

**ACCOUNTING ACADEMICS AND RESEARCH PRESSURES IN SPAIN:
DESIRABLE OR UNDESIRABLE EFFECTS?**

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Abstract

When laws change the rules of the game, it is important to observe the effects on the agents' behaviour. Some can be linked, *ex-ante*, with the law's content; but it is often the case that other effects are difficult to enunciate before the law comes into force. This study analyses the effects of the introduction, in 2001, of the new Spanish University Law, establishing the assessment of faculty research output as an essential factor for promotion. Our findings reveal that, between 1996 and 2005, there was a significant trade-off between academic and professional papers. This was to be expected due to the explicit mentions of the law in favour of academic journals. Authors have also changed their research methodology, topic and publication policy in order to meet the requirements of academic journals. Except for the topics, these changes are significant for the period considered, confirming the major impact of the new regulation. In the university system then, incentives to produce more academic research critically depend on legal rules. However, we have detected some undesirable effects due to the reduction of the number of authors and papers from 2004 on. It seems that moving towards quality may be reducing the knowledge transmission from University to professionals.

Key words: Accounting Research, Accounting areas, Research methods, scientific production, legal incentives, publication strategies

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Introduction

Publishing papers is one of the main needs for academics seeking to develop a professional career at University. In fact, one of the most important criteria when it comes to evaluating scholars at many Universities around the world is the number and quality of papers published. Spain has become an interesting case study due to the new regulation on promotion and tenure included in the *2001 Organic University Law (LOU, Ley Orgánica de Universidades 6/2001 de 21 de Diciembre)*. Since 2001, the publishing of papers in *good academic journals*¹ has become an essential element of promotion. This means a major change with respect to the previous situation, whereby many accounting academics used to write papers addressed at professionals, with a major informative character and now considered not to be academic.

These facts led us to start a research project to analyse accounting scientific production in Spain, in order to find out what the situation was like before the *LOU* and what changes have taken place in four main areas: a) geographical reach (Spanish or non-Spanish journals), b) orientation of the articles (academic or professional), c) research method (empirical or non-empirical) and d) topics developed by the articles, testing the temporal impact of these law incentives. In short, this paper focuses on a general

¹ Following the spirit of the *LOU*, quality will be based upon the impact factor. The paper does not aim to enter into the debate of what should be considered quality research.

interest related with the following question: do Spanish academics react to publishing incentives? Therefore our two research questions are:

1. Has the new regulation promoted a trade-off between professional and academic articles?
2. Have the new incentives promoted significant changes in research methodologies and accounting areas?

Our main findings show significant differences in accounting academics' behaviour after the approval of the new University law. The orientation of papers has moved from a mainly professional focus towards an academic one. While differences in previous years were not significant, two years after the new law the significant generalized change in research method, from non-empirical to empirical, was accounted for. These changes led to an increase in papers published in international journals, major journals in some cases, and this was the case for all accounting areas. Finally, changes in preferences for accounting topics due to the new regulation do not appear to be significant. However, we have also detected some undesirable effects of the new regulation based on the reduction of total number of authors and total number of papers per year, This effect concentrates on professional papers. The structure of the paper is as follows: first, a review of the literature is provided. Second an explanation of the Spanish accounting research context for the 1996-2005 period is presented. After that, the database is described, which consists of 1,245 papers. Then, some results will be provided to answer the questions defined in this summary. The paper concludes with a synthesis of the main conclusions.

Literature review

Literature on accounting research development is numerous and difficult to summarize. In very general terms, it could be said that, while in the 80s and 90s accounting research was concerned with the methodology and development of accounting topics, there is now a growing concern for publishing patterns, influential papers and quality indicators, stemming from the fact that most institutions will establish promotions based on the number or quality of published papers. This concern is nothing new, as there were papers published in 1985 (see for example Brown & Gardner, 1985) that focused on quotation analysis as an evaluation of research contributions. However, it was not until recent years that an important increase in the number of papers dedicated to the research process, accounting knowledge production and the governance of accounting academia was detected. As a clear example of these circumstances, we could mention the 2008 special issue of the *European Accounting Review* journal that was devoted to the debate on editorial policies, quality journals and indicators, promotions and networks in accounting.

We have structured the review into different categories in consideration of the approach of the papers. First, we have descriptive papers on general accounting research as Brown & Griffin (1983), Williams (1989), Bricker (1989), Chung, Pak & Cox (1992), Merino (1993), Reiter & Williams (2002) or more recently Napier (2006), to mention just a few. Most of these seek to define a general research pattern, often providing some trends and perspectives. This category would also include papers focusing on accounting research for some specific topic as a first subcategory. Papers on management accounting research are the most frequent, followed by papers on disclosure research, capital markets, history, auditing or accounting choice. Social

accounting also appears to be an increasing interest area. Some examples of this subcategory would be Libby & Lewis (1982) or Mathews (1984) for social accounting, Harrison & McKinnon (1999), or Zimmerman (2001) for management accounting, Dye (2001) or Verrechia (2001) for disclosure or Kothary (2001) for capital markets. We would also like to consider a second subcategory, papers dedicated to methodology, but not in a comparative way (apart from Sundem, 1987) but mostly dedicated to some particular method, presenting advantages or disadvantages and giving sometimes interesting clues for improvement. The methods analyzed are generally highly specific and could be included in some wider classifications. Some examples would be Beaver (1982) for market based empirical research or Sprinkle (2003) for experimental research. Finally, a third subcategory could be considered here that is related to the study of accounting research for a country and a time period. Some examples can be found in Cañibano & Gonzalo (1997) and Larrinaga (2005) for Spain and Paysey & Paysey (2005) for the UK.

A second group of papers are those focused on a journal or a group of journals (basically major journals) analysing the main authors or papers, contributions of the journal to accounting knowledge or general evolution. These are basically descriptive and do not enter into quality considerations (which we will consider afterwards). Focusing on just one journal, we have for example Dickman & Zeff (1984) for Journal of Accounting Research, Brown, Gardner & Vasarhelyi (1987) for Accounting, Organizations and Society or Falk (1989) for Contemporary Accounting Research. For several journals, mostly the major ones, we must cite Lukka & Kasanen (1996), Brown (1996) or Bonner, Hesford, van der Stede & Young (2006).

A third category, and one that is far less numerous than the previous ones, would include papers related to the behavioural aspects of accounting research. Papers in this category refer to accounting academia, academic elites and the networks or behaviour of participants in the research processes (from authors to editors, sometimes even describing the profiles of successful accounting authors). Our paper would form part of this category, although we focus on the special effect of a change in regulation and the researchers' reactions to legal incentives. We can also find papers referring to the political aspects of accounting research such as, for example, Casanueva, Escobar & Larrinaga (2007).

And a fourth and final category would include papers focused on research quality such as Jones, Brinn & Pendlebury (1996), Carmona, Gutiérrez & Camara (1999) or Chow (2007). This category also includes papers on the debate about using impact factors as quality indicators.

There are also highly interesting accounting research papers that were not included in the previous paragraphs, such as replication research papers, the impact of non serial published production and many other interesting topics that are not so widely represented in the literature.

Spanish context

The Spanish context in the years of this study was conditioned by two regulatory schemes. On the one hand, the accounting regulation, and, on the other, the academic career. In 1991, and due to the European harmonization process, the Spanish government enacted a new Spanish GAAP (*PGC, Plan General de Contabilidad, Real Decreto 1643/1990 de 20 de Diciembre*). The previous accounting standards dated from

1973, but were not compulsory, and firms generally did not follow them. It was therefore an important change and, as a consequence, much information and education had to be provided, because professionals did not know about the new accounting standards and had little experience of proper accounting systems.

This educational task was carried out mainly by university accounting scholars, as part of their research activity, which was addressed by their publications in professional journals and books and, only in a small number of cases, academic journals. The primary task was to find out about and raise awareness of the new accounting regulation, offer some interpretation of the rules and explain accounting concepts at a basic stage. Thus, this research stream was mainly oriented towards country-level professional journals and books.

It is also worth considering the Spanish University context in order to understand the evolution of accounting research. In 1996, the first year of our study, academic careers were regulated by the 1983 *Ley Orgánica de Reforma Universitaria (LRU)*. Most universities in Spain are public, and the government regulates access and promotion to permanent positions. In 1983, the main priority for the Spanish University system was to teach the increasing number of students attending University in the years when economic growth in Spain was converging with the rest of Western Europe. Thus, the priorities were clearly established because the main faculty activity was teaching.

However, things have changed a lot since then. Demographic changes (essentially a decrease in the birth rate) gradually reduced the number of university students, and teaching activities become less important. Meanwhile, research became more important in the social sciences in general and in accounting in particular. New times require new

regulations, and so, in 2001, a new law upgraded research at Spanish universities, and some incentives were defined.

Before 2001, the only possible way to hold a permanent position at University was by becoming a civil servant, i.e. once any candidate had his/her PhD, he/she had to wait until some University (usually the same University to that where the doctoral student had previously taken his/her courses) offered the possibility of a permanent position to any candidate fulfilling the requirements, which at that time basically meant having a PhD. The university offering the position officially announced a competition for posts and all candidates had to go through an evaluation process consisting of two main stages: a CV selection and a lecture.

The candidate who demonstrated the best skills would get the job. It was a kind of endogamic process because the university offering the job proposed 3 members of the five forming part of the tribunal. The promotion to higher categories was similar. Research incentives were scarce, because wages depended basically on the category and this depended on the promotion, in most cases evaluated by the same university that the candidate was at.

In December of 2001, with the new Law, the situation changed completely. Permanent positions would only be accessible to scholars that were positively evaluated by national or regional institutions and in accordance with a new criterion for assessment, in which research carried more weight than teaching activities (mainly, 60% vs. 30%). Research is evaluated by international standards, mainly considering publications in refereed journals indexed in well-known rankings with a clear academic orientation. Universities can select their permanent personnel from among the favourable evaluations, using any

trial system they decide to propose. Access to higher categories (the main way to increase wages) follows a similar process, but this is even more focused on research.

So, the new Law in 2001 introduced powerful incentives to promote and change the orientation of Spanish research, addressing it towards academic interests in international journals in substitution of professional and national ones. In this framework, the objective of this study is to test whether these changes have been significant, what the temporality of the change has been and, finally, its effect on research strategies.

Data

The first stage of our research consisted of describing accounting scientific production authored by Spanish academics for the 1996-2005 period. We chose this period because we do not have enough data before 1996, and our information is also incomplete after 2005. But our findings suggest that data are temporally stable both before and after this date. As for scientific production, we have only considered published papers. Although we would have liked to have also considered books and working papers we found ourselves limited by the assessment of their quality.

Our basic unit of analysis is the Spanish accounting teacher who between 1996 and 2005 published at least one article in a journal included in the INRECS (a well known Spanish ranking for social science journals). We therefore find ourselves with a database including 1,245 papers.

We have classified each paper as professional or academic, depending on the orientation of the journal in which it was published. The first selection criteria was to look at the content of the 'aims and scope' of the journal and, if that was not enough, we would consider double peer review as a second option. Journals whose objectives were too

imprecise but that had double peer review would be considered academic. Journals classified as professional (PRO) were addressed at accountants or business professionals (or public administration professionals) in order to help them to develop their task, basically of a normative orientation (i.e. explaining some new accounting standard), or with an informative or educational mission (i.e. what is the Balanced Scorecard). These journals can have also some positive or descriptive approaches to explain certain situations, but the analysis must not be complex. Journals classified as academic (ACA) are mainly addressed at the research community, and reflect positive approaches that try to explain reality, sometimes with complex analytical or empirical methods or conceptualizations.

The papers have also been classified into topics and research methods. In terms of the topics, we took our starting point to be the Sundem (1987) classification and adapted it in consideration of the one proposed by the 31st Annual Congress of the European Accounting Association (EAA). We believe that the EAA taxonomy is more complete than Sundem's classification, because it splits up the most numerous category, financial accounting, and does not consider "research method" and "professional papers" to be topics as he does. We then adapted the EAA classification to the Spanish context, including an area called Non Accounting papers (NAC).

All of the papers were classified into one of the categories. As, due to a lack of consistency, there was a chance of bias in the results, the task was performed by the same person. However, regular meetings to comment on the issues and methods for solving problems were planned. A paper belonging to two or more different areas was to be classified, if possible, in accordance with the journal (Table 1).

[Table 1]

As for the research methods, the starting point was also Sundem's proposal and we then made some changes, eliminating the categories of capital markets and empirical method, the former because we consider it to be a topic and the latter because we classified papers into empirical and non empirical. We also included new methodologies (Table 2).

[Table 2]

So, we first classified each paper as professional or academic and then we included each of them in a topic and research category. We also classified them as national or international papers depending on the journal, in order to test whether researchers also changed their submission preferences.

Results

Professional vs. academic orientation

Our first results show that, for the period considered, there is a significant trade off between professional and academic papers. Spanish accounting researchers have clearly moved from professional towards academic research².

² In this study we work with categorical variables (orientation, year, country, research method and areas). Thus, a bi-variable analysis based on contingency tables and Pearson χ^2 is the most appropriate. We could have also considered some multivariate analysis, such as logistic or probit regression, where the dependent variable was orientation (professional or academic). But the independent variables and their interactions are numerous (i.e.: interaction of year with area and empirical or non empirical method are a total of 260 variables = 10 years x 13 areas x 2 methods), with multicollinearity problems arising that are difficult to solve. Even so, we have performed this analysis, but only regressing dependent variables in

[Table 3]

This difference is significant at a 0.01 level, as we indicate with Pearson χ^2 . As shown in Table 3 Panel A, in 1996, 45% of the papers were academic while in 2005 we find 70%. The distribution of the total number of papers shows us how 2003 was the most productive year. For academic papers, 2003 was also the most productive while for professional papers it was 2001, with a gradual decrease afterwards.

To test when the difference between professional and academic papers was significant we used Table 3 Panel B. Each cell has the significant value of a Pearson χ^2 (we have omitted cells with non-significant χ^2 values), built with a table where we consider the academic and professional papers between the two indicated years. For example, the cell that corresponds to the 1996 row and 2003 column has a Pearson χ^2 value of 11.2 (significant at a 0.01 level). We have obtained this value from a table where the columns are the years 1996 and 2003, and the rows are academic and professional papers for these two years. Thus, in accordance with Table 3 Panel A, in 1996, 45% of papers were academic and 55% professional, and in 2003, 66% were academic and 34% professional. The results in Table 3 Panel B show that the difference between these two years for professional and academic papers was significant. For omitted cells no significant difference is found between academic and professional papers between the two considered years.

So, in Table 3 Panel B we can identify 2003 as being the first year in which academic papers presented significant differences from professional ones. In this year, there were

one case with years, in another with research method and in another with areas. The findings are similar to those we have obtained, although not as clear.

more academic papers than professional ones, considering previous years. This also happens with 2004 and 2005. However, 2003 does not present significant differences from 2004 or 2005 and 2002 does not present significant differences from previous years. Thus, we can affirm that 2003 was the year in which the orientation of the papers significantly changed from professional to academic, two years after the new University law.

Table 3 Panel C shows the percentage papers published in Spanish and non-Spanish journals. We need to note that all the non-Spanish journals are classified as academic. In this table, we can identify that the number of papers in non-Spanish journals significantly increased over time (2% in 1996 to 15% in 2005). Table 3 Panel D is built in a similar manner to Table 3 Panel B, considering Spanish and non-Spanish journals. Observing this table, we can conclude that 2004 was the first year (except in 2002 and 2003 vs. 1996) where the different proportion between Spanish and non-Spanish journals were significant. 2005 also presents significant differences from previous years, except for 2004. The findings are not as conclusive as in Table 3 Panel B, because non-significant differences are now found between 2002 and later years. But we can moderately support the hypothesis that in 2004, two years after the Law, Spanish accounting researchers consolidated a significant difference, starting in 2002, between papers published in Spanish vs. non-Spanish journals, although the percentage of papers published in non-Spanish journals was still comparatively very low (15% in 2005, vs. 2% in 1996).

Research method used

We first classified our methods as empirical and non empirical as shown in Table 4 Panels A and B.

[Table 4]

We can observe in Table 4 Panel A that papers with an empirical method increased in importance from 26% in 1996 to 50% in 2005. This difference is significant for the period considered. In Table 4 Panel B we can see which year the change was most significant. We can observe that in 2003 there were in some cases significant differences from previous years, but 2004 presents significant differences from all previous years, except for 2003 in some cases. So, we can conclude that differences between empirical and non-empirical methods started to be significant in 2003 and that in 2004 the change was consolidated. In 2005, the same number of papers used empirical and non-empirical research methods.

To complement the research method question, we can observe Tables 4 Panels C and D, where we consider the main Spanish researchers' methods and their trends over time. The most representative research method for the period considered is theoretical (41%) followed by statistical (28%) and deductive (20%). These results are consistent with the data we have as most of the papers published in this period went to Spanish journals that traditionally publish professional works, where theoretical and deductive methods (non-empirical) are mostly used. But we can observe a trend over time, whereby theoretical and deductive methods decreased and statistical and other methods (mainly empirical, see Table 2) increased in importance. Table 4 Panel D shows how the significant changes started in 2002 and were consolidated in 2004. In additional analysis

not shown, we detected that the significant change occurred in the year 2004 with respect to previous years, both for deductive and statistical methods.

Finally, we looked for a relationship between research methods, orientation and publishing policy. We have summarized our findings in Table 4 Panel E, considering only two years: 2001 and 2004, before and after the significant changes took place. In the first column, we can observe significant differences in 2001 and in relation to the percentage of academic and professional papers only for deductive, statistical and empirical research methods. 61% of empirical, 57% of statistical and only 6% of deductive papers are academic. In the second column, referring to 2004, all differences between academic and professional papers related with research methods are significant. We can note that 91% of statistical papers are published in academic journals as opposed to only 27% of deductive papers. As for the relationship between research methods and the country of publication, we note that 100% of deductive papers are published in Spanish journals, and the difference in 2001 was only significant for statistical and empirical papers, which were aimed at non-Spanish journals in a higher percentage than the papers that use other research methods.

Relating orientation and research methods with topics

Now, we take a look at the papers distributed by year and topics. As we have not found differences in the analyzed topics considering annual changes (only 1998 year shows significant differences with 2001, 2002, 2003 and 2005; and 2003 year with 2000 and 2002), we have built the graph 1, in which we compare the mean of the years 1996-1997 (the starting years) with the mean of the 2004-2005 period (the final years), to

identify some mid-term trends in the analyzed period respect topics in the accounting area.

[Graph 1]

If we have a look at the most representative topics, we can see that at the initial period, financial analysis (15%), accounting method choice (13%) and public sector (12%) were the most important. At the end of the period, Financial Reporting (13%) Non Accounting (13%) and accounting method choice (11%) are the most representative. It is interesting to highlight the increment in Financial Reporting research, consistent with the topic statistics offered by the European Accounting conferences.

If we analyse topics with considerable changes, capital markets is the one increasing more. Although it is still a very little representative area, the substantial change is also consistent with the tendency of accounting research to get closer to finance. Financial reporting, auditing and accounting education are also increasing while financial analysis, tax, public sector, accounting method choice and accounting theory are decreasing, consistent also with the change in the research strategy of academics. As for management accounting (8%) or international accounting (6%) they keep constant along the period.

In a general way we can say that topics seem to move towards more typically empirical areas (see for example financial reporting) in detriment of areas like accounting theory

or tax most devoted to professional papers, , although in any case differences between initial and final years are significant (except in the case of financial analysis, with a level of 0.08%).

In table 5, for each area, we present information about the percentage of academic papers, papers in non-Spanish journals and papers with empirical methods. For each of these characteristics, we present the mean of the two first and later years, to mitigate bias due to any extreme data for one particular year, the mean differences, if there is an increase or a decrease in the chosen characteristics for the considered means and the first year when we detect differences between categories (i.e. % of academic vs. professional papers). Areas are ranked from greater to lesser increase in the percentage of academic papers.

All areas had an increased percentage of academic papers apart from accounting theory and capital markets. In some cases the increase is very significant (+72 points in the case of the auditing area). So, we can observe that for some areas it was easier to trade off from a professional to an academic orientation, although we can consider that in some cases the starting point was very low (i.e.: for auditing, tax and accounting method choice areas). We have also indicated the year where change occurred when it is significant, with 2003 being the key year for the change in the areas where significant differences exist.

[Table 5]

We can also relate each area with the percentage of papers published in non-Spanish journals. In all cases there is an increase, although we need to consider that the initial situation was 0% in most cases. The proportion of the increase was different between

areas, with large values for such areas as auditing, public sector, others or international accounting. Although without statistical significance, 2004 seems to be the year when change occurred, but only in four areas.

Finally we consider area and empirical or non-empirical method. Only in two cases (tax and, obviously, accounting theory area), was there no increase in the percentage of empirical studies. Although without significance, 2003 and 2004 were the first years with significant differences between empirical and non-empirical methods. Some areas changed their research method before others (financial reporting, non-accounting papers and accounting method choice). The amount of the increase is also variable, but the areas with more shifts to academic papers and more foreign orientation generally show greater increases in their empirical research orientation (non accounting, auditing, management or others). In the final column we indicate the greater research starting method and the direction of the change when it is possible to detect a trend (although without statistical significance). In general, the empirical destination method is the statistical method, but in some cases we have found that other empirical methods increased in importance, as is the case with the public sector, others and management areas (case and survey methodologies).

Undesirable effects of the new Spanish University Law ((2001 Organic University Law, LOU)

The favorable effects of the Spanish 2001 LOU (increasing number of academic and foreign oriented papers, with change to statistical methodology) have their counterpart in the fact that the total number of publications has decreased (Table 3, Panel A) in both

academic and professional areas. This fact is more remarkable if we consider that the number of academics has increased in the considered period.

To extend this analysis we have incorporated the impact-index of each publication using the Harzing's Publish or Perish (PoP) tool, a software program that retrieves and analyzes academic citations. It uses Google Scholar to obtain the raw citations, then analyzes these and calculates a series of citation metrics. For complete information, in the web http://www.harzing.com/pop_gs.htm, are explained the advantages and limitations of using Publish or Perish in front of other databases, as Thomson ISI Web of Science. In our case, the use of the PoP database is practically compulsory, since most of papers we analyze are published in Spanish, and we do not know any other tool allowing us to homogenize the impact of papers in different languages. The citation metrics we employ is the age-weighted citation rate (AWCR); that measures the number of citations of a paper adjusted for their age – (Bihui, 2007).

We have considered papers without information in PoP as papers without citations, because in most of cases they are papers published in Spanish little known journals. In our sample, 68% of the analyzed papers do not have citations (AWCR = 0), and correspond mainly to Spanish (97%) and professional journals (54%). There are high correlations between academic papers (40%) and non-Spanish journals (75%) with the papers with positive AWCR-index (significant χ^2 in both cases). The advantage of using AWCR index instead of the academic / professional classification is that it is an objective measure of the quality of the paper and allows having a quantitative variable. On the other side, relatively few papers in our sample present values for AWCR-index (32%). For these papers, 65% are classified as academics, with a median-AWCR of 0.3, significant higher (Wilcoxon test) than the mean for professional papers (0.14). The

Spanish papers have also a median significant lower than the non-Spanish papers (0.18 vs. 1.22).

[Graph 2]

We have analyzed with more detail in which kind of publications the LOU has an undesirable effect. In Graph 2a we have divided the papers with positive AWCR in quartiles (quartile 1 collects the papers with lowest impact, and quartile 4 with the highest). We can observe that papers in quartile 1 are zero after 2001 (the starting LOU year), quartiles 2 also decreases in 2003 to a value of zero en 2005, and quartile 3 are reducing their importance since 2000. On the other hand, papers in quartile 4 are increasing since 2000. We can interpret these findings considering that papers have improved their impact, especially since 2001. If we consider accumulate data two years before and after 2002 (years 2000-2002 and 2003-2005, because LOU was approved in December 2001), changes in these two periods for quartiles 1 (decrease the number of papers) and 4 (increase the number of papers) are significant, but not for quartiles 2 and 3.

In the Graph 2b we show new information for the periods pre- and post-LOU. We have calculated the total number of the papers for these two periods, the total impact measured by the AWCR sum and the impact by paper. Findings show that while the number of papers is approximately the same, their impact has a statistical significant increase, and also the impact for paper.

In the Graphs 2c and 2d we have analyzed the number of authors, total papers and papers by author in the pre and post-LOU periods. We have found important differences in these two sub-samples. The number of authors that publish academic papers has

increased, while the authors that publish professional papers have decreased. More than this, the increase rate of academic papers exceed the increase rate of authors, and thus the number of academic papers by author, that we can interpret as productivity, has increased from 3.9 to 4.0 (approximately one paper by year). On the other side, productivity for authors that publish professional papers has decreased from 3.9 (similar to the pre-LOU productivity for academic papers) to 3.4. The number of professional papers has decreased more than the number of authors that publish these papers.

Conclusions

In this study we have analysed papers authored by Spanish accounting academics for the 1996-2005 period in a search to find the impacts caused by the change in Spanish university regulation. In 2001, the new Spanish University Law introduced as a key factor for promotion the assessment of scholars' research output, indicating explicit reference to papers published in academic journals as being an impact factor. We have studied whether the new regulation has had any impact on the faculty's research activity, on their chosen methods and topics and on their publication policy. Our main conclusions are:

1. There has been a major trade-off between professional and academic papers due to the new regulation. Two years after the law, the differences between the number of academic and professional papers was significant. In 2005, 70% of the papers were of an academic orientation, as opposed to 49% in 2002. This was only to be expected. With the new requirements for academics, basically taking into account scientific papers, researchers may not be particularly motivated to try to publish in journals that are not considered scientific or that

are not well scored in terms of quality. We therefore conclude that in the university system, incentives to produce more academic research critically depend on the legal rules.

2. New legal requirements have caused significant changes in the methods used by researchers. In the time period considered, authors have tried to meet academic journals' requirements by moving from non-empirical to empirical methods. We found the most significant change to have occurred in 2004. However the transition was not the same for all. Researchers already working with statistical methods found it easier to access academic papers in comparison to those who were working in deductive or theoretical research.
3. In 1996, most papers were professionally oriented (55%, without significant differences from academic papers), mainly published in Spanish journals (90%) and non-empirical (74%). Spain's final situation in 2005 differs from the initial one. The number of papers had increased along with their academic orientation (70%), their orientation to non-Spanish journals (15%) and the empirical method (50%). In the internationalization process, some methodologies have proven to be more easily exported than others.
4. We have detected that some methodologies (empirical and, especially, statistical) are more associated to publishing in academic and non-Spanish journals, which are more highly valued in terms of promotion. Non empirical methodologies are more associated to professional orientation. Methodological change implies more academic orientation, without differences between areas, as we observe in the way the proportion of topics in the total-Spanish-accounting research has been relatively stable over time. Spanish researchers in accountancy

have not changed their area, but their research method, and this change has been different depending on the area, achieving more academic orientation and responding to the legal incentives in a relatively short period of time of between one and two years.

5. The total number of papers published grows continuously from 1996 to 2003 and then drops in 2004. Our data leads us to believe that accounting academics are probably moving from quantity to quality due to the new requirements of University careers and research policies. While LOU has been clearly positive for academic papers, we have found some undesirable effects. The number of academics that publish and the total number of papers has diminished. This effect affects exclusively professional papers, because there is a strong incentive to publish in academic ones. Productivity for professional papers (papers by author) also reduces, because academics may consider this activity as residual. As a consequence, the transmission of knowledge from university to professionals may be reducing, because academic journals have a limited distribution directed mostly to the academic world.

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TABLES

Table 1. Taxonomy and related topics for the contents

| Topics in Sundem 1987 | Topics in EAA (31th Annual Congress) | Our proposal for Spanish topics | Descriptors of our proposal |
|-----------------------------------|--|--|---|
| Audit | Auditing | (AUD) Auditing | Papers on audit |
| Financial Accounting | Financial Accounting (capital markets) | (CMA) Financial Accounting (Capital markets) | All papers related to the effect on the market of prices of some accounting aspects (disclosures, business valuation, ...) |
| | Financial Statement Analysis | (FAN) Financial Statement Analysis | Works on analysis. Includes efficiency papers, such as DEA, and insolvencies papers. Also include papers on distribution of dividends and consolidation (based on annual accounts) |
| | Financial Reporting (accounting method choice) | (FRG) Financial Reporting (AMC) Financial Accounting (Accounting method choice) | Papers about disclosure practices and reasons for it Papers related to accounting policies, conservadurism or accounting manipulation. Includes also accountancy sector studies. |
| International Accounting | International Financial Accounting | (INA) International Financial Accounting | Country comparisons or non-Spanish accounting papers |
| Managerial Accounting | Management Accounting | (MAN) Management Accounting | Papers on management accounting, internal reporting, contractual relationships (agency). Includes also DEA with internal data |
| Taxation | Taxation and Accounting | (TAX) Taxation and Accounting | Papers on tax |
| Non-profit/Government | Public Sector and Not-for-profit Accounting | (PSA) Public Sector, Not-for-profit Accounting and Social and Environmental Accounting | Studies on public sector and papers focused on corporate social responsibility or environmental and social accounting |
| | Social and Environmental Accounting | | |
| | Accounting Education | (AEH) Accounting Education and History | Papers related to education in accounting, including surveys on teachers and bibliometric analysis, and papers about history |
| | Accounting History | | |
| | Accounting Theory | (ATH) Accounting Theory | Theoretical papers. Can be analytical but not empirical. Can also be professional but not developing a specific standard accounting |
| Analytical Research in Accounting | (OTH) Others | Other papers in accounting topics | |

| Topics in Sundem 1987 | Topics in EAA (31th Annual Congress) | Our proposal for Spanish topics | Descriptors of our proposal |
|-----------------------|---------------------------------------|---------------------------------|-----------------------------|
| | and Auditing | | |
| | Critical Perspectives on Accounting | | |
| Information Systems | Accounting and Information Systems | | |
| | Corporate Governance (and accounting) | | |
| | Organizational and Behavioral Aspects | | |
| Not defined | Miscellaneous | | |
| Others | | | |
| Professional | | | |
| Research Methods | | | |
| | | (NAC) Non accounting | Papers not in Accounting. |

Table 2. Taxonomy for the research methods

| Research methods in Sundem 1987 | Research methods in EAA (31th Annual Congress) | Our proposal for research methods in Spain | | |
|--|---|---|---|---------------|
| Statistic Models | Empirical Archival (database or archive) | (STA) Empirical and quantitative data (i.e.: from a database), with statistical treatment | | Empirical |
| Historical Method | | | Data from historical archive | |
| Survey | Empirical Survey | | Data from empirical survey | |
| Case Studies | Empirical Field (case) study | | Data from case study. Non historical | |
| Simulation Method | Empirical Experiment | (OTH) Others | Data from empirical experiment, no real data | |
| Behavioral Method | | | Data from experiment trough analysis of individual's behavior in laboratory (BEH) | |
| Analytical Models | Non-Empirical: Analytical | | Analytical studies (with mathematical formulation). Non empirical | Non empirical |
| Economical Models | Non-Empirical: Theory | (THE) Non-Empirical data: Theory about accounting topics | | |
| Deductive Method | | (DED) Non-Empirical: Deductive. (It deduces normative application or give an opinion) | | |
| Others Methods | Other | | | |
| Empirical Method | | | | |
| Capital Markets | | | | |
| Unclassified | | | | |

Table 3. Papers by orientation, country and years

Panel A. Number of papers by orientation (academic or professional) and years

| | | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
|----------|---|------|------|------|------|------|------|------|------|------|------|-------|
| ACADEMIC | n | 45 | 45 | 33 | 67 | 50 | 58 | 75 | 115 | 81 | 74 | 643 |
| | % | 45% | 47% | 37% | 45% | 50% | 38% | 48% | 66% | 68% | 70% | 52% |
| PROFESS. | n | 55 | 50 | 57 | 83 | 51 | 96 | 80 | 60 | 39 | 31 | 602 |
| | % | 55% | 53% | 63% | 55% | 50% | 62% | 52% | 34% | 33% | 30% | 48% |
| TOTAL | n | 100 | 95 | 90 | 150 | 101 | 154 | 155 | 175 | 120 | 105 | 1,245 |

Pearson $\chi^2 = 67.2^{***}$

Panel B. Significant values of Pearson χ^2 , comparing number of papers with academic and professional orientation, between each pair of indicated years (omitted years with non-significant χ^2 values).

| | 2003 | 2004 | 2005 |
|------|---------|---------|---------|
| 1996 | 11.2*** | 11.2*** | 13.6*** |
| 1997 | 8.5*** | 8.8*** | 11.1*** |
| 1998 | 20.3*** | 19.7*** | 23.3*** |
| 1999 | 14.5*** | 14.0*** | 16.6*** |
| 2000 | 7.0*** | 7.4*** | 9.4*** |
| 2001 | 25.8*** | 24.0*** | 20.9*** |
| 2002 | 10.1*** | 10.1*** | 12.4*** |

**Significant at the 0.05 level (p-value < 0.05)

***Significant at the 0.01 level (p-value < 0.01).

Panel C. Percentage of papers in Spanish and non-Spanish journals by year. (Total: 1,238 papers)

| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
|----------|------|------|------|------|------|------|------|------|------|------|-------|
| Spanish | 98% | 96% | 96% | 94% | 95% | 94% | 90% | 91% | 86% | 85% | 92% |
| Non-Spa. | 2% | 4% | 4% | 6% | 5% | 6% | 10% | 9% | 14% | 15% | 8% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

Pearson $\chi^2 = 26.1^{***}$

Panel D. Significant values of Pearson χ^2 , comparing number of papers in Spanish and non-Spanish journals, between each pair of indicated years (omitted years with non-significant χ^2 values).

| | 2002 | 2003 | 2004 | 2005 |
|------|-------|-------|---------|---------|
| 1996 | 6.4** | 4.7** | 10.2*** | 11.2*** |
| 1997 | | | 5.9** | 6.7*** |
| 1998 | | | 5.4*** | 6.1** |
| 1999 | | | 5.1*** | 5.9** |
| 2000 | | | 5.1** | 5.9** |
| 2001 | | | 4.5** | 5.2** |

**Significant at the 0.05 level (p-value < 0.05)

***Significant at the 0.01 level (p-value < 0.01).

Table 4: Papers by research methods and years

Panel A. Empirical and non-empirical methods and years (Total: 1,238 papers)

| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
|-----------|------|------|------|------|------|------|------|------|------|------|-------|
| EMPIRICAL | 26% | 33% | 29% | 32% | 38% | 37% | 35% | 43% | 50% | 50% | 38% |
| NON-EMP. | 74% | 67% | 71% | 68% | 62% | 63% | 65% | 57% | 50% | 50% | 62% |

Pearson $\chi^2 = 29.7^{***}$

Panel B. Significant values of Pearson χ^2 , comparing number of papers with empirical and non-empirical method, between each pair of indicated years (omitted years with non-significant χ^2 values).

| | 2003 | 2004 | 2005 |
|------|--------------------|---------------------|---------------------|
| 1996 | 8.2 ^{***} | 13.2 ^{***} | 12.9 ^{***} |
| 1997 | | 6.5 ^{**} | 6.5 ^{**} |
| 1998 | 5.3 ^{**} | 9.5 ^{***} | 9.4 ^{***} |
| 1999 | 4.5 ^{**} | 9.0 ^{***} | 8.8 ^{***} |
| 2001 | | 4.6 ^{**} | 4.6 ^{**} |
| 2002 | | 5.8 ^{**} | 5.8 ^{**} |

Significant at the 0.05 level (p-value < 0.05). *Significant at the 0.01 level (p-value < 0.01).

Panel C. Number of papers by different research methods and years (THE: Theory; STA: Statistical; DED: Deductive; OTH: Others)

| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | Total |
|-----|------|------|------|------|------|------|------|------|------|------|-------|
| THE | 49% | 41% | 46% | 42% | 38% | 40% | 51% | 39% | 38% | 30% | 41% |
| STA | 21% | 22% | 22% | 21% | 32% | 27% | 25% | 36% | 39% | 31% | 28% |
| DED | 25% | 26% | 26% | 25% | 25% | 22% | 13% | 18% | 9% | 17% | 20% |
| OTH | 5% | 11% | 7% | 12% | 6% | 11% | 12% | 7% | 13% | 21% | 11% |

Pearson $\chi^2 = 66.1^{***}$

Panel D. Significant values of Pearson χ^2 , comparing number of papers with different research methods, between each pair of indicated years (omitted years with non-significant χ^2 values).

| | 2002 | 2003 | 2004 | 2005 |
|------|--------------------|-------------------|---------------------|---------------------|
| 1996 | 8.3 ^{**} | 8.4 ^{**} | 19.6 ^{***} | 18.0 ^{***} |
| 1997 | | | 14.6 ^{**} | 8.5 ^{**} |
| 1998 | | | 16.0 ^{**} | 13.0 ^{***} |
| 1999 | | 9.8 ^{**} | 16.6 ^{***} | 9.4 ^{**} |
| 2000 | 10.5 ^{**} | | 12.0 ^{***} | 10.7 ^{**} |
| 2001 | | | 10.1 ^{**} | |
| 2002 | - | 9.0 ^{**} | 8.1 ^{**} | 11.6 ^{***} |
| 2003 | - | | | 11.3 ^{***} |

Significant at the 0.05 level (p-value < 0.05). *Significant at the 0.01 level (p-value < 0.01).

Panel E. Number of papers by research method, indicating % of them that are published in Spanish journals and % of academic papers in the years 2001 and 2004

| | % of academic papers | | | | % of papers in Spain | | | |
|-------------------|----------------------|-----|------|-----|----------------------|-----|------|-----|
| | 2001 | | 2004 | | 2001 | | 2004 | |
| DED (Deductive) | 6% | *** | 27% | *** | 100% | | 100% | |
| THE (Theoretical) | 33% | | 48% | *** | 100% | | 93% | |
| STA (Statistic) | 57% | *** | 91% | *** | 81% | *** | 74% | *** |
| OTH (Other) | 71% | | 81% | *** | 88% | | 87% | |
| EMPIRICAL | 61% | *** | 92% | *** | 82% | *** | 77% | *** |

Significant at the 0.05 level (p-value < 0.05). *Significant at the 0.01 level (p-value < 0.01). We show significant differences between papers' characteristics (academic/professional or Spanish/non-Spanish in the year' column).

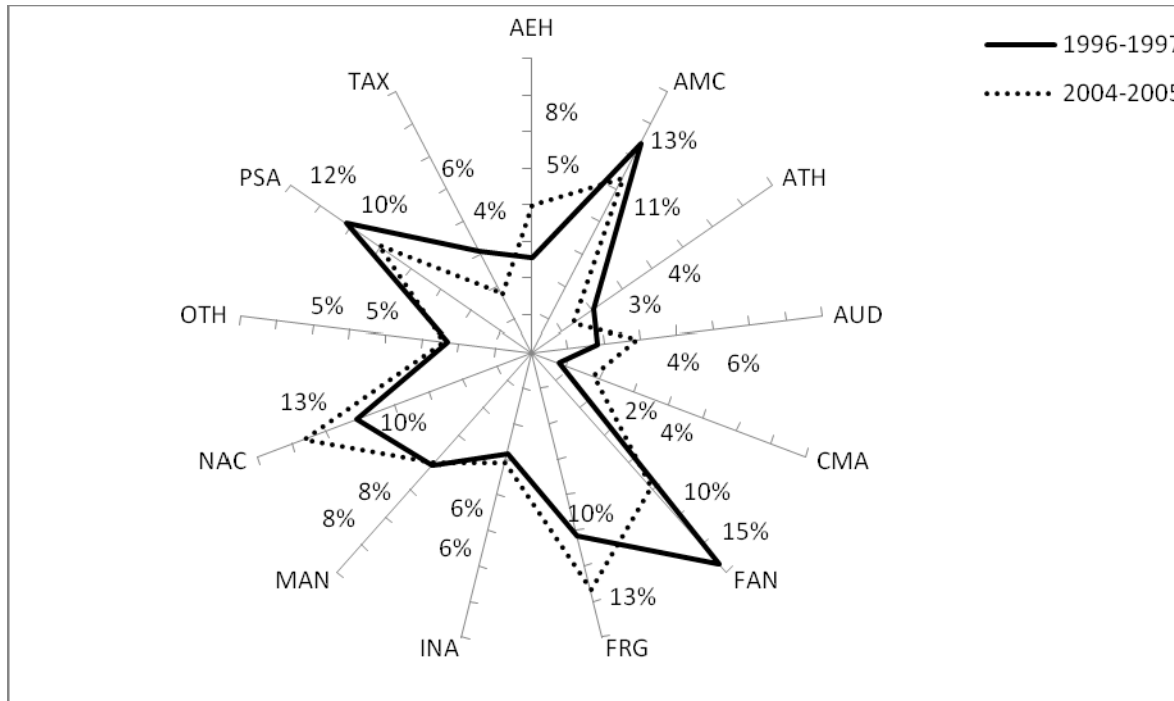
Table 5. Relationship and evolution between areas, orientation, country publication and research methodology

| Area | % of academic papers | | | | | % of papers in non-Spanish Journals | | | | | % of papers with empirical method | | | | | Direction of research method change |
|------|----------------------|----------------|-------|--------|-------------------|-------------------------------------|----------------|-------|--------|-------------|-----------------------------------|----------------|-------|--------|-------------|-------------------------------------|
| | Mean 1996-1997 | Mean 2004-2005 | Diff. | Δ or ∂ | Sign. year change | Mean 1996-1997 | Mean 2004-2005 | Diff. | Δ or ∂ | Year change | Mean 1996-1997 | Mean 2004-2005 | Diff. | Δ or ∂ | Year change | |
| AUD | 12% | 84% | +72 | Δ | 2003 | 0% | 40% | +40 | Δ | 2004 | 42% | 84% | +42 | Δ | 2004 | From DED and THE to STA |
| FRG | 45% | 86% | +41 | Δ | 2003 | 0% | 10% | +10 | Δ | 2004 | 20% | 45% | +25 | Δ | 2003 | From THE to STA |
| TAX | 7% | 47% | +40 | Δ | 2003 | 0% | 0% | 0 | - | - | 14% | 10% | -4 | ∂ | - | From DED to THE |
| NAC | 55% | 93% | +38 | Δ | 2003 | 5% | 8% | +3 | Δ | - | 31% | 44% | +43 | Δ | 2003 | From THE to STA |
| OTH | 33% | 66% | +33 | Δ | - | 0% | 20% | +20 | Δ | - | 0% | 61% | +61 | Δ | 2004 | From THE to OTH |
| AMC | 15% | 46% | +31 | Δ | 2003 | 0% | 12% | +12 | Δ | 2003 | 7% | 24% | +17 | Δ | 2003 | From DED to STA and THE |
| MAN | 25% | 55% | +30 | Δ | 2003 | 0% | 11% | +11 | Δ | 2004 | 6% | 40% | +34 | Δ | 2004 | From THE to OTH |
| FAN | 66% | 93% | +27 | Δ | - | 10% | 13% | +3 | Δ | - | 70% | 87% | +17 | Δ | 2004 | Increase of STA method |
| PSA | 61% | 76% | +15 | Δ | - | 4% | 27% | +23 | Δ | 2004 | 24% | 44% | +20 | Δ | - | From THE to OTH and STA |
| AEH | 80% | 87% | +7 | Δ | - | 10% | 16% | +6 | Δ | - | 80% | 87% | +7 | Δ | - | - |
| INA | 65% | 67% | +2 | Δ | - | 0% | 17% | +17 | Δ | - | 23% | 32% | +9 | Δ | - | From DED to STA |
| ATH | 57% | 50% | -7 | ∂ | - | 0% | 0% | 0 | - | - | 0% | 0% | 0 | - | - | - |
| CMA | 83% | 62% | -21 | ∂ | - | 0% | 12% | +12 | Δ | - | 83% | 62% | -21 | Δ | 2004 | From STA to THE |

Topics: FAN: Financial Analysis; NAC: Non Accounting; AMC: Accounting Method Choice; FRG: Financial Reporting; PSA: Public Sector and Social Accounting; MAN: Management; AEH: Accounting Education and History; AUD: Auditing; INA: International Accounting; TAX: Tax; ATH: Accounting Theory; OTH: Others

Research methods: THE: Theory; STA: Statistical; DED: Deductive; OTH: Others

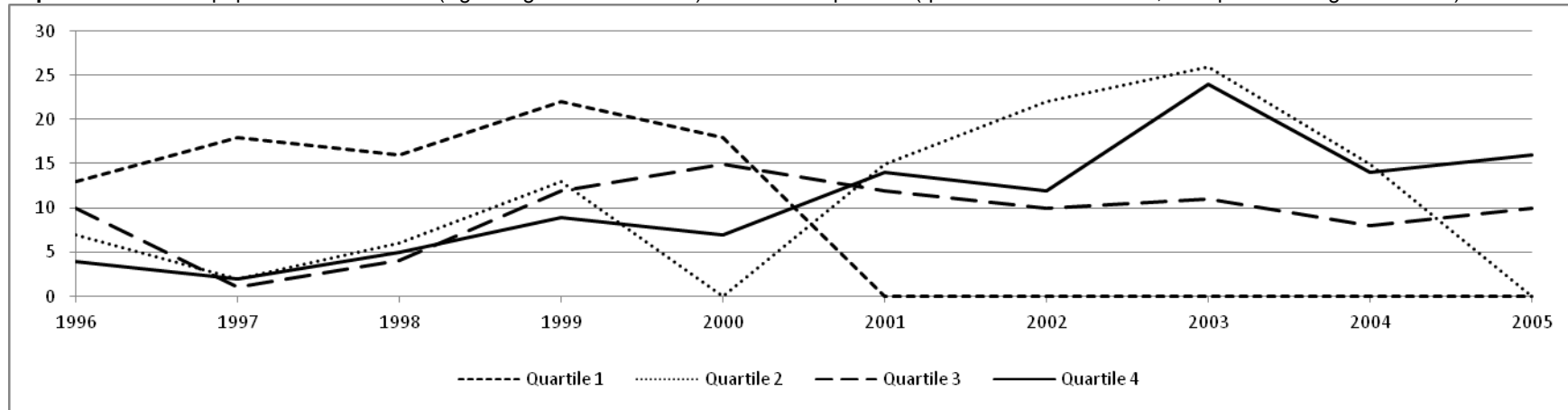
Graph 1. Percentage of papers by topics in the starting and final years of the study (total: 1.245 papers)



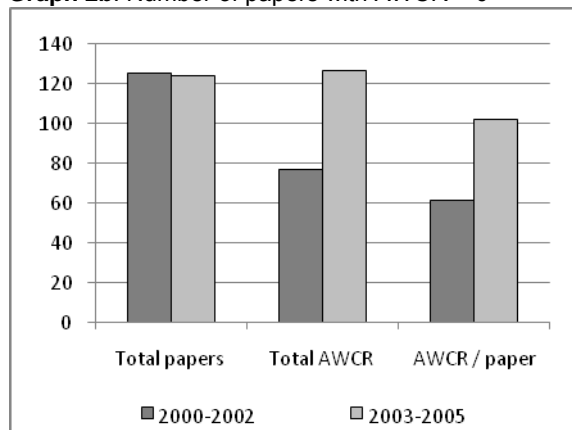
(FAN: Financial Analysis; NAC: Non Accounting; AMC: Accounting Method Choice; FRG: Financial Reporting; PSA: Public Sector and Social Accounting; MAN: Management; AEH: Accounting Education and History; AUD: Auditing; INA: International Accounting; TAX: Tax; ATH: Accounting Theory; OTH: Others)

Graph 2. Papers by author, impact and orientation

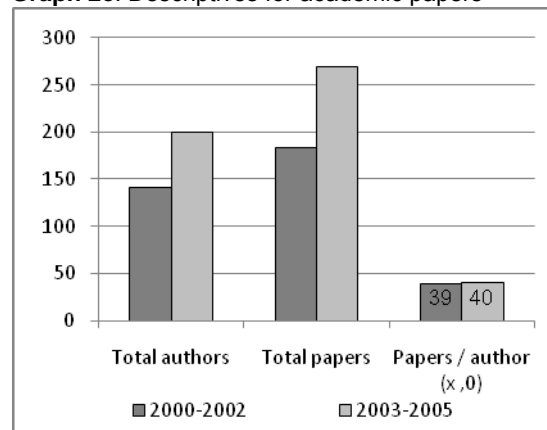
Graph 2a. Number of papers with AWCR > 0 (Age-weighted citation rate) classified in quartiles (quartile 1: lowest AWCR, and quartile 4: highest AWCR).



Graph 2b. Number of papers with AWCR > 0



Graph 2c. Descriptives for academic papers



Graph 2d. Descriptives for professional papers

