

Research Evaluation and Journal Quality Weights: Much Ado About Nothing

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Abstract

Research evaluations based on quality weighted publication output are often criticized on account of the employed journal quality weights. This study shows that evaluations of entire research organizations are very robust with respect to the choice of readily available weighting schemes. We document this robustness by applying rather different weighting schemes to otherwise identical rankings. Our unit of analysis consists of German, Austrian and Swiss university departments in business administration and economics.

1 Introduction

In May 2009, the *Handelsblatt*, a leading German business newspaper, published a research ranking of business administration departments of German, Austrian and Swiss universities. The announcement of that ranking gave rise to objections raised by a considerable number of influential members of the German business administration profession who criticized the journal quality weights which the *Handelsblatt* proposed to use. In the end the *Handelsblatt* responded by using a less controversial weighting scheme. In this paper, we show that, from a managerial point of view, the

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employed weighting scheme does not have a significant influence on the ranking of business administration departments. Moreover, we show that this robustness with respect to the choice of the weighting scheme also applies to research evaluations in economics. Unlike Claudio in Shakespeare's play, the opponents of the original *Handelsblatt* weighting scheme thus did not achieve the feats of a lion but merely assumed the figure of a lamb.

Rankings that compare the research productivity of university departments and similar research organizations serve three purposes. First, they provide the stakeholders of the science system with a general impression of the research landscape. Students and scholars looking for suitable training and research environments, and organizations providing research funds can make better informed choices by consulting meaningful rankings. Second, and arguably more important, is the role of research rankings as a management information system. Without detailed information about the performance in absolute terms and in comparison to competitors, the (university) management is not in a position to control and direct the activities of a research unit (department); management in such cases degenerates to mere administration. Science is, finally, an inherently competitive game. True scientists seek challenges and are inspired and motivated by competition. Simply providing information about the relative standing of a research unit may give rise to responses that help to improve the organization's efficiency.

Rankings can thus be instrumental in the prosperous development of research institutions. Given the rather weak performance of German, Austrian and Swiss business administration and economics departments in international rankings of research productivity (cf. Mangematin and Baden-Fuller, 2008, or Combes and Linnemer, 2003), the impact of providing the science system with more competitive pressure in general, and making use of research rankings in particular, should not be underestimated; this is at least the view of the president of the German Economic Association (cf. Schneider, 2008).

The *Handelsblatt* economics ranking has become the most visible research ranking in Germany, Austria and Switzerland, and it is foreseeable that the *Handelsblatt* business administration ranking will become just as prominent. It is therefore

worthwhile to closely investigate the robustness of these rankings. The *Handelsblatt* economics ranking has been published for the first time in 2005 and has, over time, been improved with respect to data accuracy and methodology.¹ Evaluating the 2007 ranking, Hofmeister and Ursprung (2008) arrived at the conclusion that this ranking is “by far the best ranking compiled outside the scientific system”.² Given this praise, the *Handelsblatt* was taken by surprise when the announcement to issue a similar business administration ranking gave rise to discussions about the “sense and nonsense of rankings” in the business administration community.

Most objections against the *Handelsblatt* ranking concerned the *Handelsblatt*’s original choice of the journal quality weighting scheme which used ISI impact factors as its basic ingredient. Some exponents of the German business administration profession conceivably feared that this international standard would denigrate the traditional German research outlets. At any rate, they advocated using a weighting scheme designed by their own professional association. We take this incidence to motivate our study that investigates to what extent research rankings based on publication output are fragile in the sense that they heavily depend on the choice of the underlying quality weighting scheme.

Our results are in line with the conventional bibliometric wisdom. The choice of the quality weighting scheme is not a highly sensitive matter but rather a matter of envisaged scope and audience. We thus concur, for example, with Schlinghoff and Backes-Gellner (2002) and Combes and Linnemer (2003) who also observe that research rankings of university departments are rather robust with respect to the choice of alternative weighting schemes. The reason for this robustness is that the publication behavior of scientists with comparable abilities appears to follow fairly similar patterns, i.e. one does not observe a marked differentiation along a conceivable quality-quantity trade-off, neither among (similarly endowed) individual scientists, nor - and even less so - among (similarly endowed) research organizations. More significant determinants of publication behavior are proficiency and diligence.

¹For a critique of the 2005 ranking, see Ursprung and Zimmer (2007).

²Some of Hofmeister and Ursprung’s suggestions were integrated into the 2010 ranking which accords now, from a methodological point of view, even better with the state of the art than its predecessors.

The paper unfolds as follows. The next section describes the publication data and the journal quality weighting schemes that we use for our alternative rankings. Section 3 deals with the business administration profession. We present department rankings and rankings of individual researchers. The economics rankings are presented in Section 4. Section 5 concludes.

2 Data and Journal-Quality Weights

This study makes use of the publication data collected by the *Committee for Research Monitoring* (CRM) of the *German Economic Association*. The CRM data set is comprehensive in the sense that it records all journal articles authored or co-authored by all business economists and economists working at German, Austrian and Swiss universities.³ It is compiled in a two step procedure using two sources of information. In a first step the publications are retrieved from various electronic data sets.⁴ The individual records are then, in a second step, made available to the authors on an internet site so that the individual researchers can screen their entries and, if necessary, correct and complete their publication records.⁵ The incentives for the individual researchers to take the trouble of validating their entries are significant because the CRM data set is used to compile rankings of university departments and rankings of individual researchers which are published in the *Handelsblatt*. The CRM data set currently indexes over four thousand business economists and economists and some 60'000 articles. It is a unique source of information for bibliometric studies because of its comprehensiveness and accuracy.

2.1 Business administration

Our objective is to investigate how the outcome of the *Handelsblatt* ranking published in May 2009 changes if alternative weighting schemes for journal quality are

³To be precise, only the universities in German-speaking Switzerland are covered.

⁴These included the ZBW Kiel, the HWWA Hamburg, the ifo Institute Munich, the Österreichische Kontrollbank, the IHS Vienna, the IW Cologne, GBI-Genios and *EconLit*.

⁵*Portal Forschungsmonitoring*: www.forschungsmonitoring.org

Table 1: BUSINESS ADMINISTRATION - JOURNAL QUALITY WEIGHTING SCHEMES

	# journals	# categories	published in	method
JOURQUAL 2	671	6	2008	survey-based
EJL	304	3	2008	peer judgement and impact factors
WU	365	2	2008	survey-based
Impact Factor	638	cardinal	2009	raw impact factors
Ritzberger	261	6	2008	citations
SWW(R)	2822	6	2008	imputed meta index
BG-F	411	6	2008	imputed meta index
Handelsblatt	761	7	2009	meta index, based on JQ2, EJL & SSCI

employed.⁶ The formula used to measure researcher i 's output in the *Handelsblatt*'s ranking has the following appearance:

$$B_i = \sum_{k \in HB_{BA}} \frac{2w_k}{(n_k + 1)}, \quad (1)$$

where k is a journal article which is (1) authored or co-authored by researcher i and (2) published in a journal included in the *Handelsblatt* business administration list HB_{BA} which comprises 761 journals, w_k is journal k 's quality weight, and n_k is the number of authors.⁷ The *Handelsblatt* department-ranking includes all journal articles published in the last ten years. The sum, therefore, runs over all articles published in the year 2000 or afterwards, including forthcoming publications.

A crucial ingredient of the above formula is of course the vector w of journal quality weights. The increasing interest in research evaluations has, over the last two decades, led many institutions to propose journal-quality weighting schemes in the field of business administration. These schemes are either based on expert surveys, citation analyses, e.g. impact factors, or they are derived from other weighting schemes (meta indices). Table 1 gives an overview of the weighting schemes included in this study.

The **JOURQUAL 2** weighting scheme compiled by the *German Academic Association for Business Research (VHB)* is based on a survey among its members. A journal had to be appraised by at least 10 out of the more than 1000 respondents to be included in the list. The *VHB* members were asked to judge only the

⁶The 2009 *Handelsblatt* ranking is available at <http://www.handelsblatt.com/politik/bwl-ranking/>.

⁷For a discussion of the virtues of that formula, see Hofmeister and Ursprung (2008).

quality of those journals which they read on a regular basis.⁸ Using a weighted average, in which the weights depend on the expertise of the evaluators, the journals were classified into six categories. The methodology employed is well documented in Hennig-Thurau et al. (2004).

The second journal-quality weighting scheme that we use as an alternative to the *Handelsblatt* weighting scheme has been proposed by the *Erasmus Institute of Management* (ERIM). The authors of the ERIM journal list (**EJL**) do not disclose how they arrived at their result; they do, however, indicate that the classification is based on peer judgment and impact factors from the Thomson Reuters Institute for Scientific Information (ISI). Moreover, they clearly state that the purpose of their journal classification is to define the core domain of their institute and to reveal vis-à-vis their members and aspirant members the yardstick that is used to determine who will qualify for institute membership in the future and who will be rewarded with extra benefits. Because of this limited scope, ERIM can make do with only three categories of journals: STAR journals, A (primary) and B (secondary) journals.⁹

The **WU-Journal-Rating** of the *Wirtschaftsuniversität* (WU) Wien (Vienna University of Economics and Business) has also been designed in order to serve as an internal reward scheme.¹⁰ The 2008 classification, which is based on a university-wide faculty survey, distinguishes only between two categories, A+ and A journals.¹¹ For each A+ publication the author obtains an incentive bonus of EUR 3000, and for each A publication a bonus of EUR 1000. Further non-monetary awards are bestowed according to publication performance as measured by this classification. To be sure, the identification of top-journals serves the purpose of providing performance incentives very well. On the other hand, a classification that only identifies top-journals and, moreover, does so in a rather non-discriminatory manner (32 A+ and

⁸In addition, they were asked to assess the quality of the review process.

⁹Journals that are only of interest to the Dutch profession are labeled 3=1, meaning that three of these publications count as one B-publication. The EJL classification also indicates how journals that are indexed in the (Social) Science Citation Index but are not classified in EJL, i.e. journals that do not belong to the core domain of ERIM can be classified into A and B.

¹⁰See <http://bach.wu.ac.at/bachapp/cgi-bin/fides/fides.aspx/fides.aspx?journal=true;lang=DE>

¹¹This also applies for a revised version which appeared in 2009.

351 A-journals) does, at a first glance, not appear to be suited for evaluating the relative research performance of entire research organizations. Nevertheless we also include this classification in our study since the WU classification is quite well known in the target profession and, because of its very special design, also provides us with an interesting robustness check.

The EIJ is to some (unspecified) extent based on the ISI **Impact Factors**. We therefore also use this popular cardinal measure of journal quality on its own. However, not all journals on the *Handelsblatt* list are indexed by ISI. Our impact factor measure therefore assigns raw impact factors only to a select number of journals, namely (1) all journals listed in the SSCI or the Science Citation Index in the categories 'Business', 'Business & Finance', 'Economics', 'Industrial Relations and Labor', 'Management', 'Operations Research & Management Science', (2) the relevant journals in the category 'Education & Educational Research' and (3) all other journals classified in JOURQUAL 2 or EIJ for which impact factors were to be had. If available, we used five-year impact factors. Otherwise we used the average impact factor for 2006 and 2007. If only the impact factors for 2007 were provided we used this measure. The advantage of our impact factor measure of journal quality is that we have here a cardinal measure for a relatively large number of journals (638) which provides us with the opportunity to check whether the arbitrary classification into quality brackets imposes an undue restriction in compiling rankings.

Building on Palacios-Huerta and Volij (2004), Ritzberger (2008) derived journal quality weights using the invariant method. The invariant method is based on the idea that the relative ranking of any two journals should depend on their mutual citation flows. The **Ritzberger** weighting scheme classifies all journals indexed in the ISI fields 'Economics', 'Business', 'Business & Finance', 'Industrial Relations and Labor' and selected statistics journals for which citations were available. Ritzberger found strong citation flows between economics and finance, but weaker ones between these two disciplines and business administration. The invariant method nevertheless produces consistent estimates of citation-based journal quality. We follow Ritzberger's proposal to convert the cardinal results of the invariant method into an ordinal weighting scheme. In order to arrive at a classification that is robust with

respect to random variations in citation flows over time, Ritzberger combines his results (which relate to the years 2003 to 2005) with an earlier journal classification based on the invariant method by Kalaitzidakis et al. (2003). The final classification into six quality categories is described in detail in Ritzberger (2008).

The citation based approach to appraising journal quality is less subjective than the survey-based methods. One may argue, however, that the so-called invariant approach, by construction, gives an advantage to those sub-disciplines that provide inputs to other sub-disciplines and thus get cited more frequently. This might contribute to the result that theory journals tend to be better ranked in Ritzberger's classification than journals specialized in publishing more applied studies. Some of these "applied" journals are highly regarded in their respective sub-disciplines but are not included in the Ritzberger list since the Ritzberger journal-quality weighting scheme only classifies 261 journals (which is a large sample for a classification based on the invariant method, but nevertheless rather small if the objective is to evaluate the research output of an entire profession).

To overcome the problem associated with short journal lists, Schulze et al. (2008) imputed quality weights for journals that are not included in some base-line classification. They do so by using other journal classifications in which they compare the classification of omitted journals with the classification of journals that are included in the base-line classification. Using, for example, the Ritzberger classification as the base-line, Schulze et al. (2008) arrive at the (SWW(R)) list, which classifies 2822 journals thereby extending the set classified by Ritzberger (2008) by a factor of 10. To investigate how journal coverage impacts on rankings of research productivity we include in our study the **SWW(R)** weighting scheme, which preserves the spirit of Ritzberger's original classification¹². A detailed description of the imputation process underlying their meta index is to be found in Schulze et al. (2008).

¹²The respective journal classification is documented on Günther Schulze's web-page, http://www.vwl.uni-freiburg.de/iwipol/journal_rankings/Journal_ranking.pdf. Using the SSW(R) classification, Fabel et al. (2008) computed a ranking of business administration departments in Austria, Germany, and Switzerland. Our data, however, are more accurate than the data used by Fabel et al. (2008).

In autumn 2008, the *Handelsblatt* announced that it would publish a ranking of business administration departments based on a journal classification developed by Uschi Backes-Gellner and Oliver Fabel, two well known German specialists in the field of university management.¹³ The journal classification **BG-F** proposed by Backes-Gellner and Fabel is, in principle, a meta index compiled with the method described in Schulze et al. (2008). However, whereas the SWW(R) classification extends the Ritzberger classification, the SSCI impact factors serve as the baseline classification for the BG-F classification. The BG-F journal-quality weighting scheme classifies only 411 journals (as compared to 2822 journals classified by SWW(R)) because at the time when they commissioned the BG-F classification, the *Handelsblatt* planned to consider only top-journals for their rankings. In any event, the BG-F classification did not meet with the approval of some opinion leaders of the business administration profession in Germany. Not surprisingly, the officials of the VHB held the view that their JOURQUAL 2 classification constituted the natural journal-quality weighting scheme to be used in compiling the *Handelsblatt* ranking. The VHB even insinuated that they might brief their members to refrain from screening and updating their publication record on the internet site if the *Handelsblatt* did not use the JOURQUAL 2 weighting scheme instead.

The *Handelsblatt* diplomatically dispersed these misgivings by announcing that they would base the rankings on a different meta index of journal quality weights which would be a combination of three established weighting schemes, namely JOURQUAL 2, the SSCI impact factors, and the EJL classification as a tie-breaker. Only the top five categories (A+, A, B, C, D) from JOURQUAL 2 were taken into account. The SSCI impact factors were used to also classify the journals indexed in the SSCI into five quality categories. The journals in the top categories of each of these three classifications were then assigned five points, the journals of the next category four points, etc.¹⁴ The points were then added for each journal, and based

¹³See e.g. Demougin and Fabel (2004), Demougin and Fabel (2006), Fabel and Heße (1999), Schlinghoff and Backes-Gellner (2002), Backes-Gellner and Schlinghoff (2004) and Backes-Gellner and Schlinghoff (2008).

¹⁴In the case of the EJL journal-weighting scheme, only five, four and three points were assigned.

on this sum the journals were classified into seven quality categories.¹⁵

The journal classifications summarized in table 1 do not come with numerical quality weights. For our comparisons, we normalized the weights in all ordinal schemes to values between 0 and 1. For the schemes with six categories, i.e. JOURQUAL 2, Ritzberger, SWW(R) and BG-F, we follow Combes and Linnemer (2003) and use the weights 1, 2/3, 1/2, 1/3, 1/6 and 1/12. For the EJJ scheme with three categories, we use the quality weights 1, 1/2 and 1/4 and for the WU-Journal-Rating with only two categories, we use the weights 1 and 1/2. For the cardinal SSCI scheme we simply used the documented raw impact factors.

2.2 Economics

The most recent *Handelsblatt* ranking for the economics profession appeared in March 2010. The formula used to measure researcher i 's output has the following appearance:

$$E_i = \sum_{k \in HB_{EC}} \frac{w_k}{n_k}. \quad (2)$$

Notice that the *Handelsblatt* changed this formula as compared to the ranking for the business administration profession (and also as compared to previous ranking for the economics profession) by using the straightforward weight $1/n$ for articles written by n authors. Again, we consider all articles published over the last ten years. Table 2 summarizes the weighting schemes that we used to compute alternative rankings. The **Ritzberger** scheme has already been described in the previous section. Since it was developed with the express purpose to provide a journal classification for the economics profession it obviously needs to be included here. A second natural choice is the weighting scheme **CL03** proposed by Combes and Linnemer (2003) who used this scheme in their well-received ranking of European and American economics departments. The CL03 scheme classifies the journals indexed by *EconLit* into six quality categories. The ranking is based on impact factors and peer expertise. The

¹⁵For more detailed information on the procedure that led to the *Handelsblatt* classification, see <http://www.handelsblatt.com/politik/bwl-ranking/bwl-ranking-methodik-und-interpretation;2175006>.

Table 2: ECONOMICS - JOURNAL QUALITY WEIGHTING SCHEMES

	# journals	# categories	published in	method
Ritzberger	261	6	2008	citations
CL03	982	6	2003	citations, degree of specialization
VfS	982	6	2008	citations, degree of specialization
CL09	1168	cardinal	2009	citations, authors' performance
HB07	224	7	2007	meta index
HB10	1261	7	2010	CL09 plus additional journals

weights assigned to the six categories are 1, 2/3, 1/2, 1/3, 1/6 and 1/12. Independent of its quality, the authors decided to assign a weight of at least 1/2 to the journal that they considered to be the leading journal in its respective field and a weight of at most 2/3 to a journal that they considered to be specialized in scope. A third classification that is closely related to Ritzberger and CL03 is the **VfS** scheme of the *German Economic Association* (cf. Schneider and Ursprung, 2008). Just as the CL03 weighting scheme, the VfS scheme classifies all journals indexed in *EconLit*. The VfS scheme is based on the Ritzberger classification as far as the ISI-indexed journals are concerned.¹⁶ If a journal is not indexed by ISI, citation data were retrieved from SCOPUS.

In 2009, Combes and Linnemer have provided a new journal-quality weighting scheme, **CL09** (see Combes and Linnemer, 2009). CL09 is, roughly speaking, based on a bibliometric two-step procedure. In a first step all journals which are indexed by EconLit and ISI were ranked using the indirect method as provided by the *Red Jasper* and *EigenfactorTM* websites.¹⁷ Since only 304 of the *EconLit* journals are covered by ISI, Combes and Linnemer imputed in a second step quality indices for the remaining journals by associating a journal's quality with the publishing performance of its authors in the select ISI journals. They thereby arrive at a cardinal journal-quality index which they then also transform in an ordinal classification. For our analysis, we decided to use the cardinal weights (CLm)¹⁸ because the weighting

¹⁶The set of journals indexed by ISI are a proper subsection of the journals indexed in EconLit. The Ritzberger classification was commissioned by the Committee for Research Monitoring of the German Economic Association for this particular purpose.

¹⁷See <http://www.journal-ranking.com/ranking/web/index.html> and <http://www.eigenfactor.org/>.

¹⁸50 *EconLit* journals with a very short record are not ranked by CL09.

scheme used for the 2010 Handelsblatt ranking is an ordinal transformation of the CL09 index, albeit not the one suggested in the original working paper. The *Handelsblatt*'s weighting scheme **HB10** deviates from the classification proposed by Combes and Linnemer also in some other minor ways. First, articles that appeared in the *Papers & Proceedings* of the *American Economic Review*, in the *Papers & Proceedings* of the *Journal of the European Economic Association*, and the *Carnegie-Rochester Conference Series on Public Policy* are given less weight than articles published in the *AER*, the *JEEA* and the *JME*. Second, following recent developments in economics, the *Handelsblatt* felt that counting only articles in journals indexed by *EconLit* is too restrictive. It therefore also included journals that are of interest to scholars from fields other than economics. This applies, on the one hand, to the magazines *Nature* and *Science*, on the other to journals from the field of statistics. The respective categories were chosen according to these journals ISI impact factors.

For its 2006 ranking of research performance in economics the *Handelsblatt* used a weighting scheme that combined the journal classifications proposed by Combes and Linnemer (2003) and the so-called *Tinbergen* list.¹⁹ This weighting scheme was revised for the 2007 ranking by also including the journal ranking used for internal evaluations by the *Kiel Institute for the World Economy*.²⁰ Classifying only 224 journals, **HB07** covers even fewer journals than the Ritzberger classification.²¹ We include in our study the HB07 scheme (which was also used in the 2008 *Handelsblatt* ranking) to analyze how the change in the weighting scheme and the accompanying change in the number of included journals affects the continuity of the *Handelsblatt* rankings.

¹⁹See <http://www.tinbergen.nl/research-institute/journal-list.php>.

²⁰See <http://www.ifw-kiel.de/academy/internal-journal-ranking>

²¹Several of these 224 journals are moreover operations research journals which are not included in any of the other weighting schemes.

3 Rankings of business administration

3.1 Department rankings

In contrast to the version published in the *Handelsblatt*, we focus only on contributions made by full professors. To begin with, we compare the *Handelsblatt Ranking* of Austrian, German and Swiss business-administration departments with the ranking that one obtains if instead of the *Handelsblatt* journal-quality weights the BG-F quality weights are used. After all, the BG-F scheme represented the bone of contention in the dispute between the *Handelsblatt* and some opinion leaders of the German business-administration profession. The Spearman rank correlation coefficient between the two rankings of the 92 departments with at least four full professors turns out to be very close to unity (see Table 3). The scatter diagram depicted in Figure 1 visualizes the high degree of correlation between the two rankings. Only the rankings of a handful of departments lie outside the cone which delineates deviations of 20%.

The rankings we obtain when using the three journal-quality weighting schemes that underlie the *Handelsblatt* weighting scheme (JOURQUAL2, EIJ, and SSCI) also bear a striking resemblance to the *Handelsblatt* ranking. The rank correlation coefficients are all close to unity (see Table 3). Figure 2 provides the respective scatter diagrams. To be sure, the strong resemblance of the results is not surprising since these three weighting schemes constitute, after all, the ingredients of the *Handelsblatt* ranking. Notice, however, that using the SSCI scheme as the base-line ranking for the imputed BG-F journal classification represented the main stumbling stone for the BG-F classification. It now turns out that the respective concerns were completely unwarranted.

Much more surprising is probably the scatter diagram shown in the left panel of Figure 3. It indicates that the *Handelsblatt* ranking is also very closely related to the ranking based on the WU-Journal-Rating. In fact, we observe here the highest rank correlation coefficient among all alternative journal-quality weighting schemes (0.97). The loss of information associated with relatively short journal lists which may, moreover, not even discriminate a great deal with respect to journal quality thus

Table 3: BUSINESS ADMINISTRATION DEPARTMENTS

journal lists	list	HB	BG-F	JQ2	EJL	Impact Factor	WU	Rbgr	SWW(R)
all 92 departments	HB	1	0.9639	0.9528	0.9580	0.9596	0.9686	0.7324	0.8870
	BG-F		1	0.9046	0.9234	0.9407	0.9774	0.7720	0.8537
	JQ2			1	0.8824	0.8871	0.9136	0.6515	0.9523
	EJL				1	0.9570	0.9362	0.7055	0.8257
	Impact Factor					1	0.9350	0.7031	0.8440
	WU						1	0.7468	0.8495
	Rbgr							1	0.6618
	SWW(R)								1
top 25 departments	HB	1	0.8715	0.8985	0.8854	0.9062	0.9192	0.5027	0.8646
	BG-F		1	0.7869	0.8431	0.8800	0.9092	0.6197	0.8338
	JQ2			1	0.7369	0.7754	0.8700	0.3457	0.9292
	EJL				1	0.9462	0.8100	0.4403	0.6654
	Impact Factor					1	0.8215	0.4419	0.7246
	WU						1	0.5866	0.8492
	Rbgr							1	0.5135
	SWW(R)								1

Notes: Spearman coefficients of rank correlation between department rankings based on alternative journal-quality weighting schemes. Top 25 departments as published in the *Handelsblatt*.

does not unduly bias the ranking results if the journal list is reasonably representative for the research outlets used by the profession. The disadvantage of rankings based on short journal lists is, however, that even though such rankings may portray the current research landscape quite well, they are not suited as an evaluation standard for all members of the ranked research units, nor are they necessarily incentive compatible. This author would, for example, not be surprised if the clever faculty members of the *Vienna University of Economics and Business* substituted away from the real heavy-weight journals in the A+ and the A class in the WU-Journal-Rating and tried to garner their EUR 3000 and EUR 1000 bonuses with easier assignments; “Gresham’s law of research” will see to it that “mediocre research drives good research out of circulation”.²²

The scatter diagram depicted in the second panel of Figure 3 confirms that Ritzberger’s journal classification has a different focus than the other journal-quality weighting schemes analyzed in this study. Ritzberger’s objective was to propose “a list of target journals [...] as a standard for the field of economics” (Ritzberger, 2008, abstract). The focus on economics combined with the small overall number of ranked journals produces a ranking of business administration departments that significantly deviates from the *Handelsblatt* benchmark. This is also reflected in the correlation coefficient documented in Table 3 (0.73). There are even quite a few

²²See Rauber and Ursprung (2008a).

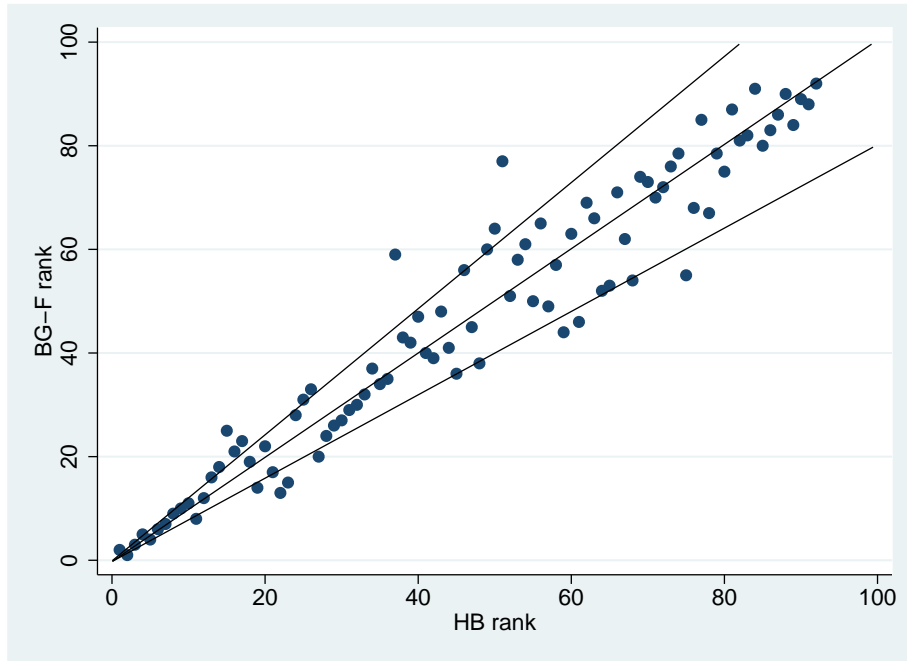


Figure 1: SCATTERPLOTS BUSINESS ADMINISTRATION DEPARTMENTS - HANDELSBLATT VS. BACKES-GELLNER AND FABEL

departments that do not show up in the Ritzberger ranking because they simply have not produced any publication in the very select sample of journals classified by Ritzberger. These departments are given rank 73. This result confirms that the robustness of department rankings only holds for journal lists that are representative for the research outlets of the ranked profession. Notice, however, that this does not mean that a ranking exercise such as the one based on the Ritzberger journal-quality weighting scheme does not make sense. It may well be very sensible to restrict oneself to a rather small sample of top-journals if the purpose of the ranking exercise is to identify university departments that can compete with the strongest research departments in the world as far as research quality is concerned.

If the number of journals is extended with the help of the meta-index method developed by Schulze et al. (2008) by using the Ritzberger classification as the base-line classification, one might expect the ranking to become more similar to the *Handelsblatt* benchmark because the problem of omitted journals is thereby taken care of. The scatter diagram depicted in the third panel of Figure 3 shows that this conjecture is indeed correct, but the resulting ranking still significantly deviates

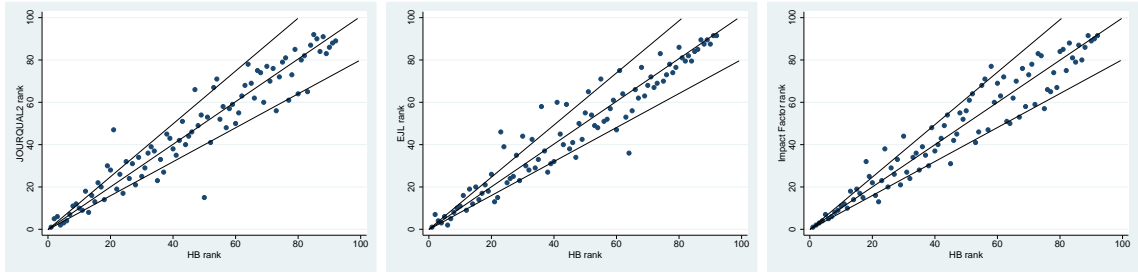


Figure 2: SCATTERPLOTS BUSINESS ADMINISTRATION DEPARTMENTS - HANDELSBLATT VS. JOURQUAL 2, EIJ AND IMPACT FACTOR

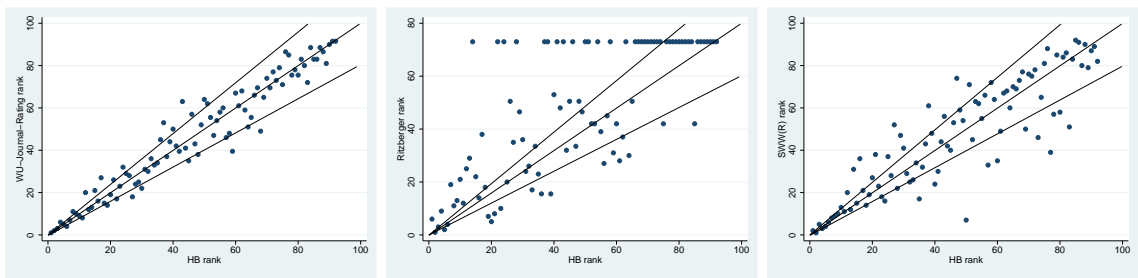


Figure 3: SCATTERPLOTS BUSINESS ADMINISTRATION DEPARTMENTS - HANDELSBLATT VS. WU-JOURNAL-RATING, RITZBERGER AND SWW(R)

from the *Handelsblatt* benchmark as indicated by the rank correlation coefficient of 0.89. The reason for this divergence is that the original Ritzberger classification is restricted to top-journals which implies that most journals that are added by imputation are in no classification close to the journals classified by Ritzberger. The added journals therefore all end up in the lowest quality category of the meta-index. And since a largest part of the research output is published in these added journals, quantity dominates quality much more in the resulting ranking than in the *Handelsblatt* benchmark. The faculty members of an undisclosed department of business administration published so much in these additional journals that they move up from rank 73 in Ritzberger, which corresponds to no output at all, to rank 7 in SWW(R).

To investigate the robustness of the rankings at the top we therefore also document the rank correlation coefficients for the top 25 business administration departments in Table 3. Comparing the coefficients applying to the whole sample (upper

Table 4: BUSINESS ADMINISTRATION RESEARCHERS

journal lists	list	HB	BG-F	JQ2	EJL	Impact Factor	WU	Rbgr	SWW(R)
all 1737 individuals	HB	1	0.8420	0.8617	0.8418	0.8650	0.8615	0.4037	0.6930
	BG-F		1	0.7251	0.6999	0.7660	0.8987	0.4372	0.6225
	JQ2			1	0.6582	0.6693	0.7596	0.2868	0.8944
	EJL				1	0.8218	0.7546	0.3097	0.5190
	Impact Factor					1	0.7447	0.4024	0.5530
	WU						1	0.4063	0.6232
	Rbgr							1	0.3409
	SWW(R)								1
	top 200 individuals	HB	1	0.6410	0.6907	0.5803	0.7210	0.7012	0.0878
BG-F			1	0.3242	0.3959	0.5964	0.7843	0.2843	0.5667
JQ2				1	0.2988	0.2938	0.5212	-0.2006	0.5536
EJL					1	0.7071	0.4569	-0.2248	0.1195
Impact Factor						1	0.5055	-0.0564	0.3180
WU							1	0.1124	0.4981
Rbgr								1	0.3955
SWW(R)									1

Notes: Spearman coefficients of rank correlation between rankings of individual researchers based on alternative journal-quality weighting schemes. Top 200 individuals as published in the *Handelsblatt*.

half of Table 3) with the coefficients applying to the top 25 departments (as ranked by the *Handelsblatt*) indicates that the ranking of top departments is more vulnerable to changes in the weighting scheme than overall rankings. However, Spearman coefficients also decrease if we restrict our attention to the middle and bottom tiers. The lenticular shapes of the scatter clouds in Figure 3 show that the fraction of departments outside the 20% cone is smallest in the bottom tier.

3.2 Rankings of individual researchers

The complete sample of researchers in business administration includes 2080 individuals. In our analysis of individual researchers we only consider those researchers who have obtained a positive score in at least one of the rankings under examination.²³ We are left with 1747 observations.

The robustness of rankings with respect to the employed journal-quality weighting scheme applies only to sufficiently large groups of researchers. Individual researchers do, however, usually not greatly diversify their research agenda and therefore publish in a rather small and specific group of journals. This is why ranking individual researchers is much more challenging than ranking university departments.

²³Note that keeping researchers with no published output in the data set would have increased our correlation coefficients.

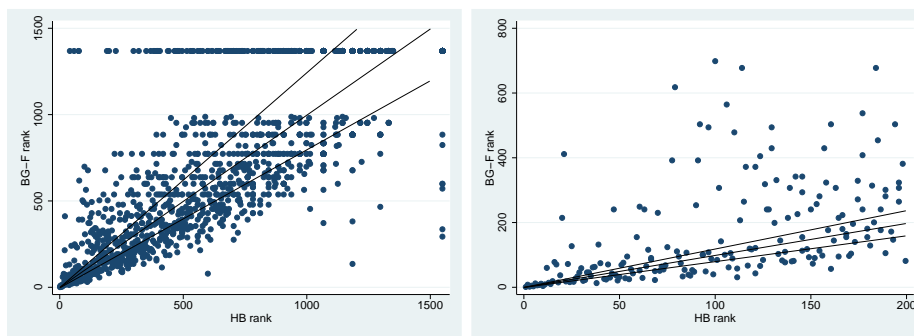


Figure 4: SCATTERPLOT INDIVIDUAL RESEARCHERS - HANDELSBLATT VS. BACKES-GELLNER AND FABEL. TOP 200 AS PUBLISHED BY THE HANDELSBLATT. EXTREME OUTLIERS WITH NO OUTPUT ACCORDING TO BG-F LEFT OUT IN RIGHT GRAPH.

A sensible ranking of individual researchers in particular needs to be based on a journal-quality weighting scheme that treats sub-disciplines in an even-handed manner, i.e. a scheme that acknowledges that subdisciplines may have different citation cultures and may cater more or less to the ultimate users of research results. Such an evenhandedness is difficult to achieve, and even though the invariant method goes some way towards this objective, in many instances the best way to deal with this challenge is simply to restrict rankings of individual researchers to rather narrowly specified disciplines or even sub-disciplines.

In spite of these caveats, we present rankings of individual researchers that encompass the entire business administration profession. We would however like to emphasize that such exercises are always to be taken with a healthy pinch of salt. The *Handelsblatt* is very forthright in this respect and always recommends taking their rankings of individual researchers for what they are.

Comparing the Spearman coefficients of rank correlation for the department rankings (Table 3) with the respective coefficients for the rankings of individual business economists (Table 4) corroborates that journal-quality weights have a substantially larger influence on rankings of individual scholars. Nevertheless, the rank correlation coefficients for the first five alternative weighting schemes are still sizable, ranging around 0.85.

To compare the *Handelsblatt* ranking with the ranking based on the BG-F journal

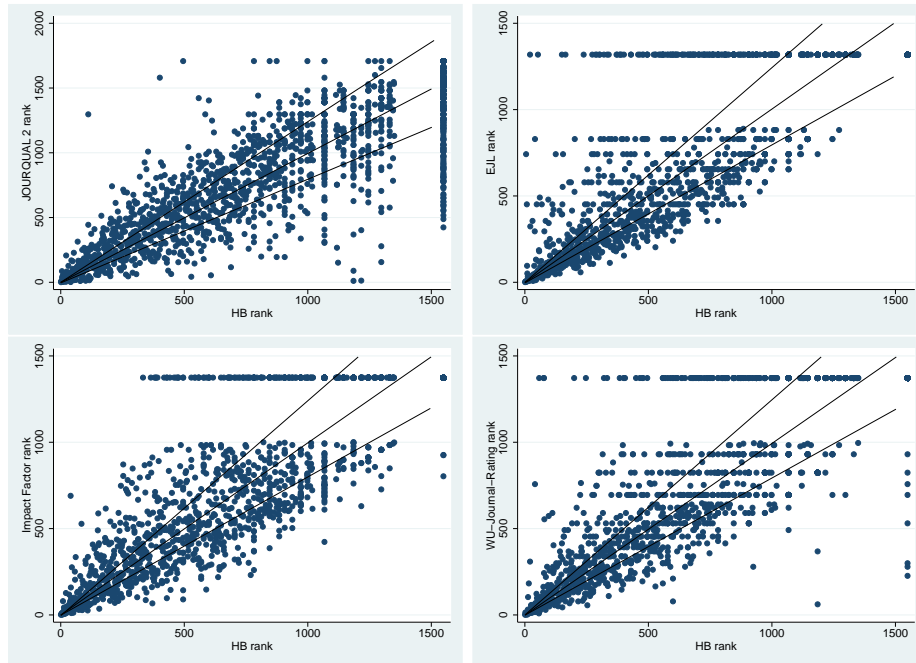


Figure 5: SCATTERPLOT INDIVIDUALS - HANDELSBLATT VS. THE UNDERLYING LISTS AND THE WU-JOURNAL-RATING

quality weights in more detail, consider the scatter plots presented in Figure 4. The first panel is a scatter plot of all scholars in our sample; the second one plots only those scholars who make the top-200 in the *Handelsblatt* ranking. Despite the strong positive correlation, six of the top-200 *Handelsblatt* researchers do not receive a positive score when the BG-F journal quality weighting scheme is used. This is so because these business economists have not published in the 411 journals on the BG-F list; loosely speaking they have concentrated their publication efforts on some 350 journals which are not among the 400 best journals in the profession.²⁴ These authors thus substitute quantity for quality. Converse cases can also be observed, i.e. scholars who are ranked significantly better in the BG-F based ranking than in the *Handelsblatt* ranking. Those scholars have published mostly in specialized German language journals specialized in tax law and human resource management.

In the upper left panel of Figure 5, which visualizes the relation between the *Handelsblatt* ranking and the ranking based on JOURQUAL 2, we find the opposite

²⁴Loosely speaking means here that the 411 journals on the BG-F list need not be the “best” ones.

picture. A substantial number of scholars with no *Handelsblatt* points are ranked among the top 50% (up to rank 869) according to the JOURQUAL 2 ranking. Having published a large number of articles in journals indexed by JOURQUAL 2 but not included in the *Handelsblatt* list means that the industry of these authors is not directed towards great research originality.

Comparisons of the rankings based on the EJJ, WU and impact factor schemes with the *Handelsblatt* ranking yield pictures that resemble figure 4. The three respective panels of figure 5 show that many authors who have zero-scores in rankings based on EJJ, WU and impact factor weighting schemes have positive scores in the *Handelsblatt* ranking. This is simply due to length of the respective journal lists.

A ranking of individual researchers based on Ritzberger's weighting scheme is substantially less correlated with the *Handelsblatt* ranking. This is due to the large share of research in business administration that is not covered by Ritzberger's list. This even applies to the *Handelsblatt* top 200 researchers: The respective Spearman coefficient of rank correlation is only 0.08. Using the SWW(R) weighting scheme, we find the opposite picture, since SWW(R) covers three times as many journals as the *Handelsblatt* list.

4 Rankings of economics

4.1 Department rankings

We now turn to rankings of economics departments. Again, we consider only publications of full professors. Departments with fewer than four full professors are excluded from our analysis. Table 5 shows rank correlation coefficients for rankings that result from the weighting schemes described in section 2.2 and summarized in Table 2. The coefficients of rank correlation turn out to be even stronger than in the case of business administration. For the top 25 departments, the correlation is only slightly weaker than for the whole sample.

The coefficient of the rank correlation between our benchmark *Handelsblatt* 2010 ranking and the ranking that would have resulted had the *Handelsblatt* decided to

Table 5: ECONOMICS DEPARTMENTS

journal lists	list	HB10	HB07	CL09	Rbgr	CL03	VfS
all 71 departments	HB10	1	0.9880	0.9967	0.9708	0.9900	0.9840
	HB07		1	0.9872	0.9831	0.9841	0.9740
	CL09			1	0.9721	0.9931	0.9888
	Rbgr				1	0.9694	0.9588
	CL03					1	0.9925
	VfS						1
top 25 departments	HB10	1	0.9785	0.9931	0.9356	0.9700	0.9108
	HB07		1	0.9777	0.9540	0.9785	0.8946
	CL09			1	0.9348	0.9777	0.9123
	Rbgr				1	0.9402	0.8475
	CL03					1	0.9423
	VfS						1

Notes: Spearman coefficients of rank correlation between department rankings based on alternative journal-quality weighting schemes. Top 25 departments as published in the *Handelsblatt*.

adopt the cardinal CL09 weighting scheme and not the ordinal HB10 scheme that is derived from CL09 (with a few minor changes) is for all practical purposes 1 (0.9967). This is hardly surprising given that HB10 is a straightforward derivative of CL09. This result documents however that using an ordinal instead of a cardinal version of some weighting scheme simply does not affect the rankings of entire research units. The preference of journal classifications (i.e. ordinal journal-quality weighting schemes) over cardinal schemes is thus a pure matter of convenience: it is simply much easier to convey which journals are classified A, B, C, etc. than to associate some 800 journals with a numerical quality index. The scatter diagram shown in the upper left panel of figure 6 illustrates very nicely that basing the ranking on HB10 or CL09 does not affect the result: the majority of economics departments are nicely aligned on the 45-degree line. For the few departments that are off-diagonal, the deviation is in most cases negligible. A closer look at the departments off the 45-degree line reveals that these include in particular department focusing on experimental economics (with faculty members who publish in *Nature* and *Science* which are only included in HB10) and statistics (with faculty members who publish in specialized statistics journals which are also only included in HB10).

This picture changes only little when we compare the *Handelsblatt* ranking based on HB10 with rankings based on the weighting schemes HB07, Ritzberger, and VfS. Recall that HB07 and Ritzberger classify considerably fewer journals than the other classifications. Yet, in the upper right and lower left panels of figure 6 hardly any

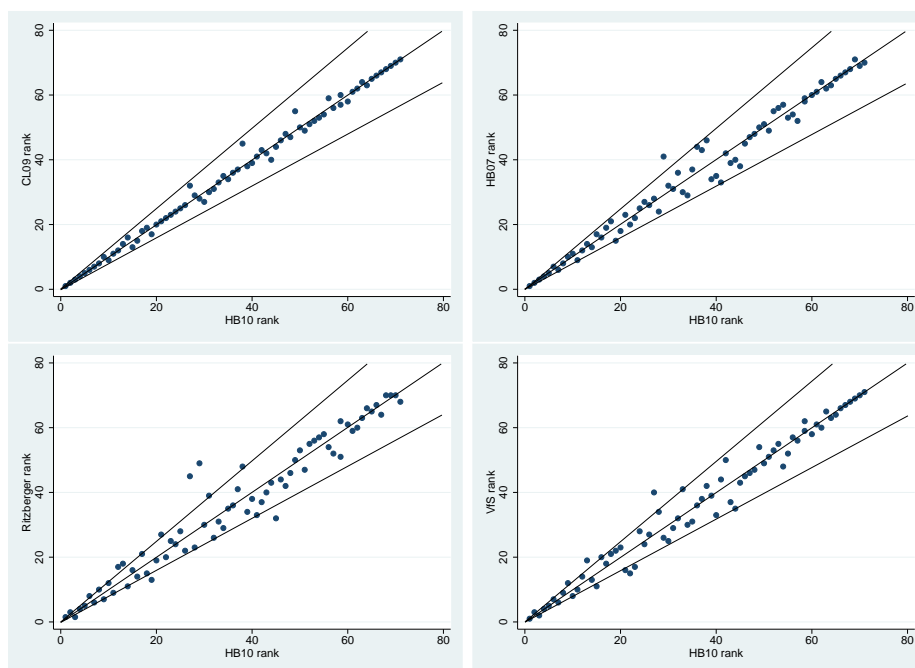


Figure 6: SCATTERPLOTS DEPARTMENTS - HANDELSBLATT VS. ALTERNATIVES.

departments can be found outside the 20% cone of deviation. This gives us further evidence that short journal lists do not bias department rankings as long as the set of classified journals is sufficiently representative for the research outlets in the ranked profession.

Comparing the *Handelsblatt* ranking with the ranking that would have resulted had the *Handelsblatt* (1) not increased the number of classified journals and (2) continued to use the somewhat dated HB07 classification indicates that the 2010 ranking would not have yielded significantly different results. As a matter of fact, the differences between the two rankings as documented in the upper right hand panel of figure 6 have no managerial implications whatsoever: the identification of top, strong, average and weak departments is completely independent of whether one employs the old HB07 or the new HB10 weighting-scheme. The decided advantage of the new weighting scheme from a managerial point of view is that the new classification encompasses basically all research outlets that are used by academic economists. The *Handelsblatt* 2010 research ranking is thus not anymore a ranking with respect to highly visible research (recall that the HB07 scheme counted fewer

Table 6: ECONOMICS RESEARCHERS

journal lists	list	HB10	HB07	CL09	Rbgr	CL03	VfS
all 1532 individuals	HB10	1	0.9531	0.9920	0.9068	0.9820	0.9796
	HB07		1	0.9475	0.9361	0.9552	0.9428
	CL09			1	0.9083	0.9894	0.9892
	Rbgr				1	0.9187	0.9003
	CL03					1	0.9920
	VfS						1
top 200 individuals	HB10	1	0.8684	0.9264	0.6972	0.7942	0.7487
	HB07		1	0.8144	0.7863	0.8114	0.7200
	CL09			1	0.7417	0.8720	0.8422
	Rbgr				1	0.7482	0.6525
	CL03					1	0.9391
	VfS						1

Notes: Spearman coefficients of rank correlation between rankings of individual economists based on alternative journal-quality weighting schemes. Top 200 individuals as published in the *Handelsblatt*.

than the top 20% of the *EconLit* journals) but a ranking that considers the whole body of research promulgated by the evaluated profession. This implies that the most recent *Handelsblatt* ranking can be used for managerial purposes for all research units, for example to measure the progress of weaker university departments. In this context it is worthwhile to acknowledge that the scores reported in the 2010 *Handelsblatt* ranking are less vulnerable to strategic manipulations than the scores reported in the previous rankings. This is so because the co-author weights are now incentive compatible which exposes especially the department rankings less to manipulations via forced or fictitious collaboration.

If we restrict ourselves the top 25 departments, the Spearman coefficient of rank correlation between HB10 and VfS is lower than between HB10 and the other weighting schemes. But for the overall sample it is still almost equal to one. Recall that Schneider and Ursprung (2008) who compiled the VfS scheme chose to classify journals not indexed in ISI with the help of citation data from SCOPUS, whereas Combes and Linnemer (2009) used indicators such as the authors' standing and Google Scholar citations. Whatever the relative merits of the two approaches may be, the two methods generate almost the same results.

4.2 Rankings of individual researchers

In section 3, we observed that business administration department rankings that differ only with respect to the employed weighting schemes are more closely related

than the respective rankings of individual researchers. Table 6 confirms that this holds not only true for business administration but also for economics. The first line of Table 6 reveals that the reported Spearman coefficients of rank correlation between our benchmark ranking (based on HB10) and the alternative rankings hardly ever fall below 0.95. Even the correlation between the benchmark ranking and the ranking based on the Ritzberger weighting scheme which covers much fewer journals than HB10, is still substantial with a coefficient amounting to more than 0.9.

Since individual researchers usually publish their research output in very specific journals, the chosen journal-quality weights obviously impact much more on rankings of individual researchers than on rankings of departments. If, for example, *Nature* and *Science*, two of the most visible and reputed research outlets in the natural sciences, are regarded to be outside the realm of economics, the few economists (mainly behavioral economists) who have managed to publish in these journals are given short shrift. The fact that these individual researchers are underrated does however not greatly affect the ranking of their departments if these departments are reasonably large and are cultivating a well diversified research portfolio. Owing to this portfolio diversification effect, the economics department of the University of Zurich that houses some very reputed specialists in behavioral economics nevertheless managed to be ranked number one according to the 2008 *Handelsblatt* ranking. It thus did not excessively suffer from this inopportune neglect of natural science journals in the *Handelsblatt* list that was used for the 2008 ranking. We have to admit, however, that the Zurich department would have been ranked only second in 2010 if the *Handelsblatt* had decided to continue to use the HB07 weighting scheme.

A few dozen out of the more than 1500 individual researchers are ranked much better when their output is measured with the new *Handelsblatt* weighting scheme HB10 than with the new Combes-Linnemer scheme CL09 which was commissioned by the *Handelsblatt* for this express purpose. Using CL09, some of the researchers would not have been credited with any positive research output in economics, whereas they show up in the 2010 *Handelsblatt* ranking. It turns out that these researchers, although they are on the faculty of economics departments, do not have the typical background of an academic economist. They have been trained in fields such

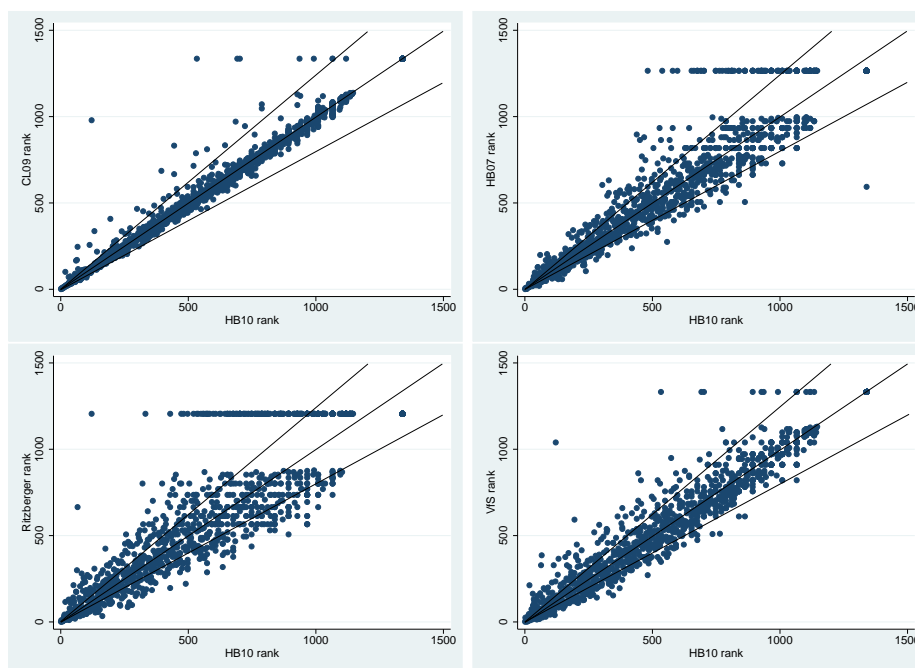


Figure 7: SCATTERPLOTS INDIVIDUALS - HANDELSBLATT VS. ALTERNATIVES.

as mathematics or psychology and their work has been published in journals that reflect this background. It is for these researchers that the *Handelsblatt* extended its list of journals to include all those journals that are not in the core of economics but are used as a research outlet by a sufficiently large number of specialists working in economics departments. This extension is a very worthwhile endeavor that has however been implemented somewhat ad hoc. As more resilient information about the publication habits of non-standard economists transpires the set of non-*EconLit* journals to be included needs to be pondered again. In any event, the upper left panel of figure 7 shows that for most economists this issue is immaterial: for the large majority of economists it simply does not make that much of a difference whether HB10 or CL09 is used.

Among the weighting schemes considered in this study, HB10 is the one with the most extensive coverage since it not only covers all *EconLit* journals but also some selected natural science and statistics journals. This explains the pictures in the upper right and lower left panels of figure 7. Many economists who cannot be ranked when using the weighting schemes HB07 and Ritzberger obtained positive

scores when their output was evaluated using HB10. To a much lesser degree this also applies to the lower right panel in which the benchmark ranking is compared with the ranking that is based on the *German Economic Association's* journal quality weighting scheme Vfs which encompasses all journals indexed in *EconLit*.

5 Conclusion

Research rankings based on quality-weighted journal publications have become a common method of evaluating the research productivity of individual scientists and of entire research units. Such evaluations are an indispensable managerial instrument for universities, research institutes, and organizations that provide research funds. Efficient management simply presupposes efficient information and monitoring systems that allow the management to allocate funds in an optimal manner and to conduct a perspicacious personnel policy. All this is not controversial anymore. Giving rise to controversies are, at best, depending on the discipline, specific aspects of the evaluation methods. In Germany, for example, publication based evaluations of research productivity are generally accepted in economics, whereas in the sister discipline, business administration, a certain uneasiness with this management instrument is still noticeable. These concerns are not so much aimed at the method as such - at least not openly so. They are rather expressed by criticizing the adopted weights that measure journal quality. This study squarely addresses the issue of the choice of the journal quality weights and concludes that the reservations expressed by some influential circles in the business administration profession cannot be substantiated.

To be sure, there is no such thing as the best journal-quality weighting-scheme. Each weighting scheme, if it is worth its salt, is designed to serve a specific purpose. And since the objectives of the evaluator can be very diverse, the number of reasonable weighting schemes can be rather large. This study analyzes the so-called *Handelsblatt* rankings for business administration and for economics. The objective of these rankings is to provide the general audience with an impression of the research landscape in business administration and in economics. Such an overview

of the research landscape calls for a journal list that represents all research outlets used by the portrayed professions and quality weights that give rise to a picture that sufficiently discriminates at all levels of productivity. A weighting scheme that thoughtfully differentiates between top journals but does not distinguish between middle of the road and minor publications thus would not do, nor would a weighting scheme that focuses at the productivity differences at the bottom but does not sufficiently discriminate between good and excellent journals.

Both *Handelsblatt* rankings, the one for business administration and the one for economics, are based on weighting schemes that are suitable for providing a differentiated portrait of the research performance of the two professions. The two weighting schemes encompass all major research outlets and the weights are reasonably proportioned. Despite this evenhanded approach some exponents of the German business administration profession have claimed that the weighting scheme originally proposed by the *Handelsblatt* would not do justice to the research undertaken in business administration. The *Handelsblatt* responded to these qualms by using an alternative scheme.

This study has shown that the choice of the journal-quality weighting scheme has no significant influence of the ranking of entire research units of the size of university departments. As long as the weighting schemes cover a sample of journals that is representative of the research outlets used in the profession, and if the choice of the weights is not downright bizarre and eccentric, excellent departments will top the ranking, good departments will outshine run-of-the-mill departments, and mediocre departments will be better ranked than “nothing doing” departments. And this is exactly the information that the *Handelsblatt* rankings want to convey. It is, incidentally, also the most important kind of information that the concerned departments, the university management, and authorities responsible for research policy need to know in order to do their respective jobs properly.

Rankings of individual researchers react more sensitively to the choice of the journal-quality weighting scheme than rankings of entire research units since the suitable journal portfolio is much smaller for individual researchers than for entire departments. This is so because individual researchers are usually rather specialized,

whereas university departments need to be diversified in scope in order to accommodate all aspects of a discipline for teaching purposes. This sensitivity of rankings of individual researchers is however not a real problem. Rankings of individual researchers that encompass a whole profession are, from a bibliometric point of view, not more than an attention-grabbing gimmick that satisfies publicity interests and the scientific community's eager demand for gossip. The managerial relevance of such rankings is very limited. To evaluate the research productivity and future potential of an individual researcher, his narrowly specified field of expertise needs to be taken into account, his academic pedigree and present academic environment, personal circumstances, as well as his academic and biological age.²⁵ An organization that relies on readily available information that is not intended to be, and is actually not suitable for the evaluation of individual researchers, is run by an incompetent management.

The real problem associated with the sensitivity of rankings of individual researchers is thus not that experienced and proficient managers of research organizations may be led to reach dubious decisions. The problem is that scientists are a clan of exceedingly vain, self-opinionated, and boastful tribesmen who are accordingly vulnerable. Not being ranked in some top group of a publicly disseminated ranking may be worse for a scholar than suffering a whopping loss for a businessman. Peer esteem is, after all, the currency of this peculiar trade, and perceiving a loss of esteem is therefore associated with a challenge to one's identity. This is most likely the root cause of the quibbling over ranking methodologies, in general, and over the *Handelsblatt's* first - abortive - attempt to accustom the German business administration profession to a measuring rod, in particular. Whether the quibblers, by persuading the *Handelsblatt* to use an alternative journal-quality weighting scheme, have really managed to improve their individual rankings and whether they have thereby been able to consolidate their self-perception as adept scholars, cannot be known. Our study shows however that whatever their petty achievements might have been, the *Handelsblatt's* decision to withdraw the original weighting scheme and to replace it with an alternative one, did not influence the material value-added

²⁵Life cycle and cohort effects have been investigated by Rauber and Ursprung (2008b).

of the final results. And with the publication of this ranking the *Handelsblatt* very likely managed to irreversibly change the academic environment in business administration research at German, Austrian, and Swiss universities for the better. The future will tell.

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