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The Research Output of Business Schools and Business Scholars in Ireland

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Abstract: The research performance of business scholars on the island of Ireland is evaluated based on their number of publication, number of citations, h-index and the same divided by the numbers of years since the first publication. Data were taken from *Scopus.* There is a large variation in both life-time achievement and annual production. Almost half of the 748 scholars have not published in an academic journal. Men perform better than women. More senior people perform better. There are distinct differences between disciplines, with accountancy performing poorly. On average, scholars in Northern Ireland perform better than scholars in the Republic. However, Trinity College Dublin has the top rank among the eleven business schools; Queen's University Belfast and University College Dublin share the second place; and NUI Galway and the University of Ulster share the fourth spot. Irish business schools specialize in particular research areas so that mergers would lead to schools can support a broader range of cutting-edge education.

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Key words: Business schools; business scholars; research performance; Ireland

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The Research Output of Business Schools and Business Scholars in Ireland

1. Introduction

Universities are key to economic growth in the medium term, educating young people and spurring innovation. A substantial amount of public money is spent on universities. A recent report by the Comptroller and Auditor General concludes that is unclear whether Irish universities deliver value for money because data collection is poor (C&AG 2010). This paper offers a partial assessment for one discipline: research in business schools.

This paper follows on earlier assessments for economists (Barrett and Lucey 2003;Ruane and Tol 2007) and political scientists (Benoit and Marsh 2009) in Ireland. The approach is similar. I use the number of published papers as an indicator for the volume of research, the number of citations as an indicator for the quality of research, and the h-index as an indicator of both research quantity and quality (Hirsch 2005). This is the first evaluation of the research performance of business schools in Ireland, and one of the few in the world (Harzing 2005; Hodder and Hodder 2010).

Research and education are the two primary functions of a university. Both should be assessed – but the respective evaluations would be very different. Education quality could be measured by the average time between graduation and the first job, average graduate earnings, and the fraction of students who move on to higher degrees – all, of course, corrected for differences in the quality of the student intake.[1] [2]

[1] The Financial Times has a ranking of business schools based on salary and salary improvement:
http://rankings.ft.com/businessschoolrankings/european-business-school-rankings
Forbes has a ranking on the return to education:
http://www.forbes.com/2009/08/05/best-business-schools-09-leadership-careers_land.html
Business Week has a ranking based on the perceived quality of alumni:
http://www.businessweek.com/interactive_reports/intl_mba_specialty_2010.html
The Wall Street Journal similarly ranks business school based on the perceptions of recruiters:
http://online.wsj.com/public/page/business-schools.html
The Economist has a ranking based on career opportunities, personal development, earning potential and networking potential: http://www.economist.com/whichmba/2010/free-ranking-tool

[2] Webometrics has a ranking of business schools based on internet presence:
http://business-schools.webometrics.info/top100_continent.asp?cont=europe

In the academic year 2009/10, business studies was the most popular choice among new undergraduates in the Republic of Ireland, with a market share of 11.3%.[3] There are no statistics (as far as I know) on the number of faculty. There is anecdotal evidence that business studies have one of the highest student-to-teacher ratios. Even so, business scholars must be one of the largest contingents of scholars in Ireland, and business research must be a substantial share of all research.

The paper continues as follows. Section 2 presents the data and methods. Section 3 discusses the results for individuals, and Section 4 for schools. Section 5 concludes.

2. Data and methods

Business schools are hard to define. Some universities have an entity called "school of business", but other institutions mix business studies with other disciplines, or spread business studies over a number of schools. Table 1 shows, for each of the 11 institutions[4], the schools (colleges, faculties) and their departments (schools, groups). There are two contentious issues. First, it is difficult to draw a line between business studies and economics. The topics are closely connected and often taught together. This study includes those economists who teach in business schools, but excludes other economists. The other issue is tourism. In two institutions, tourist studies are part of the business school, while elsewhere tourist studies are placed in other departments or indeed in a separate department. Here, tourism scholars are included if they teach in a business school.

For this study, business scholars are scholars who are employed in the business schools as defined in Table 1. People were identified as listed on the websites in early September 2010. There is no reason to believe that these lists are accurate. Indeed, several errors were uncovered (and corrected) during the data vetting process (see below). However, it is the only source of information available.

[3] http://www.hea.ie/en/node/1374

[4] There are a number of business schools that only teach, including Griffith Business School, Dublin Business School, Galway Business School, electronic Business School International, HSI Limerick Business School, Athlone Institute of Technology, Ennis International Business School, Harcourt Business School, Waterford Institute of Technology, Ormonde Business School, Irish Management Institute, and Chambers Business School.

There are a total of 748 business scholars in Ireland. In addition, business schools employ administrative staff, teaching and research assistants, and PhD students – all of whom were excluded (if so identified). Business schools also have a large number of adjunct faculty – typically, senior business people who teach a few classes a year – while some business schools also host research staff from companies. These people were excluded too.

748 is a substantial number of scholars, each of which has to be assessed individually.[5] For that reason, a simple method is used. Data were collected from *Scopus*[6] only. *Scopus* has a much broader coverage than the *Web of Science*[7] for recent years (but a limited coverage before 1996). As Irish business scholars tend to be relatively young and tend to publish outside the core journals, *Scopus* is a more appropriate source of data. Nonetheless, some journals are not covered, including a number of particular importance to business scholars in Ireland (e.g., *Administration*, *Irish Journal of Management*, *Irish Marketing Journal*, *Irish Marketing Review*). *Google Scholar* [8] (and thus *Publish and Perish* (Harzing 2010)[9] and *Scholarometer*[10]) has a wider coverage than *Scopus*, but suffers from a lack of quality control on publications and citations.[11]

Four statistics were gathered from *Scopus*: year of first publication, number of publications, number of citations, and h-index (Hirsch 2005). People's name, affiliation, specialization, degree, rank, and sex were also recorded. I used six specializations: accounting (Acc), economics and finance (EcFin), industrial and human relations (IHR), management (Mgt), management information systems (MIS), and marketing (Mkt).

The data are available at:
https://docs.google.com/leaf?id=0Bz17rNCpfuDNNTA2MGZmNTQtZmYxNS00YTU3LWI0ODItZmVjMDllYWFiY2Qw&hl=en

[5] Note that the database contains another 124 individuals who were erroneously included.
[6] http://www.scopus.com/home.url
[7] http://www.isiwebofknowledge.com/
[8] http://scholar.google.com/
[9] http://www.harzing.com/pop.htm
[10] http://scholarometer.indiana.edu/
[11] For instance, *Publish and Perish* returns over 500 papers for the current author, whose CV counts less than 200 publications.

The data have been cross-checked with CVs when online. Three preliminary versions of the data were published at *IrishEconomy*[12], with an explicit invitation to correct data where needed. Heads of departments were all notified of the exercise and invited to comment. This vetting process led to substantial changes in the data – people and indeed departments were added, administrative, adjunct and junior staff were removed, and publication and citation records were corrected. The comments received also substantially contributed to the interpretation of the results.

Individuals are ranked as follows. I fit a Pareto distribution[13] to the six indicators (Egghe 1991) – number of publications, number of citation, h-index, number of publications per year (since first publication), number of citations per year, and h-rate. I use the fitted Pareto distribution to predict an individual's percentiles. The score for life-time achievement is the average of the percentiles for total scores; the score for productivity is the average percentile of the annual scores.

This method has a number of advantages. Using the average of the indicators would give undue weight to citation numbers (typically the largest number). Scaling the indicators with the observed maximum would overcome this problem, but would imply that the relative performance of two people depends on that maximum. As a result, the ranking of the two could change if a best performer leaves the country. A more robust method of rescaling is to use the z-scores (Lundberg 2007), but this assumes normality. The harmonic mean of the ranks according to the individual indicators is sensitive to anyone dropping out of the sample. A ranking based on percentiles depends only on a parameter whose estimate is robust to sample changes. A ranking based on sample percentiles rather than fitted percentiles would not recognize exceptional scolars, as the highest score is equal to 1/748.

[12] http://www.irisheconomy.ie/index.php/2010/10/18/assessing-business-schools-and-business-scholars/ http://www.irisheconomy.ie/index.php/2010/10/18/assessing-business-schools-and-business-scholars/ http://www.irisheconomy.ie/index.php/2010/11/01/business-schools-and-scholars-3/

[13] I use the maximum likelihood estimator for the Pareto index $\alpha = \frac{N}{\sum_{i=1}^{N} \ln S_i - N \min_i S_i}$ where S is the score of individual i=1,2,…N; note that people without publications or citations are excluded from the sample.

Schools are ranked as follows. There are too few observations to reliably estimate a probability density function and predict the percentiles. Therefore, two alternative ranking methods are used. First, schools and disciplines are ranked on the basis of the average number of publications, citation, h-index and their rates. The average is taken over all staff and over all staff with at least one published paper. The overall rank is based on the harmonic mean of the ranks of the individual criteria. The main objection to using this method for ranking individuals is not valid: Schools are much less likely to disappear than individuals. The second method uses the average of z-scores of same indicators. That is, school-specific indicators are normalized by the mean and dividing by the standard deviation (between schools). Note that the assumption of normality is more appropriate for aggregate data. The normalized indicators are then averaged to form the overall score.

3. Results for (types of) individuals

3.1. Individuals

There is great variation between scholars in terms of number of publications and citations. The oldest paper dates back to 1976 but the average year of first publication is 2002. The maximum number of publications is 91, and 6.1 per year. The maximum of citations is 499, 124 per paper, and 37 per year. The maximum h-index is 13, and 1.0 per year. On the other hand, 46.7% has never published (in the journals in the *Scopus* database), and 55.2% was never cited.

Figure 1 shows the histograms of publications, citations, and h-indices. The distributions are very skewed. Two-thirds of business scholars have two publications or less; 90% has fewer than 10 publications; and 99% fewer than 36 publications. Three-quarters of business scholars is cited 10 times or less; 90% has fewer than 50 citations; and 99% fewer than 280 citations. Three-quarters of business scholars has an h-index of 1 or 0; 90% has an h-index of 3 or lower; and 99% an h-index of 8 or lower.

Table 2 shows the top 25 on life-time achievement. All six disciplines are represented, and eight out of eleven institutions. There is one woman among the top 25. Twenty people in the top 25 are full professor, three are associate professors, and there is one senior lecturer and one lecturer.

Table 3 shows the top 25 on productivity. All six disciplines are represented, and eight out of eleven institutions. There are four women among the top 25. Eleven people in the top 25 are full professor, one is an associate professor, and there are three senior lecturers and ten lecturers.
There is some overlap between Tables 2 and 3, but it is clear that some people have an impressive life time achievement by virtue of a long career, while it remains to be seen whether other people can sustain their flying career start. That said, numbers 1 to 5 in the productivity ranking are numbers 1, 2, 4, 7 and 12 in the life time achievement ranking. An impressive productivity is required for an impressive life time achievement.

For each scholar, sex, rank, discipline, and affiliation were recorded. The results per category are discussed below.

3.2. Sex

Table 4 shows the results for males and females. About 60% of business scholars are male. The average man started publishing in 2001, while the average woman started in 2003. The average man has a larger number of publications and citations, and a higher h-index. The average man also produces more papers per year, gets cited more often (also per paper), and has a higher h-rate. Furthermore, a larger share of women has never published. The data do not allow for an explanation. However, men outperform women on all scores. The same was found for Spain (Zinovyeva and Bagues 2010).

3.3. Rank

Scholars were grouped into five ranks: professor, associate professor (including reader), senior lecturer, lecturer (above and below the bar, and including junior lecturer and teaching fellow), and post-doctoral fellow (including research officer).

Table 4 shows the results per rank. Figure 2 highlights the main points, showing the market share of each rank in scholars, research-active scholars, publications, and citations. Lecturers are by far the largest group. There are about as many senior lecturers as full professors, but few associate professors. There are few post-docs. More junior people started to publish later (as one would expect), although there is no difference between lecturers and post-docs. About 50% of lecturers

have never published, about 30% of post-docs, about 20% of senior lecturers and about 10% of full professors. On average, associate professors have published more than full professors but are cited less. Other than that, more junior staff publish less, are cited less and have a lower h-index. However, post-docs publish more per year than do lecturers, who in turn outperform senior lecturers. Full professors publish more per year than post-docs, but less than associate professors.

3.4. Disciplines

Scholars were grouped into six disciplines: accounting, economics and finance, industrial and human relations, management, management information systems, and marketing. There is a degree of arbitrariness about this, as some people cover more than one discipline and as economics and finance and management are rather broad.

Table 4 shows the results per discipline. Figure 3 highlights the main points, showing the market share of each discipline in scholars, research-active scholars, publications, and citations. There about four times as many people in management (the largest discipline) than in industrial and human relations (the smallest discipline). More than 80% of scholars in management information systems have published, but less than 36% in accounting. People in economics and finance have had the longest career on average, and people in marketing the shortest. Management scholars have published the least but are cited the most. Publications per year are highest in management information systems, and citations per year are highest in industrial and human relations. Across the board, research performance is highest among scholars in industrial and human relations, economics and finance, and management information system. Marketing and management trail, and accounting is distinctly last.

3.5. Location

There are nine business schools in the Republic of Ireland and two in Northern Ireland. Table 4 shows the results per jurisdiction. The North outperforms the Republic on every score.

4. Results for schools

There are eleven research-oriented business schools in Ireland, nine in the Republic and two in the North. There are about 2.0 business schools per million residents in the Republic, compared to 1.1 in Northern Ireland, and 1.5 in the United Kingdom.
Table 5 shows some characteristics and the average research performance of the faculty. Figure 4 highlights the main points, showing the market share of each school in scholars, research-active scholars, publications, and citations.

There is a large variation in size, ranging from 20 (TCD) to 147 (DIT) staff. The fraction of research-active staff also varies substantially from 13% (DIT) to 85% (TCD). NUI Maynooth has the oldest staff, with an average date of first publication of 1997; NCI staff started publishing, on average, in 2006 only. There are also stark differences in the average indicators of life time achievement and annual productivity.

Overall, TCD stands out as the business school with the strongest research performance. QUB and UCD come second and third, depending on the ranking method. NUI Galway and U Ulster follow. Dublin City U, U Limerick and NUI Maynooth perform at par with one another. The other three business schools are at the bottom.

QUB ranked 19th in the 2008 Research Assessment Exercise (RAE) for business and management, while UU ranked 49th out of 90 business schools.[14] Although the RAE uses a very different methodology than this paper, this suggests that UCD is on par with the best 20 business schools in the UK, while TCD is better than that. NUI Galway would still be better than most UK business schools. Note that there is a separate RAE for accounting and finance; QUB and UU were not part of that.[15]

Tables 6-8 show indicators of research specialization, using the number of research-active staff, publication, and citations, respectively. Table 6 should be read as follows. The top-left corner in

[14] http://www.rae.ac.uk/results/qualityProfile.aspx?id=36&type=uoa
[15] http://www.rae.ac.uk/results/qualityProfile.aspx?id=35&type=uoa

the “share in school” block shows that 32% of research-active staff in DIT are in marketing. The top-left corner in the “share in Ireland” block shows that 12% of research-active marketing scholars are at DIT. Tables 7 and 8 are set up in the same way.

Table 6 shows that some business schools focus their research on only two out of six disciplines, while other business schools cover every topic. U Limerick, UC Dublin, and Dublin City U have a relative even spread (judged by the standard deviation of the shares; results not shown), but NUI Maynooth and NCI show a high degree of specialization. The same pattern emerges for publication (Table 8), but specialization is more pronounced for all school except UC Dublin and U Ulster. In the latter two business schools, small groups publish more per capita; whereas in the other nine schools, large groups publish more per capita. The same pattern is repeated for citations (Table 8). Six schools have a higher degree of specialization by citations than by publications, but five schools (DIT, NUIG, UCC, TCD, QUB) have relatively many citations in fields in which they publish relatively little.

Table 6 also shows the location of particular disciplines. Almost 40% of all research-active management information system scholars are at UC Cork, over 32% of all industrial and human relations scholars are at U Limerick, and almost 29% of all management scholars. Research into management information systems and industrial and human relations is concentrated in a few business schools, but research into marketing and economics and finance is more evenly spread. However, a slightly different pattern emerges when focusing on the number of papers rather than the number of people. Particularly, less than 20% of accountancy scholars are at UC Dublin, but they account for almost 50% of published papers. The small groups of industrial and human relations scholars at Queen’s U Belfast and NUI Galway, however, punch even higher above their weight. This is repeated for citations. Accountancy at U Ulster has 18% of researchers on the islands, 19% of publications, and 40% of citations. The NCI has 3% of researchers in industrial and human relations, 2% of publications, but 4% of citations.

5. Discussion and conclusion

In this paper, I evaluate the research performance of business scholars and business schools on the island of Ireland. As one would expect, there is a large variation between scholars, some of whom have a stellar record or a promising career start while others perform less well. Strikingly, there is a large fraction of university researchers and lecturers who do not publish at all (in the journals included in the *Scopus* database) or very little. The low number of postdocs suggests that research-intensity is low and external funding rare; while the large fraction of lecturers without publications further illustrates a culture in which research is not a priority.

Men outperform women, for reasons not explored here. More senior people outperform their more junior colleagues, which suggest that promotions are based on merit. There are substantial differences between disciplines. The research performance of accountancy scholars is particularly disappointing, so that one may wonder whether in some universities it is taught at an academic or a vocational level.

There is also a distinct variation in the research performance of business schools. Trinity C Dublin comes first, followed by Queen's U Belfast and UC Dublin. Other business schools perform at an acceptable level – but the research output of some is dismal. So bad, in fact, that these institutions perhaps should not have the right to grant PhDs and perhaps not even Master's degrees. An advanced degree requires advanced educators, and some of the business schools have too few of those.

If research performance is to improve, reform is needed. Contracts, pay, and perks could be made conditional on research output. Most of the business schools specialize in a few research areas. If these were businesses rather than business schools, one would recommend that the institutions limit their activities to their core competences. As there are horizontal economies of scale in teaching the various aspects of business, mergers would follow. The government can stimulate this by making accreditation for advanced courses conditional on research output.

There are a number of caveats to the research presented here. There are a large number of methods to measure research performance, and this paper selected a few. There are a number of databases, and this paper used one. Experience has that the correlation between the results for different methods and different data is large (Mingers and Lipitakis 2010), but it would be good to check that for this particular case as well. I use the number of citations as a measure for research quality, but ignore the quality of the journal in which the paper was published.[16] I think that papers should be judged on their merit rather than their cover, but others might disagree. It would also be good to replicate this study for related disciplines and over time, so that comparisons can be made. Such data should be complemented with data on other characteristics of scholars and schools, so that the research can move from measuring differences to explaining differences. All this is deferred to future research.

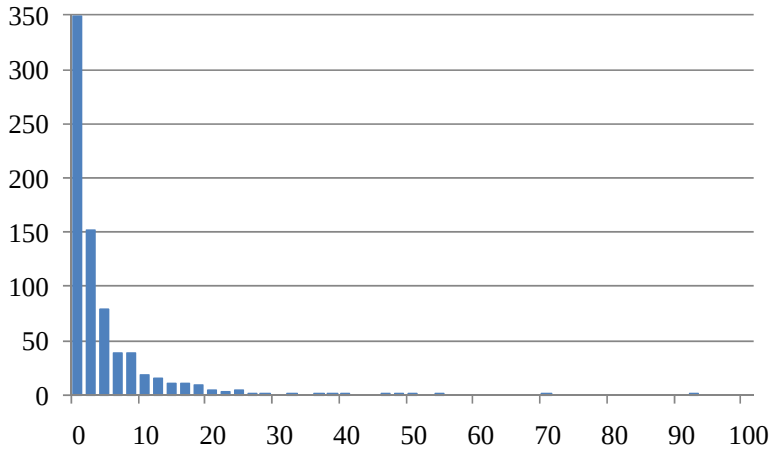
Acknowledgements

I am grateful to Frank Barry, David Jacobsen, Helen Lenihan and Brian Lucey for comments, discussion and support with the data. I am also grateful to all those who checked and corrected their records.

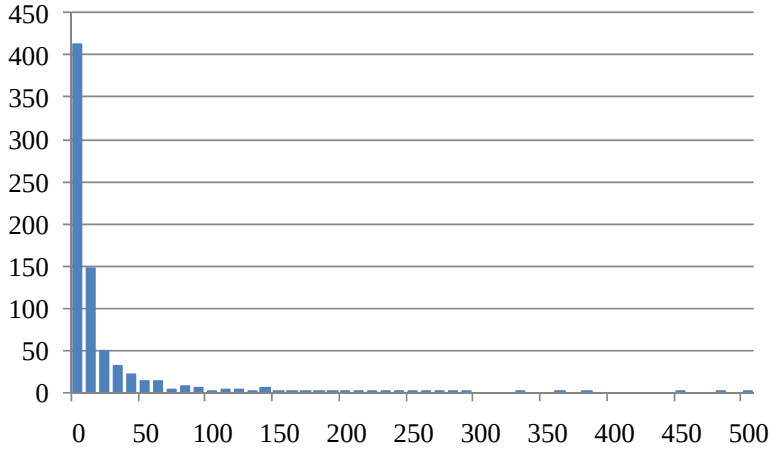
[16] See, for example, http://www.the-abs.org.uk/?id=257

Figure 1. Histogram of research performance of individual business scholars.

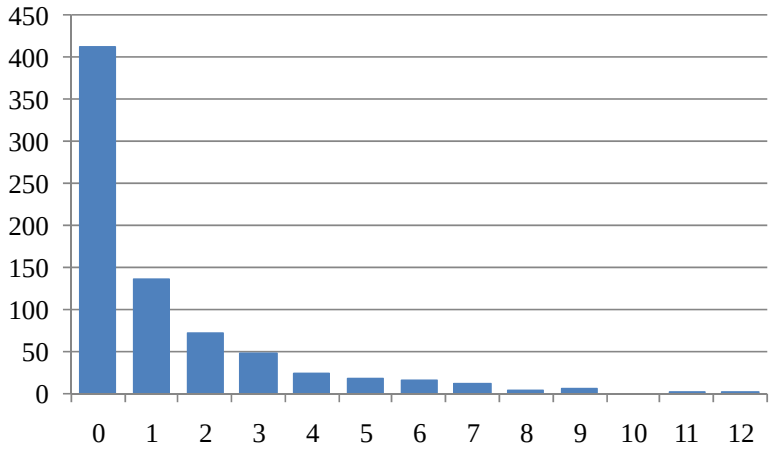
Number of publications



Number of citations



h-index



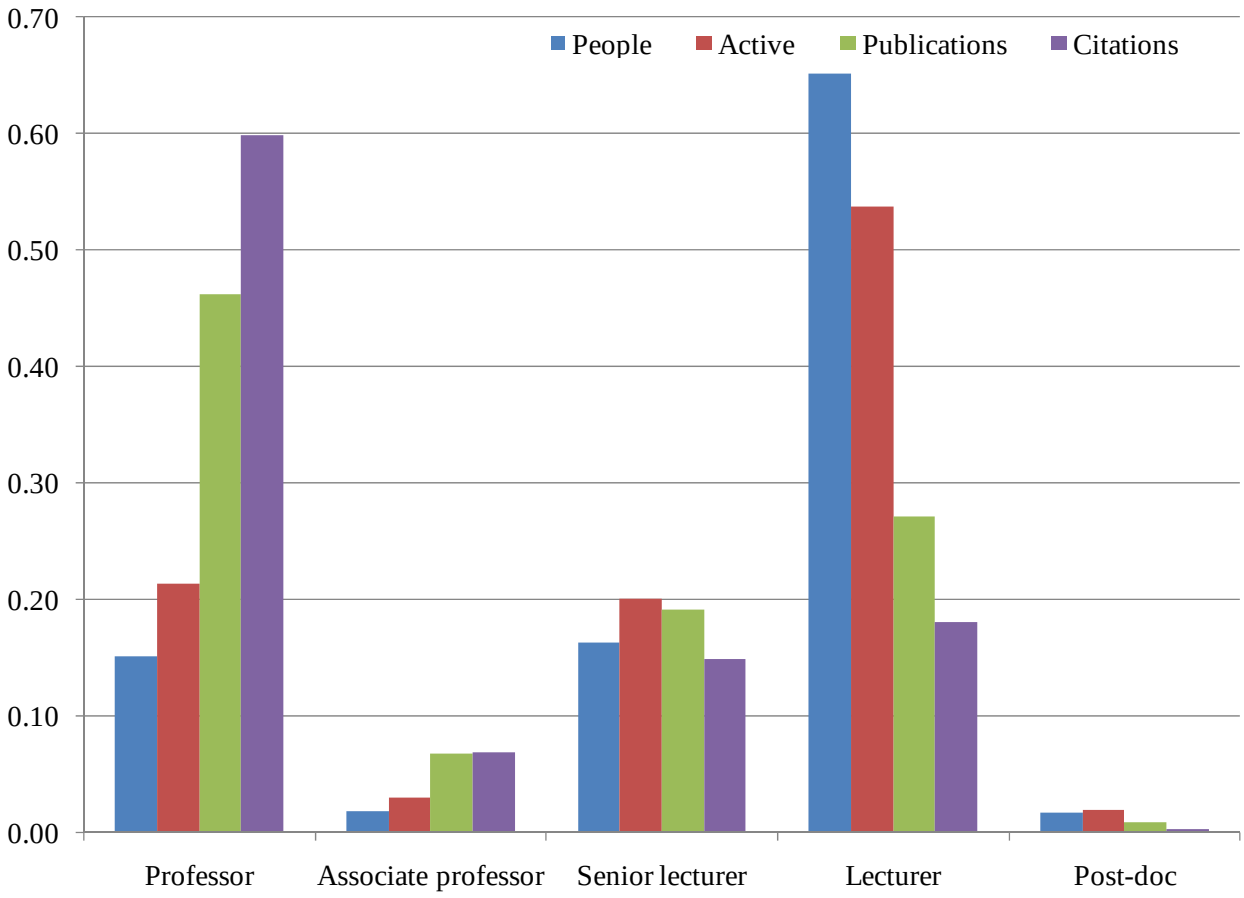


Figure 2. The market share of academic ranks in scholars, research-active scholars, publication and citations.

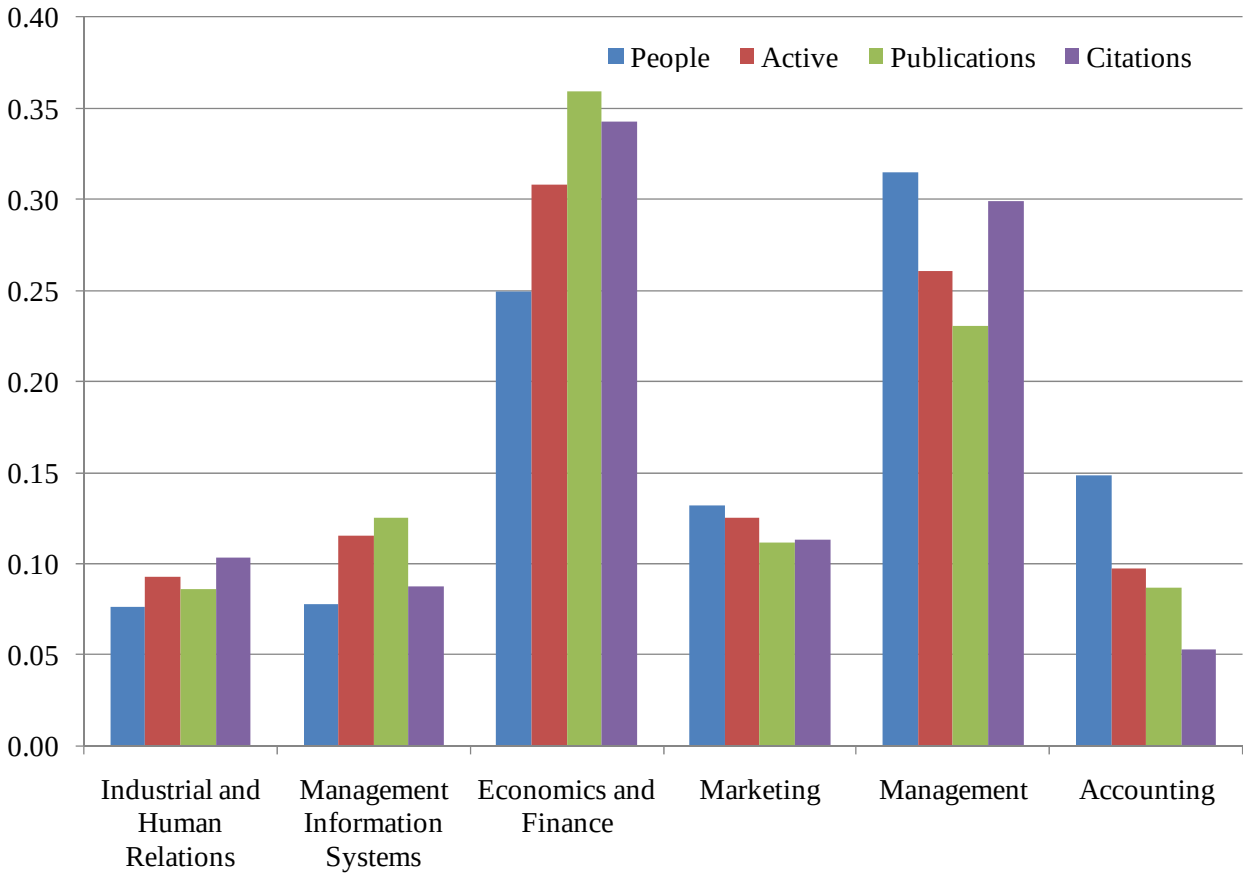


Figure 3. The market share of disciplines in scholars, research-active scholars, publication and citations.

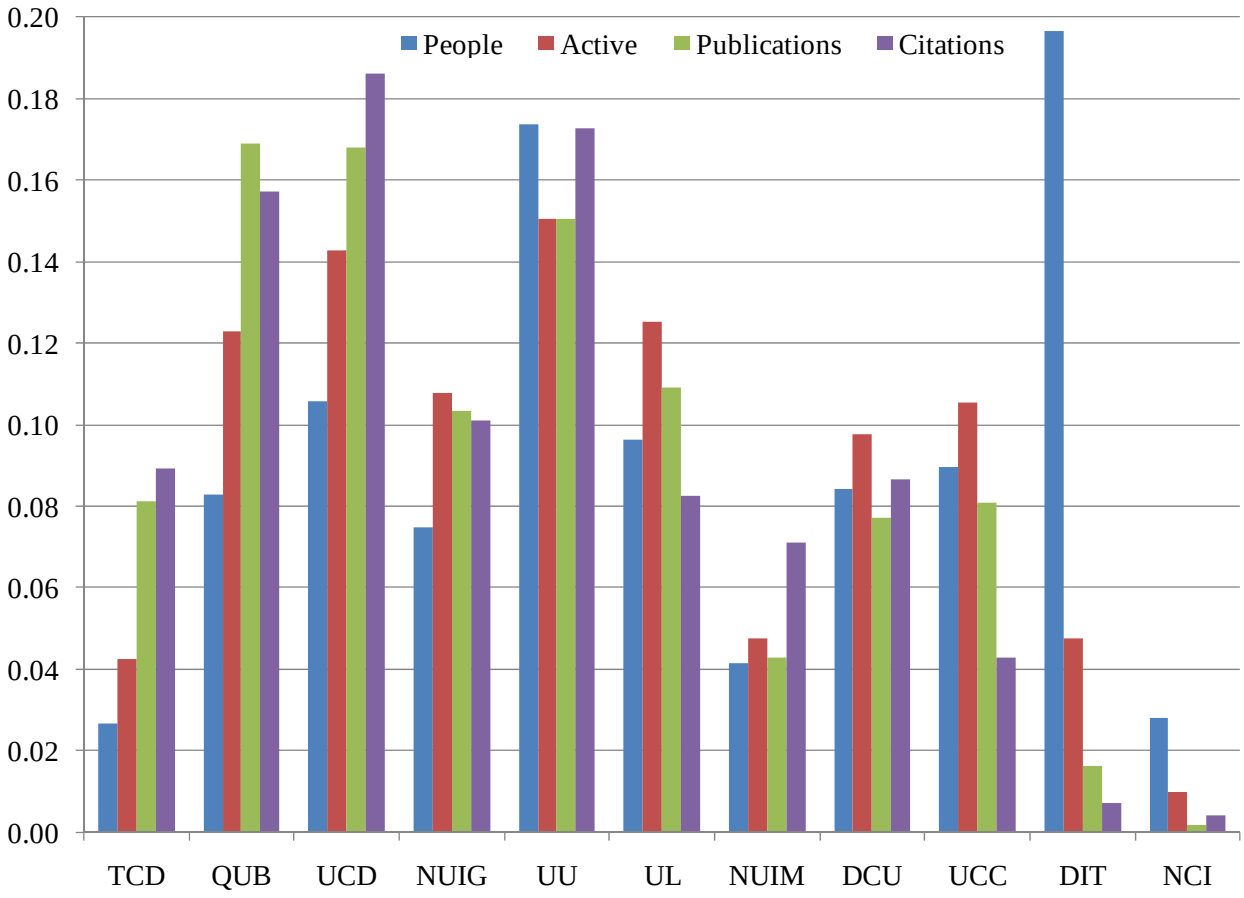


Figure 4. The market share of business schools in scholars, research-active scholars, publication and citations.

Table 1. Business schools assessed in this study.

Acronym	*Institution*	*School and department*
DCU	Dublin City University	Business School • accounting • economics, finance and entrepreneurship • human resources management • management • marketing
DIT	Dublin Institute of Technology	College of Business • accounting and finance • management • marketing • retail and services management
NCI	National College of Ireland	School of Business
NUIG	National University of Ireland at Galway	School of Business and Economics • economics • accountancy, finance and information systems • management • marketing
NUIM	National University of Ireland at Maynooth	School of Business • management School of Economics, Finance and Accounting
QUB	Queen's University Belfast	Management School
TCD	Trinity College Dublin	School of Business
UCC	University College Cork	Faculty of Commerce • accounting and finance • business information systems • food business and development • management and marketing
UCD	University College Dublin	School of Business • accountancy • management information systems • industrial relations and human resources • marketing • management • banking and finance • corporate governance
UL	University of Limerick	Business School • accounting and finance • economics • management and marketing • personnel and employment relations
UU	University of Ulster	Business School • accounting • business, retail and financial services • hospitality and tourism management • international business • management • marketing, entrepreneurship and strategy

Table 2. The top 25 business scholars based on life-time achievement.

		Spec	School	Rank	Birth	Prod	P	C	h
1	McAdam, Rodney	Mkt	UU	Prof	1998	1	69	480	12
2	Humphreys, Paul K	Mgt	UU	Prof	1997	2	49	499	13
3	Addison, John	EcFin	QUB	Prof	1986	16	46	357	12
4	McIvor, Ronan	Mgt	UU	Prof	1997	3	40	377	11
5	Barry, Frank	EcFin	TCD	Prof	1987	27	47	260	9
6	McKillop, Donal	EcFIn	QUB	Prof	1991	34	35	187	8
7	Scullion, Hugh	IHR	NUIG	Prof	2000	4	21	283	9
8	Gilles, Rob	EcFin	QUB	Prof	1992	29	24	228	9
9	Begley, Tom	Mgt	UCD	Prof	1985	72	16	441	9
10	Brabazon, Tony	Acc	UCD	Prof	1996	8	91	131	6
11	Warner, Julian	MIS	QUB	Lect	1988	59	37	166	7
12	Lucey, Brian	EcFin	TCD	AP	2000	5	54	142	6
13	Fynes, Brian	Mgt	UCD	Prof	1994	28	18	235	9
14	Johnston, Robert B	MIS	UCD	Prof	1995	23	24	178	8
15	O'Shea, Eamon	EcFin	NUIG	Prof	1991	51	31	193	6
16	Flood, Patrick	IHR	DCU	Prof	1996	25	18	261	7
17	Pecchenino, Rowena A	EcFin	NUIM	Prof	1990	69	16	280	7
18	Kearney, Colm	EcFin	TCD	Prof	1985	118	32	203	5
19	Coughlan, Paul	Mgt	TCD	AP	1996	35	17	285	6
20	Morley, Michael	Mgt	UL	Prof	1995	37	28	134	6
21	Leahy, Dermot	EcFin	NUIM	SL	1997	26	17	176	7
22	Coghlan, David	Mgt	TCD	AP	1987	122	17	214	6
23	Glass, J Colin	Acc	UU	Prof	1989	104	19	132	7
24	Gunnigle, Patrick	IHR	UL	Prof	1995	45	20	118	7
25	Figge, Frank	Mgt	QUB	Prof	2002	7	14	202	7

Spec = Specialisation; School = affiliation; Rank = academic rank; Birth = year of first publication; Prod = Productivity rank (cf. Table 3); P = number of publications; C = number of citations; h = h-index.

Table 3. The top 25 business scholars based on productivity.

		Spec	School	Rank	Birth	LTA	P	C	H
1	McAdam, Rodney	Mkt	UU	Prof	1998	1	5.31	36.92	0.92
2	Humphreys, Paul K	Mgt	UU	Prof	1997	2	3.50	35.64	0.93
3	McIvor, Ronan	Mgt	UU	Prof	1997	4	2.86	26.93	0.79
4	Scullion, Hugh	IHR	NUIG	Prof	2000	7	1.91	25.73	0.82
5	Lucey, Brian	EcFin	TCD	AP	2000	12	4.91	12.91	0.55
6	Collings, David	Mgt	NUIG	Lect	2004	38	2.71	12.57	0.71
7	Figge, Frank	Mgt	QUB	Prof	2002	25	1.56	22.44	0.78
8	Brabazon, Tony	Acc	UCD	Prof	1996	10	6.07	8.73	0.40
9	O'Donoghue, John	MIS	UCC	Lect	2009	161	2.00	0.00	0.00
9	Acton, Thomas	MIS	NUIG	Lect	2010	218	2.00	0.00	0.00
9	Berrill, Jenny	EcFin	TCD	Lect	2010	218	2.00	0.00	0.00
9	Gallagher, Ronan	EcFin	QUB	Lect	2010	218	2.00	0.00	0.00
9	McNally, Regina	Mgt	UL	Lect	2010	218	2.00	0.00	0.00
14	Sonpar, Karan	Mgt	UCD	Lect	2008	120	2.00	4.67	1.00
15	Ramsey, Elaine	Mkt	UU	SL	2005	63	2.33	6.00	0.67
16	Addison, John	EcFin	QUB	Prof	1986	3	1.84	14.28	0.48
17	Roche, Frank	Mgt	UCD	Prof	2005	67	1.17	13.50	0.67
18	de Burca, Sean	Mkt	UCD	SL	2001	37	1.00	15.40	0.70
19	Quinn, Barry	EcFin	UU	Prof	1999	26	1.17	12.25	0.67
20	Nagle, Tadgh	MIS	UCC	Lect	2008	128	1.67	0.00	0.00
21	Sousa, Carlos M.P.	Mkt	UCD	Lect	2006	94	1.40	9.80	0.60
22	Leitch, Claire	Mgt	QUB	SL	2000	31	1.27	9.73	0.64
23	Johnston, Robert B	MIS	UCD	Prof	1995	14	1.50	11.13	0.50
24	Simmons, Geoff	Mkt	UU	Lect	2007	110	2.00	4.00	0.75
25	Flood, Patrick	IHR	DCU	Prof	1996	16	1.20	17.40	0.47

Spec = Specialisation; School = affiliation; Rank = academic rank; Birth = year of first publication; LTA = Life-time-achievement rank (cf. Table 2); P = number of publications per year; C = number of citations per year; h = h-rate.

Table 4. Average research performance by type of business scholar.

					Per research-active						Per head					
	#	A	A/#	Birth	P	C	h	P/yr	C/yr	h/yr	P	C	h	P/yr	C/yr	h/yr
Sex																
Male	451	257	57.0%	2001	8.08	46.32	2.54	0.83	3.55	0.25	4.61	26.40	1.45	0.47	2.02	0.14
Female	297	142	47.8%	2004	4.17	16.04	1.68	0.66	1.70	0.22	1.99	7.67	0.80	0.31	0.81	0.11
Rank																
Professor	89	80	89.9%	1995	14.89	103.65	4.60	0.97	6.54	0.32	13.38	93.17	4.13	0.88	5.88	0.28
Associate professor	11	11	100.0%	1998	15.82	85.82	4.00	1.22	5.70	0.31	15.82	85.82	4.00	1.22	5.70	0.31
Senior lecturer	96	75	78.1%	2000	6.57	27.56	2.44	0.70	2.56	0.25	5.14	21.53	1.91	0.55	2.00	0.20
Lecturer	385	201	52.2%	2005	3.47	12.45	1.28	0.72	1.59	0.22	1.81	6.50	0.67	0.38	0.83	0.11
Post-doc	10	7	70.0%	2005	3.29	5.86	0.86	0.83	0.72	0.12	2.30	4.10	0.60	0.58	0.51	0.09
Discipline																
Industrial and Human Relations	56	37	66.1%	2002	6.2	39.8	2.5	0.71	3.58	0.28	4.1	26.3	1.6	0.47	2.36	0.18
Management Information Systems	57	46	80.7%	2003	7.3	27.0	1.9	0.89	2.29	0.21	5.9	21.8	1.6	0.72	1.85	0.17
Economics and Finance	183	123	67.2%	2000	7.8	39.5	2.3	0.76	2.69	0.20	5.2	26.6	1.6	0.51	1.81	0.14
Marketing	97	50	51.5%	2004	6.0	32.1	2.2	0.87	3.15	0.28	3.1	16.6	1.1	0.45	1.62	0.15
Management	231	104	45.0%	2003	5.9	40.8	2.4	0.74	3.53	0.28	2.7	18.4	1.1	0.33	1.59	0.13
Accounting	109	39	35.8%	2003	5.9	19.4	1.8	0.65	1.56	0.21	2.1	6.9	0.7	0.23	0.56	0.08
Location																
Republic of Ireland	556	290	52.2%	2754	6.26	32.78	2.10	0.74	2.68	0.23	3.27	17.10	1.09	0.39	1.40	0.12
Northern Ireland	192	109	56.8%	4281	7.83	42.91	2.61	0.84	3.44	0.27	4.44	24.36	1.48	0.47	1.95	0.15
All	748	399	53.3%	2002	6.69	35.55	2.24	0.77	2.89	0.24	3.57	18.96	1.19	0.41	1.54	0.13

= Number; A = Research-active number; A/# = Fraction research-active; Birth = year of first publication; P = number of publications per year; C = number of citations per year; h = h-rate; /yr = per year.

Table 5. Average research performance by business school.

Rank							Per active						Per head					
Z	H	School	Staff	Active	A/S	Birth	P	C	h	P/yr	C/yr	h/yr	P	C	h	P/yr	C/yr	h/yr
1	1	TCD	20	17	85.0%	2000	12.76	74.41	2.82	1.11	4.61	0.23	10.85	63.25	2.40	0.94	3.92	0.20
2	3	QUB	62	49	79.0%	2001	9.20	45.47	2.80	0.95	3.26	0.27	7.27	35.94	2.21	0.75	2.58	0.21
3	2	UCD	79	57	72.2%	2000	7.86	46.28	2.95	0.74	3.73	0.30	5.67	33.39	2.13	0.53	2.69	0.22
4	5	NUIG	56	43	76.8%	2000	6.42	33.28	2.05	0.74	3.06	0.21	4.93	25.55	1.57	0.57	2.35	0.16
5	4	UU	130	60	46.2%	2002	6.70	40.82	2.47	0.75	3.58	0.28	3.09	18.84	1.14	0.34	1.65	0.13
7	8	UL	72	50	69.4%	2003	5.82	23.42	1.88	0.83	2.23	0.23	4.04	16.26	1.31	0.57	1.55	0.16
8	6	NUIM	31	19	61.3%	1997	6.00	52.95	2.42	0.49	2.78	0.17	3.68	32.45	1.48	0.30	1.70	0.10
6	7	DCU	63	39	61.9%	2003	5.28	31.44	2.00	0.75	2.80	0.26	3.27	19.46	1.24	0.47	1.74	0.16
9	9	UCC	67	42	62.7%	2003	5.14	14.43	1.52	0.73	1.44	0.19	3.22	9.04	0.96	0.46	0.90	0.12
10	10	DIT	147	19	12.9%	2005	2.26	5.42	1.05	0.52	0.88	0.21	0.29	0.70	0.14	0.07	0.11	0.03
11	11	NCI	21	4	19.0%	2006	1.25	15.00	0.50	0.48	1.21	0.08	0.24	2.86	0.10	0.09	0.23	0.02

Rank = Rank based on average z-score (Z) or harmonic mean rank (H); Staff = Number of staff; Active = Number of research-active staff ; A/# = Fraction research-active; Birth = year of first publication; P = number of publications per year; C = number of citations per year; h = h-rate; /yr = per year.

Table 6. Research specialization of business schools by number of research-active staff.

	Share in school						Share in Ireland						
	Mkt	Mgt	EcFin	Acc	IHR	MIS	Mkt	Mgt	EcFin	Acc	IHR	MIS	All
DIT	31.6%	42.1%	21.1%	0.0%	5.3%	0.0%	12.0%	7.7%	3.3%	0.0%	2.7%	0.0%	4.8%
DCU	15.4%	17.9%	28.2%	10.3%	25.6%	2.6%	12.0%	6.7%	8.9%	10.3%	27.0%	2.2%	9.8%
UL	14.0%	14.0%	24.0%	20.0%	24.0%	4.0%	14.0%	6.7%	9.8%	25.6%	32.4%	4.3%	12.5%
UCD	14.0%	31.6%	15.8%	12.3%	8.8%	17.5%	16.0%	17.3%	7.3%	17.9%	13.5%	21.7%	14.3%
NUIG	9.3%	16.3%	32.6%	14.0%	2.3%	25.6%	8.0%	6.7%	11.4%	15.4%	2.7%	23.9%	10.8%
UCC	16.7%	16.7%	19.0%	4.8%	0.0%	42.9%	14.0%	6.7%	6.5%	5.1%	0.0%	39.1%	10.5%
TCD	17.6%	35.3%	35.3%	0.0%	5.9%	5.9%	6.0%	5.8%	4.9%	0.0%	2.7%	2.2%	4.3%
NCI	0.0%	0.0%	25.0%	0.0%	75.0%	0.0%	0.0%	0.0%	0.8%	0.0%	8.1%	0.0%	1.0%
NUIM	0.0%	5.3%	84.2%	0.0%	5.3%	5.3%	0.0%	1.0%	13.0%	0.0%	2.7%	2.2%	4.8%
UU	13.3%	50.0%	21.7%	11.7%	3.3%	0.0%	16.0%	28.8%	10.6%	17.9%	5.4%	0.0%	15.0%
QUB	2.0%	26.5%	59.2%	6.1%	2.0%	4.1%	2.0%	12.5%	23.6%	7.7%	2.7%	4.3%	12.3%
All	12.5%	26.1%	30.8%	9.8%	9.3%	11.5%							

Table 7. Research specialization of business schools by number of publications.

	Share in school						Share in Ireland						
	Mkt	Mgt	EcFin	Acc	IHR	MIS	Mkt	Mgt	EcFin	Acc	IHR	MIS	All
DIT	37.2%	48.8%	11.6%	0.0%	2.3%	0.0%	5.4%	3.4%	0.5%	0.0%	0.4%	0.0%	1.6%
DCU	10.2%	18.0%	29.1%	7.8%	28.2%	6.8%	7.0%	6.0%	6.3%	6.9%	25.3%	4.2%	7.7%
UL	11.3%	17.2%	27.8%	8.9%	30.6%	4.1%	11.0%	8.1%	8.5%	11.2%	38.9%	3.6%	10.9%
UCD	13.6%	21.9%	19.4%	25.4%	5.1%	14.5%	20.4%	15.9%	9.1%	49.1%	10.0%	19.4%	16.8%
NUIG	4.0%	18.8%	46.4%	3.6%	7.6%	19.6%	3.7%	8.4%	13.4%	4.3%	9.2%	16.1%	10.3%
UCC	12.5%	11.1%	9.7%	4.6%	0.0%	62.0%	9.0%	3.9%	2.2%	4.3%	0.0%	40.0%	8.1%
TCD	2.3%	31.3%	65.0%	0.0%	0.9%	0.5%	1.7%	11.0%	14.7%	0.0%	0.9%	0.3%	8.1%
NCI	0.0%	0.0%	20.0%	0.0%	80.0%	0.0%	0.0%	0.0%	0.1%	0.0%	1.7%	0.0%	0.2%
NUIM	0.0%	0.9%	84.2%	0.0%	0.9%	14.0%	0.0%	0.2%	10.0%	0.0%	0.4%	4.8%	4.3%
UU	30.3%	42.3%	15.7%	10.7%	1.0%	0.0%	40.8%	27.6%	6.6%	18.5%	1.7%	0.0%	15.1%
QUB	0.7%	21.1%	61.0%	2.9%	5.8%	8.6%	1.0%	15.4%	28.7%	5.6%	11.4%	11.6%	16.9%
All	11.2%	23.1%	35.9%	8.7%	8.6%	12.6%							

Table 8. Research specialization of business schools by number of citations.

	Share in school						Share in Ireland						
	Mkt	Mgt	EcFin	Acc	IHR	MIS	Mkt	Mgt	EcFin	Acc	IHR	MIS	All
DIT	41.7%	37.9%	16.5%	0.0%	3.9%	0.0%	2.7%	0.9%	0.3%	0.0%	0.3%	0.0%	0.7%
DCU	4.7%	10.6%	47.5%	5.3%	31.0%	0.9%	3.6%	3.1%	12.0%	8.6%	25.8%	0.9%	8.6%
UL	25.4%	13.3%	15.5%	7.9%	36.6%	1.2%	18.6%	3.7%	3.7%	12.3%	29.2%	1.1%	8.3%
UCD	18.2%	41.8%	11.3%	7.1%	7.5%	14.1%	29.8%	26.0%	6.1%	24.9%	13.5%	29.9%	18.6%
NUIG	0.5%	20.8%	39.8%	1.0%	19.8%	18.0%	0.4%	7.0%	11.7%	2.0%	19.2%	20.8%	10.1%
UCC	8.9%	22.8%	4.1%	7.6%	0.0%	56.6%	3.4%	3.3%	0.5%	6.1%	0.0%	27.6%	4.3%
TCD	0.6%	50.9%	48.0%	0.0%	0.3%	0.2%	0.4%	15.2%	12.5%	0.0%	0.3%	0.2%	8.9%
NCI	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.1%	0.0%	0.4%
NUIM	0.0%	0.0%	96.4%	0.0%	0.4%	3.2%	0.0%	0.0%	20.0%	0.0%	0.3%	2.6%	7.1%
UU	26.9%	47.3%	12.5%	12.3%	1.1%	0.0%	41.0%	27.3%	6.3%	39.9%	1.8%	0.0%	17.3%
QUB	0.1%	26.0%	58.7%	2.1%	3.7%	9.4%	0.1%	13.7%	26.9%	6.2%	5.6%	16.9%	15.7%
All	11.3%	29.9%	34.3%	5.3%	10.4%	8.8%							

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