assigning research output according to her/his affiliation at the time of publication. Harris (1988) uses the flow approach. However, the overwhelming majority of studies use the stock approach. These include Towe and Wright (1995), Conroy, Dusansky, Drukker and Kildegaard (1995), Lucas (1995), Fox and Milbourne (1999), Gibson (2000) and Bairam (1996, 1997). A stock approach involves assigning research output to a person's current affiliation regardless of whether a person has moved from one university to another. This can be justified on the basis that when an academic moves from one institution to another, the academic takes her/his human capital with her/him. We adopt the stock approach for the purpose of this study.

We use data for economics professors of 27 Australian university economics departments. The list of universities (the abbreviations used in parentheses) are as follows: Adelaide, Australian Defence Force Academy (ADFA, the University College of the University of New South Wales), Australian National (ANU, Faculty only), Canberra, Curtin University of Technology (Curtin), Deakin, Edith Cowan, Flinders, Griffith, La Trobe, Macquarie, Melbourne, Monash (Clayton campus only), Murdoch, New England (UNE), New South Wales (UNSW), Newcastle, Queensland, Queensland University of Technology (QUT), Royal Melbourne Institute of Technology (RMIT), Sydney, Tasmania, University of Technology Sydney (UTS), Victoria University of Technology (VUT), Western Australia (UWA), Western Sydney-Macarthur (UWS) and Wollongong. We do not include any other Australian universities because these universities either do not have any professors in their economics departments or the departments are simply too small. We limit ourselves to

teaching economics departments and to departments which have at least 8 academic staff. In addition, only full time economics professors are included in the study. For some universities, there are joint departments. For example, Curtin, La Trobe, RMIT, QUT, VUT and UTS have joint economics and finance departments. In most cases, however, professors in these departments tend to publish in economics and economics-related journals. The difficulty of separating economics professors from finance professors is illustrated by the case of La Trobe. The economics and finance department at La Trobe has one professor – Imad Moosa. He is listed as a professor of finance even though he publishes predominantly in economics journals. As we shall see, La Trobe (Imad Moosa) is a clear leader in several rankings.

The number of economics professors varies enormously from one university to another. For example, University of Melbourne has 10 economics professors, which is the highest number. On the other hand, ADFA, Canberra, Edith Cowan, Griffith, La Trobe, Newcastle, Sydney, Tasmania, UWS and VUT have one economics/finance professor each. In total, these 27 economics departments have 71 economics professors - an average of about 2.63 professors per department. In our study, 276 ECONLIT-listed economics journals are taken into account. In total, these professors have published 1269 ECONLIT journal articles (singly or jointly) during the period 1988-2000. This gives an average of 17.8 journal articles per professor over the 13-year period or an average of 1.4 journal articles per year. All academic staff (lecturers and above) of these economics departments have published 3146 ECONLIT journal articles singly or jointly during the same period. Therefore, professors account for approximately 40 percent of the journal articles published by all academic staff (numbering 562) of these economics departments. Articles in Australian economics journals account for approximately 29 percent of the total number of journal articles published by these professors. Towe and Wright (1995) provide a core list of top 12 journals in economics. The list is taken from Diamond (1989). These 12 journals are: *American Economic Review*, *Econometrica*, *Economic Journal*, *International Economic Review*, *Journal of Economic Theory*, *Journal of Finance*, *Journal of Financial Economics*, *Journal of Political Economy*, *Quarterly Journal of Economics*, *Rand Journal of Economics*, *Review of Economics and Statistics* and *Review of Economic Studies*. Australian economics professors have published 55 journal articles in these journals, which represents 4.3 percent of the total 1269 ECONLIT journal articles.

As previously mentioned, two types of rankings of journals are used in the study. The first is the rankings of journals based on citations. We use the Laband and Piette (1994) rankings in this regard. Although the Laband and Piette study has one of the most comprehensive rankings of journals, it does not rank all the journals that are included in the ECONLIT. At present, ECONLIT includes about 600 journals (Ekwurzel & McMillan 2001). Laband and Piette provide a variety of rankings. These include rankings based on citations per article, rankings based on impact adjusted citations per article, rankings based on citations per character and rankings based on impact adjusted citations per character. We use the rankings based on impact adjusted citations per character. According to Liebowitz and Palmer (1984), this is the most ideal measure.

Although the citation-based journal rankings are useful, there are important limitations of such rankings. As Liebowitz and Palmer (1984, p. 84) observe,

...the practices of scholarship in various fields may differ so that economic historians, say, may give citations more frequently than economic theorists. If so, comparing citations received by authors in these two fields would not be indicative of their actual relative influence. It is possible that authors submitting manuscripts give gratuitous citations to articles appearing in the journal of submission in the hope that these citations will increase the probability of acceptance.

In view of the criticisms of the citation-based rankings, we also use the perception-based rankings of journals. There is only one such perception-based rankings of journals – the one by Mason, Steagall and Fabritius (1997) which we use. The rankings are based on two surveys of heads of US economics departments conducted in September 1992 and April 1993. 965 heads of departments were given the task of ranking 142 journals. They were also given the option of adding additional journals to the list and ranking them. The opinion of each department head was given equal weight. The alternative would have been to give a higher weight to the rankings of department heads of larger departments or to departments with a higher reputation.

Mason, Steagall and Fabritius provide rankings of 157 journals. They categorise universities into (a) majority research, (b) mostly research, (c) balanced between research and teaching and (d) mostly teaching and provide a mean rating by these university types. There is also a combined category where responses from all types of universities are included.

All respondents did not rank every journal. In other words, some heads of departments abstained from ranking some journals. For the combined category, the (total) number of respondents is reported. However, for the rankings by four different types of universities, the number of respondents is not given. In our study, the combined category was used in the absence of detailed information on the respondents for each journal. To reduce the bias, we excluded those journals for which the total number of respondents was less than 50.

Not all of the 276 ECONLIT journals in which economics professors have published in during the period 1988-2000 are ranked in either the Laband and Piette or Mason, Steagall and Fabritius studies. Therefore, we assign the lowest weights given in these two studies to the unranked journals. However, there is an additional problem. The scales in the two rankings are different. In order to compare them, we make some adjustments. In both rankings, *American Economic Review* receives the highest ranking. In the Laband and Piette study, it has a weight of 1, while in the Mason, Steagall and Fabritius study it has a weight of 3.83. Therefore, we divide all the weights in the Mason, Steagall and Fabritius by 3.83. A perusal of the two rankings draws out a very important difference between the two measures. The citation-based weights in Laband and Piette decline quite sharply after the few initial top-ranked journals. In contrast, the weights in the Mason, Steagall and Fabritius weights decline slowly. In fact, the correlation between the two weights is relatively low at 0.60. As we will see, the results that we obtain from the two weights are quite different.

In this study, the *American Economic Review* is used as the benchmark since it receives the highest ranking in the Laband and Piette and Mason, Steagall and Fabritius studies. The following formula for each journal article is used to calculate the rankings by using both the Laband and Piette and the Mason, Steagall and Fabritius weights.

$$\text{American Economic Review Equivalent} = (P)(1/n)(CF)(Q) \quad (1)$$

where P denotes the number of pages, n is the number of authors, CF is the conversion factor representing the average number of words per page and Q is the index of quality of the journal. Since CF is defined in relative terms to American Economic Review (AER), the AER with an average of 760 words per page has a CF of 1. Of course, there is enormous variation in the average number of words per page for the 276 journals that are taken into account in this study. The numbers that we obtain can be interpreted as the AER equivalent pages published by each professor when adjustments are made for the number of authors, the number of pages, the average number of words per page and the journal quality.

Results

We calculate the results for 1988-2000 and for the sub-period, 1994-2000. In all the Tables, the numbers in parentheses show the per capita pages published by all academic staff of the rank of lecturer and above. These numbers enable us to compare the per capita research productivity of professors with the per capita research productivity of all academic staff. Table 1 shows the results of using the Laband and Piette weights on a total and per capita basis for 1988-2000. LPTOT and LPPC stand for total and per capita rankings (in both Tables 1 and 4). ANU emerges as the clear leader in both categories. For the total rankings, ANU is then followed by UNSW, Melbourne, Monash and UWA. For the per capita rankings, ANU is followed by Griffith, UNSW, UWA and Sydney. For most universities, the per capita productivity of professors is greater than all other academic staff. However, the exceptions are Murdoch, Newcastle, Tasmania, UWS, VUT and Wollongong.

Table 1: Laband and Piette Citation-Based Rankings, Total and Per Capita, 1988-2000

University	LPTOT		LPPC	
	Pages	Rank	Pages	Rank
Adelaide	4.01	12	1.34(0.34)	12
ADFA	0.05	25	0.05(0.02)	24
ANU	120.77	1	40.26(6.03)	1
Canberra	0.44	20	0.44(0.06)	20
Curtin	1.36	18	0.45(0.14)	19
Deakin	2.05	15	1.03(0.33)	15
Edith Cowan	0.08	24	0.08(0.02)	23
Flinders	2.19	14	1.10(0.20)	14
Griffith	10.68	6	10.68(1.11)	2
La Trobe	1.80	17	1.80(0.53)	10
Macquarie	5.60	10	1.40(0.37)	11
Melbourne	30.84	3	3.08(2.03)	7
Monash	23.21	4	5.80(1.42)	6
Murdoch	0.05	26	0.02(0.24)	27
Newcastle	0.14	22	0.14(0.16)	22
Queensland	4.72	11	1.18(0.41)	13

QUT	1.85	16	0.92(0.13)	16
RMIT	6.83	9	2.28(0.20)	8
Sydney	7.08	8	7.08(3.46)	5
Tasmania	0.68	19	0.68(0.81)	17
UNE	3.18	13	0.64(0.41)	18
UNSW	51.27	2	10.25(2.23)	3
UTS	7.82	7	1.96(0.29)	9
UWA	23.05	5	7.68(2.77)	4
UWS	0.16	21	0.16(0.17)	21
VUT	0.04	27	0.04(0.06)	25
Wollongong	0.09	23	0.04(0.34)	26

The numbers in parentheses denotes the per capita pages published by all academic staff of the rank of lecturer and above.

Table 2 shows the results of using the Mason, Steagall and Fabritius weights for 1988-2000. MSFTOT and MSFPC stand for total and per capita rankings respectively (in Tables 2 and 5). For the total rankings, Melbourne is the clear leader followed by ANU, UWA, Queensland and UNSW. For the per capita rankings, ANU is by far, the clear leader followed by La Trobe, UWA, Melbourne and Queensland. With the exception of Murdoch and Wollongong, the per capita productivity of professors is higher than the per capita productivity of all academic staff.

Table 2: Mason, Steagall and Fabritius Perception-Based Rankings, Total and Per Capita, 1988-2000

University	MSFTOT		MSFPC	
	Pages	Rank	Pages	Rank
Adelaide	219.35	7	73.12(20.00)	6
ADFA	14.55	26	14.55(5.69)	24
ANU	547.83	2	182.61(39.99)	1
Canberra	34.02	20	34.02(8.99)	16
Curtin	118.50	12	39.50(12.24)	13
Deakin	63.73	16	31.87(11.56)	17
Edith Cowan	17.19	25	17.19(5.97)	23
Flinders	48.98	18	24.49(7.46)	20
Griffith	36.69	19	36.69(13.01)	15
La Trobe	159.43	9	159.43(33.54)	2
Macquarie	155.34	10	38.83(16.74)	14
Melbourne	1051.98	1	105.20(48.72)	4
Monash	254.74	6	63.69(24.06)	8
Murdoch	17.72	24	8.86(19.18)	27
Newcastle	27.12	21	27.12(16.38)	18
Queensland	307.27	4	76.82(27.93)	5
QUT	83.59	13	41.80(7.43)	12
RMIT	163.89	8	54.63(6.45)	10
Sydney	53.32	17	53.32(29.41)	11
Tasmania	65.93	15	65.93(26.74)	7
UNE	121.46	11	24.29(23.01)	21
UNSW	284.47	5	56.89(21.81)	9
UTS	72.98	14	18.25(4.51)	22
UWA	336.94	3	112.31(40.33)	3
UWS	25.30	22	25.30(21.21)	19
VUT	13.89	27	13.89(3.68)	25
Wollongong	20.00	23	10.00(13.67)	26

The numbers in parentheses denotes the per capita pages published by all academic staff of the rank of lecturer and above.

Table 3: Average of Laband and Piette Citation-Based and Mason, Steagall and Fabritius Perception-Based Rankings, Total and Per Capita, 1988-2000

University	AVTOT		AVPC	
	Pages	Rank	Pages	Rank
Adelaide	111.68	7	37.23(10.17)	6
ADFA	7.30	26	7.30(2.86)	24

ANU	334.30	2	111.43(23.01)	1
Canberra	17.23	20	17.23(4.53)	16
Curtin	59.93	12	19.98(6.19)	15
Deakin	32.89	16	16.45(5.95)	17
Edith Cowan	8.64	25	8.64(3.00)	23
Flinders	25.58	18	12.79(3.83)	19
Griffith	23.69	19	23.69(7.06)	12
La Trobe	80.61	9	80.61(17.04)	2
Macquarie	80.47	10	20.12(8.56)	14
Melbourne	541.41	1	54.14(25.37)	4
Monash	138.98	6	34.74(12.74)	7
Murdoch	8.89	24	4.44(9.71)	27
Newcastle	13.63	21	13.63(8.27)	18
Queensland	156.00	5	39.00(14.17)	5
QUT	42.72	13	21.36(3.78)	13
RMIT	85.36	8	28.45(3.32)	11
Sydney	30.20	17	30.20(16.44)	10
Tasmania	33.30	15	33.30(13.78)	9
UNE	62.32	11	12.46(11.71)	21
UNSW	167.87	4	33.57(12.02)	8
UTS	40.40	14	10.10(2.40)	22
UWA	179.99	3	60.00(21.55)	3
UWS	12.73	22	12.73(10.69)	20
VUT	6.97	27	6.97(1.87)	25
Wollongong	10.05	23	5.02(7.01)	26

The numbers in parentheses denotes the per capita pages published by all academic staff of the rank of lecturer and above.

As mentioned previously, we also calculate the rankings by combining the Laband and Piette citation-based weights with the Mason, Steagall and Fabritius perception-based weights. The results of such rankings for the period 1988-2000 are provided in Table 3. AVTOT and AVPC stand for the total and per capita rankings respectively (in Tables 3 and 6). For the total rankings, Melbourne is the clear leader followed by ANU, UWA, UNSW and Queensland. This ranking is almost identical to the rankings using the Mason, Steagall and Fabritius weights (except that Queensland and UNSW switch positions). For the per capita rankings, ANU is followed by La Trobe, UWA, Melbourne and Queensland. This is exactly the same rankings we get when we adopt the Mason, Steagall and Fabritius (MSF) weights. It is clear that when we combine the two weights, the MSF weights dominate because these weights do not decline as sharply as the Laband and Piette weights. Again, we find that for Murdoch and Wollongong, the per capita research productivity of professors is lower than other academic staff. These are exactly the same results as in Table 2.

Table 4: Laband and Piette Citation-Based Rankings, Total and Per Capita, 1994-2000

University	LPTOT		LPPC	
	Pages	Rank	Pages	Rank
Adelaide	2.00	9	0.67(0.22)	12
ADFA	0.04	21	0.04(0.01)	20
ANU	86.59	1	28.86(4.24)	1
Canberra	0.02	24	0.02(0.01)	23

Curtin	1.29	13	0.43(0.07)	13
Deakin	1.76	11	0.88(0.31)	11
Edith Cowan	0.03	23	0.03(0.02)	21
Flinders	0.29	18	0.14(0.04)	18
Griffith	0.01	27	0.01(0.02)	27
La Trobe	1.79	10	1.79(0.26)	4
Macquarie	4.95	7	1.24(0.34)	9
Melbourne	15.67	4	1.57(1.29)	6
Monash	5.01	5	1.25(0.41)	7
Murdoch	0.04	22	0.02(0.22)	24
Newcastle	0.02	26	0.02(0.13)	26
Queensland	0.73	16	0.18(0.23)	16
QUT	0.80	14	0.40(0.08)	14
RMIT	3.67	8	1.22(0.11)	10
Sydney	1.71	12	1.71(2.57)	5
Tasmania	0.38	17	0.38(0.64)	15
UNE	0.77	15	0.15(0.11)	17
UNSW	17.43	3	3.49(1.11)	3
UTS	4.97	6	1.24(0.20)	8
UWA	17.57	2	5.86(2.35)	2
UWS	0.02	25	0.02(0.07)	25
VUT	0.04	20	0.04(0.01)	19
Wollongong	0.05	19	0.02(0.07)	22

The numbers in parentheses denotes the per capita pages published by all academic staff of the rank of lecturer and above.

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mine the results for the recent sub-period, 1994-2000. Table 4 shows the results using the Laband and Piette weights. For the total rankings, ANU is the clear leader followed by UWA, UNSW, Melbourne and Monash. Thus, compared to the entire period, UNSW, Melbourne and Monash decline in rankings while UWA improves its ranking. For the per capita rankings, ANU is the clear leader followed by UWA, UNSW, La Trobe and Sydney. Therefore, compared to the entire period, UWA improves its ranking while UNSW maintains its position. La Trobe improves its position dramatically from 10th to 4th place. The most dramatic fall is that of Griffith which moves from 2nd to last place. For seven universities, namely, Griffith, Murdoch, Newcastle, Queensland, Tasmania, UWS and Wollongong, the per capita productivity of professors is lower than the other academic staff (Lecturer and above).

The results of rankings for 1994-2000 based on the MSF weights are provided in Table 5. For the total rankings, Melbourne is the clear leader followed by ANU, UWA, Queensland and La Trobe. These rankings are exactly the same as for the entire period except for La Trobe improving its position dramatically from 9th to 5th position and UNSW declining from 5th to 8th position. For the per capita rankings, La Trobe is the leader followed by ANU, UWA, Melbourne and Tasmania. Professors lag behind all academic staff in per capita research productivity at Griffith, Murdoch, Newcastle and UWS.

Table 5: Mason, Steagall and Fabritius Perception-Based Rankings, Total and Per Capita, 1994-2000

University	MSFTOT		MSFPC	
	Pages	Rank	Pages	Rank
Adelaide	145.88	6	48.63(15.90)	6
ADFA	13.92	20	13.92(4.41)	16
ANU	336.64	2	112.21(23.62)	2
Canberra	8.23	25	8.23(4.15)	23
Curtin	90.06	10	30.02(7.95)	10
Deakin	40.08	16	20.04(9.21)	14
Edith Cowan	11.24	23	11.24(5.60)	21
Flinders	24.77	17	12.39(3.53)	20
Griffith	2.86	27	2.86(4.74)	27
La Trobe	155.75	5	155.75(25.66)	1
Macquarie	81.50	11	20.37(11.67)	13
Melbourne	634.88	1	63.49(33.04)	4
Monash	125.01	7	31.25(11.74)	9
Murdoch	13.88	22	6.94(14.02)	26
Newcastle	8.66	24	8.66(10.27)	22
Queensland	188.13	4	47.03(18.92)	7
QUT	41.64	15	20.82(5.30)	12
RMIT	112.22	9	37.41(4.81)	8
Sydney	17.49	18	17.49(17.33)	15
Tasmania	51.44	13	51.44(19.35)	5
UNE	64.19	12	12.84(15.87)	18
UNSW	122.16	8	24.43(12.93)	11
UTS	49.70	14	12.42(3.77)	19
UWA	226.64	3	75.55(28.86)	3
UWS	7.38	26	7.38(15.35)	24
VUT	13.89	21	13.89(2.46)	17
Wollongong	14.19	19	7.10(6.77)	25

The numbers in parentheses denotes the per capita pages published by all academic staff of the rank of lecturer and above.

Table 6: Average of Laband and Piette Citation-Based and Mason, Steagall and Fabritius Perception-Based Rankings, Total and Per Capita, 1994-2000

University	AVTOT		AVPC	
	Pages	Rank	Pages	Rank
Adelaide	73.94	6	24.65(8.06)	6
ADFA	6.98	20	6.98(2.21)	16
ANU	211.62	2	70.54(13.93)	2
Canberra	4.12	25	4.12(2.08)	23
Curtin	45.67	10	15.22(4.01)	10
Deakin	20.92	16	10.46(4.76)	14
Edith Cowan	5.64	23	5.64(2.81)	21
Flinders	12.53	17	6.26(1.78)	20
Griffith	1.43	27	1.43(2.38)	27
La Trobe	78.77	5	78.77(12.96)	1
Macquarie	43.23	11	10.81(6.00)	12
Melbourne	325.28	1	32.53(17.17)	4
Monash	65.01	8	16.25(6.07)	9
Murdoch	6.96	22	3.48(7.12)	26
Newcastle	4.34	24	4.34(5.20)	22
Queensland	94.43	4	23.61(9.57)	7
QUT	21.22	15	10.61(2.69)	13
RMIT	57.94	9	19.31(2.46)	8
Sydney	9.60	18	9.60(9.95)	15
Tasmania	25.91	14	25.91(9.99)	5
UNE	32.48	12	6.50(7.99)	19
UNSW	69.80	7	13.96(7.02)	11
UTS	27.33	13	6.83(1.99)	18
UWA	122.11	3	40.70(15.61)	3
UWS	3.70	26	3.70(7.71)	24
VUT	6.97	21	6.97(1.24)	17
Wollongong	7.12	19	3.56(3.42)	25

The numbers in parentheses denotes the per capita pages published by all academic staff of the rank of lecturer and above.

Finally, Table 6 provides the rankings for 1994-2000 when the LP weights are combined with the MSF weights. For the total rankings, Melbourne is the clear leader and then is followed by ANU, UWA, Queensland and La Trobe. This shows that compared to the entire period, La Trobe and Queensland improve their positions. La Trobe moves from 9th to 5th position while Queensland moves from 5th to 4th position. While Melbourne and ANU hold their positions, UNSW moves down to 7th from 4th position. For the per capita rankings, La Trobe is the leader followed by ANU, UWA, Melbourne and Tasmania. Compared to the full period, La Trobe and ANU switch positions while UWA and Melbourne maintain their positions. Tasmania improves its position from 9th to 5th while Queensland moves down from 5th to 7th position. In per capita research productivity, professors lag behind all academic staff at Griffith, Murdoch, Sydney, UNE and UWS.

Overall, what do these results indicate? Do economics professors in Australia provide leadership in research? We conclude that the results are mixed. For some universities, economics professors clearly lead in research. For example, Table 1, using LP weights, shows that on a per capita basis professors at Adelaide, ANU, Canberra, Edith Cowan, Flinders, Griffith, Monash, QUT, RMIT, UNSW and UTS were at least as four times as productive as the average for the economics departments in these universities. However, in Table 4, once again using LP weights, reveals that for the sub-period 1994-2000 on a per capita basis, economics professors in only the following universities were at least as four times as productive as the economics department average: ADFA, ANU, Curtin, La Trobe, QUT, RMIT and UTS. This tends to indicate that the productivity gap between the economics professors and other academic economists is narrowing. Table 2, using MSF weights, shows that on a per capita basis, for only four universities, economics professors were at least as four times as productive as the economics department average. These universities are ANU, La Trobe, QUT and RMIT. Similarly, Table 5 for 1994-2000, using MSF weights, shows once again that for universities, namely, ANU, La Trobe, RMIT and VUT, economics professors were at least as four times as productive as the economics department average on a per capita basis. The differences in the results using LP weights and MSF weights can be attributed to the differences in the way that the weights decline. As noted earlier, compared to MSF weights, LP weights decline quite sharply after the few top journals.

We can calculate the yearly average publications of the economics professors from our Tables. For example, we can divide the LPPC numbers in Table 1 by 13 to calculate the yearly averages for the period 1988-2000. Similarly, we can divide the LPPC number in Table 4 to calculate the yearly averages for the period 1994-2000. If we compare the yearly averages for some economics departments, which rank highly for the whole period and the sub-period when the LP weights are used, namely, ANU, Monash, Melbourne, Sydney, UNSW and UWA, we see that except for ANU, the yearly average is lower for 1994-2000 compared to 1988-2000. This indicates that if we use the LP weights, there is a discernible downward trend in the research productivity of professors. However, a similar comparison using the MSF weights (Tables 2 and 5) indicates that universities, which occupy top ranks in terms of research productivity of economics professors, have actually improved their yearly averages in the sub-period compared to the entire period. These universities are Adelaide, ANU, La Trobe, Melbourne, Queensland, Tasmania and UWA. Thus, the use of the citation-based rankings and the perception-based rankings provide us with conflicting results. Since we have mixed results, it is difficult to suggest policy prescriptions to the administrators whether economics departments should have more professors or not.

However, it is not solely a matter of differences in research productivity of the professors and other academics in the economics departments which is important. Ideally, professors need to play a crucial role in the development and the fostering of a research culture in the department so that there is an improvement in the quality and quantity of economics research. Thus, leadership involves fostering research among colleagues and improving research supervision of honours and postgraduate students. Additionally, professors should have a strong reputation and ability to attract bright undergraduate and postgraduate students. Data on research productivity alone do not

allow us to examine whether the economics professors are effectively carrying out some of these roles.

Some evidence suggests that Australian professors in general, not just in economics, are increasingly involved in administrative activities. McIntosh (2000) reports that a study of the University of Sydney's Association of Professors find that several major changes have clouded the role of professors at the University. Increasingly, professors are being asked to serve as heads of departments so that junior academics can concentrate on their research activity. Furthermore, the administrative burden of the Heads of the departments has also increased.

Conclusions

In this paper, we examined the research productivity of the economics professors in Australia for 1988-2000 and 1994-2000 using the ECONLIT journal articles. We found a variety of results using the citation-based and the perception-based journal weights. For 1988-2000, ANU, Griffith, UNSW, UWA and Sydney are the top five in per capita terms using citation-based journal weights. For the same period, ANU, La Trobe, UWA, Melbourne and Queensland are the top five in per capita terms using the perception-based journal weights. Our general finding is that the per capita research productivity of the economics professors is higher than all academic staff in economics departments in most universities. However, as outlined in the study there are important exceptions.

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