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Ranking Journals Following a Matching Model Approach. An Application to Public Economics Journals

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Ranking Journals Following a Matching Model Approach. An Application to Public Economics Journals.[1]

1. Measuring the Scientific Impact of Academic Journals

The Economics profession now has a relatively well-established set of measures for the evaluation of scholarly production at international standards, similar to those used in other sciences. A vast number of contributions have studied this issue over the last 40 years. Most of this work concentrates on analysis of the impact of academic journals. This research makes it possible to rank journals according to their estimated impact. These studies are generally focused on the results (ranking of journals, ranking of departments or authors) rather than on the methodology, which is usually not innovative. In fact, although the multiplicity of specifications must be acknowledged, all ranking studies can easily be ranged into two main groups, according to the methodology chosen: estimation of the impact factor by the weights given by peers or, alternatively, by the citations received from articles published in international journals.

The first group of studies ranks journals according to the prestige attributed by peers. This approach is commonly used to rank national journals or subdiscipline journals. It has its advantages, but also clear shortcomings. The first advantage is a practical one: it is less time-consuming than the alternative approach based on citation analysis. The intrinsic limitation of peer analysis is the definition of the pertinent set of "peer evaluators", and the accurateness of the answers given by them. If the range of authors asked is narrow, the potential subjective bias is high. If the selection of respondents is too wide or reflects the views of authors with high variability in quality and quantity of production, the resulting ranking could be less meaningful. The second main difficulty related to peer approach is the weighting of each journal. Even if the selection of the scale proposed to evaluate each journal does not necessarily affect the place that each journal occupies in the ranking, it can clearly affect the distance between them. This is important as the distance between journals is decisive to evaluate their relative impact.

The alternative choice is to propose a ranking of journals based on the citations-received analysis. The various caveats that can arise regarding this approach are well known: in many cases auto-citations (by authors themselves or citations coming from other articles of the same journal) are not excluded, producing a bias in the results; neutral or negative citations and positive citations are not

[1] We thank Michael Keen for his useful comments. His suggestions did not influence in any sense his place in the ranking of authors.

treated differently; also, the citation approach tends to benefit "review of the literature" articles, even if they are not innovative; finally, some studies give the same weighting to all citations received by an article, independently of the impact of the journal the citations come from. This latter problem is taken into account in few studies, with an adjustment of the estimates through an iterative process (see for instance Laband and Piette 1994, Kalaitzidakis et al 2003).

Even after taking into account all these caveats, we think that the citation approach can be expected to produce consistent results when applied to ranking a global list of international journals for a given discipline. The internal logic of the methodology produces a reasonable view of what the most influential articles are and, as corollary, which journals tend to concentrate articles with a higher impact on average. Thus, we can be confident that core and top-tier journals ranked by the citation approach have a higher impact in the profession than those which are behind them.

By contrast, this last result mentioned cannot be taken for granted when the citation analysis is applied to national or subdiscipline journals. In those cases, the internal weakness of the citation approach already mentioned tends to be exacerbated, increasing the risk of producing meaningless ranking of journals. If the size of the national publication market is not big enough, the autocitation phenomenon can become endemic and highly distorting.

If we consider the subdiscipline rankings, the citation analysis also has severe caveats. The main one is the definition of the perimeter of journals which are to be checked in order to count the articles cited. The typical way is just to count citations received by other journals pertaining to the subdiscipline. The resulting rankings show a picture lacking decisive protagonists: the citations emerging from general journals, which, of course do not enter into the subdiscipline ranking. Even when including the citations coming from these general journals, a new problem is posed concerning the weighting to give regarding the citation impact of general and subdiscipline journals. A clear trade-off thus appears concerning the inclusion of general journal citations when elaborating subdiscipline journal rankings. Barrett et al (2000) proposed a mixed subdiscipline journal ranking, by establishing different lists, according to JEL classification. The resulting subdiscipline rankings using the citation analysis are constructed thus not by an *a priori* closed-ended subdiscipline list of journals. Results show rankings where actual subdiscipline journals are mixed with general journal rankings. Even if this mixing approach is suggestive, the empirical results are somehow disconcerting and render practical interpretation and use difficult. Let us examine the example of the Public Economics ranking. We find that the first place is taken by *Public Choice*, followed by *American Economic Review*, then *Journal of Public Economics* and *Journal of Political Economy* in fourth place. Does this mean that for a researcher in the field of

Public Economics it is more important and it has a higher impact to publish an article in *Public Choice*, rather than in *American Economic Review* or *Journal of Political Economy*?

Summarizing the pros and cons of each approach, it can be said that, with its limitations, the citation approach provides the optimum results when applied to general ranking of journals. More serious weaknesses appear when using the citation approach to rank national and subdiscipline journals: there is room for methodological improvement.

Furthermore, an important additional structural weakness of the citation approach remains: it can be used only to assert the impact of well established journals, thus treating all new emerging journals unfairly. The Half Life Citation Index (HL) is a measure provided by *SSCI*. It refers to the number of years that it takes for an average article in a journal to receive half of the total citations. Empirical estimations of this value show that the higher the citation impact, the higher HL. HL is also affected by the field and the nature of the articles (for example, theoretical articles tend to present higher HL values). This implies that top quality new journals will receive citations in a slower path than lower quality journals. It also implies that the true impact of a journal can be correctly assessed though the citation approach only after a substantial number of years (for instance, top ranked journals present a HL value greater than ten years). Meanwhile, the impact of new top journals will be systematically underestimated when using the citation approach.

This structural limitation of the citation approach poses a problem of inequity of treatment between established and new journals. But it also poses a problem of efficiency in the academic publishing market: the citation approach bias acts as a barrier for new entrants, as their scientific impact will be underestimated in their initial years. The apparent low scientific impact of new journals will repel authors who are impact-factor-hunters (those in tenure track or looking for external funding). It can finally produce a self-fulfilling prophecy: impact underestimation attracts lower quality papers and repels good ones so that the editorial board is not able to maintain stringent academic standards. All in all, the bias against new journals produced by the citation approach generates erroneous signals leading to an inefficient allocation of resources in the academic publishing market.

We propose in this paper a ranking methodology that can be applied to national and subdiscipline journal rankings, which we think provides more consistent results than those generated by existing methods, at a lower cost in terms of effort. Moreover, the methodology that we propose eradicates the bias against new journals. The methodology can also be used to produce global rankings. The intuition behind our proposal is extremely simple but straightforward: the publishing industry is a stratified market where academic journals have different scientific impact. Some journals attract a high proportion of top quality manuscripts, while other journals publish articles with lower scientific impact. In a matching process, authors writing articles with potential high scientific impact will choose the journals with the higher academic impact and prestige, in order to ensure the maximum exposure of their findings. In this way, top scholars indicate by their choices which are the leading journals. Our proposal consists of using top scholars' publishing patterns as the main criterion in order to estimate the relative scientific impact of each journal.

The approach we propose is an alternative to the existing citation and peer ranking approaches. As such, it allows us to establish journal rankings as the other approaches do. Although the methodology we propose is perfectly appropriate to produce general field rankings, we think that it is especially suitable when used to produce subdiscipline and national rankings, as some weaknesses (biases against new journals) of the classical approaches disappear when the new approach is used.

In this article, we apply this methodology to the case of Public Economics Journals. We propose in section 2 the theoretical assumptions justifying our approach. We sketch how the publishing market can be analyzed as a matching process, and we propose a formal theoretical model in the appendix. We show in section 3 the empirical results applied to the Public Economics field. Section 4 presents our conclusions.

2. Foundations of a Ranking System: The Academic Publishing Market as a Matching Process between Authors and Journals

The main underlying assumption guiding all our analyses is that academic publishing behavior can be fitted as a matching process. The intuition, which we consider accurately depicts the publishing market, is that a demand for publication, stratified in quality (the different existing journals), is confronted with a supply of potential publications (authors' manuscripts) also stratified in quality, and that a correct quality matching process takes place.

The decision on where to send the manuscript is conditioned by the auto-perception of the intrinsic quality of the paper. Authors are confronted with a trade-off between the quality of the journal where the paper is intended to be published and the probability of the manuscript passing the reviewing process successfully. In order to maximize the chances of being published, each author will direct the manuscript to a journal whose impact is in accordance with the auto-perceived quality of the manuscript.

We can find exceptions to this general principle, which come from two different sources. The first one corresponds to a conscious movement, when an author sends a manuscript to a journal knowing that the journal has a lower impact than the intrinsic quality of the contribution. We ignore this marginal case in our analysis.

The second source of quality mismatching corresponds to an involuntary behavior produced by a lack of information, which can have two origins.

The first source of involuntary bias is the most important and commonest for all of us: the misperception about ourselves and about the quality of our production. Authors usually consider their findings in more positively than external reviewers. But the internal dynamics of the publishing market tend to correct the initial mismatching (due to overconfidence, vanity) through the reviewing process and the related submission costs (fees, instruction to authors, reviewing delays, one journal at a time submission rule). Leslie (2005) proposes a theoretical model about the adjustments produced in the academic publishing market thanks to the costly reviewing process (mainly in terms of waiting time for an answer). Azar (2004) also considers the implications of time delays in the reviewing process. Pressman (1994) argues that the one journal submission at a time rule preserves the quality of published papers.

The second force leading to an involuntary mismatch in quality between authors and journals due to lack of information comes from the author's ignorance about the quality characteristics of the different existing journals. It can be expected that the availability of correct information is strongly correlated with authors' quality production. The publishing market process also absorbs this initial mismatch.

Let us assume then that in the scientific publishing market there are not strong forces generating systematic mismatching decisions between contributors and journals. We arrive then at a conclusion which is not hotly disputed: in general, outstanding papers tend to be published in top journals; lower quality papers tend to be published in lower impact journals.

A top quality author is an academician who produces articles with a high average scientific impact. Imagine now a high quality researcher who has written a new reference paper and has to decide where to publish it. She will decide to send it to journals presenting the higher level of impact according to her assessment. High impact journals accumulate high quality manuscripts. And, normally, a reference manuscript rejected by a journal will be presented to other high quality journals. If, after different attempts, the manuscript is not accepted among top journals, a top researcher has to decide whether not to publish the manuscript or to send it to second option journals (top-tier journals or subdiscipline top journals). In some cases, the choice to publish top quality manuscripts in leading subdiscipline journals instead of top generalist journals can become the first option, even if the former have a lower broad impact than top generalist journals. This decision can be explained by the importance of being positioned as a reference author inside a subdiscipline area.

This process means that high quality researchers are indicating by their publication choices not only what the leading general journals are, but also what the high quality subdiscipline or regional journals are. The higher the number of high quality manuscripts (produced by high quality economists) a subdiscipline journal attracts, the higher its average quality and scientific impact will be.

At first sight, the interaction between supply and demand for manuscripts which are different in quality could appear to be a circular process, since what makes an author a top author is that her reference paper is published in top journals, while, at the same time, what makes a journal be considered a top journal is the ability to publish reference papers produced by top researchers. We have a way to avoid this simultaneity, by the generation of an exogenous variable, which emerges nevertheless from the nature of the process described above. Our aim is to identify which journals capture those reference manuscripts, which are produced only by top scholars. Journals having been able to publish a significant amount of reference papers will reach top positions in the usual rankings based on the different versions of the citation approach; they will normally be the journals which have the highest academic and research library exposure; and finally they will also top by peer rankings.

These combined characteristics correspond to what are commonly known as core or Blue Ribbon Journals. These consist of those 5 to 10 journals which are consistently ranked in top positions according to the citation approach as well as by peer perception. We will enter into more detail about this point in the following section.

The specification of one of the players in the publishing market allows us to break the circularity of the endogenous relations, and opens the door to the ranking method we propose in this paper. Once we have identified these few Blue Ribbon journals, we just need to track who the authors are who have published their work in those core journals. These top quality Blue Ribbon authors will choose to publish their research also in non Blue Ribbon journals. They will direct their work also to top subdiscipline journals and top-tier general journals. By their choices, top authors are signaling which journals they consider as the best positioned to spread the results of their research.

The more a given journal attracts manuscripts produced by Blue Ribbon authors, the higher the expected scientific quality of a journal will be. This logic opens the door to the development of a new approach for the estimation of the scientific impact of any given journal.

We propose a more detailed theoretical model with a simulation in the appendix, but with the elements provided in this section we have sufficient information to propose an empirical application, as will be seen in the following section.

3. A Ranking of Public Economics Journals

We propose an empirical application of the model proposed in the preceding section, in the case of Public Economics journals. To do so, we will follow the different steps described in the theoretical model:

1. Identification of Blue Ribbon journals (BRJ).
2. Fixing weights for each BRJ.
3. Establishing a ranking of authors according to the number of articles published in BRJ, during a given period of time.
4. Establishing a list of Public Economics journals.
5. Ranking Public Economics journals according to the relative number of articles published by BRJ authors, during a given period of time.
6. Establishing a ranking of Public Economics authors, according to the number of articles published, weighted by the relative impact factor of each Public Economics journal.

As mentioned, the way proposed to identify first class scholars is to look at Blue Ribbon journal production. These are the core top journals, and are widely acknowledged as being so in academic circles. Different ranking methods consistently put them at the top of the list.

We select 8 of them for our study, namely: *American Economic Review, Econometrica, Economic Journal, Journal of Economic Literature, Journal of Economic Theory, Journal of Political Economy, Quarterly Economic Journal,* and *Review of Economic Studies*

Other authors might add some other journals to this list, but few would delete any of them. We show in Table 1 which journals were defined as Blue Ribbon by other authors, or which rank they occupy in different studies.

[Table 1 about here]

We have to fix the weights of each BRJ. To do so, we refer to the existing impact evaluations of those journals. As we have defended in the first section of this paper, we consider that the most appropriate measure to estimate the impact of top ranked journals is the citation approach. We selected one of the most recent estimations in this field, proposed by Kalaitzidakis et al (2003). They propose a revised version of the JCR Index taking into account articles published in the last decade, after applying an iterative adjusting process concerning the quality of the received citations and after excluding auto-citations. These weights are shown in the column 3 of the table 1.

Authors who have published in those journals become in our model a high quality author and their impact increases with the number of articles published in those core journals. As usual in ranking studies, we give *1/m* point to each *m* co-author of a BR article. For instance, an article by 2 coauthors published in the *Journal of Political Economy* gives 32.6 points to each coauthor. The period of publication in the BRJ covered in our empirical study goes from 1990 to 2001. We excluded from our sample all contributions with 5 pages or less of extension, which typically correspond to presentations, notes and technical notes, comments, discussions or congress proceedings. Book reviews are also excluded from the sample. The complete list of "high quality authors" contains 4681 researchers.

The publishing behavior of these 4681 BRJ authors is the means we have to evaluate the average quality of any other economic journal. We have used in this paper the particular case of Public Economic journals.

We have not yet stressed the interest of providing a subdiscipline ranking, but the arguments we can advance are exactly the same as those indicated in the first section. Only few subdiscipline journals are taken into account and evaluated in global rankings. For instance, SSCI includes only *Journal of Public Economics, National Tax Journal, Public Choice, Kyklos* and *Contemporary Economic Policy*. Constructing a whole and exclusive subdiscipline ranking will provide information about the accuracy of the selection of subdiscipline journals included in global rankings of journals, as other journals not included in the list may have a higher scientific impact than those reported. It can also provide information about the emergence of potential new average or even top-tier quality journals. These newcomers with potential to become reference journals in the subdiscipline field are impossible to detect by applying the citation analysis. This is because the citation analysis requires a vast time gap for reference and good manuscripts to become highly cited articles, as they have to wait for the publication of the citing articles. Additionally, reference articles tend to receive citations over many years. As we stated in the first section, this distortion is not only unfair, but reduces the efficiency of the academic publishing market. By contrast, a journal ranking based on BRJ authors provides an alternative measure of its actual impact in the academic circles, an influence which will be translated several semesters ahead into formal impact, measured by citations and recognition by peers.

Also, a ranking based in BRJ authors tends to decrease the bias towards journals oriented to review of the literature articles. The approach that we propose does not use directly the number of citations received by each article as a measure of impact factor. We use instead the number of articles published by each author in BRJ as impact factor, and the number of BRJ articles published by each author is presumably not related neither with the number of review of the literature articles that she publishes, nor with the number of citations received from this kind of articles.

Additionally, we have mentioned that the citation approach tends to favor journals publishing empirical papers, as they tend to receive more citations than theoretical papers, obtaining by this a higher impact factor. This bias is probably less strong when using the ranking approach proposed in this paper. The reason is that the impact factor of each article is measured by the number of BRJ articles produced by the authors of each article, and not by the total amount of citations that each BRJ author receives. As we have selected a balance of empirical and theoretical oriented journals among our core journals, the number of BRJ articles of each author will proceed from empirical and theoretical papers, and we do not expect *ex ante* any specific bias towards one or another kind of papers.

We selected 31 international journals dealing mainly with public finance and public economics issues. They are all registered in the database *Econlit*. This selection is thus based to a certain extent on peer recognition. Of course, *Econlit* does not provide an impact rank of its listed journals. We can note that among the selected journals there are some that are especially interesting regarding the question raised in the last paragraph about new journals. Three of them are five years old or younger (*Economics of Governance, Journal of Public Economics Theory*, and *Public Finance and Management*), and the last one adds to the preceding characteristic the fact that it is exclusively an on-line journal. Even if the results we will obtain concerning new journals are not robust, as they are based on too few observations (they have published a small number of articles), they provide valuable information concerning their expected future evolution and formal evaluation of impact by other methods. The period covered refers to articles published between 1995 and 2001.

The calculation used to establish the impact of each Public Economics journal is:

$$PEI_i = \frac{\sum_{k=1}^{j} PE_{ki} * BR_k}{\sum_{k=1}^{j} PE_{ki}} \qquad [1]$$

Where PEI_i is the Public Economics Impact value of each i journal. PE_{ki} corresponds to the number of articles published by the author k in the Public Economics journal i (each article is weighted by the number of authors), times BR_k, the impact factor of this author k, according to the weighted value of articles published in Blue Ribbon journals. If an author k has not published articles in BRJ, the numerator expression takes value 0. This author does not increase the impact factor of the Public Economics journal i. The term j corresponds to the number of authors having published in PE journal i.

A total number of 6102 articles were used to establish the ranking of the selected 31 public economic journals.

Table 2 shows the list of public economics journals selected, and ranked according their impact estimated by their presence of BRJ authors.

[Table 2 about here]

The table shows that the leading journal in the field of public economics is *Journal of Public Economics*. It reaches a value of 64.82. This means that on average, authors publishing in *Journal of Public Economics* have published other articles in Blue Ribbon journals between 1990 and 2001 in an amount equivalent to 64.82 impact factor points as measured by Kalaitzidakis et al (2003), which we have used as a reference. To visualize this result, this roughly corresponds to having published a 2/3 or an *AER* article, one *Journal of Political Economy* (65.2 points) or some 3 articles in the *Economic Journal* (see weights in column 3 of table 1).

If we consider only established journals (i.e. at least five years old), the second journal in our list is *Economics and Politics* (52.03 points), followed by *National Tax Journal* (33.79), *Fiscal Studies* (33.22), and *Journal of Policy Reform* (31.93). According to the impact factor estimated by Kalaitzidakis et al (2003) for top economics journals, *Journal of Public Economics* was also by far the most prominent journal in this field. From the following four journals in our ranking, only one of them, namely *National Tax Journal*, is also taken into account in the mentioned study and, by consequence, by the JCR index. This may be because two of them are too young to be included by the citation approach (*Economics and Politics* and *Journal of Policy Reform*). Our results suggest then that these two journals are in fact emerging reference journals in the field of public economics. According to our model, the prediction is that as prominent economists are publishing reference and good manuscripts in *Economics and Politics* and *Journal of Policy Reform*, these articles will be read and cited by other authors. Our prediction is then that future journal rankings using the citation index will include these two journals, and they will directly reach a noticeable place in the ranking.

A similar consideration can be made referring to two even more recently created journals, which appear to have imposed high standards in the selection process. We refer to the *Journal of Public Economic Theory*, which attains the second place in the ranking, with 59.12 points, and *Economics of Governance*, in fourth place with 44.86 points. Nevertheless, here it is appropriate to be more cautious not only regarding their future place in a citation index ranking, but also concerning their real place in the ranking we propose. We think that new journals edited by prominent scholars can suffer a kind of champagne effect. First published articles correspond to top scholars attracted by the new project. But it is not sure that the promising initial momentum can persistently be maintained, as their lack of maturity (and the negative effect produced by the citation approach, as explained in section 1) can act as a handicap to attract constantly other prominent authors, a flow which is needed to ensure the high quality profile of the journal. In fact, we have been obliged to exceptionally include additional observations for the journal *Economics of Governance*, because at the end of the normal period we had only 26 articles, not enough to produce significant results. After we added 27 new observations corresponding to the period January 2002 to July 2003, the initial estimated impact value of 72.06 dropped to 44.86. It is interesting to notice that concerning the overall ranking shown in table 1, we find a negative correlation between age of the journal and scientific impact (coefficient of correlation of -0.346).

Concerning the five public economic journals which have been included in the paper by Kalaitzidakis et al (2003), besides the mentioned case of *Journal of Public Economics*, *Public Choice* took the second place (and 43rd in the overall ranking), while it appears in the 11th position in our ranking (when including established and recent journals together). *National Tax Journal* was the 3rd public journal (50th overall), while it takes a relatively better 5th place in our ranking. *Contemporary Economic Policy* was 4th in the Kalaitzidakis et al ranking (and 60th overall) while it takes place 18 in our ranking. Finally, *Kyklos*, which was 5th (81st overall), takes the 12th place in our ranking.

Finally, a table of the top 100 worldwide scholars by production in the field of public economics between 1995 and 2001 is shown in table 3. Of course, this classification does not cover all the scientific production of public economic authors, but only the share of it published in the 31 journals selected. The list cannot be directly considered as the ranking of the best public economists but just the leading publishing authors in public economic journals.

[Table 3 about here]

There are 6071 authors who have published in any of the 31 public economics journals listed in table 2. The ranking of authors has been devised following the standard process: the points corresponding to each article are divided among each *m* coauthors. The weighting of each article published depends on the impact factor of each journal, as estimated in table 2. We present two alternative measures of authors' scientific production. In column 4 of table 3 is shown the first measure, corresponding to the total number of points reached by articles published in the 31 public economics journals selected.

We calculated a dispersion factor, displayed in column 6, estimated following the expression [2].

$$\lambda_k = \frac{\sum_{i=1}^{31} \frac{1}{m_{i(k)}} n_{i(k)} PEI_{i(k)}}{\max_i \left(\frac{1}{m_{i(k)}} n_{i(k)} PEI_{i(k)}\right)} \qquad [2]$$

$PEI_{i(k)}$ refers to the impact factor of each journal *i* for researcher *k*, as calculated by expression [1] and $\frac{1}{m_{i(k)}} n_{i(k)}$ is the *1/m* share of the articles *n* published in journal *i* by author *k*. So, the value in the numerator expresses the total number of points attained by each author (results of column 4), while the divisor shows the maximum amount of points considering every individual journal. If an author concentrates all her publications in only one journal, λ takes value 1. The dispersion factor λ increases when an author distributes her production in different journals. The Dispersed Public Economics Ranking (column 7) is obtained by multiplying the total number of points (column 4) by the dispersion factor λ (column 6). Column 8 shows the same ranking, but after indexing the first ranked author to the value 100. We take this value as reference, as we consider that it offers a more accurate view for a subdiscipline ranking, because it favors authors being able to publish their work in several different journals. This avoids eventual editorial bias, with authors having special access to particular journals. Also, an author publishing in several public economic journals proves that she is a specialist in public economics, whereas publishing only in one or two journals on the list could reflect a marginal interest or expertise in this area of knowledge.

Concerning the robustness of the list of authors it can be noted that the journals producing a significant share of the points have always been considered as core in the public economics field: *Journal of Public Economics* generates 31.6% of all points; *National Tax Journal* produces 10.9%, and *Public Choice* 8.6%. No other journal produces more than 5.4% of the points of the ranking of authors.

We have included other complementary information in table 3. Column 3 shows the points obtained by publishing articles in Blue Ribbon journals during the period 1990-2001, according to the weights indicated in the column 3 of table 1. Column 5 indicates the total number of public economics articles published. A measure of average quality of production is shown in column 9. It is obtained by dividing column 7 values by column 5 values.

The first place among the 6071 authors identified corresponds to Michael Keen, from IMF and U Essex. He is followed by James Poterba (MIT). Gareth Myles comes in third place (U Exeter). The top ten list also contains Joel Slemrod (U Michigan), Todd Sandler (U South California), Lans Bovemberg (U Tilburg), Andreas Haufler (U Munich), Robin Boadway (Queens' U, Ontario), Louis Kaplow (Harvard U) and James Buchanan (George Mason U). We find thus a wide variety of academic centers represented, as well as fields of specialization, ranging from international public goods or tax competition, to public choice.

4. Conclusions

The absence of extraordinary surprises in the ranking of public economic journals presented in table 2 is an important empirical ally in support of the rationale and pertinence of the theoretical explanation of the publishing market on which the ranking approach is based. The intriguing results concerning the high level of impact of recently created journals like *Journal of Public Economics Theory* and *Economics of Governance* reinforce the validity of the approach we are suggesting: there is no way to explain why a number of top scholars are sending their manuscripts to these journals other than because they know that other renowned economists are sending articles to this new editorial project. No direct information on citation impact can be provided to attract good manuscripts to these journals "without a past", and the lack of sufficient time stops them from being included in peer rankings.

We have applied this ranking approach to public economics journals, but it can be applied in any scientific framework. Once the set of relevant "top" and "good" authors is obtained (in our case, the authors having published in Blue Ribbon economic journals), then the impact of any journal pertaining to the same scientific discipline can be measured: all journals in the scientific field, a set of subdiscipline journals, national journals, or a new journal. This flexibility opens the door to new specific rankings using a method that is much less time consuming than the citation approach and which tends to be more objective and reliable than peer rankings.

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Appendix: A Theoretical Academic Publishing Market

A top author will be able to produce reference articles; a good author will be able to produce at most good quality manuscripts; average authors will produce average quality papers and poor quality authors will be able to just produce poor quality papers. All authors will try to reach the journals with higher quality given the actual quality of their scientific contributions. These relationships are presented on the left-hand side of figure 1.

[Figure A.1 about here]

a, *b*, *c* and *d* correspond to the manuscripts produced by each category of authors (*a* are top authors; *b*, good authors; *c*, average authors, and *d*, low profile authors). Each type of author is allowed in the model to produce manuscripts of different levels of quality.

α, β, γ and δ refer to the articles finally published by each category of journal (α to core journals; β to top-tier journals and top subdiscipline journals, γ to average journals and δ to poor quality journals).

A top quality author (*a*, in figure A.1) is, by our definition, an academician who produces articles with a high average scientific impact (reference manuscripts, a_{rf}). Of course, she indeed also produces just good manuscripts (a_{gd}). She could also produce "average manuscripts", but we have eliminated for all kind of authors this two-stages-below quality production, in order to simplify the presentation of the results. Top quality authors will decide, for a number of reasons, to publish part of their work also outside top quality journals. Looking for the maximum scientific exposure of her research, a top author will nevertheless tend to concentrate publications among what she considers the leading subdiscipline journals and top-tier journals. Behaving like this, top authors provide signals about the relative scientific impact of each journal.

In order to break the circularity between the quality of journals and the quality of authors, one of the components of the process has to be identified exogenously. We propose to choose the perimeter of the journals which are undisputedly considered to be core journals. In Economics, some authors describe them as the Blue Ribbon Journals. Once we have identified this small set of journals, we can proceed to the identification of all the other variables taking part in the academic publishing market.

Thus, we can replace what in figure A.1 appeared as “core journals” by the now clearly identified set of “Blue Ribbon Journals”.

Blue Ribbon Journals publish the most relevant scientific pieces of production in the Economics area. This is translated in our model by the fact that these journals are nourished with reference and good manuscripts. Those articles can be produced only by top authors and by a certain percentage of good authors. Top authors produce a number of reference and good articles during their academic life. A share $\frac{\alpha_{rf}}{(\alpha_{rf}+\beta_{rf})}$ of those papers will be published in Blue Ribbon journals, and the remaining will be published in top-tier and subdiscipline top journals. Good authors produce some good manuscripts during their academic career, altogether with other average papers. Some top authors publishing reference papers actually never publish in BRJ, if this reference work is always directed to top tiers or subdiscipline BRJ (β_{rf}).

We estimate in expression A.1 what share of top authors' production (ρ_a) is published in Blue Ribbon journals:

$$\rho_a = \frac{\alpha_{rf}\left(\frac{a_{rf}}{(a_{rf}+b_{rf})}\right)+\alpha_{gd}\left(\frac{a_{gd}}{(a_{gd}+b_{gd})}\right)}{(a_{rf}+a_{gd})} \qquad \text{[A.1]}$$

As only top authors (*a*) are able to produce reference manuscripts (*rf*), we have that $a_{rf+}b_{rf} = a_{rf}$, and expression [A.1] becomes

$$\rho_a = \frac{\alpha_{rf}+\alpha_{gd}\left(\frac{a_{gd}}{(a_{gd}+b_{gd})}\right)}{(a_{rf}+a_{gd})} \qquad \text{[A.2]}$$

The model allows just “good authors” to see their work published in BRJ, as far as they produce good manuscripts, and a fraction of these good manuscripts are published by BRJ. As before, we can calculate this theoretical share ρ_b. As in our model we assume that “good authors” are not able to produce reference manuscripts, $b_{rf} = 0$, and thus the first term of the numerator of the expression [A.3] disappears.

$$\rho_b = \frac{\alpha_{rf}\left(\frac{b_{rf}}{(a_{rf}+b_{rf})}\right)+\alpha_{gd}\left(\frac{b_{gd}}{(a_{gd}+b_{gd})}\right)}{(b_{rf}+b_{gd})} = \frac{\alpha_{gd}\left(\frac{a_{gd}}{(a_{gd}+b_{gd})}\right)}{b_{gd}} \quad \text{[A.3]}$$

The specific values of ρ_a and ρ_b will depend on the structure of the academic publishing market. To give visibility to these figures we can provide a numerical example. Let us assume that 20% of top authors' production corresponds to reference manuscripts $(a_{rf}/(a_{rf}+a_{gd})=0.2)$. Similarly, suppose that 20% of good authors' production corresponds to good manuscripts, while the rest corresponds to average production $(b_{gd}/(b_{gd}+b_{av})=0.2)$. We assume that the overall production of good authors is tenfold that of top authors: there is one top author for each ten good authors $(a_{rf}+a_{gd}=0.1*(b_{gd}+b_{av}))$. Concerning the structure of journals, we assume that half of the reference articles are published by BRJ, while the other half are published by top-tier and subdiscipline top journals $(\alpha_{rf}=\beta_{rf})$ and, finally, we assume that only 10% of articles published by BRJ are reference manuscripts (α_{rf}), while the remaining 90% correspond to just good manuscripts (α_{gd}).

With this set of more or less plausible hypotheses we find that $\rho_a = 0.3572$ and $\rho_b = 0.0643$. That is, 35.72% of total work produced by top scholars will be published in BRJ, while in the case of good authors, 6.43% of the research outcome will reach these journals.

The next step is to produce a ranking of Blue Ribbon authors, according to the number of articles they publish in BRJ, weighted by the relative impact of each journal, as measured by the citation approach. We can now redefine the publishing market relationship presented in the figure A.1 by introducing the newly identified elements, as shown in figure A.2. *a'* corresponds to Blue Ribbon top authors, while *b'* denotes Blue Ribbon Good quality authors.

[Figure A.2 about here]

We can now identify the relative scientific quality of any given journal (top-tier and subdiscipline BRJ, average journals and poor quality journals).

The force driving the classification of quality of journals has been stated before: it will be given by BR authors' decision about where to send their manuscripts. The more a journal attracts BR authors' manuscripts, the higher its average scientific quality and its potential impact, as it is concentrating reference and good articles, which will lead to future high level of citation. Looking for publishing of BR authors will allow us not only to rank top tiers and subdiscipline top journals, but also average and poor quality journals. Concerning average journals, a certain share of all published articles correspond to good manuscripts $(\frac{\gamma_{gd}}{(\gamma_{gd}+\gamma_{av}+\gamma_{pr})})$, and among those good manuscripts, there is a probability that they have been written by a BR top or good author. Even average journals can have a certain amount of articles signed by BR authors (remember that according the numerical example, 64.28% of top scholars' articles will be published in non BR journals). Poor quality journals publish also average quality manuscripts, as some of them are written by BR good authors. The lower the quality of the journal, the smaller the probability they have to publish articles signed by BR authors. Even when publishing a BR author, average and poor quality journals have small chances to attract high ranked BR authors.

Therefore the share of articles of top-tier journals and subdiscipline journals capturing BR authors, which corresponds to the percentage of articles signed by this kind of authors, can be measured, using the notation of the figure A.2, as shown in expression [A.4].

$$\eta_\beta = \frac{a'_{rf}\left(\frac{\beta_{rf}}{\alpha_{rf}+\beta_{rf}}\right)+\left(a'_{gd}+b'_{gd}\right)\left(\frac{\beta_{gd}}{\alpha_{gd}+\beta_{gd}+\gamma_{gd}}\right)+b'_{av}\left(\frac{\beta_{av}}{\beta_{av}+\gamma_{av}+\delta_{av}}\right)}{(\beta_{rf}+\beta_{gd}+\beta_{av})} \qquad [A.4]$$

Similarly, the result for average journals is:

$$\eta_\gamma = \frac{\left(a'_{gd}+b'_{gd}\right)\left(\frac{\gamma_{gd}}{\alpha_{gd}+\beta_{gd}+\gamma_{gd}}\right)+b'_{av}\left(\frac{\gamma_{av}}{\beta_{av}+\gamma_{av}+\delta_{av}}\right)}{(\gamma_{gd}+\gamma_{av}+\gamma_{pr})} \qquad [A.5]$$

The result for poor quality journals is:

$$\eta_{\delta} = \frac{b'_{av}\left(\dfrac{\delta_{av}}{\beta_{av} + \gamma_{av} + \delta_{av}}\right)}{(\delta_{av} + \delta_{pr})} \qquad [A.6]$$

Again, in order to illustrate the results, we can imagine a specific publishing market structure. We assume that each level of authors is composed by a group tenfold the superior level in quality. Using the preceding results, we assume that $\rho_a = a'/(a' + a) = 0.3572$, and that $\rho_b = b'/(b' + b) = 0.0643$. Among BR top authors, we assume as before that 20% of their production corresponds to reference manuscripts. Concerning the journal structure, we assume that there are 10 average journals for each top-tier journal, and that there are 10 poor quality journals for each average journal. All journals publish the same number of articles per year. Additionally, 5% articles published by top-tier journals are reference papers; 20% correspond to good manuscripts and 75% to average manuscripts. 5% of articles published by average journals are good papers, 20% correspond to average manuscripts and 75% to poor quality articles. 5% of the articles published by poor quality journals have average quality while the remaining are poor quality articles.

Using these hypotheses we find that the η_{β} probability of having a BR author publishing a top-tier or subdiscipline BR journal is about 1.776%. The relationship with the other group of journals is $\eta_{\beta} = 4.89\,\eta_{\gamma} = 53.51\,\eta_{\delta}$.

Figure A.1

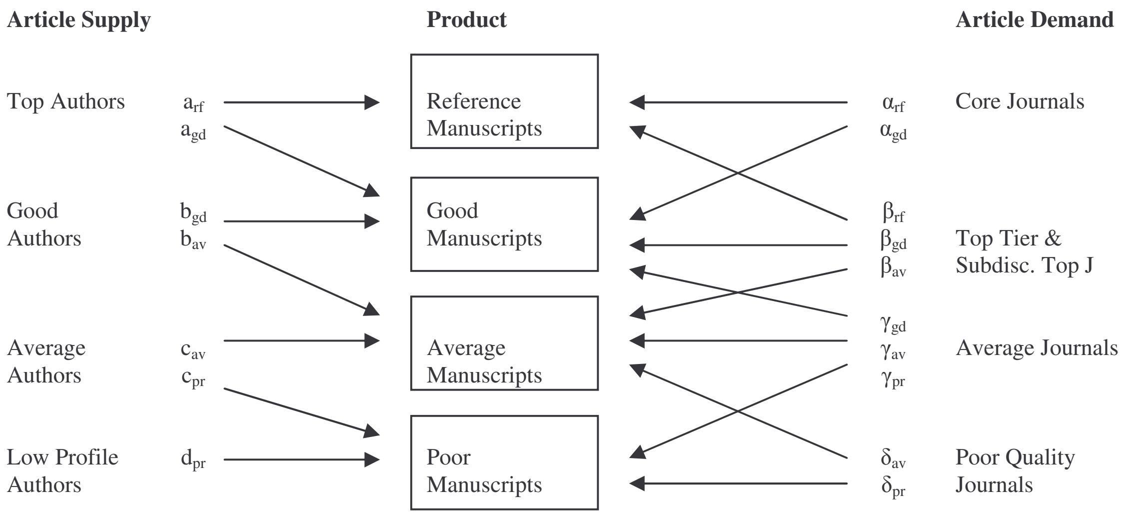

Figure A.2

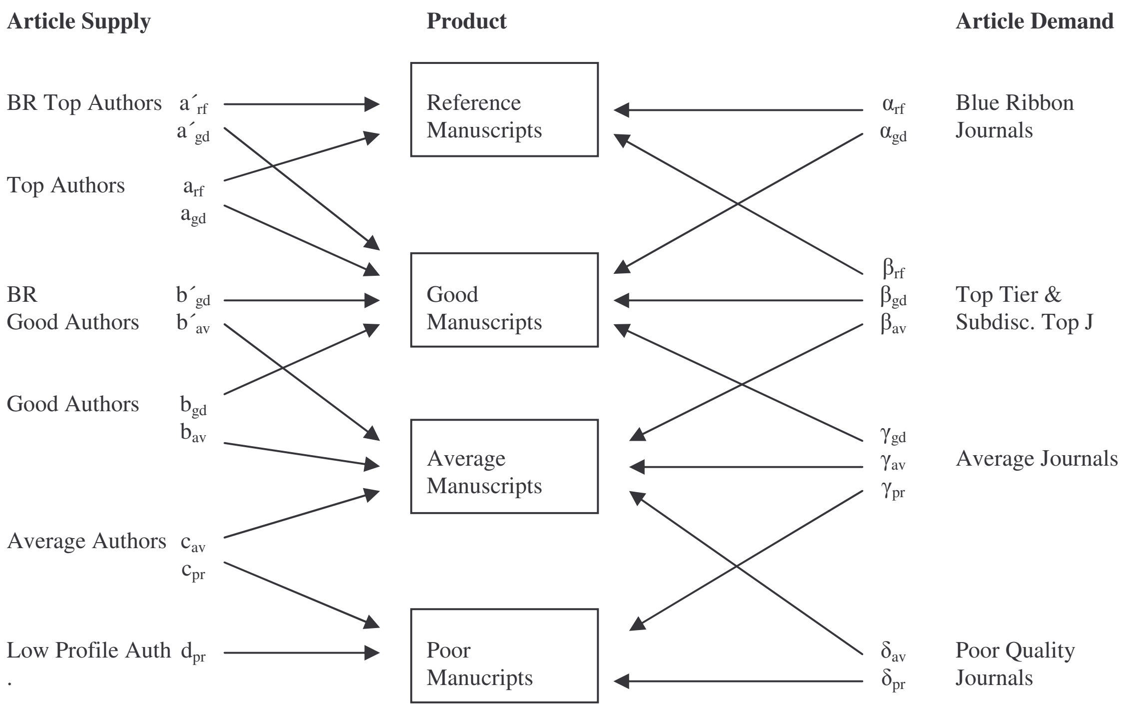

Table 1

Core Journals According to Different Studies

Journal	99-01 SSCI	KMS03 Adjust.	KMS03 JCR	DGG03 C3M	LP94 Imp90	LP94 9 Core	B94 5 Core	KMS99 Top 10	SSF95 9 Core	SM96 5 Core	DV98 8 BR	D89 27 Core
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
American Economic Review	1.884	100.0 (1)	100.0(1)	A+	1	x	x	x	x	x	x	x
Econometrica	2.001	96.8 (2)	88.27(2)	A+	3	x	x	x	x	x	x	x
Economic Journal	1.356	20.7 (18)	28.23(6)	A	25	x	x	x	x			x
Journal of Economic Literature	6.845	18.8 (20)	17.0(13)	B	18							x
Journal of Economic Theory	0.739	58.8 (4)	27.94(7)	A	7	x		x	x		x	x
Journal of Political Economy	2.272	65.2 (3)	74.42(3)	A+	4	x	x	x	x	x	x	x
Quarterly Journal of Economics	4.047	58.1 (5)	45.98(4)	A	5	x	x	x	x	x	x	x
Review of Economic Studies	1.573	45.2 (8)	26.79(9)	A	9	x		x	x	x	x	x
J of Financial Eco					2							
J of Monetary Eco					4	x		x	x			
R. Eco. and Stats						x		x	x		x	
European Eco. R								x				
International Eco. R											x	

Note: SSCI accounts for Social Sciences Citation Index (average values 1999-2001), KMS03 refers to Kalaitzidakis et al (2003), DGG03 to Dolado et al (2003), LP94 to Laband and Piette (1994), B94 to Bairan (1994), KMS99 to Kalaitzidakis et al (1999), SSF to Stigler et al (1995), SM96 to Scott and Mitias (1996), DV98 to Dusanky and Vernon (1998) and D89 to Diamond (1989)

Table 2

Ranking of Public Economic Journals

Rank	N. Articles	Found Year	Journal	Points
1	518	1972	Journal of Public Economics	64.82
2	85	1999	Journal of Public Economic Theory	59.12
3	105	1989	Economics and Politics	52.03
4	53	1999	Economics of Governance (up to July 2003)	44.86
5	344	1947	National Tax Journal	33.79
6	137	1980	Fiscal Studies	33.22
7	63	1996	Journal of Policy Reform	31.93
8	217	1994	International Tax and Public Finance	26.39
9	295	1984	European Journal of Political Economy	17.76
10	210	1989	Journal of Regulatory Economics	15.89
11	590	1962	Public Choice	15.48
12	186	1947	Kyklos	12.91
13	209	1981	Journal of Policy Analysis and Management	11.33
14	265	1983	Journal of Policy Modeling	9.68
15	268	1974	Canadian Public Policy	9.13
16	25	2001	Public Finance and Management	8.97
17	53	1973	Public Finance Quarterly	8.10
18	297	1994	Contemporary Economic Policy	7.23
19	94	1945	Public Finance	7.13
20	136	1990	Constitutional Political Economy	6.13
21	65	1982	Journal of Public Finance and Public Choice/ Economia Delle Scelte Pubbliche	4.99
22	147	1997	Public Finance Review	4.85
23	101	1970	Economic Analysis and Policy	4.27
24	140	1970	Social Security Bulletin	3.67
25	158	1932	FinanzArchiv	3.21
26	132	1968	Policy Sciences	2.14
27	96	1979	Policy Studies	1.98
28	378	1942	Canadian Tax Journal	1.77
29	175	1908	Annals of Public and Cooperative Economics	1.41
30	188	1981	Public Budgeting and Finance	0.60
31	437	1946	Bulletin for International Fiscal Documentation	0.07
	6102		Total/Average	17.16

Table 3

Top 100 Authors in Public Economics Journals 1995-2001

Rank	Authors	BR Points	PE Points	N. Art	Disp. Factor	Disp. PE Points	Points	PE Average quality
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	Keen,-Michael	77.8	274.98	8.3	3.18	874.91	100.0	33.00
2	Poterba,-James-M	115.7	334.99	8.8	2.21	741.94	84.8	37.92
3	Myles,-Gareth-D	0.0	205.22	8.2	3.3	677.57	77.4	25.13
4	Slemrod,-Joel-B	159.3	322.03	9.5	1.97	635.45	72.6	33.91
5	Sandler,-Todd	38.6	217.11	6.8	2.75	597.95	68.3	31.77
6	Bovenberg,-A-Lans	160.6	348.38	8.8	1.61	561.74	64.2	39.44
7	Haufler,-Andreas	0.0	231.64	8.5	2.38	551.84	63.1	27.25
8	Boadway,-Robin	0.0	213.49	8.2	2.56	546.03	62.4	26.16
9	Kaplow,-Louis	165.0	264.79	6	1.96	518.78	59.3	44.13
10	Buchanan,-James-M	0.0	147.17	11	3.17	466.51	53.3	13.38
11	Mintz,-Jack-M	0.0	210.89	8.7	2.17	457.43	52.3	24.33
12	Glazer,-Amihai	235.8	219.34	5.8	2.03	445.34	50.9	37.62
13	Yaniv,-Gideon	0.0	173.17	7	2.56	443.78	50.7	24.74
14	Sutter,-Daniel	0.0	210.02	12	2.02	423.85	48.4	17.50
15	Pestieau,-Pierre	0.0	233.52	5.8	1.8	420.63	48.1	40.03
16	Cremer,-Helmuth	10.1	283.78	7	1.46	414.14	47.3	40.6
17	Holcombe,-Randall-G	0.0	141.03	8.5	2.78	392.41	44.9	16.59
18	Figlio,-David-N	49.9	158.15	6	2.44	385.87	44.1	26.36
19	Gradstein,-Mark	110.0	199.84	4.5	1.92	383.74	43.9	44.41
20	Grossman,-Herschel-I	232.6	202.73	4.5	1.88	380.22	43.5	45.05
21	Brueckner,-Jan-K	0.0	270.48	4.5	1.39	376.21	43.0	60.11
22	Pecorino,-Paul	99.9	153.66	5.3	2.37	364.24	41.6	28.83
23	Swank,-Otto-H	33.5	138.2	6.5	2.59	358.51	41.0	21.26
24	Nechyba,-Thomas-J	230.1	150.33	3	2.32	348.64	39.8	50.11
25	Zodrow,-George-R	0.0	171.61	5	2.03	348.64	39.8	34.32
26	Hindriks,-Jean	0.0	171.05	3.8	1.98	338.52	38.7	44.62
27	Wilson,-John-Douglas	199.8	207.79	4.5	1.6	333.04	38.1	46.17
28	Grubert,-Harry	0.0	207.42	5.3	1.6	332.46	38.0	38.92
29	Hines,-James-R, Jr	129.0	197.56	4.2	1.66	328.45	37.5	47.45
30	de-Haan,-Jakob	0.0	136.48	8.5	2.41	328.23	37.5	16.06
31	Holtz-Eakin,-Douglas	41.1	167.2	3.8	1.93	323.45	37.0	43.62
32	Scharf,-Kimberley-Ann	22.8	163.49	4	1.9	310.05	35.4	40.87
33	van-Winden,-Frans	0.0	108.76	5.7	2.81	305.74	34.9	19.19
34	Wellisch,-Dietmar	0.0	140.16	5.5	2.16	303.06	34.6	25.48
35	Coates,-Dennis	0.0	145.91	6	2.02	295.41	33.8	24.32
36	Sorensen,-Peter-Birch	0.0	101.38	2.8	2.88	292.14	33.4	35.78
37	Sinn,-Hans-Werner	0.0	136.87	4.3	2.11	289.00	33.0	31.59
38	de-Bartolome,-Charles-A-M	65.1	135.27	3	2.09	282.31	32.3	45.09
39	Janeba,-Eckhard	110.6	205.46	4	1.36	279.10	31.9	51.36
40	Weichenrieder,-Alfons-J	0.0	134.08	4.5	2.07	277.37	31.7	29.80
41	Heyes,-Anthony-G	0.0	229.85	5.5	1.18	271.69	31.1	41.79
42	Requate,-Till	0.0	89.2	4.8	3.02	269.15	30.8	18.46
43	Wildasin,-David-E	218.7	132.56	4.5	2.01	266.37	30.4	29.46
44	Huber,-Bernd	0.0	184.97	6.5	1.43	263.92	30.2	28.46
45	Alm,-James	66.4	158.85	6	1.66	263.58	30.1	26.48
46	Samwick,-Andrew-A	32.9	132.4	3	1.96	259.39	29.6	44.13
47	Goodspeed,-Timothy-J	0.0	132.4	3	1.96	259.39	29.6	44.13

48	Saint-Paul,-Gilles	200.4	182.41	4	1.41	256.67	29.3	45.60
49	Joulfaian,-David	41.1	218.25	6	1.17	256.31	29.3	36.37
50	Browning,-Edgar-K	0.0	128.46	4.5	1.98	254.58	29.1	28.55
51	Turnovsky,-Stephen-J	120.8	156.35	2.5	1.61	251.43	28.7	62.54
52	Levinson,-Arik	99.9	180.32	3.5	1.39	250.82	28.7	51.52
53	Baba,-Stephen-Anthony	0.0	113.44	7	2.18	247.32	28.3	16.21
54	Schuknecht,-Ludger	0.0	81.04	4	3.04	246.57	28.2	20.26
55	Balestrino,-Alessandro	0.0	120.74	4.8	2.04	246.55	28.2	24.98
56	Huizinga,-Harry	0.0	210.04	3.8	1.14	240.22	27.5	54.79
57	Walls,-Margaret	0.0	201.35	5.5	1.19	239.98	27.4	36.61
58	Shackelford,-Douglas-A	0.0	86.84	2.3	2.68	232.69	26.6	37.27
59	Besley,-Timothy-J	632.2	158.36	3.2	1.46	231.67	26.5	49.96
60	Marchand,-Maurice	0.0	149.81	3.8	1.54	230.83	26.4	39.08
61	Devereux,-Michael-P	36.0	122.19	2.8	1.89	230.34	26.3	43.18
62	Laffont,-Jean-Jacques	382.5	172.44	3.3	1.33	229.38	26.2	51.73
63	Mueller,-Dennis-C	0.0	102.88	10	2.22	227.99	26.1	10.29
64	Fuest,-Clemens	0.0	121.33	7	1.87	227.09	26.0	17.33
65	Razin,-Assaf	7.0	148.27	4.2	1.53	226.12	25.8	35.59
66	Goolsbee,-Austan	181.4	147.91	3	1.52	225.02	25.7	49.30
67	Chen,-Yan	32.9	114.75	3	1.94	222.70	25.5	38.25
68	Wrede,-Matthias	0.0	76.37	7	2.89	221.02	25.3	10.91
69	Rosen,-Harvey-S	74.6	121.59	2.8	1.8	218.79	25.0	42.92
70	Konrad,-Kai-A	77.8	167.74	4	1.29	217.04	24.8	41.94
71	Hall,-John	0.0	114.91	2.7	1.89	216.84	24.8	43.09
72	Goulder,-Lawrence-H	49.9	116.9	2.8	1.8	210.81	24.1	41.26
73	Dixit,-Avinash-K	460.2	116.85	2	1.8	210.66	24.1	58.43
74	Roemer,-John-E	172.6	116.85	2	1.8	210.66	24.1	58.43
75	Treisman,-Daniel	39.8	116.85	2	1.8	210.66	24.1	58.43
76	Panizza,-Ugo	0.0	116.85	2	1.8	210.66	24.1	58.43
77	Milesi-Ferretti,-Gian-Maria	20.9	106.05	1.8	1.96	208.21	23.8	57.85
78	Sato,-Motohiro	0.0	90.75	2.3	2.29	208.07	23.8	38.89
79	McLure,-Charles-E, Jr	0.0	117.04	9.5	1.77	207.66	23.7	12.32
80	Gruber,-Jonathan	535.5	163.43	3	1.26	206.02	23.5	54.48
81	McGarry,-Kathleen	0.0	163.43	3	1.26	206.02	23.5	54.48
82	Skinner,-Jonathan	55.0	115.5	2.5	1.78	205.82	23.5	46.20
83	Heckelman,-Jac-C	0.0	103.31	5	1.99	205.13	23.4	20.66
84	Viard,-Alan-D	0.0	155.51	3.5	1.32	204.52	23.4	44.43
85	Gale,-William-G	214.9	202.73	6	1	202.73	23.2	33.79
86	Bos,-Dieter	0.0	198.37	4.5	1.02	202.36	23.1	44.08
87	Lohmann,-Susanne	280.1	145.04	4.5	1.39	202.14	23.1	32.23
88	Crain,-W-Mark	0.0	102.42	3	1.97	201.58	23.0	34.14
89	Jones,-Philip-R	7.0	80.12	4.3	2.47	198.05	22.6	18.49
90	Lee,-Kangoh	0.0	138.15	3.5	1.42	196.29	22.4	39.47
91	Pereira,-Alfredo-M	0.0	79.56	7	2.45	195.30	22.3	11.37
92	Fraser,-Clive-D	58.8	194.46	3	1	194.46	22.2	64.82
93	Johansson,-Per-Olov	0.0	194.46	3	1	194.46	22.2	64.82
94	Martin,-Philippe	0.0	112.14	2.5	1.73	194.00	22.2	44.86
95	Sloof,-Randolph	7.0	142.08	4.3	1.37	193.98	22.2	32.79
96	Glomm,-Gerhard	55.0	102.31	2	1.89	193.79	22.1	51.16
97	Bernholz,-Peter	0.0	82.94	6	2.34	193.70	22.1	13.82
98	Rattso,-Jorn	0.0	70.7	2.8	2.72	192.15	22.0	24.95
99	Hoyt,-William-H	0.0	78.87	1.5	2.43	191.91	21.9	52.58
100	Wintrobe,-Ronald	0.0	117.39	2.5	1.63	191.21	21.9	46.95