The Research Output of Business Schools and Business Scholars in Ireland

Richard S.J. Tol*

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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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.  

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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:  
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:  
The Economist has a ranking based on career opportunities, personal development, earning potential and networking potential:  
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%. 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, 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. For that reason, a simple method is used. Data were collected from Scopus only. Scopus has a much broader coverage than the Web of Science 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 (and thus Publish and Perish (Harzing 2010) and Scholarometer) has a wider coverage than Scopus, but suffers from a lack of quality control on publications and citations.

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=0Bz17rNCpfuDNNTA2MGZmNTQtZmYxNS00YTY3LWI0MDItZmVjMDllYWFiY2Qw&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 scholars, as the highest score is equal to 1/748.


\(^{13}\) I use the maximum likelihood estimator for the Pareto index \(\alpha = \frac{\sum_{i=1}^{N} \ln S_i/N \cdot \min_{j} S_j}{\sum_{i=1}^{N} \ln S_i/N} \), where \(S\) is the score of individual \(i=1,2,\ldots N\); 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 lifetime 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. 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.

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=ua](http://www.rae.ac.uk/results/qualityProfile.aspx?id=36&type=ua)

15 [http://www.rae.ac.uk/results/qualityProfile.aspx?id=35&type=ua](http://www.rae.ac.uk/results/qualityProfile.aspx?id=35&type=ua)
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](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.

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Institution</th>
<th>School and department</th>
</tr>
</thead>
</table>
| 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.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Name</th>
<th>Specialisation</th>
<th>School</th>
<th>Academic Rank</th>
<th>Birth Year</th>
<th>Productivity Rank</th>
<th>Publications</th>
<th>Citations</th>
<th>h-index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>McAdam, Rodney</td>
<td>Mkt</td>
<td>UU</td>
<td>Prof</td>
<td>1998</td>
<td>1</td>
<td>69</td>
<td>480</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>Humphreys, Paul K</td>
<td>Mgt</td>
<td>UU</td>
<td>Prof</td>
<td>1997</td>
<td>2</td>
<td>49</td>
<td>499</td>
<td>13</td>
</tr>
<tr>
<td>3</td>
<td>Addison, John</td>
<td>EcFin</td>
<td>QUB</td>
<td>Prof</td>
<td>1986</td>
<td>16</td>
<td>46</td>
<td>357</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>McIvor, Ronan</td>
<td>Mgt</td>
<td>UU</td>
<td>Prof</td>
<td>1997</td>
<td>3</td>
<td>40</td>
<td>377</td>
<td>11</td>
</tr>
<tr>
<td>5</td>
<td>Barry, Frank</td>
<td>EcFin</td>
<td>TCD</td>
<td>Prof</td>
<td>1987</td>
<td>27</td>
<td>47</td>
<td>260</td>
<td>9</td>
</tr>
<tr>
<td>6</td>
<td>McKillop, Donal</td>
<td>EcFin</td>
<td>QUB</td>
<td>Prof</td>
<td>1991</td>
<td>34</td>
<td>35</td>
<td>187</td>
<td>8</td>
</tr>
<tr>
<td>7</td>
<td>Scullion, Hugh</td>
<td>IHR</td>
<td>NUIG</td>
<td>Prof</td>
<td>2000</td>
<td>4</td>
<td>21</td>
<td>283</td>
<td>9</td>
</tr>
<tr>
<td>8</td>
<td>Gilles, Rob</td>
<td>EcFin</td>
<td>QUB</td>
<td>Prof</td>
<td>1992</td>
<td>29</td>
<td>24</td>
<td>228</td>
<td>9</td>
</tr>
<tr>
<td>9</td>
<td>Begley, Tom</td>
<td>Mgt</td>
<td>UCD</td>
<td>Prof</td>
<td>1985</td>
<td>72</td>
<td>16</td>
<td>441</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>Brabazon, Tony</td>
<td>Acc</td>
<td>UCD</td>
<td>Prof</td>
<td>1996</td>
<td>8</td>
<td>91</td>
<td>131</td>
<td>6</td>
</tr>
<tr>
<td>11</td>
<td>Warner, Julian</td>
<td>MIS</td>
<td>QUB</td>
<td>Lect</td>
<td>1988</td>
<td>59</td>
<td>37</td>
<td>166</td>
<td>7</td>
</tr>
<tr>
<td>12</td>
<td>Lucey, Brian</td>
<td>EcFin</td>
<td>TCD</td>
<td>AP</td>
<td>2000</td>
<td>5</td>
<td>54</td>
<td>142</td>
<td>6</td>
</tr>
<tr>
<td>13</td>
<td>Fynes, Brian</td>
<td>Mgt</td>
<td>UCD</td>
<td>Prof</td>
<td>1994</td>
<td>28</td>
<td>18</td>
<td>235</td>
<td>9</td>
</tr>
<tr>
<td>14</td>
<td>Johnston, Robert B</td>
<td>MIS</td>
<td>UCD</td>
<td>Prof</td>
<td>1995</td>
<td>23</td>
<td>24</td>
<td>178</td>
<td>8</td>
</tr>
<tr>
<td>15</td>
<td>O'Shea, Eamon</td>
<td>EcFin</td>
<td>NUIG</td>
<td>Prof</td>
<td>1991</td>
<td>51</td>
<td>31</td>
<td>193</td>
<td>6</td>
</tr>
<tr>
<td>16</td>
<td>Flood, Patrick</td>
<td>IHR</td>
<td>DCU</td>
<td>Prof</td>
<td>1996</td>
<td>25</td>
<td>18</td>
<td>261</td>
<td>7</td>
</tr>
<tr>
<td>17</td>
<td>Pecchenino, Rowena A</td>
<td>EcFin</td>
<td>NUIM</td>
<td>Prof</td>
<td>1990</td>
<td>69</td>
<td>16</td>
<td>280</td>
<td>7</td>
</tr>
<tr>
<td>18</td>
<td>Kearney, Colm</td>
<td>EcFin</td>
<td>TCD</td>
<td>Prof</td>
<td>1985</td>
<td>118</td>
<td>32</td>
<td>203</td>
<td>5</td>
</tr>
<tr>
<td>19</td>
<td>Coughlan, Paul</td>
<td>Mgt</td>
<td>TCD</td>
<td>AP</td>
<td>1996</td>
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<td>17</td>
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<td>SL</td>
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<td>2002</td>
<td>7</td>
<td>14</td>
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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.

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<th>Rank</th>
<th>Birth</th>
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<th>P</th>
<th>C</th>
<th>H</th>
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</tr>
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<td>12.91</td>
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<td>0.47</td>
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</table>

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.

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<th>A/#</th>
<th>Birth</th>
<th>P</th>
<th>C</th>
<th>h</th>
<th>P/yr</th>
<th>C/yr</th>
<th>h/yr</th>
<th>P</th>
<th>C</th>
<th>h</th>
<th>P/yr</th>
<th>C/yr</th>
<th>h/yr</th>
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<tbody>
<tr>
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<td>0.83</td>
<td>3.55</td>
<td>0.25</td>
<td>4.61</td>
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<td>1.45</td>
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<td>2.02</td>
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<td>16.04</td>
<td>1.68</td>
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<td>1.70</td>
<td>0.22</td>
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<td>7.67</td>
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<td>0.31</td>
<td>0.81</td>
<td>0.11</td>
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<table>
<thead>
<tr>
<th>Rank</th>
<th>#</th>
<th>A</th>
<th>A/#</th>
<th>Birth</th>
<th>P</th>
<th>C</th>
<th>h</th>
<th>P/yr</th>
<th>C/yr</th>
<th>h/yr</th>
<th>P</th>
<th>C</th>
<th>h</th>
<th>P/yr</th>
<th>C/yr</th>
<th>h/yr</th>
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<td>14.89</td>
<td>103.65</td>
<td>4.60</td>
<td>0.97</td>
<td>6.54</td>
<td>0.32</td>
<td>13.38</td>
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<td>11</td>
<td>100.0%</td>
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<td>85.82</td>
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<td>5.70</td>
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<td>15.82</td>
<td>85.82</td>
<td>4.00</td>
<td>1.22</td>
<td>5.70</td>
<td>0.31</td>
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<td>75</td>
<td>78.1%</td>
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<td>27.56</td>
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<td>2.56</td>
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<td>0.20</td>
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<td>0.72</td>
<td>1.59</td>
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<td>1.81</td>
<td>6.50</td>
<td>0.67</td>
<td>0.38</td>
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<td>0.86</td>
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<td>0.72</td>
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<th>Birth</th>
<th>P</th>
<th>C</th>
<th>h</th>
<th>P/yr</th>
<th>C/yr</th>
<th>h/yr</th>
<th>P</th>
<th>C</th>
<th>h</th>
<th>P/yr</th>
<th>C/yr</th>
<th>h/yr</th>
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<td>5.9</td>
<td>21.8</td>
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<td>1.85</td>
<td>0.17</td>
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<table>
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<th>Location</th>
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<th>P</th>
<th>C</th>
<th>h</th>
<th>P/yr</th>
<th>C/yr</th>
<th>h/yr</th>
<th>P</th>
<th>C</th>
<th>h</th>
<th>P/yr</th>
<th>C/yr</th>
<th>h/yr</th>
</tr>
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<td>Republic of Ireland</td>
<td>556</td>
<td>290</td>
<td>52.2%</td>
<td>2754</td>
<td>6.26</td>
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<td>2.10</td>
<td>0.74</td>
<td>2.68</td>
<td>0.23</td>
<td>3.27</td>
<td>17.10</td>
<td>1.09</td>
<td>0.39</td>
<td>1.40</td>
<td>0.12</td>
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<td>56.8%</td>
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<td>42.91</td>
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<td>0.24</td>
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</table>

# = 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.

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<th>H</th>
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<th>Staff</th>
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<th>A/S</th>
<th>Birth</th>
<th>P</th>
<th>C</th>
<th>h</th>
<th>P/yr</th>
<th>C/yr</th>
<th>h/yr</th>
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<th>h/yr</th>
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<td>1</td>
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<td>45.47</td>
<td>2.80</td>
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<td>0.27</td>
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<td>UCD</td>
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<td>72.2%</td>
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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.

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<td>7.7%</td>
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<td>2.6%</td>
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<td>6.7%</td>
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Table 7. Research specialization of business schools by number of publications.

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

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References


Harzing, A.-W. (2010), The Publish or Perish Book -- Tour Guide to Effective and Responsible Citation Analysis Tarma Software Research, Melbourne.


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| 2010 | 363    | The Effects of the Internationalisation of Firms on Innovation and Productivity  
*Iulia Siedschlag, Xiaoheng Zhang and Brian Cahill* |
|      | 362    | Too much of a good thing? Gender, ‘Concerted cultivation’ and unequal achievement in primary education  
*Selina McCoy, Delma Byrne, Joanne Banks* |
|      | 361    | Timing and Determinants of Local Residential Broadband Adoption: Evidence from Ireland  
*Seán Lyons* |
|      | 360    | Determinants of Vegetarianism and Partial Vegetarianism in the United Kingdom  
*Eimear Leahy, Seán Lyons and Richard S.J. Tol* |
|      | 359    | From Data to Policy Analysis: Tax-Benefit Modelling using SILC 2008  
*Tim Callan, Claire Keane, John R. Walsh and Marguerita Lane* |
|      | 358    | Towards a Better and Sustainable Health Care System – Resource Allocation and Financing Issues for Ireland  
*Frances Ruane* |
|      | 357    | An Estimate of the Value of Lost Load for Ireland  
*Eimear Leahy and Richard S.J. Tol* |
|      | 356    | Public Policy Towards the Sale of State Assets in Troubled Times: Lessons from the Irish Experience  
*Paul K Gorecki, Sean Lyons and Richard S. J. Tol* |
|      | 355    | The Impact of Ireland’s Recession on the Labour Market Outcomes of its Immigrants  
*Alan Barrett and Elish Kelly* |
|      | 354    | Research and Policy Making  
*Frances Ruane* |
|      | 353    | Market Regulation and Competition; Law in Conflict: A View from Ireland, Implications of the Panda Judgment  
Philip Andrews and *Paul K Gorecki* |
|      | 352    | Designing a property tax without property values: Analysis in the case of Ireland |
Civil War, Climate Change and Development: A Scenario Study for Sub-Saharan Africa

Conor Devitt and Richard S.J. Tol

Regulating Knowledge Monopolies: The Case of the IPCC

Richard S.J. Tol

The Impact of Tax Reform on New Car Purchases in Ireland

Hugh Hennessy and Richard S.J. Tol

Climate Policy under Fat-Tailed Risk: An Application of FUND

David Anthoff and Richard S.J. Tol

Corporate Expenditure on Environmental Protection

Stefanie A. Haller and Liam Murphy

Female Labour Supply and Divorce: New Evidence from Ireland

Olivier Bargain, Libertad González, Claire Keane and Berkay Özcan

A Statistical Profiling Model of Long-Term Unemployment Risk in Ireland

Philip J. O’Connell, Seamus McGuinness, Elish Kelly

The Economic Crisis, Public Sector Pay, and the Income Distribution

Tim Callan, Brian Nolan (UCD) and John Walsh

Estimating the Impact of Access Conditions on Service Quality in Post

Gregory Swinand, Conor O’Toole and Seán Lyons

The Impact of Climate Policy on Private Car Ownership in Ireland

Hugh Hennessy and Richard S.J. Tol

National Determinants of Vegetarianism

Eimear Leahy, Seán Lyons and Richard S.J. Tol

An Estimate of the Number of Vegetarians in the World

Eimear Leahy, Seán Lyons and Richard S.J. Tol

International Migration in Ireland, 2009

Philip J O’Connell and Corona Joyce

The Euro Through the Looking-Glass:
Perceived Inflation Following the 2002 Currency Changeover
Pete Lunn and David Duffy

Returning to the Question of a Wage Premium for Returning Migrants
Alan Barrett and Jean Goggin

What Determines the Location Choice of Multinational Firms in the ICT Sector?
Iulia Siedschlag, Xiaoheng Zhang, Donal Smith

Cost-benefit analysis of the introduction of weight-based charges for domestic waste – West Cork’s experience
Sue Scott and Dorothy Watson

The Likely Economic Impact of Increasing Investment in Wind on the Island of Ireland
Conor Devitt, Seán Diffney, John Fitz Gerald, Seán Lyons and Laura Malaguzzi Valeri

Estimating Historical Landfill Quantities to Predict Methane Emissions
Seán Lyons, Liam Murphy and Richard S.J. Tol

International Climate Policy and Regional Welfare Weights
Daiju Narita, Richard S. J. Tol, and David Anthoff

A Hedonic Analysis of the Value of Parks and Green Spaces in the Dublin Area
Karen Mayor, Seán Lyons, David Duffy and Richard S.J. Tol

Measuring International Technology Spillovers and Progress Towards the European Research Area
Iulia Siedschlag

Climate Policy and Corporate Behaviour
Nicola Commins, Seán Lyons, Marc Schiffbauer, and Richard S.J. Tol

The Association Between Income Inequality and Mental Health: Social Cohesion or Social Infrastructure
Richard Layte and Bertrand Maître

A Computational Theory of Exchange: Willingness to pay, willingness to accept and the endowment effect
Pete Lunn and Mary Lunn
326 Fiscal Policy for Recovery
   John Fitz Gerald

325 The EU 20/20/2020 Targets: An Overview of the EMF22 Assessment
   Christoph Böhringer, Thomas F. Rutherford, and Richard S.J. Tol

324 Counting Only the Hits? The Risk of Underestimating the Costs of Stringent Climate Policy
   Massimo Tavoni, Richard S.J. Tol

323 International Cooperation on Climate Change Adaptation from an Economic Perspective
   Kelly C. de Bruin, Rob B. Dellink and Richard S.J. Tol

322 What Role for Property Taxes in Ireland?
   T. Callan, C. Keane and J.R. Walsh

321 The Public-Private Sector Pay Gap in Ireland: What Lies Beneath?
   Elish Kelly, Seamus McGuinness, Philip O'Connell

320 A Code of Practice for Grocery Goods Undertakings and An Ombudsman: How to Do a Lot of Harm by Trying to Do a Little Good
   Paul K Gorecki

319 Negative Equity in the Irish Housing Market
   David Duffy

318 Estimating the Impact of Immigration on Wages in Ireland
   Alan Barrett, Adele Bergin and Elish Kelly

   Seamus McGuinness, Elish Kelly, Philip O'Connell, Tim Callan

316 Mismatch in the Graduate Labour Market Among Immigrants and Second-Generation Ethnic Minority Groups
   Delma Byrne and Seamus McGuinness

315 Managing Housing Bubbles in Regional Economies under EMU: Ireland and Spain
   Thomas Conofrey and John Fitz Gerald

314 Job Mismatches and Labour Market Outcomes
   Kostas Mavromaras, Seamus McGuinness, Nigel O'Leary, Peter
Immigrants and Employer-provided Training

*Alan Barrett, Séamus McGuinness, Martin O’Brien and Philip O’Connell*

Did the Celtic Tiger Decrease Socio-Economic Differentials in Perinatal Mortality in Ireland?

*Richard Layte and Barbara Clyne*

Exploring International Differences in Rates of Return to Education: Evidence from EU SILC

*Maria A. Davia, Séamus McGuinness and Philip, J. O’Connell*

Car Ownership and Mode of Transport to Work in Ireland

*Nicola Commins and Anne Nolan*

Recent Trends in the Caesarean Section Rate in Ireland 1999-2006

*Aoife Brick and Richard Layte*

Price Inflation and Income Distribution

*Anne Jennings, Seán Lyons and Richard S.J. Tol*

Overskilling Dynamics and Education Pathways

*Kostas Mavromaras, Séamus McGuinness, Yin King Fok*

What Determines the Attractiveness of the European Union to the Location of R&D Multinational Firms?

*Iulia Siedschlag, Donal Smith, Camelia Turcu, Xiaoheng Zhang*

Do Foreign Mergers and Acquisitions Boost Firm Productivity?

*Marc Schiffbauer, Iulia Siedschlag, Frances Ruane*

Inclusion or Diversion in Higher Education in the Republic of Ireland?

*Delma Byrne*

Welfare Regime and Social Class Variation in Poverty and Economic Vulnerability in Europe: An Analysis of EU-SILC

*Christopher T. Whelan and Bertrand Maître*

Understanding the Socio-Economic Distribution and Consequences of Patterns of Multiple Deprivation: An Application of Self-Organising Maps

*Christopher T. Whelan, Mario Lucchini, Maurizio Pisati and Bertrand Maître*

Estimating the Impact of Metro North
Explaining Structural Change in Cardiovascular Mortality in Ireland 1995-2005: A Time Series Analysis
Richard Layte, Sinead O’Hara and Kathleen Bennett

EU Climate Change Policy 2013-2020: Using the Clean Development Mechanism More Effectively
Paul K Gorecki, Seán Lyons and Richard S.J. Tol

Irish Public Capital Spending in a Recession
Edgar Morgenroth

Exporting and Ownership Contributions to Irish Manufacturing Productivity Growth
Anne Marie Gleeson, Frances Ruane

Eligibility for Free Primary Care and Avoidable Hospitalisations in Ireland
Anne Nolan

Managing Household Waste in Ireland: Behavioural Parameters and Policy Options
John Curtis, Seán Lyons and Abigail O’Callaghan-Platt

Labour Market Mismatch Among UK Graduates; An Analysis Using REFLEX Data
Seamus McGuinness and Peter J. Sloane

Towards Regional Environmental Accounts for Ireland
Richard S.J. Tol, Nicola Commins, Niamh Crilly, Sean Lyons and Edgar Morgenroth

EU Climate Change Policy 2013-2020: Thoughts on Property Rights and Market Choices
Paul K. Gorecki, Sean Lyons and Richard S.J. Tol

Measuring House Price Change
David Duffy

Intra-and Extra-Union Flexibility in Meeting the European Union's Emission Reduction Targets
Richard S.J. Tol

The Determinants and Effects of Training at Work: Bringing the Workplace Back In
Philip J. O’Connell and Delma Byrne
Climate Feedbacks on the Terrestrial Biosphere and the Economics of Climate Policy: An Application of FUND
Richard S.J. Tol

The Behaviour of the Irish Economy: Insights from the HERMES macro-economic model
Adele Bergin, Thomas Conefrey, John FitzGerald and Ide Kearney

Mapping Patterns of Multiple Deprivation Using Self-Organising Maps: An Application to EU-SILC Data for Ireland
Maurizio Pisati, Christopher T. Whelan, Mario Lucchini and Bertrand Maître

The Feasibility of Low Concentration Targets: An Application of FUND
Richard S.J. Tol

Policy Options to Reduce Ireland’s GHG Emissions
Instrument choice: the pros and cons of alternative policy instruments
Thomas Legge and Sue Scott

Accounting for Taste: An Examination of Socioeconomic Gradients in Attendance at Arts Events
Pete Lunn and Elish Kelly

The Economic Impact of Ocean Acidification on Coral Reefs

Assessing the impact of biodiversity on tourism flows: A model for tourist behaviour and its policy implications
Giulia Macagno, Maria Loureiro, Paulo A.L.D. Nunes and Richard S.J. Tol

Advertising to boost energy efficiency: the Power of One campaign and natural gas consumption
Seán Diffney, Seán Lyons and Laura Malaguzzi Valeri

International Transmission of Business Cycles Between Ireland and its Trading Partners
Jean Goggin and Iulia Siedschlag

Optimal Global Dynamic Carbon Taxation
David Anthoff
Energy Use and Appliance Ownership in Ireland
_Eimear Leahy and Seán Lyons_

Discounting for Climate Change
_David Anthoff, Richard S.J. Tol and Gary W. Yohe_

Projecting the Future Numbers of Migrant Workers in the Health and Social Care Sectors in Ireland
_Alan Barrett and Anna Rust_

Economic Costs of Extratropical Storms under Climate Change: An application of FUND
_Daiju Narita, Richard S.J. Tol, David Anthoff_

The Macro-Economic Impact of Changing the Rate of Corporation Tax
_Thomas Conefrey and John D. Fitz Gerald_

The Games We Used to Play
_An Application of Survival Analysis to the Sporting Life-course
_Pete Lunn_

Exploring the Economic Geography of Ireland
_Edgar Morgenroth_

Benchmarking, Social Partnership and Higher Remuneration: Wage Settling Institutions and the Public-Private Sector Wage Gap in Ireland
_Elish Kelly, Seamus McGuinness, Philip O’Connell_

A Dynamic Analysis of Household Car Ownership in Ireland
_Anne Nolan_

The Determinants of Mode of Transport to Work in the Greater Dublin Area
_Nicola Commins and Anne Nolan_

Resonances from Economic Development for Current Economic Policymaking
_Frances Ruane_

The Impact of Wage Bargaining Regime on Firm-Level Competitiveness and Wage Inequality: The Case of Ireland
_Seamus McGuinness, Elish Kelly and Philip O’Connell_

Poverty in Ireland in Comparative European Perspective
_Christopher T. Whelan and Bertrand Maître_
264 A Hedonic Analysis of the Value of Rail Transport in the Greater Dublin Area
Karen Mayor, Seán Lyons, David Duffy and Richard S.J. Tol

263 Comparing Poverty Indicators in an Enlarged EU
Christopher T. Whelan and Bertrand Maître

262 Fuel Poverty in Ireland: Extent, Affected Groups and Policy Issues
Sue Scott, Seán Lyons, Claire Keane, Donal McCarthy and Richard S.J. Tol

261 The Misperception of Inflation by Irish Consumers
David Duffy and Pete Lunn

260 The Direct Impact of Climate Change on Regional Labour Productivity

259 Damage Costs of Climate Change through Intensification of Tropical Cyclone Activities: An Application of FUND
Daiju Narita, Richard S. J. Tol and David Anthoff

258 Are Over-educated People Insiders or Outsiders? A Case of Job Search Methods and Over-education in UK
Aleksander Kucel, Delma Byrne

257 Metrics for Aggregating the Climate Effect of Different Emissions: A Unifying Framework
Richard S.J. Tol, Terje K. Berntsen, Brian C. O’Neill, Jan S. Fuglestvedt, Keith P. Shine, Yves Balkanski and Laszlo Makra

256 Intra-Union Flexibility of Non-ETS Emission Reduction Obligations in the European Union
Richard S.J. Tol

255 The Economic Impact of Climate Change
Richard S.J. Tol

254 Measuring International Inequity Aversion
Richard S.J. Tol

253 Using a Census to Assess the Reliability of a National Household Survey for Migration Research: The Case of Ireland
Alan Barrett and Elish Kelly
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>251</td>
<td>The Impact of a Carbon Tax on Economic Growth and Carbon Dioxide</td>
<td>Thomas Conefrey, John D. Fitz Gerald, Laura Malaguzzi Valeri and Richard S.J. Tol</td>
</tr>
<tr>
<td></td>
<td>Emissions in Ireland</td>
<td></td>
</tr>
<tr>
<td>250</td>
<td>The Distributional Implications of a Carbon Tax in Ireland</td>
<td>Tim Callan, Sean Lyons, Susan Scott, Richard S.J. Tol and Stefano Verde</td>
</tr>
<tr>
<td>249</td>
<td>Measuring Material Deprivation in the Enlarged EU</td>
<td>Christopher T. Whelan, Brian Nolan and Bertrand Maître</td>
</tr>
<tr>
<td>247</td>
<td>Incorporating GHG Emission Costs in the Economic Appraisal of Projects</td>
<td>Richard S.J. Tol and Seán Lyons</td>
</tr>
<tr>
<td></td>
<td>Supported by State Development Agencies</td>
<td></td>
</tr>
<tr>
<td>246</td>
<td>A Carton Tax for Ireland</td>
<td>Richard S.J. Tol, Tim Callan, Thomas Conefrey, John D. Fitz Gerald, Sean Lyons, Laura Malaguzzi Valeri and Susan Scott</td>
</tr>
<tr>
<td>245</td>
<td>Non-cash Benefits and the Distribution of Economic Welfare</td>
<td>Tim Callan and Claire Keane</td>
</tr>
<tr>
<td>244</td>
<td>Scenarios of Carbon Dioxide Emissions from Aviation</td>
<td>Karen Mayor and Richard S.J. Tol</td>
</tr>
<tr>
<td>243</td>
<td>The Effect of the Euro on Export Patterns: Empirical Evidence from</td>
<td>Gavin Murphy and Iulia Siedschlag</td>
</tr>
<tr>
<td></td>
<td>Industry Data</td>
<td></td>
</tr>
<tr>
<td>242</td>
<td>The Economic Returns to Field of Study and Competencies Among</td>
<td>Elish Kelly, Philip O’Connell and Emer Smyth</td>
</tr>
<tr>
<td></td>
<td>Higher Education Graduates in Ireland</td>
<td></td>
</tr>
<tr>
<td>241</td>
<td>European Climate Policy and Aviation Emissions</td>
<td>Karen Mayor and Richard S.J. Tol</td>
</tr>
<tr>
<td>240</td>
<td>Aviation and the Environment in the Context of the EU-US Open Skies</td>
<td>Karen Mayor and Richard S.J. Tol</td>
</tr>
<tr>
<td></td>
<td>Agreement</td>
<td></td>
</tr>
</tbody>
</table>
Yuppie Kvetch? Work-life Conflict and Social Class in Western Europe
Frances McGinnity and Emma Calvert

Alan Barrett and Yvonne McCarthy

How Local is Hospital Treatment? An Exploratory Analysis of Public/Private Variation in Location of Treatment in Irish Acute Public Hospitals
Jacqueline O’Reilly and Miriam M. Wiley

The Immigrant Earnings Disadvantage Across the Earnings and Skills Distributions: The Case of Immigrants from the EU’s New Member States in Ireland
Alan Barrett, Seamus McGuinness and Martin O’Brien

Europeanisation of Inequality and European Reference Groups
Christopher T. Whelan and Bertrand Maître

Managing Capital Flows: Experiences from Central and Eastern Europe
Jürgen von Hagen and Iulia Siedschlag

ICT Diffusion, Innovation Systems, Globalisation and Regional Economic Dynamics: Theory and Empirical Evidence
Charlie Karlsson, Gunther Maier, Michaela Tripl, Iulia Siedschlag, Robert Owen and Gavin Murphy

Welfare and Competition Effects of Electricity Interconnection between Great Britain and Ireland
Laura Malaguzzi Valeri

Is FDI into China Crowding Out the FDI into the European Union?
Laura Resmini and Iulia Siedschlag

Estimating the Economic Cost of Disability in Ireland
John Cullinan, Brenda Gannon and Seán Lyons

Controlling the Cost of Controlling the Climate: The Irish Government’s Climate Change Strategy
Colm McCarthy, Sue Scott

The Impact of Climate Change on the Balanced-Growth-
Equivalent: An Application of FUND
David Anthoff, Richard S.J. Tol

227
Changing Returns to Education During a Boom? The Case of Ireland
Seamus McGuinness, Frances McGinnity, Philip O’Connell

226
‘New’ and ‘Old’ Social Risks: Life Cycle and Social Class Perspectives on Social Exclusion in Ireland
Christopher T. Whelan and Bertrand Maître

225
The Climate Preferences of Irish Tourists by Purpose of Travel
Seán Lyons, Karen Mayor and Richard S.J. Tol

224
A Hirsch Measure for the Quality of Research Supervision, and an Illustration with Trade Economists
Frances P. Ruane and Richard S.J. Tol

223
Environmental Accounts for the Republic of Ireland: 1990-2005
Seán Lyons, Karen Mayor and Richard S.J. Tol

2007
222 Assessing Vulnerability of Selected Sectors under Environmental Tax Reform: The issue of pricing power
J. FitzGerald, M. Keeney and S. Scott

221 Climate Policy Versus Development Aid
Richard S.J. Tol

220 Exports and Productivity - Comparable Evidence for 14 Countries
The International Study Group on Exports and Productivity

219 Energy-Using Appliances and Energy-Saving Features: Determinants of Ownership in Ireland
Joe O’Doherty, Seán Lyons and Richard S.J. Tol

218 The Public/Private Mix in Irish Acute Public Hospitals: Trends and Implications
Jacqueline O’Reilly and Miriam M. Wiley

217 Regret About the Timing of First Sexual Intercourse: The Role of Age and Context
Richard Layte, Hannah McGee

216 Determinants of Water Connection Type and Ownership of Water-Using Appliances in Ireland
Joe O’Doherty, Seán Lyons and Richard S.J. Tol
215  Unemployment – Stage or Stigma?  
Being Unemployed During an Economic Boom  
Emer Smyth

214  The Value of Lost Load  
Richard S.J. Tol

213  Adolescents’ Educational Attainment and School Experiences in Contemporary Ireland  
Merike Darmody, Selina McCoy, Emer Smyth

212  Acting Up or Opting Out? Truancy in Irish Secondary Schools  
Merike Darmody, Emer Smyth and Selina McCoy

211  Where do MNEs Expand Production: Location Choices of the Pharmaceutical Industry in Europe after 1992  
Frances P. Ruane, Xiaoheng Zhang

210  Holiday Destinations: Understanding the Travel Choices of Irish Tourists  
Seán Lyons, Karen Mayor and Richard S.J. Tol

209  The Effectiveness of Competition Policy and the Price-Cost Margin: Evidence from Panel Data  
Patrick McCloughan, Seán Lyons and William Batt

208  Tax Structure and Female Labour Market Participation: Evidence from Ireland  
Tim Callan, A. Van Soest, J.R. Walsh