

Seiler, Christian; Wohlrabe, Klaus

**Working Paper**

## Ranking Economists and Economic Institutions Using RePEc: Some Remarks

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# **ifo** Working Papers

## Ranking Economists and Economic Institutions Using RePEc: Some Remarks

Christian Seiler  
Klaus Wohlrabe

Ifo Working Paper No. 96

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## Ranking Economists and Economic Institutions Using RePEc: Some Remarks\*

### Abstract

In socio-economic sciences the RePEc network (Research Papers in Economics) has become an essential source both for the spread of existing and new economic research. Furthermore the calculation of rankings for authors and academic institutions play a central role. We provide some cautionary remarks on the ranking methodology employed by RePEc and show how the aggregated rankings maybe biased. Furthermore we offer a new ranking approach, based on standardization of scores, which allows interpersonal comparisons and is less sensitive to outliers. We illustrate our new approach with a large data set provided by RePEc based on 24,500 authors.

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Keywords: Rankings, RePEc, ranking aggregation, standardization.

Christian Seiler  
Ifo Institute for Economic Research  
at the University of Munich  
Poschingerstraße 5  
81679 Munich, Germany  
Phone: +49(0)89/9224-1248  
seiler@ifo.de

Klaus Wohlrabe\*\*  
Ifo Institute for Economic Research  
at the University of Munich  
Poschingerstraße 5  
81679 Munich, Germany  
Phone: +49(0)89/9224-1229  
wohlrabe@ifo.de

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\*\* Corresponding Author.

# 1 Introduction

Rankings in academic science play an important role for evaluation purposes (for instance for promotion and tenure decisions). A generally accepted academic ranking approach would be desirable but has not been achieved yet. Each specific ranking has its pros and cons. Furthermore (potential) ideal ranking approaches cannot be calculated as data gathering is prohibitive.<sup>1</sup>

In socio-economic sciences, RePEc (Research Papers in Economics, [www.repec.org](http://www.repec.org)) has become an essential source both for the spread of knowledge and ranking of individual authors and academic institutions. RePEc is based on the 'active participation principle', i.e. that authors, institutions and publishers have to register and to provide information to the network. Thus, there is no institution that collects data e.g. over the internet. This approach has the main advantage, that a clear assignment of works and citations to authors and articles respectively is possible.<sup>2</sup> Indeed, the RePEc story has become a success, with more than 26,000 registered authors and 10,000 institutions world wide as of December 2010. For further details see Zimmermann (2007) or Seiler and Wohlrabe (2010).

Almost all published rankings in economics both for authors and institutions are based solely on one or two evaluation criteria. In many cases the quantitative research output is evaluated, often weighted with different quality measures, e.g. impact factors of journals. RePEc goes a step further and calculates several numerical scores to quantify research output. Furthermore, in order to represent a wide range of plausible ranking approaches, RePEc calculates more than 30 different rankings for both indi-

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<sup>1</sup>Consider for instance the collection of data in an academic related to all its working areas, e.g. research (works, citations, weighting), teaching, press relations, acquisition of grants, supervision of students, among others.

<sup>2</sup>For instance, Google Scholar as a source for citation analysis potentially suffers from the problem of clear identification of citations, which can lead to overestimation of citations, see Harzing and van der Wal (2009).

viduals and institutions. These rankings are based on the number of works, citations, quality weighings and download statistics. For each category a score is calculated. This approach tries to represent many ranking methods. Finally, a composite index, calculated as a the harmonic mean of the relative ordinal rankings (excluding the best and worst ranking), is set up. Furthermore RePEc enables the user to compute own rankings based on different aggregation measures which have all advantages and disadvantages. Although the RePEc network considers its rankings as 'experimental' (see Zimmermann, 2007), they provide more and more a comprehensive overview of the competitive situation in the economic sciences.

In this paper we provide some remarks on the ranking analysis in RePEc. We give some examples how the results can be biased in some cases. Doing this we complement Zimmermann (2007) who notes that there are some limitations in RePEc. Furthermore we demonstrate that inconsistencies between the worldwide ranking (based on all institutions and registered authors) and regional rankings arise due to the ranking methodology employed by RePEc. We argue that the standard ranking aggregation approach employed by the network based on the harmonic mean is not optimal in the sense, that the underlying scores are transformed into an ordinal ranking before they are aggregated. This results in an information loss, as the relative difference between two authors or institutions are discarded. A possible solution to this approach is the percentage transformation offered by RePEc. The best score in each category is attributed 100% and then proportionally percentages to the smaller scores. Finally, all percentages are averaged by the arithmetic mean and ranked. This approach lacks from the fact, that the ranking is dominated by the maximum score, which downgrades the lower score without improving the the relative position of the best score holder.

We propose an alternative approach which averages standardized scores from each ranking category. Our approach also avoids the information loss, induced by the ordinal

ranking. Furthermore scores from infometric measures are comparable across subjects and rankings. As the standardization measure is the standard deviation it is less prone to outliers. We illustrate the difference between the RePEc rankings and our approach with a sample of all registered authors (about 24,500) from June 2010. We find that our approach obtains similar rankings patterns as the one employed by the RePEc network based on the harmonic mean. But individual results for authors may vary with more than 1,000 ranking position both compared to the harmonic mean and the percentage approach.

The paper is structured as follows. Section 2 gives a literature overview of related rankings in economics. Section 3 provides a short overview of the ranking methodology in RePEc. In Section 4 we outline some cautionary remarks concerning the rankings. The new ranking approach is described in Section 5. Finally we conclude.

## 2 Related literature

The measuring and ranking of research has a long tradition (see Kalaitzidakis, Mamuneas, and Stengos, 2003). Early studies in economics were conducted in the U.S. and later also for Europe and further individual countries. Most of these rankings are based on the counting of the published research. The research output was often weighted by some quality measures, mostly impact factors. Another approach is assessment with variations of the  $h$ -index.

Early U.S. studies can be found in Graves, Marchand, and Thompson (1982), Hirsch, Austin, Brooks, and Moore (1984), Frey and Eichenberger (1993), Scott and Mitias (1996), or Dusansky and Vernon (1998). Ranking results for European economists and departments are stated in Portes (1987), Kirman and Dahl (1994), Kalaitzidakis, Mamuneas, and Stengos (1999), Kalaitzidakis, Mamuneas, and Stengos (2003), or Combes

and Linnemer (2003). For a worldwide comparison with the focus on econometrics see Baltagi (1999, 2003). Further comparison of authors and/or institutions without a specific regional focus are listed in Tol (2009), Ruane and Tol (2009), or Ellison (2010).

Individual rankings for a specific country can be found, e.g., for Spain (Dolado, García-Romero, and Zamarro, 2003), France (Courtault, Hayek, Rimbaux, and Zhu, 2010), Ireland (Ruane and Tol, 2008), (Tol, 2008), Israel (Ben-David, 2010), Australia (Sinha and Macri, 2004), or New Zealand (Anderson and Tressler, 2008).

Besides the U.S. and Europe there exists a larger literature on German (speaking) authors and institutions. For the latter an early study was provided by Rau and Hummel (1990). Further institutional rankings are Bommer and Ursprung (1998), Keil and Huber (2004), later extended by Steininger and Süßmuth (2005), Ketzler and Zimmermann (2009). A citation based ranking of economists can be found in Ursprung and Zimmer (2006). The Handelsblatt ranking of German economists and economic departments has gained a lot of attention in Germany.<sup>3</sup> See Hofmeister and Ursprung (2008) for details.

All these studies have in common that they focus specifically on one criterion for ranking authors and institutions. Furthermore in almost all case one can find objections for the current ranking at hand. Therefore RePEc calculates many rankings to reflect different pros and cons. The main ranking is based on the aggregation of these rankings.

### 3 Ranking calculation in RePEc

On the basis on the available bibliographic information within the network, RePEc constructs every month 33 different rankings for registered authors and institutions.<sup>4</sup> Table 1 provides an overview of these rankings. There are five main categories: number

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<sup>3</sup>The yearly updated ranking can be found at <http://www.handelsblatt.com/politik/vwl-ranking/>.

<sup>4</sup>The Wu-index (Wu, 2009) is only calculated for authors. Thus 32 rankings remain for institutions.

of works, citations, citation indices, citing authors, journal pages, and RePEc access statistics. Each of these main categories can be combined with different weighting schemes: simple or recursive impact factors, number of authors and combination of these. Table 1 reveals that there is a focus on citations. 14 out of 33 rankings deal with this issue. Furthermore weightings with different impact factors are used that are based on available citations. Thus citations play a central role.

For each ranking in Table 1 RePEc calculates a score for each registered author. On this basis an ordinal ranking is computed. For the overall ranking the category 'number of works' is omitted.<sup>5</sup> Furthermore the personal best and worst ranking results are excluded. The average rank score of the remaining 31 ranks is calculated by harmonic mean.<sup>6</sup> In contrast to the arithmetic mean, the harmonic mean favors single very good ranks in some categories.<sup>7</sup>

The idea behind the institutions ranking is the same as in the authors ranking. Each institution is considered as a single author, to whom all bibliographic information of affiliated authors is allocated to. There is no deteriorating effect by adding additional authors, every new affiliated author contributes to the overall score of the institution. The ranking calculation is the same as for the authors ranking. This is straightforward as far as authors have only one affiliation. Problems arise as soon as multiple affiliations are present, as it is the regular case in economics.<sup>8</sup> In this case, RePEc distributes weights to the different affiliations. The 'main' institution obtains 50%.<sup>9</sup> The remaining 50% is distributed to all stated affiliations. RePEc corrects for the number of registered

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<sup>5</sup>One obvious reason is that this category can easily be inflated by publishing the same work in many working paper series.

<sup>6</sup>The harmonic mean is the ranking aggregation approach that is displayed on the web page. Generally, RePEc allows to compute several other aggregation methods. See the next section for details.

<sup>7</sup>To give an example, Christopher Baum is ranked 15th as of December 2010 based on the harmonic mean in the world wide ranking. Based on the arithmetic mean his rank would be 877. The reason is that Christopher Baum is top ranked in the categories access statistics and number of works (software components) but much lower ranked in the citations categories.

<sup>8</sup>A popular example are the 'virtual' economic networks like NBER, CEPR, IZA or CESifo.

<sup>9</sup>The main institution is derived from the stated email address or web page of the author.



authors with each institution. For details see Zimmermann (2007).

Table 1: Ranking categories in RePEc

		Without any further weighting	Simple Impact Factor	Recursive Impact Factor	Number of Authors	Number of Authors + Simple Impact Factor	Number of Authors + Recursive Impact Factor
Works	Overall	X					
	Distinct	X	X	X	X	X	X
Citations	Overall	X	X	X	X	X	X
	Discounted by citation year	X	X	X	X	X	X
Citing Authors	Overall	X					
	Weighted by authors rank	X					
Journal Pages		X	X	X	X	X	X
Access via RePEc	Abstract Views	X			X		
	Downloads	X			X		
Indices	h-Index	X					
	Wu-Index*	X					

Notes: \* only for authors

## 4 Some cautionary remarks

### 4.1 Citations and impact factors

As noted in Section 2, citations play a central role in the ranking analysis, as in the assessment of science in general. They allow to differ between journals with respect to their importance, prestige and their position in the journal system. RePEc started to extract citations in 2003. It is aimed to gather all citations form listed works. As there are more 1,000 journals and almost 3000 working papers listed in RePEc it is a further tool for citation tracking in the economic sciences. The standard tool for citation gathering and analysis has been the *Web of Science*. Recently *Scopus* and

*Google Scholar* have been emerged as serious competitors. See Norris and Oppenheim (2007), Mingers and Lipitakis (2010) or Neuhaus and Daniel (2008) for comparisons. How the RePEc citation database compares to others is an open question for future research.

RePEc has two main sources for extracting citations. First, it reads out all publicly available documents within the network. Due to technical problems it is not always possible to extract the citations. Second, archive maintainers provide meta information on citations for their journals. Some of the large publishers, e.g. Elsevier (which publishes for instance the *Journal of Econometrics* and the *Journal of Monetary Economics*), do not often provide meta information. Currently more than 1 million items are listed in RePEc where the majority allocates to working papers and journal articles. Let us assume that there are on average 10 references per work (which is a rather conservative assumption in economics), than we would have at least 10 million references. As of December 2010, 6,000,000 references could be extracted from 275,000 works, with 2,500,000 matched to an item listed in RePEc. One can see that in fact there are still many missing citations. It is important to note that both the citing and the cited work have to be listed in RePEc. This fact allows a clear assignment of citations. Assuming that almost all important series are indexed in RePEc and citations of articles outside of economics are rather minor, we assume that this fact does not introduce any large bias.

As noted in Table 1, for rankings scores are weighted by journal impact factors. These are still the most important criteria to distinguish between scientific journals with respect to their importance, status or prestige. The most well-known yearly impact factor are provided by the Web of Science from Thomson Scientific. The Social Science Citation Index (SSCI) is a subgroup which contains 247 journals in the economics category. Although they are criticized for a number of reasons, see Glänzel and Moed

(2002) for an overview, they still provide a glimpse of the quality of a journal. Focusing on the economic science, the SSCI impact factors have two major drawbacks. First, the average time for a journal article from publication to peak in citations is not always two years. Furthermore the publication process in economics is rather slow compared to natural sciences, see Ellison (2002), which leads to the fact, that the impact factors are rather small. Second, the common impact factor by Thomson Scientific is restricted to a specific journal list. The Social Science Citation Index comprises 2,175 journals for 2009. The subsection economics even lists only 247 journals. Thus many citations from other economic journals are potentially missing.<sup>10</sup>

RePEc accounts for these two issues. First, RePEc incorporates citations of articles from the whole journal history available in RePEc. Second, it considers citations from all indexed series. Based on this, impact factors for all listed series are available (journals, working papers and book series). Although impact factors in RePEc are also calculated based on a journal list, this list is much larger compared to the Thomson Scientific one. Currently more than 1,000 journals (including some statistics and mathematics journals) are listed in RePEc. Another difference between the standard and the RePEc impact factor is the exclusion of 'self citations' of series to prevent 'self-inflation'. Finally, the SSCI impact factors are only updated once a year, whereas in RePEc the updates are conducted constantly.

Summarizing, there are two ingredients influencing the impact factor of a series in RePEc, first the number of citations and second the number of listed items. Potential problems with the first point, missing citations, were already mentioned above. Concerning the second point we have to note, that different journals provide different records to RePEc. For example, for the *Journal of Political Economy* (JPE) almost the whole journal history is listed, starting in 1896 comprising currently 5,342 items

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<sup>10</sup>See Nederhof (2006) for the issue of coverage in the SSCI for the social sciences.

(December 2010). In contrast the *Quarterly Journal of Economics* (QJE) provides articles from volume 83 in 1969 on. As of December 2010 2067 articles are listed in RePEc. Thus it may not be surprising that the impact factor for the QJE is higher than for the JPE as can be seen in Table 2. In this table we compare the Thomson Scientific 2- and 5 year impact factor with the corresponding RePEc ones. We choose 20 journals from the economics subsection in the Social Science Citation Index with the highest impact factors and a corresponding one in RePEc. In the last row we document the Pearson and the Spearman correlation coefficient relative to the 2-year impact factor. First, it can be noted that the majority of impact factors in RePEc are large in values compared to the one obtained by Thomson Scientific. One explanation is the inclusion of citations from different sources, such as working papers. And, probably more important, in RePEc are by far more economic journals indexed compared to the SSCI as mentioned above. Second, the 2 and 5-year impact factor are similar both in absolute terms as well as ranking positions with a relatively large correlation. Looking at the RePEc impact factors one can see that the relative ranking substantially differs. The reason can be manifold, e.g. there is a bias in the SSCI impact factor due to the relatively small journal list for economics journals. Or, so far the citation coverage in RePEc still needs to be improved, it is an open question how the impact factor may change based on a more complete citation record. We leave this for future research.

## 4.2 Access Statistics

Zimmermann (2007) notes that access statistics to research indicate attractiveness of past and current research. Under the assumption that the higher the number of abstract views and downloads the higher the possible impact on current research and public discussions. We have two notes on this. First, the number of real downloads of journals is highly sceptically, because the access to downloads for majority of journals is

Table 2: Comparison of impact factors

	Thomson Scientific				RePEc	
	2-year IF	Rank	5-year IF	Rank	IF	Rank
Journal of Economic Literature	6.919	1	8.922	1	30.990	2
Quarterly Journal of Economics	5.647	2	8.171	2	33.431	1
Journal of Financial Economics	4.020	3	5.675	5	16.591	9
Econometrica	4.000	4	5.321	7	28.483	3
Journal of Economic Geography	3.937	5	4.705	9	2.906	17
Journal of Political Economy	3.841	6	6.924	3	17.342	8
Journal of Finance	3.764	7	6.536	4	11.384	11
Review of Environmental Economics and Policy	3.645	8	3.645	14	0.964	19
Journal of Economic Perspectives	3.557	9	5.380	6	17.770	7
Economic Geography	3.452	10	3.075	17	0.073	20
Experimental Economics	3.300	11	3.272	15	5.463	15
Journal of Economic Growth	3.083	12	4.967	8	27.794	4
Review of Economic Studies	2.904	13	3.926	13	18.915	6
Journal of Accounting and Economics	2.605	14	3.931	12	3.837	16
Journal of Environmental Economics and Management	2.581	15	2.967	19	6.622	14
Review of Economics and Statistics	2.555	16	4.044	10	9.315	13
American Economic Review	2.531	17	4.009	11	15.320	10
Ecological Economics	2.422	18	2.858	20	1.200	18
Economic Policy	2.375	19	3.211	16	19.174	5
Journal of International Economics	2.271	20	2.988	18	10.358	12
Correlation			0.876 <sup>a</sup>	0.788 <sup>b</sup>	0.557 <sup>a</sup>	0.338 <sup>b</sup>

Notes: <sup>a</sup> Pearson correlation coefficient, <sup>b</sup> Spearman rank correlation coefficient, both with respect to the 2-year impact factor. SSCI impact factors are for 2009. 2 and 5-year impact factor includes citations for articles from the two and five preceding years respectively. RePEc impact factors retrieved on 14th October 2010, considers all available citations irrespective of a given period.

restricted.<sup>11</sup> But there exists a download button that does not refer directly to the PDF document (as it is recommended by RePEc) but to web site of the publisher where the abstract is listed. In almost all cases one has to pay for a download of a specific article. A possible solution is, that these kinds of pseudo-downloads should not be counted. Or, the publisher provides information about actually carried out downloads. The provided ranking on access statistics may be misleading for another reason. The researcher is free to choose the download directly from the publisher's web site. To give an example: The most downloaded paper from the IZA web site ([www.iza.org](http://www.iza.org)) in December 2010 is by Gonzalez-Navarro and Quintana-Domeque (2010) with 1,390 downloads. From the RePEc page this working paper was downloaded only 6 times in December. Thus attractiveness of current research does not have to be signalled via the RePEc network.

### 4.3 Ranking of Institutions

A further hot debated topic within the RePEc network is the ranking of institutions. As described in the previous section, for each individual author, RePEc allocates weights to all stated affiliations according to a formula. A possible consequence is that the weight of the main affiliation decreases as more affiliations are added. A popular example is the membership in the already mentioned 'virtual' networks like NBER or CESifo. Another example is that research professor of institutions are asked to add further affiliations. This may lead to further possible bias in computed rankings. A suggestion to reduce the bias would be to rank the pure networks separately. This would increase the incentive that all network members register add these affiliation and a just comparison between networks is possible. Furthermore RePEc could ask the registered authors to allocate weights among their affiliation (i.e. given real work time for each institution).

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<sup>11</sup>As of December 2010, e.g., for the American Economic Review counted 12,251 downloads. PDF-Files are only available via payments (between \$7.50 and \$10).

## 4.4 Inconsistencies in regional rankings

Within the rankings of individual authors there exists the phenomenon that, e.g. clearly US-based authors appear in regional rankings in other regions or countries. To give example, Harald Uhlig is based in Chicago because of his German Bundesbank affiliation he appears in German ranking at 42nd position (December 2010). Many European rankings are 'contaminated' by non-European researchers (mostly Americans), due to the European based networks, CEPR (United Kingdom), CESifo and IZA (both Germany).

The final comment concerns these inconsistencies in regional rankings. Besides the 33 different rankings, RePEc calculates an average rank score for both, authors and institutions. One main disadvantage of this score is that it can produce some inconsistencies when comparing worldwide and regional rankings. This feature arise due to the fact that rankings are calculated for each region separately. For example, the Ifo Institute for Economic Research in Munich is ranked 5th in the German ranking as of December 2010, but is the second best institution from German in the world wide ranking. These inconsistencies arise from averaging the mean ranks instead of averaging the underlying scores. We explain this problem by a simple example:

Suppose there exist two institutions A and B in a particular region and you have five ranking criteria I-V, see Table 2. Institution A leads clearly in rankings I and II but is only slightly behind B in rankings III to V. Because of the significant lead in the first two rankings, A gets a better mean rank. If this is transferred to the regional ranking (and keeping all scores equal to the worldwide), the great lead of A has vanished. Since B is the leader in 3 out of 5 rankings, it gets a better average rank score and therefore leads the regional ranking. This phenomenon is known as *Simpsons paradox* (Simpsons, 1951).

Table 3: Illustration of regional ranking inconsistencies

		<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>	<b>Harmonic mean</b>	<b>Arithmetic mean</b>
Worldwide	A	9	11	202	234	198	23.1	130.8
Ranking	B	175	182	135	152	178	162.3	164.4
Regional	A	1	1	2	2	2	1.4	1.6
Ranking	B	2	2	1	1	1	1.3	1.4

## 5 An alternative ranking approach

### 5.1 Aggregated rankings provided in RePEc

As already mentioned, the standard approach on the web site for aggregating single rankings is the harmonic mean. But RePEc allows further aggregation approaches to be calculated. The generalized mean is given by

$$M_p = \left( \frac{1}{n} \sum_{i=1}^n x_i^p \right)^{\frac{1}{p}} \quad (1)$$

where for  $p = 1$  we obtain the arithmetic mean, which penalizes poor rankings,  $p = -1$  results in the harmonic mean, which favors good rankings. For  $p = 0$  we have the geometric mean which does both. Two further aggregation approaches, the lexicographic and the graphicolexic ordering of ranks, both rely on the ordering of the ranks, where the first rewards most extreme positive ranks and the second the other way round. See Zimmermann (2007) for details. Although they are intuitive like school marks, all ranking aggregation approaches so far are based on ordinal figures based on the underlying scores. This has the large disadvantage that the true underlying distribution of scores is discarded, i.e. relative distance between two authors vanishes.<sup>12</sup> Therefore RePEc also offers the percentage criterion. The best score is attributed 100% and then

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<sup>12</sup>To give an example: Peter Nijkamp is ranked first in the category 'Number of distinct works' with a score of 758 as of December 2010. Nicholas Cox, ranked 2nd has a score of 394. Although Nijkamp has almost a twice larger score this advantage vanishes in the ranking. A score of 395 would be enough to end up at the same position in the aggregate ranking based on the generalized means.



proportionally percentages to the smaller scores. Finally all percentages are averaged by the arithmetic mean and ranked. We argue to use the underlying scores with its relative distances for ranking calculation as the full information is retained.

## 5.2 Rankings based on standardized scores

As mentioned above and shown in the next section, the underlying rank scores are not comparable in RePEc. This makes it difficult to compare and merge the scores into one aggregated value. RePEc's percentage criterion is one solution to exploit the maximum information. We now propose a slightly different alternative based on standardized scores which is similar to the percentage method but removes one crucial disadvantage. Suppose you have  $n$  individuals and  $k$  scores  $S_1, \dots, S_k$ , so that the score of category  $j$  of person  $i$  is  $S_{ij}$ . The relative differences between the scores of two individuals  $a$  and  $b$ , is given for percentage criterion by

$$\hat{S}_{aj} - \hat{S}_{bj} = \frac{S_{aj}}{\max(S_j)} - \frac{S_{bj}}{\max(S_j)} = \frac{S_{aj} - S_{bj}}{\max(S_j)}. \quad (2)$$

For the new ranking aggregation approach we standardize the underlying scores. For each score, we calculate the sample means  $m(S_1), \dots, m(S_n)$  and the sample variances  $v(S_1), \dots, v(S_n)$ . Then, we standardize the score of each person to

$$\tilde{S}_{ij} = \frac{S_{ij} - m(S_j)}{\sqrt{v(S_j)}}.$$

The relative difference between the standardized scores for two individuals  $a$  and  $b$  is given by

$$\tilde{S}_{aj} - \tilde{S}_{bj} = \frac{S_{aj} - m(S_j)}{\sqrt{v(S_j)}} - \frac{S_{bj} - m(S_j)}{\sqrt{v(S_j)}} = \frac{S_{aj} - S_{bj}}{\sqrt{v(S_j)}}. \quad (3)$$

Note that the only difference between equation (2) and (3) is given by the standardization parameter in the denominator. From the theoretical point of view, the percentage approach is more driven by outliers. But are the rankings in RePEc driven by outliers? As we show in the next section this is indeed the case. As can be seen in Figure 1, most of the scores' distributions are extremely skewed to the right. This is due to the fact that the top authors in every category are still active and therefore push the scores' maxima ahead. For example, if the top author increases for some category the value of his score from 10,000 to 12,000 (maybe due to a highly downloaded paper or code), the scores of *all* other authors now downweighted by 12,000 instead of 10,000, which is a increase of 20%.<sup>13</sup> In our approach, this would have only a minor effect since the variance is not very sensitive to outliers when many observations (in this case more than 20,000 authors) are present.

### 5.3 An illustrative example

In order to give an example we compare our ranking approach to the ones provided by RePEc. As a prerequisite for our approach and a perfect comparison we would need *all* scores for each ranking category for every author and institution. These numbers are not publicly available since RePEc reports only for each sub-category the first 5% of all registered authors and institutions. We obtained the full data set from RePEc for all authors for June 2010. We had to remove some authors with missing observations. Finally we have scores for all categories for 24,671 authors.<sup>14</sup>

Let us first take a closer look at the descriptive statistics. In Table 4 we report the mean, median, the minimum and maximum score, and the relative share of authors with

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<sup>13</sup>Someone might argue that the counting of the number of downloads is, as well as the abstract views, restricted to the last 12 months, so that these values could decrease. This is right, but only 10 out of 32 scores are affected by temporal change. These are all scores with discounted citation year (6), the abstract views (2) and downloads (2).

<sup>14</sup>The original June 2010 ranking is based on 24,706 authors.

a zero score. It is obvious that the scores are not comparable across categories, thus a ranking based on the simple average mean across categories would be highly distorted. For instance for the *h*-index a number of 54 is very large in this category, as this is not the case for the number journal pages. Looking at the category 'number of citations' and its variation one can see there are about 30% of all authors where no citations are recorded yet. But it is unknown whether the authors have not been cited or the potentially existing citations have not been indexed by the network yet. The 20% share of authors with no journal pages can be explained by the fact that the recorded items are either working papers, books, chapters or software codes.<sup>15</sup> Comparing the mean with the median we see that the data is highly skewed. This is supported by looking at Figure 1 where we plot the histograms of some selected categories.<sup>16</sup> The last column in Table 4 describes the ratio between the second largest to the largest value in each category. One can clearly see that there are some categories with a large distance between the best and the second best score.

Based on this large data set we recalculate the standard RePEc rankings. Due to the deleted authors our ranking differs slightly from the reported June 2010 ranking in RePEc. Column 2 in Table 5 displays the standard RePEc ranking (based on the harmonic mean) for 30 best authors.<sup>17</sup> For reasons of comparison we also report the results including the best and the worst ranking ('All', column 3) and the corresponding figures for arithmetic mean (columns 4 and 5). The percentage criterion is tabulated in columns 6 and 7. Due to standardization in our suggested approach we cannot apply the harmonic mean, as negative values may cancel out positive ones. Therefore we display in column 8 and 9 the ranks based on the arithmetic mean of the standardized

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<sup>15</sup>The Munich RePEc Personal Archive (<http://mpra.ub.uni-muenchen.de/>) allows each author to submit a paper. This opportunity is well taken by authors who do not have access to (institutional) working paper series.

<sup>16</sup>The last number on each x-axis denotes the maximum value in the respective category.

<sup>17</sup>An expanded list of the first 300 authors can be found in the appendix.

scores.

There are several interpretations from Tables 5 and 6. First, using the harmonic mean, in excluding the best and worst ranking position for each author results in 68% in a worse ranking position compared to the ranking based on all rankings. For the arithmetic mean, the percentage criterion, and the standardization approach these figures are lower with about 55%. In two out of three cases an authors is better ranked based on the harmonic mean compared to the arithmetic one. By construction the harmonic mean favours authors with some few very good positions. Finally, by comparing the percentage approach with the harmonic mean, 45% of the authors gain a position. But most of the shifts in position occur within a narrow band of 100. As expected, most changes occur in the middle of our sample. The median author can gain or loose the largest possible number of positions.

Let us take a closer look at best 30 economists in Table 5. Andrei Shleifer is ranked first based on the harmonic mean, whereas Joseph Stiglitz is the best economist both in case of the arithmetic mean, the percentage criterion case and our new approach. Nicholas Cox is a good example for the differences between rankings. Ranked 19th based on the harmonic mean, he drops to position 7,384 in case of the aritmetic mean. This result is mostly due to the fact, the author is ranked top within the number of works categories categories and low in categories based on the citations. Similar arguments apply for Christopher F. Baum.

Comparing the percentage criterion with our new approach in the Top 30 the differences are rather minor. Stephen J. Turnovsky gains 16 positions, whereas Christopher F. Baum loses 15 positions. If we take a look on complete list in appendix (Table 6), we find a more heterogeneous picture. There are more and larger shifts among the authors. The largest drop with 179 positions is recorded for Ben Jann and the largest gain (55 positions) we find for John Creedy.

Table 4: Descriptive Statistics for different rankings in RePEc

	Mean	Median	SD	Min	Max	Zero	OL
Number of Works	21.82	10.00	34.61	1	841.00	0.00	0.58
Distinct Number of Works	16.47	8.00	24.55	1	753.00	0.00	0.51
Number of Distinct Works, W. by Simple IF	97.20	16.32	260.87	0	5479.51	1.51	0.90
Number of Distinct Works, W. by Recursive IF	0.65	0.08	1.93	0	38.89	15.48	1.00
Number of Distinct Works, W. by Number of Authors	10.92	5.00	17.46	0.07	380.93	0.00	0.93
Number of Distinct Works, W. by Number of Authors and Simple IFs	56.03	9.04	160.58	0	4525.45	1.74	0.71
Number of Distinct Works, W. by Number of Authors and Recursive IFs	0.38	0.04	1.19	0	31.96	21.16	0.75
Number of Citations	84.41	6.00	332.00	0	11508.00	27.75	0.80
Number of Citations, Discounted by Citation Age	22.32	1.88	80.64	0	2750.52	27.78	0.77
Number of Citations, W. by Simple IF	436.45	12.60	2011.14	0	69472.82	28.15	0.78
Number of Citations, W. by Simple IF, Discounted by Citation Age	29.25	1.12	122.41	0	4250.61	28.28	0.77
Number of Citations, W. by Recursive IF	2.90	0.06	13.85	0	448.06	34.66	0.85
Number of Citations, W. by Recursive IF, Discounted by Citation Age	0.87	0.03	3.77	0	123.04	31.59	0.78
Number of Citations, W. by Number of Authors	46.48	3.00	192.85	0	6750.00	27.75	0.92
Number of Citations, W. by Number of Authors, Discounted by Citation Age	12.02	1.00	45.04	0	1318.26	28.03	0.96
Number of Citations, W. by Number of Authors and Simple IFs	242.32	6.15	1169.19	0	43948.93	28.19	0.90
Number of Citations, W. by Number of Authors and Simple IFs, Discounted by Citation Age	15.80	0.56	67.97	0	2147.72	28.39	0.88
Number of Citations, W. by Number of Authors and Recursive IFs	1.61	0.03	8.09	0	327.01	38.42	0.86
Number of Citations, W. by Number of Authors and Recursive IFs, Discounted by Citation Age	0.47	0.01	2.10	0	72.06	33.31	0.81
h-index	2.66	1.00	3.74	0	54.00	26.66	0.85
Number of Registered Citing Authors	51.00	5.00	158.62	0	3709.00	29.79	0.96
Number of Registered Citing Authors, W. by Rank (Max. 1 per Author)	38.44	3.51	120.69	0	2781.13	29.79	0.95
Number of Journal Pages	139.99	53.00	239.95	0	4484.00	20.34	0.98
Number of Journal Pages, W. by Simple IF	793.83	77.09	2229.34	0	54186.00	21.82	0.99
Number of Journal Pages, W. by Recursive IF	5.22	0.25	16.27	0	403.99	28.04	0.93
Number of Journal Pages, W. by Number of Authors	81.51	30.00	143.78	0	3020.08	20.34	0.93
Number of Journal Pages, W. by Number of Authors and Simple IFs	462.98	41.90	1358.72	0	36551.33	21.86	0.97
Number of Journal Pages, W. by Number of Authors and Recursive IFs	3.06	0.14	9.94	0	272.81	30.15	0.90
Number of Abstract Views in RePEc Services over the past 12 months	1143.08	441.00	2330.61	0	72581.00	0.03	0.72
Number of Downloads through RePEc Services over the past 12 months	347.95	129.00	773.95	0	22986.00	1.32	0.81
Number of Abstract Views in RePEc Services over the past 12 months	577.25	226.00	1292.02	0	46743.00	0.25	0.95
Number of Downloads through RePEc Services over the past 12 months, W. by Number of Authors	175.30	66.00	427.92	0	14064.00	1.76	0.88

Notes: This Table reports the descriptive statistics for all categories for the June 2010 in RePEc. W. = Weighted, IF = Impact Factor, SD = Standard Deviation, Zero reports the percentage of authors with a score of zero. OL denotes the ratio of the second largest to the largest value in each category.

Figure 1: Histograms for selected ranking categories in RePEc

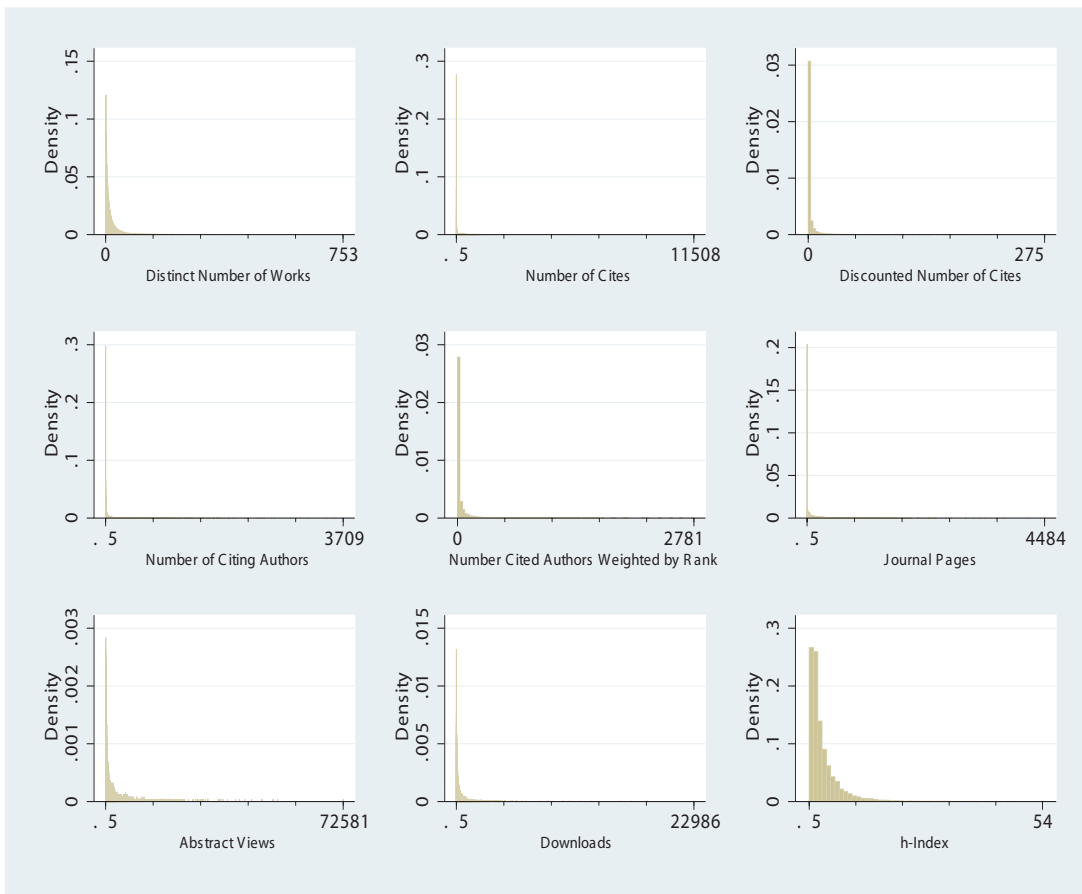


Table 5: Ranking comparison for authors - Top 30

	RePEc		RePEc		RePEc		New Approach	
	Harmonic mean		Arithmetic mean		Percentage		Standardization	
	Excl.	All	Excl.	All	Excl.	All	Excl.	All
Andrei Shleifer	1	1	4	4	3	3	4	4
Joseph E. Stiglitz	2	2	1	1	1	1	1	2
Robert J. Barro	3	3	3	3	4	4	2	1
James J. Heckman	4	4	2	2	2	2	3	3
Robert E. Lucas Jr.	5	5	33	42	6	6	5	5
Peter C. B. Phillips	6	6	14	14	8	8	9	9
Martin S. Feldstein	7	7	15	15	10	10	13	12
Daron Acemoglu	8	8	5	6	5	5	6	6
Jean Tirole	9	9	6	5	7	7	7	7
Olivier Blanchard	10	11	7	7	9	9	8	8
Edward C. Prescott	11	10	21	20	13	12	10	10
Mark L. Gertler	12	12	50	63	20	20	19	16
Paul R. Krugman	13	15	13	12	15	15	12	13
John Y. Campbell	14	18	8	11	11	11	11	11
Thomas J. Sargent	15	14	10	9	14	13	15	14
Lawrence H. Summers	16	17	9	8	12	14	14	15
Christopher F Baum	17	13	903	906	165	139	150	118
N. Gregory Mankiw	18	21	20	21	18	18	17	18
Nicholas Cox	19	19	7384	7375	318	236	309	200
Ross Levine	20	22	26	26	24	24	22	21
Stephen J Turnovsky	21	16	170	162	65	56	81	79
Gary S. Becker	22	25	32	32	25	25	23	22
James H. Stock	23	24	48	52	28	28	28	28
Maurice Obstfeld	24	23	12	13	17	17	18	19
Barry Julian Eichengreen	25	26	35	31	34	33	39	37
Elhanan Helpman	26	29	16	16	19	19	21	23
Michael Woodford	27	28	23	25	27	27	26	26
David E. Card	28	31	11	10	16	16	16	17
Ben S. Bernanke	29	30	18	18	22	21	20	20
Lars E. O. Svensson	30	27	19	19	23	23	25	25

Notes: *Excl.* denotes "excluding the best and worst ranking and without number works", *All* denotes "including all sub-categories without number of works".

## 6 Conclusion

In socio-economic sciences, RePEc (Research Papers in Economics, [www.repec.org](http://www.repec.org)) has become a essential source both for the spread of knowledge and ranking of individual authors and academic institutions. In this paper we provide some cautionary remarks concerning the interpretation of rankings provided by RePEc network. Distortions of rankings can be due to missing citations, calculation of impact factors, or 'unreal' access statistics. Furthermore we provide evidence how inconsistencies between worldwide and regional rankings may arise. The standard ranking approach on the RePEc web page is based on the harmonic mean of ordinal ranking positions for each ranking category. The

main disadvantage is that due to ordinal ranking the relative position between authors is discarded. As an alternative RePEc offers the calculation of an overall ranking based on the percentage criterion. This approach retains the relative position of each author but is highly sensitive to outliers.

We offer an alternative ranking approach which is from our point of view best suitable for the data present in RePEc. We standardize all scores in each category. This allows us to compare scores across authors. For the overall ranking we take the average of all standardized score. The standardization approach is less prone to outliers. In an illustrative example we used data for almost all registered authors in June 2010 with about 24,500 authors. The descriptive statistics show that the data is highly skewed and shows several outliers. Therefore the standardization approach is more suitable to compute an overall ranking. At the top level the differences between the percentage and standardization approach are rather minor. Most changes occur, as expected, in the middle range of ranked authors.

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# Appendix

Table 6: Ranking comparison for authors - Top 300

	RePEc		RePEc		RePEc		New Approach	
	Harmonic mean		Arithmetic mean		Percentage		Standardization	
	Excl.	All	Excl.	All	Excl.	All	Excl.	All
Andrei Shleifer	1	1	4	4	3	3	4	4
Joseph E. Stiglitz	2	2	1	1	1	1	1	2
Robert J. Barro	3	3	3	3	4	4	2	1
James J. Heckman	4	4	2	2	2	2	3	3
Robert E. Lucas Jr.	5	5	33	42	6	6	5	5
Peter C. B. Phillips	6	6	14	14	8	8	9	9
Martin S. Feldstein	7	7	15	15	10	10	13	12
Daron Acemoglu	8	8	5	6	5	5	6	6
Jean Tirole	9	9	6	5	7	7	7	7
Olivier Blanchard	10	11	7	7	9	9	8	8
Edward C. Prescott	11	10	21	20	13	12	10	10
Mark L. Gertler	12	12	50	63	20	20	19	16
Paul R. Krugman	13	15	13	12	15	15	12	13
John Y. Campbell	14	18	8	11	11	11	11	11
Thomas J. Sargent	15	14	10	9	14	13	15	14
Lawrence H. Summers	16	17	9	8	12	14	14	15
Christopher F Baum	17	13	903	906	165	139	150	118
N. Gregory Mankiw	18	21	20	21	18	18	17	18
Nicholas Cox	19	19	7384	7375	318	236	309	200
Ross Levine	20	22	26	26	24	24	22	21
Stephen J Turnovsky	21	16	170	162	65	56	81	79
Gary S. Becker	22	25	32	32	25	25	23	22
James H. Stock	23	24	48	52	28	28	28	28
Maurice Obstfeld	24	23	12	13	17	17	18	19
Barry Julian Eichengreen	25	26	35	31	34	33	39	37
Elhanan Helpman	26	29	16	16	19	19	21	23
Michael Woodford	27	28	23	25	27	27	26	26
David E. Card	28	31	11	10	16	16	16	17
Ben S. Bernanke	29	30	18	18	22	21	20	20
Lars E. O. Svensson	30	27	19	19	23	23	25	25
Peter Nijkamp	31	20	837	827	180	148	225	164
Alan B. Krueger	32	36	17	17	21	22	24	24
Jordi Gali	33	34	77	80	37	37	31	31
Alberto Alesina	34	32	22	24	26	26	27	27
Kenneth S Rogoff	35	38	91	106	36	36	30	30
Robert G. King	36	37	34	41	29	29	29	29
Robert J. Gordon	37	33	81	81	59	55	76	66
Jeffrey Alexander Frankel	38	41	28	28	31	32	32	32
James Poterba	39	40	24	22	32	31	36	36
Richard Blundell	40	43	27	27	30	30	34	33
Jean-Jacques Laffont	41	44	62	55	53	51	71	67
Bennett McCallum	42	39	40	37	44	44	48	47
Martin Eichenbaum	43	46	74	73	40	39	40	40
John B. Taylor	44	45	52	51	45	45	41	41
Edward Ludwig Glaeser	45	48	30	33	35	34	33	35
Robert F. Engle	46	49	25	23	33	35	35	34
Donald W. K. Andrews	47	42	43	43	43	40	45	43
Richard B. Freeman	48	47	39	35	48	46	51	49
Christopher Sims	49	51	38	46	39	41	38	38
M Hashem Pesaran	50	50	31	30	42	43	46	46
Raghuram G. Rajan	51	55	36	39	38	38	37	39
Paul Michael Romer	52	52	319	353	84	84	74	71
Carmen M. Reinhart	53	53	104	116	76	71	65	57
Lawrence F. Katz	54	61	54	61	49	49	47	48
Frederic Mishkin	55	58	45	40	51	50	56	53
Angus S. Deaton	56	60	29	29	41	42	42	42

Continued on next page

Table 6 – continued from previous page

	RePEc Harmonic mean		RePEc Arithmetic mean		RePEc Percentage		New Approach Standardization	
	Excl.	All	Excl.	All	Excl.	All	Excl.	All
Lawrence Christiano	57	57	262	298	77	77	68	65
Dani Rodrik	58	63	37	34	46	47	43	44
Peter A. Diamond	59	62	42	44	47	48	49	50
Martin Ravallion	60	59	84	83	79	79	83	81
Bruno S. Frey	61	54	105	100	102	99	105	105
Eugene F. Fama Sr.	62	64	59	70	50	52	44	45
George A. Akerlof	63	67	69	78	54	57	52	54
Pablo Fernandez	64	35	5408	5397	634	437	547	327
Sebastian Edwards	65	56	85	82	80	80	93	85
Florencio Lopez-de-Silanes	66	66	130	170	73	74	70	69
Lars Peter Hansen	67	65	70	75	55	60	53	52
Alan Auerbach	68	68	79	74	78	75	84	83
Andrew Kenan Rose	69	70	41	36	52	53	50	51
Patrick Kehoe	70	69	58	58	57	54	55	55
Zvi Griliches	71	72	55	59	56	58	54	56
Paul Milgrom	72	77	72	71	67	66	57	59
Rudiger Dornbusch	73	74	57	50	69	69	78	78
Gene Grossman	74	73	56	53	60	59	60	61
Ricardo J. Caballero	75	80	49	48	58	61	59	63
Timothy J. Besley	76	76	44	38	61	62	67	72
Avinash Kamalakar Dixit	77	79	47	47	64	65	62	64
Clive W. J. Granger	78	78	46	45	63	63	63	58
Boyan Jovanovic	79	84	60	57	62	64	58	60
George Borjas	80	81	53	54	66	67	61	62
Rafael La Porta	81	75	298	381	103	104	95	94
Tim Bollerslev	82	83	100	104	82	81	77	77
Oliver D. Hart	83	85	71	77	70	72	64	70
Julio Rotemberg	84	86	68	65	68	70	66	68
Robert C. Merton	85	82	116	120	90	91	79	80
Stephen John Nickell	86	87	61	56	72	73	75	76
Edward Lazear	87	89	64	67	75	78	73	74
Guido Tabellini	88	88	51	49	71	68	69	73
Joshua D Angrist	89	91	63	66	74	76	72	75
Rene M. Stulz	90	90	75	69	92	89	101	98
John Haltiwanger	91	94	82	86	81	82	80	82
Kevin M. Murphy	92	93	109	123	95	93	92	92
Robert J. Shiller	93	100	102	103	91	92	82	84
Eric S. Maskin	94	98	67	60	83	83	89	86
Francis X. Diebold	95	101	83	85	86	85	88	89
David Romer	96	96	94	117	94	94	90	90
Bruce D. Smith	97	95	192	188	125	123	145	147
Drew Fudenberg	98	97	90	89	98	95	106	104
Alan S. Blinder	99	103	65	62	88	88	96	97
B. Douglas Bernheim	100	106	76	72	87	87	87	91
William Easterly	101	104	66	64	85	86	86	88
Ernst Fehr	102	102	87	88	100	97	97	96
Sergio T Rebelo	103	108	118	125	93	96	91	93
Sherwin Rosen	104	111	78	79	89	90	85	87
Allen N. Berger	105	105	86	84	105	101	104	103
James Hamilton	106	110	89	98	97	100	94	95
John Creedy	107	71	962	916	486	415	541	477
Paul A. Samuelson	108	107	113	111	114	112	123	122
Kenneth R. French	109	118	127	152	106	106	98	99
Finn E. Kydland	110	114	184	190	117	118	108	107
Martin Shubik	111	92	462	449	217	204	254	238
John Whalley	112	99	222	220	147	145	168	168
Halbert White	113	117	88	87	104	105	103	106
Kenneth D. West	114	121	92	95	101	103	100	101
Martin L. Weitzman	115	109	189	184	136	131	151	146
Pierre Perron	116	124	80	76	99	102	102	102

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	RePEc Harmonic mean		RePEc Arithmetic mean		RePEc Percentage		New Approach Standardization	
	Excl.	All	Excl.	All	Excl.	All	Excl.	All
Robert C. Feenstra	117	125	73	68	96	98	99	100
Robert Ernest Hall	118	123	185	197	110	115	109	109
Joshua Aizenman	119	112	278	260	162	154	197	179
Willem Hendrik Buiters	120	116	152	145	128	126	148	142
Asli Demirguc-Kunt	121	113	114	107	121	119	121	116
Xavier Sala-i-Martin	122	128	120	124	108	109	107	108
Daniel Hamermesh	123	115	121	112	118	114	129	124
Richard H. Thaler	124	129	106	115	115	111	111	111
Torsten Persson	125	137	101	99	107	107	112	113
John H. Cochrane	126	131	115	127	109	113	113	112
Assaf Razin	127	119	143	137	140	133	155	152
James R. Markusen	128	133	99	91	113	108	110	110
David F. Hendry	129	120	122	113	137	130	146	148
David M. Cutler	130	135	97	96	120	117	120	121
Andrew J. Oswald	131	138	96	92	111	110	114	114
Charles F. Manski	132	139	93	90	112	116	115	115
Larry G. Epstein	133	132	171	172	148	149	162	157
Laurence J. Kotlikoff	134	134	126	122	130	125	137	132
Richard Rogerson	135	143	110	110	119	121	116	117
John List	136	142	112	108	127	132	140	143
William D. Nordhaus	137	126	201	201	160	160	175	170
Christopher A. Pissarides	138	148	95	94	116	120	117	119
Charles Engel	139	149	98	93	122	122	118	120
Jeremy Stein	140	153	123	126	126	128	119	123
Douglas W. Diamond	141	146	228	280	145	151	126	128
Andrew Abel	142	151	132	141	124	129	124	127
David Neumark	143	145	111	102	129	127	142	135
Jonathan Eaton	144	157	107	105	123	124	122	125
Mark P. Taylor	145	147	108	101	139	137	138	139
Oded Galor	146	155	128	128	132	140	125	126
Soren Johansen	147	127	246	246	171	167	154	145
Jeremy Greenwood	148	158	145	153	138	138	131	131
David Knudsen Levine	149	150	151	158	135	134	143	140
Roland J. Benabou	150	159	141	163	131	143	130	134
Anthony J. Venables	151	161	103	97	134	136	128	130
Richard H. Clarida	152	156	256	271	161	168	147	150
Gilles Saint-Paul	153	141	181	176	169	162	187	182
Glenn D. Rudebusch	154	160	142	140	141	141	127	129
Charles I. Jones	155	163	247	283	150	157	134	138
Randall Wright	156	162	119	114	133	135	132	133
Amartya Sen	157	152	218	217	174	176	185	183
Shang-Jin Wei	158	167	117	109	142	142	135	136
Campbell R. Harvey	159	172	139	149	144	146	136	144
Jonathan Gruber	160	170	225	284	154	155	141	149
Jose Alexandre Scheinkman	161	165	153	166	146	147	144	151
Sanford Jay Grossman	162	169	205	235	151	156	139	141
Hans-Werner Sinn	163	122	291	279	260	224	287	261
Richard S.J. Tol	164	130	1570	1546	553	508	536	451
Steven Levitt	165	164	131	133	153	158	158	156
Robert M. Townsend	166	166	196	199	164	169	165	165
Michael C. Jensen	167	173	323	334	172	185	152	153
W Kip Viscusi	168	136	217	204	199	190	221	208
Richard J. Zeckhauser	169	171	134	130	149	150	166	167
Robert Moffitt	170	175	124	119	143	144	133	137
Alvin E. Roth	171	174	180	181	167	170	177	178
Douglas Gale	172	178	125	118	152	152	159	159
John Moore	173	187	210	221	158	165	149	155
Steven N. Durlauf	174	180	135	134	155	153	160	160
Geert Bekaert	175	184	154	167	156	159	157	161
Jeffrey Marc Wooldridge	176	154	175	175	192	186	184	171

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	RePEc Harmonic mean		RePEc Arithmetic mean		RePEc Percentage		New Approach Standardization	
	Excl.	All	Excl.	All	Excl.	All	Excl.	All
Robert Glenn Hubbard	177	186	169	164	157	161	153	154
David N. Weil	178	181	261	286	182	183	164	163
Ellen R. McGrattan	179	179	187	200	170	164	163	162
James Tobin	180	185	144	139	166	171	167	169
Christopher Carroll	181	190	160	183	163	166	156	158
Vernon L. Smith	182	182	163	155	179	184	192	195
Matthew O. Jackson	183	177	156	146	175	173	193	187
Jere Richard Behrman	184	168	174	165	194	192	208	205
Stephen Roy Bond	185	183	1347	1444	321	316	260	249
Simon Johnson	186	192	306	347	204	211	191	191
Jess Benhabib	187	199	133	129	159	163	161	166
Pierre Chiappori	188	197	146	142	168	172	169	172
Peter Howitt	189	206	159	161	173	179	172	174
Carl Shapiro	190	203	186	196	185	188	171	173
Charles L. Evans	191	194	447	467	218	220	201	201
Franklin Allen	192	204	129	121	177	174	176	176
Assar Lindbeck	193	191	244	229	205	196	234	218
Janet Currie	194	200	162	159	181	177	190	188
Orley Ashenfelter	195	205	166	157	178	175	188	186
Varadarajan Chari	196	207	435	479	224	226	207	210
Jeffrey Gale Williamson	197	210	223	212	212	208	228	226
Josh Lerner	198	211	136	131	186	178	179	184
Philip Lane	199	212	149	143	189	189	173	177
Athanasios Orphanides	200	216	148	151	184	182	170	175
Jacques Francois Thisse	201	189	188	182	203	197	222	217
Adrian Rodney Pagan	202	214	140	132	183	181	178	180
Dale T. Mortensen	203	217	227	234	201	205	180	185
G. William Schwert	204	213	165	186	188	193	182	190
Stephen Morris	205	221	137	135	176	180	174	181
Ray C. Fair	206	196	318	307	222	222	266	254
Joel Slemrod	207	209	158	148	191	187	194	193
Allan H. Meltzer	208	195	310	313	243	238	280	270
Bruce E. Hansen	209	220	191	203	200	199	189	192
Thorsten Beck	210	202	213	211	209	210	200	197
J. Peter Neary	211	223	157	147	190	194	199	202
James Alan Robinson	212	218	388	461	237	249	212	213
Frank Rafael Smets	213	219	329	319	252	247	218	222
Gordon Hanson	214	227	164	171	202	201	181	194
Martin Browning	215	225	150	144	187	191	183	189
Ben Jann	216	140	7337	7285	1229	983	1050	755
Michael B. Devereux	217	235	138	136	193	195	186	196
Walter Erwin Diewert	218	222	168	156	195	198	204	204
Roger B. Myerson	219	231	161	160	196	203	195	198
Anil K Kashyap	220	237	206	216	208	206	198	203
Manuel Arellano	221	224	445	473	284	275	246	241
Daniel Kahneman	222	228	501	555	272	280	238	237
Michael P Keane	223	230	214	215	207	213	217	220
Eric A. Hanushek	224	245	147	138	197	200	196	199
Richard Baldwin	225	242	172	169	215	216	205	211
Joseph G. Altonji	226	246	224	232	213	217	203	206
William A. Brock	227	250	155	150	198	202	202	207
Edward E. Leamer	228	247	183	179	206	215	216	215
Xavier Vives	229	176	206	194	223	207	241	230
Michael Grossman	230	240	232	230	230	237	219	223
Milton Friedman	231	241	252	243	250	253	261	262
John Michael van Reenen	232	251	178	178	211	212	211	216
Michael David Bordo	233	234	268	253	251	239	278	265
Andrew Theo Levin	234	248	314	341	248	255	232	232
Peter Schmidt	235	253	182	180	210	214	214	219
J. Vernon Henderson	236	236	167	154	214	209	209	209

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	RePEc Harmonic mean		RePEc Arithmetic mean		RePEc Percentage		New Approach Standardization	
	Excl.	All	Excl.	All	Excl.	All	Excl.	All
Kenneth L. Judd	237	257	195	198	216	221	206	212
Roberto Perotti	238	262	312	342	263	263	231	242
Hal Varian	239	261	177	177	219	219	210	214
Costas Meghir	240	254	230	231	229	223	227	231
Marco Pagano	241	252	176	174	227	218	213	221
Laurence Ball	242	268	216	233	226	228	215	229
Guido Imbens	243	259	251	263	233	234	220	227
David M Newbery	244	226	267	255	257	254	288	281
Simeon Djankov	245	263	220	224	235	241	235	236
Glenn Ellison	246	256	259	303	231	240	240	243
James MacKinnon	247	255	197	189	221	229	236	233
Daniel L. McFadden	248	267	179	168	232	227	223	224
Adam Jaffe	249	266	331	332	285	277	252	256
George J. Stigler	250	264	257	292	264	268	247	253
Anjan V. Thakor	251	243	212	202	245	235	259	258
Narayana Kocherlakota	252	270	209	208	228	230	226	225
Richard R. Nelson	253	272	198	192	239	242	245	250
Stijn Claessens	254	258	199	195	246	251	251	248
Steven J. Davis	255	274	335	329	253	259	237	244
Harald Uhlig	256	275	203	210	241	245	229	234
Robert Butler Wilson	257	265	202	204	225	233	239	239
Takatoshi Ito	258	249	303	282	266	264	305	301
Jong-Wha Lee	259	269	370	366	312	313	283	280
Orazio Attanasio	260	283	173	173	220	225	224	228
Stephen Machin	261	281	193	191	234	231	243	246
Andrew B. Bernard	262	271	412	438	298	288	273	271
Matthew D. Shapiro	263	286	235	239	238	246	233	240
Paul Klemperer	264	285	208	219	244	244	230	235
David Backus	265	284	249	248	259	257	242	245
Alex Cukierman	266	277	239	227	247	250	281	277
Andrew Hughes Hallett	267	215	779	756	521	464	576	533
Thomas F. Cooley	268	280	270	278	236	232	250	252
Kiminori Matsuyama	269	273	254	247	254	258	274	268
Roger Guesnerie	270	279	419	463	287	295	335	330
Robert E. Lipsey	271	238	492	509	345	334	361	347
Bronwyn Hughes Hall	272	288	292	287	273	269	257	267
Robert A. Pollak	273	276	219	213	240	248	255	257
Danny Quah	274	287	478	529	317	318	293	292
Maria-Carmen Guisan	275	198	7435	7454	963	843	927	750
Per Krusell	276	282	309	316	262	266	258	259
Robert H. Topel	277	293	339	352	277	283	263	272
David M. Kreps	278	292	421	481	310	317	276	284
James Andreoni	279	290	231	237	258	262	244	247
Douglass C. North	280	201	697	704	478	433	420	373
Luigi Guiso	281	296	241	244	261	261	264	273
Fabio Canova	282	300	190	185	242	243	249	255
David Wise	283	291	328	368	288	282	295	294
Pierre Pestieau	284	208	456	425	386	359	429	402
Kenneth J. Arrow	285	289	229	222	268	274	265	264
Charles I. Plosser	286	295	248	241	271	276	262	263
John C. Quiggin	287	229	641	620	554	514	588	547
A. Michael Spence	288	301	294	305	280	292	271	275
David Isaac Laibson	289	307	325	350	282	294	272	282
Pete Klenow	290	299	481	512	323	328	299	304
Clement Allan Tisdell	291	188	3418	3421	1052	857	1080	910
Nancy L. Stokey	292	304	301	323	279	291	268	274
James E. Anderson	293	306	215	209	249	260	248	251
Robert S. Pindyck	294	302	211	207	255	256	269	269
David G. Blanchflower	295	308	253	256	276	278	275	283
Stephen Cecchetti	296	305	194	187	256	252	253	260

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	RePEc Harmonic mean		RePEc Arithmetic mean		RePEc Percentage		New Approach Standardization	
	Excl.	All	Excl.	All	Excl.	All	Excl.	All
Marvin Goodfriend	297	316	204	206	265	272	256	266
Richard J. Arnott	298	298	340	320	316	315	342	340
Allan Timmermann	299	294	242	228	274	271	298	298
Martin Uribe	300	318	245	245	283	279	270	276

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