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## Which factors drive the decision to boycott and opt out of research rankings? A note

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# DISCUSSION PAPER

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Justus Haucap

November 2012

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# Which Factors Drive the Decision to Boycott and Opt Out of Research Rankings?

## A Note<sup>\*</sup>

Michael Berlemann & Justus Haucap<sup>\*\*</sup>

November 2012

Abstract: This note contains an empirical analysis of the decision of German-speaking business scholars to boycott and opt out of the best known research ranking of business scholars, initiated and published by Germany's largest business daily, *Handelsblatt*. Our analysis indicates that scientists who are more senior (already have a longer academic career) and scientists who have been either less successful or less eager to publish their research in internationally well renowned journals with high impact factors are more likely to boycott the research ranking. In addition, scientists who have already been appointed to a professorship are more likely to boycott the ranking, while academics having obtained a Ph.D. (instead of a German-style doctorate) are less prone to supporting the boycott. Finally, researchers specializing in various more quantitatively oriented subjects (such as finance and operations research) are less likely to boycott the ranking, while researchers in some less quantitatively oriented subjects (such as business organization) are more likely supporting the boycott.

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## 1. Introduction

The evaluation of university departments as well as scientists based on their publication record has become standard in many scientific fields (see, e.g., Graber, Launov and Wälde, 2008; Schulze, Warning and Wiermann, 2008), even though academics have also been critical about various rankings of journals, departments, and individual scientists (see, e.g., Oswald, 2007; Frey and Rost, 2010). In Germany, the public evaluation of scientists based on publication records is a relatively recent phenomenon though, especially in social sciences. Traditionally, there has been relatively little systematic evaluation of researchers, and the rare occasions where evaluations have taken place have traditionally been based on opinions by valued colleagues. Relatedly, social scientists in the German speaking community (Austria, Germany, Switzerland) have only started in the past two decades to increasingly publish in English-language journals on a large scale instead of contributing to collected volumes or writing books (Krapf and Schlöpfer, 2012). While in economics the internationalization process has started in the 1980s, business scholars are trailing behind and many business and management scholars are still struggling with the internationalization process which is currently taking place in the business departments of German universities.

In this environment, *Handelsblatt* – the leading business daily in Germany – started, in 2007, to regularly rank economics departments as well as individual economists based on their publication records. In 2009, the first (and until recently only) research ranking of business departments and scholars in Austria, Germany, and Switzerland was published by *Handelsblatt*. There are separate rankings for business and for economics. The rankings explicitly focus on the scientific contributions of both individual researchers and faculties. In order to construct these rankings, journal articles are weighed firstly by the number of authors (by  $1/n$ , where  $n$  is the number of authors) and secondly by a quality weight  $p$  which depends on the publication outlet. Hence, every author obtains a score of  $p/n$  for every journal article to which (s)he has contributed. While the journal ratings as well as the journal lists differ for business and economics, in principle the most prestigious journals (A+) are given a weight of 1, while the least prestigious journals are given a weight of 0.1 (in business) or 0.05 (in economics), once a journal is listed at all. Books, contributions to books and articles in journals that are not listed are not counted, in general due to a lack of an external screening procedure of these publication outlets by independent and anonymous referees.<sup>1</sup> The quality weight of a journal is, in principle, based on its impact factor.

Without going too much into the details, for the rankings of business departments and scholars the weight of the 947 journals is based on three sources: (1) the journal list published by the Erasmus Research Institute of Management (EIJ), (2) the survey-based ranking issued by the German Academic Association for Business research (VHB-JOURQUAL 2.1)<sup>2</sup> and (3) the list of business and management journals listed in the Social Sciences Citation Index (SSCI) and the Science Citation Index (SCI).<sup>3</sup> Based on these rankings, journals are given weights as summarized in Table 1.

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<sup>1</sup> For a discussion of the merits of the referee system in economics and a documentation of recent trends, see Gans (2000), Frey (2003), Azar (2005) and Ellison (2011).

<sup>2</sup> For details see Schrader and Hennig-Thurau (2009).

<sup>3</sup> For further details (in German) see: <http://www.handelsblatt.com/politik/oekonomie/bwl-ranking/-bwl-ranking-2012-bwl-ranking-2012-methodik-und-zeitschriftenliste/6758368.html>

Table 1: Number of Journals and Weights in the *Handelsblatt* Rankings for Business Scholars

| Weight             | 1.0 | 0.7 | 0.5 | 0.4 | 0.3 | 0.2 | 0.1 |
|--------------------|-----|-----|-----|-----|-----|-----|-----|
| Number of Journals | 19  | 65  | 119 | 128 | 167 | 234 | 215 |

Based on these quality-weighted publication records *Handelsblatt* publishes four rankings for business and also four rankings for economics (based on a somewhat different list of journals):

- (1) The top 25 business (economics) departments in Austria, Germany and Switzerland, based on the aggregate score for the papers published by the department's researchers within the last 10 years,
- (2) The top 250 business (economics) scientists, based on their lifetime achievement,
- (3) The top 100 business (economics) scientists, based on papers published within the last 5 years,
- (4) The top 100 business (economics) researchers under the age of 40.

While the four *Handelsblatt* rankings for economics which have been published since 2007 (the latest one in 2011) have caused relatively little controversy, the rankings of business departments and especially business scholars have caused a major stir within the business scholar community. While economists have (intensely) discussed the quality scores attached to various journals, but, at least in principle, mostly welcomed the rankings, many business scholars have questioned the rankings in general. One argument put forward by many business scholars has been that ranking scientists by their journal publication record will bias incentives towards journal publications away from other valuable activities such as teaching, book publications, or consulting.<sup>4</sup> Even though, in stark contrast to other research evaluation systems such as the UK's Research Excellence Framework (REF), no direct funding is at stake, the departments' and scientists' prestige and the status among their peers may be affected by the *Handelsblatt* rankings. Another criticism has been that a lot of highly innovative research may not find its way into highly ranked journals exactly because of its innovativeness. Hence, the rankings would provide strong incentives to focus on mainstream research.

When a new business ranking was announced to be published in September 2012, two retired business professors, Alfred Kieser (Zeppelin University Friedrichshafen) and Margit Osterloh (University of Zurich), initiated a boycott of the ranking and asked fellow scientists to withdraw from the rankings by declaring *vis-à-vis Handelsblatt* that they did not want to be listed in any of the rankings. Kieser and Osterloh (2012) mention five reasons for boycotting the rankings:<sup>5</sup> Firstly, they criticize that the *Handelsblatt* rankings focus only on research while other important activities such as teaching and administrative services are neglected. Secondly, they argue that journal rankings can only poorly measure an article's true quality, but at best the average quality over all papers published in a given journal. Hence, the average quality of a given journal's articles would say almost nothing

<sup>4</sup> It should be noted that publicly available teaching evaluations of university lecturers and professors exist in Germany even longer than the *Handelsblatt* Ranking. Since November 2005 the internet page "[www.meinprof.de](http://www.meinprof.de)" publishes teaching rankings of individuals and institutions, based on evaluations by students. Similar rankings are available for Austria and Switzerland. Although these rankings focus exclusively on teaching, no comparable boycott initiative evolved. However, there has been a vivid discussion about the treatment of offending comments which made it even to the courts.

<sup>5</sup> The open boycott letter to the *Handelsblatt* (in German) and the list of signatures can be found at: <http://handelsblattranking.wordpress.com/2012/08/29/handelsblatt-ranking>

about the quality of a particular paper. Thirdly, the rankings are not seen as being neutral with respect to the various sub-disciplines and would be systematically biased. Fourthly, the rankings would provide incentives for scientists to conduct and publish more incremental research at the cost of innovation. In addition, universities may hire researchers to improve their ranking position and neglect other important aspects in their recruitment. And fifthly, the rankings would provide adverse incentives with respect to the type of research to the detriment of society as a whole as it is typically rather difficult to publish research about local or regional topics of interest in leading international journals.

Until 31 August 2012, when the database was closed, 287 scholars followed the initiative and declared vis-à-vis *Handelsblatt* that they would not want to be listed. As a number of scientists had withdrawn from the rankings for various reasons even before the recent boycott initiative was started, the total number of scientists who are not participating amounts to 352 scientists. It should be noted though that the vast majority of those who withdrew from the ranking would not have been listed in any of the three individual rankings in any case. Only 32 of the 352 scholars would have made it into any of the rankings while the vast majority would not have been listed.

The total database for the rankings of business scholars and departments consists of 3036 individual academic business scholars as of September 2012, including the ones who are not publicly listed in the end.

## **2. Empirical Analysis: Factors promoting the opt-out decision**

The aim of this note is not to discuss or comment on the quality and validity of the arguments brought forward by Kieser and Osterloh (2012). A vivid discussion about their arguments can be found in various Internet blogs.<sup>6</sup> Instead, our scientific interest is to use statistical methods in order to identify factors that might have affected the individual boycott decision. For this purpose, we try to explain the opt-out decision by a number of variables available from the *Handelsblatt* database.

A first hypothesis that can be tested is that older scholars are more likely to withdraw than younger scholars, as (a) older scholars are more likely to find it difficult to adjust to the cultural change which is taking place in German business schools,<sup>7</sup> and (b) older scholars are more likely to be tenured so that a boycott carries lower costs in terms of career perspectives. Secondly and relatedly, we expect that academics that have already been appointed to a professorship are more likely to withdraw from the ranking as being listed in the ranking is less important for their future careers than for younger scholars that are not yet tenured. Thirdly, we conjecture that scholars publishing more and better (i.e., in highly ranked journals) are less likely to withdraw than scholars publishing less and not as well (i.e., in terms of lower ranked journals).<sup>8</sup> Fourthly, we suspect that researchers

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<sup>6</sup> See especially <http://handelsblattranking.wordpress.com/> as well as <http://blog.handelsblatt.com/>.

<sup>7</sup> As Daniel Hamermesh has written in an email: "I have always liked the *Handelsblatt* ranking of economists. Not perfect, but it is objective and useful information. It is good to see that a similar ranking has been constructed for researchers in business schools – and depressing to see people boycotting it. Everybody should welcome this ranking – more objective information must be better than mere rumor or self-serving claims about the importance of one's often unpublished or unnoticed research."

<sup>8</sup> In order to realize high publication scores A<sup>+</sup>-journals and - to a lower extent – A-journals are most attractive. Economists that have succeeded in publishing in these journals in spite of the increasing competition for publications in these outlets (see Ellison (2002)) might be considered high potentials.

having been academically socialized in the US or in the UK are less likely opposing the ranking as research evaluations are more common in these two countries. While we cannot identify all scholars who pursued their graduate studies in the US and UK, we can identify scholars holding a Ph.D. instead of a German-style doctor. Hence, we test whether the suffix “Ph.D.” instead of the prefix “Dr.” has any explanatory power. Finally, we test whether different specializations have any impact on the likelihood to boycott the rankings. Note, however, that we have only included subfields in which at least 1% of the sample is active and that many scientists are working in more than one specialization (e.g., in logistics and operations research or in strategic and international management). The classification of subfields has not been undertaken by ourselves, but was taken from the *Handelsblatt* database.

Table 2: Descriptive Statistics

| Variable                  | Mean  | Std. Dev. | Min   | Max    | Median | Obs  |
|---------------------------|-------|-----------|-------|--------|--------|------|
| Boycott                   | 0.11  | 0.32      | 0.00  | 1.00   | 0.00   | 2215 |
| Age                       | 42.37 | 9.44      | 26.00 | 70.00  | 41.00  | 1167 |
| Points_Total              | 1.64  | 2.35      | 0.01  | 32.48  | 0.80   | 2215 |
| Points_A <sup>+</sup>     | 0.12  | 0.51      | 0.00  | 11.25  | 0.00   | 2215 |
| Points_A <sup>+</sup> /A  | 0.46  | 1.08      | 0.00  | 17.08  | 0.00   | 2215 |
| Annual_Points             | 0.18  | 0.23      | 0.00  | 2.76   | 0.11   | 2215 |
| Points_per_Pub            | 0.16  | 0.09      | 0.00  | 0.80   | 0.14   | 2215 |
| Number_Pubs               | 10.24 | 13.64     | 1.00  | 157.00 | 6.00   | 2215 |
| Acad_Age                  | 12.66 | 9.67      | 1.00  | 46.00  | 10.00  | 2215 |
| Female                    | 0.19  | 0.40      | 0.00  | 1.00   | 0.00   | 2215 |
| PhD                       | 0.05  | 0.21      | 0.00  | 1.00   | 0.00   | 2215 |
| Professor                 | 0.61  | 0.49      | 0.00  | 1.00   | 1.00   | 2215 |
| Marketing                 | 0.06  | 0.23      | 0.00  | 1.00   | 0.00   | 2215 |
| Banking & Finance         | 0.07  | 0.26      | 0.00  | 1.00   | 0.00   | 2215 |
| Entrepreneurship          | 0.01  | 0.11      | 0.00  | 1.00   | 0.00   | 2215 |
| Production                | 0.03  | 0.17      | 0.00  | 1.00   | 0.00   | 2215 |
| Logistics                 | 0.02  | 0.14      | 0.00  | 1.00   | 0.00   | 2215 |
| Business Organisation     | 0.04  | 0.18      | 0.00  | 1.00   | 0.00   | 2215 |
| Human Resources           | 0.03  | 0.16      | 0.00  | 1.00   | 0.00   | 2215 |
| General Management        | 0.01  | 0.09      | 0.00  | 1.00   | 0.00   | 2215 |
| Info Systems              | 0.03  | 0.17      | 0.00  | 1.00   | 0.00   | 2215 |
| Operations Research       | 0.02  | 0.15      | 0.00  | 1.00   | 0.00   | 2215 |
| Technology & Innovation   | 0.04  | 0.19      | 0.00  | 1.00   | 0.00   | 2215 |
| Sustainability Management | 0.01  | 0.09      | 0.00  | 1.00   | 0.00   | 2215 |
| Accounting                | 0.03  | 0.17      | 0.00  | 1.00   | 0.00   | 2215 |
| SME Management            | 0.01  | 0.08      | 0.00  | 1.00   | 0.00   | 2215 |
| Strategic Management      | 0.02  | 0.15      | 0.00  | 1.00   | 0.00   | 2215 |
| Insurance Management      | 0.01  | 0.08      | 0.00  | 1.00   | 0.00   | 2215 |
| International Management  | 0.02  | 0.12      | 0.00  | 1.00   | 0.00   | 2215 |
| Business Taxation         | 0.01  | 0.12      | 0.00  | 1.00   | 0.00   | 2215 |

The *Handelsblatt* database contains 3036 single datasets on business scholars. However, as information on the scientist’s age is only available for a subset of 1167 scientists, we decided to focus on the scientists’ academic age (ACAD\_AGE). Information on the academic age, which is defined as the time (in years) elapsed since the scientist obtained his doctorate or Ph.D., is available for 2578



scientists. However, as some other observations are missing for a further 363 scientists, the total database we employed for our analysis has been reduced to 2215 scientists for whom all observations are available. The number of publications is the number of contributions in any of the 947 academic journals that are listed in the *Handelsblatt* database. Table 2 provides an overview of the descriptive statistics for these 2215 scientists.

Table 3: Separate Descriptive Statistics for Ranking Participants (Ranking Opponents)

| Variable                  | Mean          | Std. Dev.     | Min           | Max                | Median        | Obs        |
|---------------------------|---------------|---------------|---------------|--------------------|---------------|------------|
| Boycott                   | 0.00 (1.00)   | 0.00 (0.00)   | 0.00 (1.00)   | 0.00 (1.00)        | 0.00 (1.00)   | 1965 (250) |
| Age                       | 41.66 (47.60) | 9.34 (8.52)   | 26.00 (29.00) | 70.00 (70.00)      | 40.00 (47.00) | 1029 (138) |
| Points_Total              | 1.64 (1.67)   | 2.40 (1.94)   | 0.01 (0.05)   | 32.48 (13.42)      | 0.77 (1.02)   | 1965(250)  |
| Points_A <sup>+</sup>     | 0.12 (0.06)   | 0.54 (0.21)   | 0.00 (0.00)   | 11.25 (1.58)       | 0.00 (0.00)   | 1965(250)  |
| Points_A <sup>+</sup> /A  | 0.47 (0.33)   | 1.11 (0.77)   | 0.00 (0.00)   | 17.08 (5.38)       | 0.00 (0.00)   | 1965(250)  |
| Annual_Points             | 0.16 (0.11)   | 0.18 (0.16)   | 0.00 (0.00)   | 1.84(1.66)         | 0.10 (0.06)   | 1965(250)  |
| Points_per_Pub            | 0.16 (0.14)   | 0.10 (0.07)   | 0.01 (0.04)   | 0.80 (0.50)        | 0.14 (0.12)   | 1965(250)  |
| Number_Pubs               | 10.03 (11.91) | 13.78 (12.48) | 1.00 (1.00)   | 157.00<br>(111.00) | 5.00 (8.00)   | 1965(250)  |
| Acad_Age                  | 10.83 (18.96) | 9.41 (9.11)   | 1.00 (3.00)   | 46.00 (44.00)      | 8.00 (9.00)   | 1965(250)  |
| Female                    | 0.20 (0.15)   | 0.40 (0.36)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| PhD                       | 0.05 (0.02)   | 0.22 (0.14)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| Professor                 | 0.58 (0.90)   | 0.49 (0.30)   | 0.00 (0.00)   | 1.00 (1.00)        | 1.00 (1.00)   | 1965(250)  |
| Marketing                 | 0.06 (0.06)   | 0.23 (0.24)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| Banking & Finance         | 0.08 (0.04)   | 0.26 (0.19)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| Entrepreneurship          | 0.01 (0.01)   | 0.11 (0.11)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| Production                | 0.03 (0.03)   | 0.17 (0.18)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| Logistics                 | 0.02 (0.01)   | 0.15 (0.09)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| Business Organisation     | 0.03 (0.08)   | 0.17 (0.27)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| Human Resources           | 0.02 (0.05)   | 0.15 (0.22)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| General Management        | 0.01 (0.01)   | 0.09 (0.09)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| Info Systems              | 0.03 (0.01)   | 0.18 (0.09)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| Operations Research       | 0.03 (0.00)   | 0.16 (0.06)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| Technology & Innovation   | 0.03 (0.08)   | 0.17 (0.26)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| Sustainability Management | 0.01 (0.00)   | 0.10 (0.06)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| Accounting                | 0.03 (0.05)   | 0.16 (0.21)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| SME Management            | 0.01 (0.01)   | 0.08 (0.09)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| Strategic Management      | 0.02 (0.04)   | 0.14 (0.21)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| Insurance Management      | 0.01 (0.00)   | 0.08 (0.00)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| International Management  | 0.01 (0.02)   | 0.12 (0.15)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |
| Business Taxation         | 0.01 (0.02)   | 0.11 (0.15)   | 0.00 (0.00)   | 1.00 (1.00)        | 0.00 (0.00)   | 1965(250)  |

Once we split the dataset into two groups – the scientists having withdrawn from the ranking (n=250) on the one hand, and the ones having not withdrawn (n=1965) on the other – the descriptive statistics look as summarized in Table 3.

A look at Table 3 reveals that ranking participants have published less than the ranking opponents both in terms of the number of journal articles (Number\_Pubs) and in terms of the total points achieved (Points\_Total), even though the latter is statistically insignificant. Note, however, that apart from “Points\_Total” the differences between means for all other variables are statistically significant, as t-tests reveal. Hence, Table 3 also shows that ranking opponents have published less in A<sup>+</sup>- and A-journals and that ranking opponents tend to be older (Age) and already have a longer academic career (Acad\_Age). Accordingly, while ranking opponents tend to have a longer publication record, their average score per year of their scientific life (Annual\_Points) is lower than the comparative figure for ranking participants. Since it is well possible that various factors had an influence on the opt-out-decision at the same time, a more sophisticated multivariate analysis is necessary. Since our explanatory variable is a dummy variable which can only take the values of one (boycott) or zero (no boycott) the linear regression model is not applicable, here. Instead, we employ a binary logit model to identify factors significantly related to the decision to boycott the ranking. The logit approach explains the probabilities of the outcome of the variable to be explained as a function of covariates, using a logistic link-function. Different from linear regression models, logit models are estimated using maximum likelihood procedures.

In a first specification we explain the probability of a boycott by a constant and almost all variables listed in Table 3: The total points of a given researcher (Points\_Total), the time (in years) elapsed since the researcher has received his doctorate degree or Ph.D. (Acad\_Age), the average score of a researcher’s publication (Points\_per\_Pub), whether the researcher has been appointed to a professorship (Professor) and whether he or she holds a Ph.D., the researcher’s sex (female = 1) and his or her specialization.

Table 4 summarizes the results of two regression analyses. While regression I makes use of all available variables that are not too heavily correlated (such as “Points\_Total” and “Number\_Pubs”), regression II uses only those exogenous variables that turned out to be statistically significant in regression I. The results of the two regressions clearly support our hypotheses: Firstly, a withdrawal from the ranking is the less likely the more points a scholar has achieved over his academic career. Secondly, the more reputed the average outlet is, in which a scholar published his or her papers, the less likely he or she is to boycott the ranking. Thirdly, more senior scholars are more likely to boycott the ranking than younger ones. While gender does not appear to play any role, tenured professors are more likely to boycott the ranking than other scientists. Moreover, researchers holding a Ph.D. are less likely to support the boycott than researchers with a German-style doctorate. Finally, while researchers specializing in banking and finance, operations research and information systems are less likely to follow the boycott, business academics in the fields of either business organization or technology and innovation are more likely to do so.

Table 4: Logit Regression Results for Probability of Boycott

| Variable                           | Estimate I   | Std. Error I | Estimate II  | Std. Error II |
|------------------------------------|--------------|--------------|--------------|---------------|
| (Intercept)                        | -3.379082*** | 0.258663     | -3.359714*** | 0.250084      |
| Points_Total                       | -0.105837**  | 0.044685     | -0.108399*** | 0.040437      |
| Acad_Age                           | 0.046995***  | 0.008233     | 0.045526***  | 0.007981      |
| Points_per_Pub                     | -3.156541*** | 1.098461     | -3.198888*** | 1.084407      |
| Female                             | 0.003751     | 0.205721     |              |               |
| PhD                                | -1.070955**  | 0.488207     | -1.040752**  | 0.485799      |
| Professor                          | 1.634825***  | 0.249378     | 1.662618***  | 0.246876      |
| Marketing                          | -0.205378    | 0.307660     |              |               |
| Banking & Finance                  | -0.782152**  | 0.373753     | -0.811323**  | 0.364619      |
| Entrepreneurship                   | -0.333512    | 0.679606     |              |               |
| Production                         | 0.420775     | 0.460954     |              |               |
| Logistics                          | -0.953242    | 0.803298     |              |               |
| Business Organisation              | 0.780984**   | 0.321355     | 0.952882***  | 0.301982      |
| Human Resources                    | 0.360878     | 0.369894     |              |               |
| General Management                 | -0.097552    | 0.803230     |              |               |
| Info Systems                       | -1.679807**  | 0.737214     | -1.702857**  | 0.733519      |
| Operations Research                | -1.959651*   | 1.035607     | -1.824169*   | 1.023302      |
| Technology & Innovation            | 1.317212***  | 0.310938     | 1.353286***  | 0.298756      |
| Sustainability Management          | -1.152244    | 1.049950     |              |               |
| Accounting                         | 0.217758     | 0.346748     |              |               |
| SME Management                     | -0.136323    | 0.866321     |              |               |
| Strategic Management               | 0.603046     | 0.390031     |              |               |
| Insurance Management               | -13.507619   | 377.157331   |              |               |
| International Management           | 0.411237     | 0.489995     |              |               |
| Business Taxation                  | 0.132269     | 0.482653     |              |               |
| Nagelkerke's Pseudo R <sup>2</sup> | 0.2127577    |              | 0.2029237    |               |

Note: \*\*\* significant at 1%-level, \*\* significant at 5% level, \* significant at 10% level, n=2215

While the results reported in Table 4 indicate the nature or direction of the different effects and their statistical significances, we cannot directly infer much about their magnitudes or their economic significance. In order to learn more about the latter, marginal effects have to be calculated. However, in contrast to linear regression models, the marginal effects of the covariates depend on the level of the variables themselves in our regressions. Thus, the marginal effects can only be evaluated at pre-defined values of the covariates. It is common to evaluate marginal effects at the sample means of the covariates and to report the marginal effect of one standard deviation of the referring covariate. For the dummy variables, however, we have taken the respective variable's median, which is zero for all dummy variables apart from "Professor" which we have set to one. For the dummy variables, we report the marginal effects of changing the variable to one (or to zero for the "Professor" variable). Furthermore, we only calculate marginal effects for those variables that are statistically significant, and we based the calculations on regression model II, which only includes the variables that have shown to be statistically significant. The results are listed in Table 5.

Table 5: Marginal Effects of Variable Changes ( $\Delta$ )

| Variable                | Coeff. | Marginal Effect | Mean/<br>Median | Standard Dev./<br>Change $\Delta$ | Marginal Effect of $\Delta$ |
|-------------------------|--------|-----------------|-----------------|-----------------------------------|-----------------------------|
| Points_Total            | -0.108 | -0.013          | 1.644           | 2.354                             | -0.031                      |
| Acad_Age                | 0.046  | 0.006           | 12.659          | 9.670                             | 0.053                       |
| Points_per_Pub          | -3.199 | -0.388          | 0.158           | 0.093                             | -0.036                      |
| PhD                     | -1.041 | -0.126          | 0               | 1                                 | -0.126                      |
| Professor               | 1.663  | 0.202           | 1               | -1                                | -0.202                      |
| Banking & Finance       | -0.811 | -0.098          | 0               | 1                                 | -0.098                      |
| Business Organisation   | 0.953  | 0.116           | 0               | 1                                 | -0.116                      |
| Info Systems            | -1,703 | -0.206          | 0               | 1                                 | -0.206                      |
| Operations Research     | -1.824 | -0.221          | 0               | 1                                 | -0.221                      |
| Technology & Innovation | 1.353  | 0.164           | 0               | 1                                 | -0.164                      |

To put Table 5 into context, it should be noted that 11% of the scientists in our sample (for whom all variables have been available) participated in the boycott. Evaluated at the mean of all respective variables (or median for the dummy variables), the probability that the so-constructed “average” business scientist opts out of the rankings is 14.1%.

As reported in Table 5, an increase of the total publication score (Points\_Total) by one standard deviation (2.35 points)<sup>9</sup> decreases the probability that a scientist will withdraw from the rankings by 3.1% in absolute terms. Alternatively, an increase in the total publication score by one point decreases a scientist’s boycott probability by 1.3%. Similarly, an increase of a scientist’s average score per publication by one standard deviation (0.09) decreases his or her boycott probability by 3.6%. Note though that based on a sample mean of 0.16 an increase of 0.09 points is a relative increase of more than 50%. In contrast, an increase in the time span of one’s academic career by one standard deviation (9.7 years) increases the probability of a withdrawal from the rankings by 5.3%. Comparing (i) tenured professors to other academics and (ii) Ph.D.s to other doctorates we find that holding a Ph.D. decreases the individual boycott probability by 12.6%, while being not a professor decreases the probability by 20.2%. Similar marginal effects can be observed for the various specializations reported in Table 5. Overall, we can conclude that the effects are not only statistically significant, but also of relevance in absolute terms.

### 3. Discussion and Conclusion

Our empirical analysis indicates that business scientists who are more senior (already have a longer academic career) and scientists who have been either less successful or less eager to publish their research in internationally well renown journals with high impact factors are more likely to boycott the *Handelsblatt* ranking. This finding supports the impression that we currently do not only see a change of generations within the German-speaking community of business researchers, but also a change of culture. Younger researchers are more internationally oriented and strive for publications

<sup>9</sup> Note that 1 Point corresponds to a single-authored paper in one of the 19 A<sup>+</sup>- and A-journals on the *Handelsblatt* journal list.

in internationally well renowned journals with high impact factors. In addition, more senior researchers beyond a certain age tend to be tenured and, therefore, are less concerned about future career perspectives which allows them to boycott the rankings more easily, i.e. the cost of a boycott tends to be lower for more senior scientists. This is also reflected by the finding that tenured professors are more likely to boycott the ranking, while scientists with a US-style Ph.D. are less likely to support the boycott. The analysis also shows that there are differences between various specializations. It appears that scientists who concentrate in more quantitatively oriented specializations (Banking & Finance, Operations research, and Information Systems) are less likely to support the ranking boycott while more qualitatively oriented researchers specializing in Business Organisation and Technology & innovation are more likely to boycott the ranking.

It should also be noted though that the vast majority of the 3036 scientists in the data base do not make it into any of the three personal rankings. For all those not listed in any of the three rankings, the personal cost of a boycott is close to nil. In fact, quite on the contrary, for somebody not listed publicly anyway (the vast majority) the incentive to boycott the ranking may rather be in seeking an “excuse” for not being listed, as he or she would not have been publicly listed anyhow.

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