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05-12

New Approaches to Ranking Economics Journals

Yolanda K. Kodrzycki and Pingkang David Yu

Abstract:

This study develops a flexible, citations-adjusted ranking technique that allows a specified set of journals to be evaluated using a wide range of alternative criteria. As a result, the set of evaluated journals is not constrained to be identical to the set of evaluating journals. We also draw a critical distinction between the influence of a journal and the influence of a journal article, with the latter concept arguably being more relevant for potential contributors and those who evaluate research productivity. The list of top economics journals changes noticeably when one examines citations in the social science and policy literatures, and when one measures citations, either within or outside economics, on a per-article basis rather than in total. The changes in rankings are due to the relatively broad interest in applied microeconomics and economic development, to differences in the relative importance that different literatures assign to theoretical and empirical contributions, and to the lack of a systematic effect of journal size on average influence per article. As a related observation on interdisciplinary communications, we confirm other researchers' conclusions that economics is more self-contained than almost any other social science discipline, while finding, nevertheless, that economics draws knowledge from a range of other disciplines.

JEL Classifications: A10, A12

Keywords: economics journals, social sciences journals, policy journals, rankings, citations, research productivity, interdisciplinary communications.

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1. Introduction

For at least the past two decades, economists have devoted serious effort to ranking economics journals based on their intellectual influence. Liebowitz and Palmer (1984) made seminal contributions by analyzing a large number of economics journals, controlling for differences in their size and age, and adjusting citation counts by a measure of the influence of the citing journals. Key studies following in this vein include Laband and Piette (1994) and Kalaitzidakis, Mamuneas, and Stengos (2003). In addition to providing insights on the relative standings of journals in the economics profession, such evaluations have become instrumental in evaluating the research productivity of academic departments and individual scholars.

Despite their various innovations, studies have continued to assess economics journals according to how frequently they cite one another, in line with the framework proposed by Liebowitz and Palmer (p. 82):

[E]conomists, being a rather narrow-minded and self-centered group, are probably more concerned with a journal's impact on the economics profession [than on other disciplines]. And even within the discipline, a journal's impact on highly influential journals is probably of greater value than its impact on less influential journals.

While this assumption may produce the appropriate methodology for some purposes, it is not suitable for analyzing the broader influence of economics journals. Nor does it produce rankings that address the varying needs of different researchers within economics.

The current study extends the literature on journal rankings by developing a flexible, citations-adjusted ranking technique that allows a specified set of journals to be evaluated using a wide range of alternative criteria. As a result, the set of *evaluated* journals is not constrained to be identical to the set of *evaluating* journals. While the methodology is quite general, specific applications developed in the study rank economics journals according to their influence on the social science literature as well as on policy, as measured by citations in policy-oriented journals.

This research is motivated in part by intellectual curiosity: Economists may be interested in knowing whether the journals they hold in highest esteem are the same as or different from

the ones that other social scientists use in their evaluation of economic research. In addition, the research is intended to guide publication decisions and evaluations of journals. For example, scholars may seek a more systematic understanding of the channels through which economic research is disseminated to other fields, a topic explored in Pieters and Baumgartner (2002). We believe this need to be particularly acute with respect to contributions in applied microeconomics. In contrast to monetary policy and international finance—subjects that are almost exclusively the province of economists—topics such as housing, health care, and regulation are likely to be of interest to a diverse range of scholars and policymakers outside the economics field. Similarly, economists pursuing cross-disciplinary research currently lack systematic evidence on where to submit their papers to maximize their influence. Existing studies are unable to provide guidance on whether such research is likely to be more influential if targeted to an economics periodical, or to a publication that attracts a more diverse set of readers.

Most of the literature on economics journals focuses on a small set of core journals or uses the definitions of economics contained in *Journal Citation Reports (JCR)* and its predecessor databases to examine a greater number of journals. For purposes of this study, we are interested in identifying as comprehensive a list as possible of journals whose articles extensively use concepts and methodologies that are central to economics, so as to draw appropriate boundaries between economics and other fields. We therefore inspect the content of journals in order to determine their field. This approach is inherently subjective, but it offers advantages relative to the existing literature. By including *Industrial and Labor Relations Review*, for example, as well as other journals with significant economics content, we both: 1) compare the influence of these journals to the influence of the journals encompassed by the *JCR* definition of economics, and 2) assign a positive weight to any citations in these journals to articles appearing in the economics literature. Other researchers have lamented the exclusion of selected journals from the *JCR* list but have not attempted to measure their influence or to develop an alternative list of economics journals. Another advantage of using a content-driven definition of economics is that this approach enables us to assess how various characteristics of journals, such as their relative emphasis on theory versus applications, tend systematically to influence rankings.

Finally, a content-based approach is essential in examining the influence of economics on the field of policy, which, to our knowledge, has not been defined comprehensively by any other study examining journals.

The next section of the paper reviews previous research on the influence of economics journals on their own and other fields. Section 3 details the methodologies for ranking economics journals according to citations in other economics journals, in economics and all other social sciences journals, and in any subset of social sciences journals. In addition to focusing on different bodies of citations, we also draw a critical distinction between the influence of a journal and the influence of a journal article. While the influence of journal editors may be judged by the total numbers of references to their journal as a whole, the more relevant statistic for potential contributors is based on the number of times an average article is cited. Although other authors have made adjustments for size of journal, we believe that per-article measures are more meaningful than the per-page or per-character measures that have been developed to date. Section 4 describes in conceptual terms our content-driven definitions of economics and policy analysis, then indicates the process by which these definitions were applied in the context of the *JCR* database. Section 5 presents results and compares these findings to those of previous studies. It also provides a regression-based assessment of whether journal content, field, and size have systematic effects on journal rankings. Section 6 concludes by summarizing the insights gleaned from developing these various new approaches to identifying and ranking economics journals.

2. Previous Literature on Economics and Its Relationship to Other Social Sciences

Existing studies of economics journals have used convenient but rather restrictive definitions of the field. This focus may have resulted in incorrect rankings of journals for certain purposes, as well as some misleading conclusions about the connections between economics and the other social sciences.

2.1 Effects of Definitions on Journal Rankings

As a conceptual matter, the field of economics could be considered quite large. The EconLit database maintained by the American Economic Association includes roughly 1,000 journals. Operationally, however, ranking studies restrict themselves to the publications encompassed by *Journal Citation Reports* because the *Reports* are the only extensive source of citation information.¹ *JCR* encompasses over 1,700 social sciences publications. Its economics category has about 160 journals.

It is well known within the literature that focusing on economics as defined in *JCR* results in the omission of certain journals that academic economists hold in high regard but that are scattered among other *JCR* social science categories.² *JCR* economics excludes some relatively prominent publication outlets in the areas of labor, environmental studies, public economics, health care, political science, demography, law, and finance, as well as some that focus on regions outside the United States. Journals outside the *JCR* economics category figure prominently in the publications records of leading academic economists.³

The standard approach of restricting the list of citing journals to be the same as the list of cited journals also results in inherent biases in creating rankings. Not surprisingly, it raises the rankings for some economics journals that are likely to be read almost exclusively by economists.⁴ It also misses the influence that economists might have on other fields of scholarship.

¹ Liebowitz and Palmer (1984) initially considered all the journals listed in the *Journal of Economic Literature*. However, their rankings focused on the 107 journals in the economics category of the *Social Science Citation Index*, the former name for the database containing journal citations. The term *Social Sciences Citation Index* is now used for the database of references to particular articles within journals.

² See, for example, Davis (1998) and García-Castrillo, Montañés, and Sanz-Gracia (1992).

³ We examined the publications outlets for two leading university economics departments in the United States over the most recent five-year period. For each department, our Internet searches indicated that the faculty had published in approximately 130 different journals. In each case, about 50 of these journals are found in the economics part of *JCR*, about 20 to 30 are found in other social science categories, and the remainder do not appear to be encompassed by the social sciences segment of *JCR*.

⁴ For example, a comparison of columns 2 and 3 of Table 1 in Liebowitz and Palmer (1984) indicates that, compared with other *SSCI*-defined economics journals, *Journal of Monetary Economics* and *International Economic Review* are cited

2.2 Perceptions of Economics Journals by Other Fields and Vice Versa

A related literature pertaining to linkages between economics and other fields uses cross-citations both to define fields and to determine the strength and directions of information flow between fields. Although some studies compare numbers of citations across journals, none, to our knowledge, implements iterative, impact-adjusted rankings of economics journals.

Leydesdorff (2004) considers the pattern of cross-citations among all social sciences journals in *JCR*, and he uses this pattern to define distinct subject areas. He finds that linkages among social sciences journals are looser than among natural sciences journals. Social science scholars differ both in the issues they study and in the methods they use (for example, quantitative versus qualitative analysis), thereby producing not only less dense patterns of cross-citations within fields but also greater uncertainty in drawing boundaries between fields.

Pieters and Baumgartner (2002) consider citation patterns within economics and between economics and other disciplines. Their sample consists of 42 economics journals with high impact,⁵ five prominent journals from each of nine social science and business disciplines (anthropology, political science, psychology, sociology, accounting, finance, management, marketing, and management information systems/operations research), and five journals “whose aim is to bridge economics with the sister disciplines.”⁶ They find that these other disciplines draw a significant share of their interdisciplinary knowledge from economics, but that economics builds only slightly on the other disciplines, apart from finance. Within economics, Pieters and Baumgartner identify seven separate clusters and find that all journal

fairly heavily by social sciences journals, but they rise to the top ten in citations by other *SSCI* economics journals. By contrast, several journals in the fields of law, agriculture, and demography—which *SSCI* includes in its economics category but which probably have a significant readership among scholars in other disciplines—fall out of the highest ranks as a result of restricting citations to *SSCI* economics journals. Unfortunately, this evidence in Liebowitz and Palmer cannot be interpreted as simply reflecting broad versus narrow citations because column 3 also introduces citations-based weights for journals within *SSCI* economics.

⁵ They base their choices on the “impact factor” as calculated by the *SSCI*, which refers to the number of citations within two years of publication. Although this impact is based on citations in all of the social sciences, Pieters and Baumgartner restrict their list to the journals in the *SSCI* economics category, so essentially they consider a subset of the journals evaluated by Kalaitzidakis, Mamuneas, and Stengos (2003).

⁶ Pieters and Baumgartner (2002) select the following journals to represent interdisciplinary studies: *American Journal of Economics and Sociology*, *Economics and Philosophy*, *Journal of Economic Behavior and Organization*, *Journal of Economic Psychology*, and *Journal of Policy Analysis and Management*.

clusters make at least one-half of their citations to the general interest group, while the general interest group draws heavily from the theory and method cluster but not from the other, more applied clusters. Finally, based on their sample, the authors conclude that communication between economics and other disciplines occurs via the central, most influential journals within economics rather than through more applied or explicitly interdisciplinary journals.

MacRae and Feller (1998) and Reuter and Smith-Ready (2002) perform exercises similar to those in Pieters and Baumgartner (2002), but focus on ties between economics and policy, and consider even fewer journals. They conclude that policy-related research draws on the economics discipline, but that flows in the other direction are comparatively rare.

3. Alternative Approaches to Ranking Journals

As the previous section indicates, the literature on journal rankings has used the *JCR* definition of economics to determine both the list of journals to be ranked and the set of citations used for ranking. Studies examining how different fields influence one another have either selected key journals to represent economics or drawn from the *JCR* list, but they have not ranked journals. Our study uses new approaches to construct impact-adjusted rankings (presented in this section) and to classify journals (Section 4).

Before describing these approaches, it is worth noting that the impact-adjusted ranking method inherently requires publications to be both a citing source and a cited source to enter the database of citations. As pointed out by other authors, articles in economics journals are referenced in books, reports, newspapers, and various other communications channels.⁷ Although this study uses what we believe to be a more appropriate definition of economics journals and compares the rankings for these journals using alternative bodies of citing literature, it follows the existing literature in excluding citations outside of scholarly journals, because we continue to lack measures of how often these publications cite scholarly journals.

⁷ Several studies have explored alternatives to journal citations. For example, Liner (2002) examined the frequency with which economics journals are cited in economics textbooks, and Dusansky and Vernon (1998) used surveys to rank the research productivity of economists or economics departments.

3.1 Evaluation Criteria

As in the literature starting with Liebowitz and Palmer (1984) and continuing through Kalaitzidakis, Mamuneas, and Stengos (2003), the approach used in this paper weights citations according to the influence of the citing journal and computes this influence by applying an iterative process. In the end, journals that are themselves cited heavily, or that are cited in *other* journals that are cited heavily, rank higher than journals that draw fewer citations or that tend to be cited in less influential journals. Following the thrust of the literature, we exclude self-citations in computing rankings and we control for journal age by selecting an eight-year period for citations, so as not to favor journals that have a long publications history.⁸

Our main innovation comes in comparing rankings that result from considering different sets of citing journals. Evaluating economics journals according to their influence within economics produces the within-discipline rankings. Essentially, this ranking process replicates the exercises in the Liebowitz and Palmer, Laband and Piette, and Kalaitzidakis-Mamuneas-Stengos papers, using more recent data and our own refined selection of economics journals. It largely serves as a base case to which our other approaches are compared, as it can be expected to yield a list of highly influential journals that is similar to what previous studies have found.

In a broader context, we rank economics journals according to their adjusted impact on the social sciences. The iterative, impact-adjustment procedures are employed using all of the social science periodicals, each of which is ranked by its overall adjusted impact among the universe of social science periodicals in the *JCR* database.

Our final method ranks economics journals according to their influence on a targeted subset of social sciences journals, in this case, on policy journals. This ranking may suit the interest of scholars interested in reading or writing for economics journals that have substantial

⁸ Self-citations refer to cases in which articles in a given journal cite other articles published in the same journal. Laband and Piette (1994) provided the initial arguments in favor of excluding self-citations. Whatever its merits, this practice should reduce the relative influence of journals publishing comparatively large numbers of articles and of journals in comparatively large fields. However, in a discipline with many competing journals, the effects of excluding self-citations are minor. Kalaitzidakis, Mamuneas, and Stengos (2003) found that the identity and relative standings of the top five economics journals remain unchanged whether or not self-citations are included, and the list of the top twenty economics journals is virtually identical under the two sets of computations. Self-citations matter even less when citations outside of the discipline whose journals are being ranked are considered.

influence on policy analysis and research, and, ultimately, on policymaking. The ranking of an economics journal according to this method depends on the frequency of citations of its articles in the specified subset of social science journals, as well as on the rankings of these journals as determined by their citations among all social science journals. We do not *ex ante* rule out the possibility that a journal could fall into both the economics and the policy categories. In practice, different definitions of “policy” provide different degrees of overlap.

Acknowledging the fact that an individual author, when submitting a research paper, tends to pay more attention to maximizing the impact of his or her own cited work than to the impact of the journal as a whole, in each of the above three methods we also adjust by the number of articles published in each journal, thereby generating three additional rankings of journals according to their influence per article. Larger journals contain more articles, so they tend to attract more citations. The impact-per-article ranking is intended to filter out the size effect of a journal in a meaningful way, thus providing journal contributors (as well as those who evaluate their scholarly productivity) a fair reference.⁹

3.2 Within-Discipline Rankings: Economics Journals Evaluated by Influence on Other Economics Journals

Our methodology is quite general, but to fix ideas, we introduce the following notation, characterizing the relationships among three sets of journals:

Let $E \subset S$, $P \subset S$, And $E \cap P \geq 0$

where E = Economics journals

P = Policy journals

⁹ It has been common practice in previous studies to provide an additional ranking based on impact per character [Liebowitz and Palmer (1984), Laband and Piette (1994), Kalaitzidakis, and Mamuneas, and Stengos (2003)] or on “adjusted page” [Coupé (n.d.), Hirsch, Austin, Brooks, and Moore (1984) and Scott and Mitias (1996)]. As Laband and Piette explain, some journals have more notes, comments, replies, and short articles than others. Notes, comments, and replies tend to be the final contributions to formal scholarly discussions and therefore attract few citations. Short articles, as well, are deemed to be cited less than full-length articles. However, the practices used have limited the number of journals entered into the analysis because of the laborious work of counting characters (108 journals in Liebowitz and Palmer, 71 in Laband and Piette, 92 in Kalaitzidakis, Mamuneas, and Stengos, and far fewer in other studies). Kalaitzidakis, Mamuneas, and Stengos included per-article calculations in their sensitivity analysis, but this was not their central method used to rank economics departments.

S= Social Science journals.

The three approaches discussed in this study can be thought of as E evaluated by citations in E (within-discipline rankings), E evaluated by citations in S (broad rankings), and E evaluated by citations in P (targeted rankings).

The iterative procedure introduced by Liebowitz and Palmer (1984) includes two major steps. The initial step calculates the number of times each economics journal is cited by other economics journals. Then, these citation counts are rescaled to 100, representing the number of citations to the most cited journal. In this first step, citations in all journals receive equal weight:

$$Q_{i,0} = \sum_{j=1}^n C_{ij}$$

$$I_{i,0} = [Q_{i,0} / \text{Max}_i Q_{i,0}] * 100$$

where C_{ij} = number of citations to journal i from journal j ¹⁰

n = number of economics journals

$Q_{i,0}$ = initial citations index for journal i ¹¹

$I_{i,0}$ = initial adjusted impact for journal i .

Once the initial adjusted impact of each journal is computed, it is used in the next iteration to weight the citations that this journal provides to the other journals. The t^{th} iteration of this procedure is represented as follows:

$$Q_{i,t} = \sum_{j=1}^n C_{ij} I_{j,t-1}$$

$$I_{i,t} = [Q_{i,t} / \text{Max}_i Q_{i,t}] * 100$$

where C_{ij} = number of citations to journal i from journal j

n = number of economics journals

¹⁰ In all specifications, C_{ij} is set equal to zero in the case of $j = i$, so as to exclude self-citations.

¹¹ The equivalent expression for Q in Liebowitz and Palmer (1984) includes an additional term denoting the total number of citations each citing journal receives from all of the social sciences journals. Excluding this term (as we do), or substituting arbitrary non-negative numbers, does not affect the final rankings of economics journals when the rankings are based solely on impact within economics.

t = number of iterations

$Q_{i,t}$ = weighted citations index for journal i after the t^{th} iteration

$I_{i,t}$ = adjusted impact for journal i after the t^{th} iteration.¹²

3.3 Broad Context Rankings: Economics Journals Evaluated by Influence on Social Sciences Journals

Equations for the social sciences ranking are the same as those for the within-economics ranking, except that the number of journals in the calculation (n) refers to the total number of social science journals in the database instead of just the economics journals.

3.4 Targeted Context Rankings: Economics Journals Evaluated by Influence on Policy Journals

The targeted context ranking, which provides an evaluation of economics journals according to their impact on policy journals, starts by ranking all of the social science journals in the database according to their overall impact among social sciences. This part of the calculation follows the same procedure as in the broad context rankings, and can be represented as follows:

Initial step:
$$Q_{j,0} = \sum_{k=1}^n C_{jk} \quad I_{j,0} = [Q_{j,0} / \text{Max}_j Q_{j,0}] * 100$$

t^{th} iteration:
$$Q_{j,t} = \sum_{k=1}^n C_{jk} I_{k,t-1} \quad I_{j,t} = [Q_{j,t} / \text{Max}_j Q_{j,t}] * 100$$

where C_{jk} = number of citations to journal j from journal k

n = number of social sciences journals

t = number of iterations

$Q_{j,t}$ = weighted citations received by journal j after the t^{th} iteration

$I_{j,t}$ = adjusted impact for journal j after the t^{th} iteration

After the process converges, we have an adjusted impact $I_{j,t}$ representing the journal's overall influence on the universe of social sciences journals. Since policy journals are a subset of social science journals, the adjusted impact $I_{j,t}$ of each policy journal can be used as a weight to

¹² This study uses 15 iterations. The number of iterations needed to reach convergence varies with the number of journals included in the computations. We find that 15 iterations are more than enough for calculating economics-impact rankings but just about sufficient for the broad-context rankings.

calculate the citations that each policy journal offers to the economics journals in the next step, which is given as follows:

$$Q_i = \sum_{j=1}^n C_{ij} I_{jt} \quad I_i = [Q_i / \text{Max}_i(Q_i)] * 100$$

where n = number of policy journals
 i refers to an economics journal
 j refers to a policy journal
 Q_i = weighted citations received by economics journal i from policy journals.
 I_i = adjusted impact of economics journal i on policy journals.

3.5 Rankings of Journals by Influence per Article

The calculation of a journal's ranking by its influence per article follows the same equations as above for each of the three types of ranking exercises, except that the number of citations from one journal to another is adjusted by the number of articles published in the cited journal. That is, C is replaced by a new variable c :

$$c_{ij} \equiv C_{ij} / Z_i \forall i, j$$

where Z_i = number of articles published in journal i in a selected time period.

4. Definitions of Economics and Policy Journals

Our source for citations is the 2003 Social Science Edition of *Journal Citation Reports*, which reports the number of times that journal articles appearing in 2003 cited articles appearing in other entities. We restrict our analysis to citations of journal articles published between 1996 and 2003, thereby excluding any entries in publications other than scholarly journals or in scholarly journals prior to 2003. Our study encompasses the 1,714 social sciences journals that both provided and received citations.¹³ To implement our within-discipline and targeted context rankings, we use new definitions of the economics and policy-related fields.

4.1 Defining Economics Journals: Concepts

¹³ The 2003 social science edition of *JCR* provides statistics for 5,936 citing entities and 76,324 cited entities.

We identify a journal's disciplinary origin by inspecting the content of its articles. An article is deemed to be an economics article if economic concepts (for example, prices, budget constraints, business cycles, capital formation) predominate and if the analysis draws on economic methodology essentially and extensively. A journal's disciplinary origin depends on the fraction of its articles that meet these criteria.

This definition of economics seems similar to the approach taken to produce the *JCR* category, so it is likely to result in a list of journals that has significant overlap with the lists used in previous studies. However, as mentioned above, the *JCR* economics list has been criticized by other authors. Furthermore, the criteria motivating the *JCR* classifications are not codified, perhaps resulting in some inconsistencies across journals or over time, and journals are not recodified if their content changes or becomes more or less closely linked to economics. We believe there is merit in specifying the methodology for categorizing journals, as well as in taking a fresh look at the economics literature rather than simply identifying a handful of classifications that are open to question because of the lack of transparency of the methodology used.

4.2 Defining Policy Journals: Concepts

The citations literature offers examples of policy journals and supports the view that “policy” is a distinct literature that is closer to policymaking than to economics or other social sciences disciplines. However, it does not develop a comprehensive definition of what constitutes a policy journal. For purposes of this study, we draw on concepts developed in Hanushek (1990), which distinguishes between disciplinary research that has policy implications but flows directly from economics or another distinct social sciences field, on the one hand, and policy research, which is a more applied branch of the social sciences, (p. 291):

[P]olicy research focuses directly on policy issues. It is similar to disciplinary research in that it gives heavy weight to hypothesis formulation, to rigorous analysis, and to agreed upon statistical standards of evidence. It differs, however,

in that its objective is to produce policy implications that have some hope or expectation of being taken seriously.¹⁴

As in the case of defining our economics category, we determine whether a journal is a policy-oriented journal by the content of its articles. Individual articles constitute policy research if they meet Hanushek's definition, present clear recommendations for policy, and are written in a manner and language appealing to decision makers. Alternatively, they constitute disciplinary research, in which case they may have some bearing on contemporary issues or the formulation of public sector decision-making, but do not appear to be motivated by specific policy choices and do not offer findings on specific proposals under consideration by policymaking bodies.

The categories "policy research" and "disciplinary research with policy implications" implicitly suggest different ways in which academic studies may influence policymaking, but little if any scientific evidence exists on these channels. Hansen (1991) posits that different types of writing affect policymaking with different lags. Shulock (1999) confirms the existence of a link between policy evaluation and policy formulation by studying citations that appear in Congressional committee reports, but she does not distinguish between the types of research described by Hanushek, or between the rigorous analysis of policy issues that characterizes research and the mere presentation of data relevant to such analysis. Our content-based approach does not attempt to resolve questions about which inputs are used in making policy, but it permits the use of sensitivity analysis to determine how the definition of policy-related research affects the size of the policy literature and rankings of economics journals.

4.3 Selection of Journals for Content Analysis

The development of content-based lists of economics and policy journals consists of two stages: selecting groups of journals that appear most likely to cite journals in the *JCR* economics category, and then inspecting the content of individual journals from these groups to determine

¹⁴ Hanushek goes on to distinguish a third type of research called "policy analysis" that is directly linked to the political process and is performed under a tight timetable for a client with specific questions concerning a policy proposal. Policy analysis is disseminated in the form of memos, reports, and testimony, as opposed to being published in scholarly journals.

the degree to which they satisfy our conceptual definitions of economics and policy. This section describes the first stage, which was based on analysis of cross-citations between journals in the *JCR* economics category and the other 53 social sciences journal categories, and it offers several intermediate findings concerning interdisciplinary communications.

Extending the unidirectional utilization index used by MacRae and Feller (1998) to measure knowledge flows between individual journals, we developed similar indexes to summarize such flows across groups of journals. The utilization index U_{ij} is a measure of the intensity of citations from journals in category i to journals in category j , and is adjusted so as to be invariant to the sizes of the two literatures:

$$U_{ij} = \frac{C_{ij}}{\sqrt[2]{C_i C_j}}$$

where C_{ij} = number of citations given to category i from category j
 C_i = overall number of citations received by category i .
 C_j = overall number of citations given by category j .

When computing the number of within-category citations ($j = i$), we include journal self-citations so as to measure the full extent to which a discipline is self-contained as opposed to drawing from other literatures.

A portion of the 54-by-54 matrix of utilization indexes is presented in Table 1. The first column refers to the intensity with which each of the social sciences cites itself, based on the *JCR* definitions of these disciplines. Judging by a within-discipline utilization index of .77, economics is more self-contained than the other categories shown, a finding that is consistent with previous research.¹⁵ However, some other disciplines do feed noticeably into *JCR* economics, including social sciences mathematics methods and finance, followed by industrial relations and labor, planning and development, and environmental studies (column 2). The Pieters and Baumgartner (2002) study did not address the information flows from the mathematical literature in other social science disciplines to economics, nor those in any of the

¹⁵ Among all the social sciences, we find that only law is more self-contained than economics.

other listed categories except finance and political science. More generally, the *JCR*-based literature has not recognized that economics journals cite journals in the planning and development and environmental studies categories as frequently as they cite journals in the labor and industrial relations category.

Based on utilization indexes, the categories that draw contributions from *JCR* economics most heavily are (in order of impact of the economics category): finance, environmental studies, planning and development, urban studies, industrial relations and labor, management, business, education and educational research, and public administration (column 3). We selected these nine *JCR* categories for further investigation.

Table 1 Utilization Indexes for Selected *Journal Citation Reports* Categories

	(1) Citing Same Category	(2) Cited by Economics	(3) Citing Economics
Economics	.77	.77	.77
Business, Finance	.58	.27	.27
Environmental Studies	.47	.08	.18
Planning and Development	.32	.08	.13
Urban Studies	.48	.06	.09
Industrial Relations and Labor	.33	.08	.08
Management	.61	.03	.07
Business	.57	.04	.07
Education and Educational Research	.59	.01	.07
Public Administration	.35	.01	.05
Political Science	.53	.04	.03
Social Sciences Mathematical Methods	.37	.31	.03
History of Social Science	.36	.05	.00

Source: Authors' calculations using 2003 Social Science Edition of *Journal Citation Reports*

From each category, we initially selected journals that appeared most connected to the economics literature, judging by title, overall number of citations to journals in the economics category, and share of total citations given to economics. Using these criteria, we selected 119 out of the 410 journals in the nine categories for further inspection.

We also selected for further review 161 of the 169 journals in the economics category, excluding those that are written in a language other than English or are heavily devoted to

book reviews, current events, broad-ranging prognostications, and the like. The eight excluded journals were either difficult to categorize under the content rating scheme described in the next section, or were otherwise deemed highly unlikely to be selected for inclusion in our economics and policy categories.¹⁶

4.4 Content Ratings

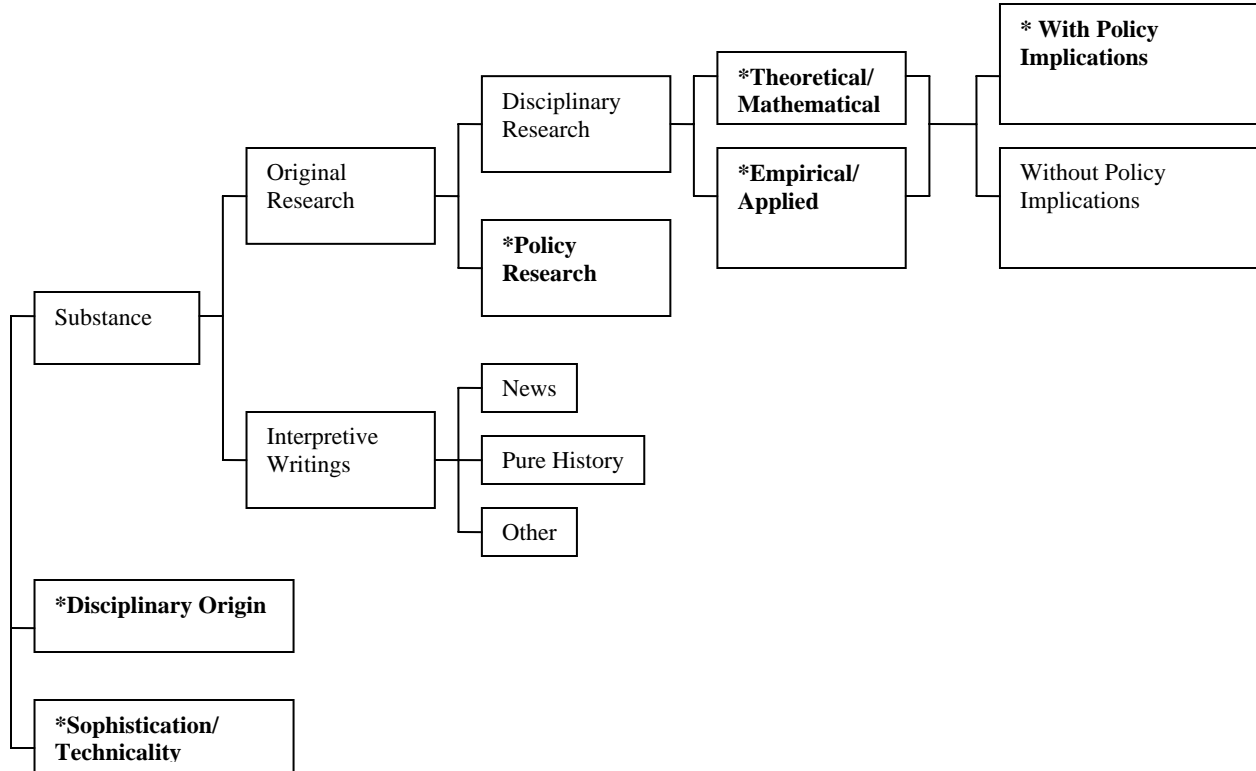
Producing the content ratings was a labor-intensive process. We compiled the mission statements and the titles and abstracts of 20 recent articles from each of the 280 journals under consideration. Mission statements generally describe the major areas the journals intend to cover and the types of audience the journals intend to serve, with some offering more information than others. Not every journal has a mission statement, and some mission statements are more reflective of editorial directions than of actual content. For these reasons, the content ratings were based primarily on inspecting individual articles, with the mission statements serving as supplemental information. In some circumstances, full texts of articles were downloaded for review if the titles and abstracts were not sufficient to establish their ratings. The ratings for journals were based on aggregations of ratings for individual articles.

The rating scheme is illustrated in Chart 1. Each article is examined from three aspects: substance, disciplinary origin, and sophistication/technicality. Substance is a major category that, as a first cut, distinguishes articles according to whether or not they represent original research. Excluded from original research are pieces that present news or history without contributing noticeably to the development of economic thought or methods. This inspection of articles served to eliminate from the rankings additional journals that are oriented toward interpretive writings as opposed to original research.

¹⁶ The eight excluded journals are *Journal of Economic Literature*, *Desarrollo Economico-Revista De Ciencias Sociales*, *Ekonomiska Samfundets Tidskrift*, *Futures*, *Journal of Economic Education*, *Post-Soviet Geography and Economics*, *Revue D' Etudes Comparatives Est-Ouest*, and *Trimestre Economico*. The *Journal of Economic Literature* ranked between 17th and 20th in the Kalaitzidakis, Mamuneas, Stengos (2003) study, and arguably would have ranked highly had it been considered in our study. We chose to treat *JEL* as being in a "category of its own." Until 2000, it was much more heavily devoted to book reviews and overviews of new books and periodicals than to articles based on original research. Furthermore, we conjecture that many economists use *JEL* to develop their research plans, so that its influence is substantially underestimated by counting formal citations.

Chart 1 Content-based Rating Scheme for Articles

* indicates rating variable that is scored



Original research includes both disciplinary research and policy research, concepts explained in Section 4.2. Disciplinary research is further broken down into two types, theoretical or primarily focused on development of mathematical techniques, and empirical or applied.

The disciplinary origin category indicates how closely related the article's subject matter and methodology are to economics. Sophistication indicates the degree to which the article targets a highly technical or academic audience. Disciplinary origin and sophistication are each scored at 0, 1, or 2. For example, the ratings consider finance, management, and mathematics to be closer to economics (and therefore rated 1) than disciplines such as political science, anthropology, and philosophy (rated 0). On the other hand, the scoring for a variety of other

fields such as urban, health care, and environmental studies depends on the analytical methods and topics contained in the article. For sophistication, as examples, *Rand Journal* and *Quarterly Journal of Economics* score 2, *Brookings Papers on Economic Activity* and *Journal of Economic Perspectives* score 1, and *Housing Policy Debate* and *World Development* are in the least technical category among the social sciences journals considered.

In summary, then, each article is characterized by six variables—four dummy variables from the substance category plus one each denoting disciplinary origin and sophistication, with values of 0, 1, or 2. The ratings were calculated by a member of the research team using extensive written instructions, and they were cross-checked for accuracy and consistency by at least one other member of the team.¹⁷

A journal's ratings for the same six variables are generated by aggregating the scores of its articles, and they range from 0 to 2. For the four variables in the substance category, a journal is scored 2 if more than one-third of its articles are scored 1 for the same variable, 1 if between one-tenth and one-third of its articles are scored 1 for the variable, and 0 if fewer than one-tenth of its articles are scored 1. By these rules, journals exemplifying disciplinary research may be classified as either theoretical/mathematical or empirical/applied, or both. For example, *Journal of Economic Dynamics and Control* and *Journal of Econometrics* are highly theoretical/mathematical but not highly empirical, while *Journal of Human Resources* and *Review of Economics and Statistics* are highly empirical/applied but not highly theoretical. As a result of their wide-ranging mix of articles, *American Economic Review* and *Economics Letters* score 2 in both categories.

The categories “disciplinary research with policy implications” and “policy research” are mutually exclusive for individual articles, but some journals, such as *Brookings Papers on Economic Activity* and *Housing Policy Debate*, have more than one-third of their articles in each category. We find, on the other hand, that *Journal of Health Economics* specializes in disciplinary research with policy implications, while *IDS Bulletin—Institute of Development Studies* concentrates on policy research. The journal scores for disciplinary origin and sophistication

¹⁷The 10-page instruction manual was developed by James Dang and further modified on the basis of a pilot experiment.

simply take the average scores of the same variables for their articles, rounded to the nearest integer.

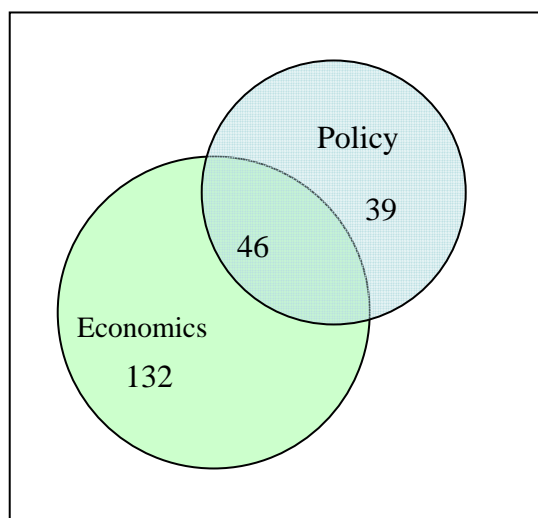
For the analyses presented below, we defined economics journals as those with disciplinary origin equal to 2, meaning that more than one-third of the articles rely essentially and extensively on economics. This definition of the economics literature produces a list of journals that is much closer to what was used in previous studies than would a definition also encompassing journals with a lower score for disciplinary origin. We rank 178 economics journals in total, of which 140 are drawn from the 164 journals in the economics category in *JCR*, and 38 are drawn from the other nine *JCR* categories.

For the policy journals category, we included all policy research journals (those with values greater than 0), plus not-highly-sophisticated/technical journals (those with values less than 2) with more than one-third of their articles exemplifying disciplinary research with policy implications (disciplinary research with policy implications equal to 2).¹⁸ This yields 85 policy journals in total, of which 46 journals are considered to be both economics journals and policy journals (See Chart 2 and Appendix Table 1).¹⁹ In our view, the resulting list of policy journals is sufficiently different from our list of economics journals so as potentially to provide a different assessment from the standard methodology. At the same time, the process to select journals for content analysis (as described in Section 4.3) narrows the list of policy journals to those that are at least somewhat connected to the economics literature. Therefore, our targeted context rankings have the potential to be quite different from our rankings that include citations from the entire social sciences literature.

¹⁸ For the journals exemplifying disciplinary research with policy implications, including journals with sophistication equal to 2 would produce a set of policy journals with much more overlap with our economics category. The resulting ranking would be very similar to our within-discipline rankings. At the other extreme, restricting sophistication to 0 would yield only a tiny sample.

¹⁹ We also conducted various sensitivity experiments, not reported in this study.

Chart 2 Mapping of Economics Journals and Policy Journals



5. Results

Table 2 presents the economics journal rankings according to the three methodologies, both for the journal as a whole and per article. Consider first the results using each journal's total impact-weighted citations, unadjusted for the number of articles. As expected, the list of journals with very high influence within the economics discipline generally agrees with the apparent consensus of the economics profession, as well as with previous studies. For example, eight of the top ten journals also appear in the top ten in Kalaitzidakis, Mamuneas, and Stengos (2003) for the comparable exercise, and the remaining two journals are ranked 12th and 13th in that study (KMS Table 1, column 4).

5.1 Influence of Economics Journals outside Economics

The overall-impact rankings differ markedly from the economics-impact rankings. Three health economics journals rise to the top, although two general-interest economics journals, *American Economic Review* and *Quarterly Journal of Economics*, remain in the top five. Several journals specializing in behavioral economics and decision-making move to the upper ranks, as do some journals concentrating on labor, housing, and development economics. *Rand Journal of*

Economics moves up from number 19 in influence on economics to number 10 in influence on all social sciences. Most impressively, *Journal of Media Economics*, which publishes articles on communications technology and information, leaps from 177 to 22, and *Journal of Social Policy* goes from 160 to 17 in the rankings.

As compared with the economics-impact rankings, the overall-impact rankings give greater prominence to journals with comparatively broad accessibility. For example, *World Development*, *Monthly Labor Review*, and *Journal of Policy Analysis and Management* appear in the top twenty-five by overall impact. Two prestigious, technically-oriented publications in the areas of monetary economics and financial institutions, *Journal of Monetary Economics* and *Journal of Money, Credit and Banking*, fall considerably in the rankings relative to their rankings based on economics impact.

Some exceptions exist to the positive association between overall-impact rankings and accessibility. *Econometrica* and *Journal of Econometrics* remain highly influential according to their overall impact on the social sciences. This finding suggests that econometrics, as a tool, has been widely applied across the whole spectrum of social sciences, and not just in economics.

Table 2 Rankings of Economics Journals

Within Economics			Overall Impact		Policy Impact		Impact on Non-economics Journals				
	Impact of journals	Impact per article			Impact per article		Impact of journals	Impact per article		Impact of journals	Impact per article
Journal's title			Journal's title	Impact of journals		Journal's title	Impact of journals		Journal's title	Impact of journals	
AM ECON REV	1	9	J HEALTH ECON	1	51	AM ECON REV	1	5	J HEALTH ECON	1	45
Q J ECON	2	2	HEALTH ECON	2	82	Q J ECON	2	2	HEALTH ECON	2	71
ECONOMETRICA	3	6	INQUIRY-J HEALTH CAR	3	68	J HEALTH ECON	3	48	INQUIRY-J HEALTH CAR	3	49
J POLIT ECON	4	4	Q J ECON	4	2	J POLIT ECON	4	4	Q J ECON	4	2
REV ECON STUD	5	7	AM ECON REV	5	11	ECONOMETRICA	5	16	AM ECON REV	5	10
J MONETARY ECON	6	8	J HUM RESOUR	6	28	J ECON PERSPECT	6	9	J HUM RESOUR	6	34
REV ECON STAT	7	15	J RISK UNCERTAINTY	7	3	J DEV ECON	7	26	HOUS POLICY DEBATE	7	11
J ECON PERSPECT	8	10	HOUS POLICY DEBATE	8	16	J DEV STUD	8	45	J RISK UNCERTAINTY	8	3
J ECONOMETRICS	9	22	J ECON PSYCHOL	9	21	REV ECON STAT	9	19	J ECON PSYCHOL	9	15
J ECON THEORY	10	32	ECONOMETRICA	10	14	ECON J	10	28	RAND J ECON	10	6
J FINANC ECON	11	12	J ECON PERSPECT	11	6	J PUBLIC ECON	11	34	J ECON PERSPECT	11	5
EUR ECON REV	12	21	RAND J ECON	12	7	RAND J ECON	12	12	WORLD DEV	12	103
J INT ECON	13	11	J ECONOMETRICS	13	43	HOUS POLICY DEBATE	13	8	J SOC POLICY	13	102
J PUBLIC ECON	14	28	J POLIT ECON	14	4	EUR ECON REV	14	25	J ECON BEHAV ORGAN	14	28
INT ECON REV	15	18	WORLD DEV	15	110	J HUM RESOUR	15	30	MON LABOR REV	15	27
ECON J	16	24	J ECON BEHAV ORGAN	16	38	J ECONOMETRICS	16	36	J MEDIA ECON	16	108
J MONEY CREDIT BANK	17	16	J SOC POLICY	17	131	J URBAN ECON	17	27	J ECONOMETRICS	17	52
REV FINANC STUD	18	17	J PUBLIC ECON	18	25	J FINANC ECON	18	11	ECONOMETRICA	18	17
RAND J ECON	19	20	REV ECON STAT	19	24	WORLD DEV	19	62	J POLICY ANAL MANAG	19	37
J BUS ECON STAT	20	23	MON LABOR REV	20	37	J MONETARY ECON	20	7	ECON INQ	20	16
BROOKINGS PAP ECO AC	21	3	J POLICY ANAL MANAG	21	41	J LABOR ECON	21	21	J PUBLIC ECON	21	22
GAME ECON BEHAV	22	41	J MEDIA ECON	22	137	BROOKINGS PAP ECO AC	22	1	CONTEMP ECON POLICY	22	92
NBER MACROECON ANN	23	1	ECON INQ	23	19	AM J AGR ECON	23	102	REV ECON STAT	23	29
ECON LETT	24	70	ECON J	24	22	INQUIRY-J HEALTH CAR	24	47	J POLIT ECON	24	7
ECON THEOR	25	46	J FINANC ECON	25	5	HEALTH ECON	25	136	J FINANC ECON	25	4
J DEV ECON	26	30	REV ECON STUD	26	13	REV ECON STUD	26	17	IND LABOR RELAT REV	26	21
J LABOR ECON	27	25	APPL ECON	27	132	IND LABOR RELAT REV	27	24	GAME ECON BEHAV	27	40
J ECON DYN CONTROL	28	36	IND LABOR RELAT REV	28	23	DEV CHANGE	28	92	AM J AGR ECON	28	98
ECONOMET THEOR	29	37	CONTEMP ECON POLICY	29	87	J INT ECON	29	10	J PROD ANAL	29	111
J ECON GROWTH	30	5	GAME ECON BEHAV	30	48	J BUS ECON STAT	30	29	SOUTH ECON J	30	23
J HUM RESOUR	31	29	AM J AGR ECON	31	109	J MONEY CREDIT BANK	31	13	REV ECON STUD	31	12
REV ECON DYNAM	32	13	SOUTH ECON J	32	29	J LAW ECON	32	15	IDS BULL-I DEV STUD	32	137
J APPL ECONOM	33	31	J ECON THEORY	33	34	IDS BULL-I DEV STUD	33	124	J URBAN PLAN D-ASCE	33	112
CAN J ECON	34	52	J PROD ANAL	34	121	WORLD BANK ECON REV	34	33	J DEV STUD	34	142
J ECON BEHAV ORGAN	35	68	J DEV STUD	35	113	J POLICY ANAL MANAG	35	39	J POPUL ECON	35	54
J INT MONEY FINANC	36	39	IDS BULL-I DEV STUD	36	157	IND RELAT	36	20	ECON J	36	19
MACROECON DYN	37	19	J LAW ECON	37	1	J ENVIRON ECON MANAG	37	52	J LAW ECON	37	1
J ECON HIST	38	34	EUR ECON REV	38	27	WORLD BANK RES OBSER	38	49	APPL ECON	38	120
INT J IND ORGAN	39	67	J LABOR ECON	39	17	ECON LETT	39	86	DEV CHANGE	39	104

J URBAN ECON	40	42	J URBAN PLAN D-ASCE	40	141	J INT MONEY FINANC	40	40	J ECON THEORY	40	36
J IND ECON	41	35	J POPUL ECON	41	69	ECOL ECON	41	93	RESOUR POLICY	41	148
J LAW ECON	42	33	NATL TAX J	42	18	FOOD POLICY	42	129	NATL TAX J	42	14
NATL TAX J	43	45	J ECON MANAGE STRAT	43	31	ECON INQ	43	80	ENVIRON PLANN C	43	119
J ENVIRON ECON MANAG	44	58	J DEV ECON	44	42	NATL TAX J	44	38	POLICY STUD J	44	115
J HEALTH ECON	45	65	J INT ECON	45	30	LAND ECON	45	72	AGR ECON	45	157
ECON INQ	46	62	DEV CHANGE	46	130	REV INCOME WEALTH	46	44	IND RELAT	46	60
SCAND J ECON	47	43	J MONETARY ECON	47	26	J APPL ECONOM	47	32	J ECON MANAGE STRAT	47	48
J MATH ECON	48	78	REV FINANC STUD	48	10	REG STUD	48	78	ECONOMICA	48	30
IND LABOR RELAT REV	49	38	J ENVIRON ECON MANAG	49	35	INT ECON REV	49	35	J RURAL STUD	49	109
IMF STAFF PAPERS	50	26	ECONOMICA	50	40	J PROD ANAL	50	146	TIJDSCHR ECON SOC GE	50	125
WORLD BANK ECON REV	51	27	J BUS ECON STAT	51	39	AGR ECON	51	99	REG STUD	51	96
ECON POLICY	52	14	ECOL ECON	52	126	J POPUL ECON	52	76	REV FINANC STUD	52	9
ECON EDUC REV	53	66	ENVIRON PLANN C	53	145	MON LABOR REV	53	56	MATH SOC SCI	53	88
J ECON MANAGE STRAT	54	40	RESOUR POLICY	54	163	ENVIRON RESOUR ECON	54	91	J DEV ECON	54	41
INT J GAME THEORY	55	75	IND RELAT	55	56	OXFORD ECON PAP	55	74	INT J URBAN REGIONAL	55	70
SOC CHOICE WELFARE	56	82	AGR ECON	56	153	INT J URBAN REGIONAL	56	31	REG SCI URBAN ECON	56	61
INT TAX PUBLIC FINAN	57	50	ECON LETT	57	92	OXFORD B ECON STAT	57	68	WORLD BANK ECON REV	57	63
OXFORD B ECON STAT	58	57	INT ECON REV	58	44	ECON EDUC REV	58	71	J LABOR ECON	58	20
ECONOMICA	59	60	POLICY STUD J	59	142	IMF STAFF PAPERS	59	18	S AFR J ECON	59	160
J RISK UNCERTAINTY	60	54	LAND ECON	60	66	J SOC POLICY	60	143	REAL ESTATE ECON	60	110
AM J AGR ECON	61	106	BROOKINGS PAP ECO AC	61	12	J REGIONAL SCI	61	54	J ECON DYN CONTROL	61	79
SOUTH ECON J	62	56	ENVIRON RESOUR ECON	62	77	CAN J ECON	62	77	ECON GEOGR	62	33
OXFORD ECON PAP	63	49	J RURAL STUD	63	135	J IND ECON	63	23	J BUS ECON STAT	63	51
REV IND ORGAN	64	77	REG STUD	64	125	SOUTH ECON J	64	55	ECON DEV Q	64	93
REG SCI URBAN ECON	65	47	WORLD BANK ECON REV	65	55	INT J IND ORGAN	65	65	J IND ECON	65	13
WORLD DEV	66	103	J MONEY CREDIT BANK	66	36	J ECON THEORY	66	81	PAP REG SCI	66	132
ENVIRON RESOUR ECON	67	91	J URBAN ECON	67	64	REV FINANC STUD	67	43	BRIT J IND RELAT	67	91
REV INCOME WEALTH	68	61	J ECON DYN CONTROL	68	72	J ECON GROWTH	68	6	ECOL ECON	68	114
IND RELAT	69	51	REG SCI URBAN ECON	69	67	B INDONES ECON STUD	69	122	EUR ECON REV	69	26
PUBLIC CHOICE	70	105	TIJDSCHR ECON SOC GE	70	150	REV IND ORGAN	70	64	J URBAN ECON	70	85
LABOUR ECON	71	48	J IND ECON	71	15	J HOUS ECON	71	46	J TRANSP ECON POLICY	71	140
APPL ECON	72	120	MATH SOC SCI	72	104	OXFORD REV ECON POL	72	59	CAMBRIDGE J ECON	72	58
LAND ECON	73	83	OXFORD B ECON STAT	73	106	CAMBRIDGE J ECON	73	110	ECON LETT	73	90
J POLICY ANAL MANAG	74	64	INT J URBAN REGIONAL	74	94	J AFR ECON	74	89	PUBLIC CHOICE	74	25
HEALTH ECON	75	110	NBER MACROECON ANN	75	8	NBER MACROECON ANN	75	3	J ECON HIST	75	75
WELTWIRTSCH ARCH	76	74	BRIT J IND RELAT	76	107	CAN PUBLIC POL	76	111	SMALL BUS ECON	76	95
OXFORD REV ECON POL	77	73	CAN J ECON	77	73	REG SCI URBAN ECON	77	61	OXFORD REV ECON POL	77	89
J JPN INT ECON	78	44	J ECON GROWTH	78	20	FISC STUD	78	37	REV INCOME WEALTH	78	123
ECOL ECON	79	111	ECON THEOR	79	74	ENVIRON DEV ECON	79	51	EASTERN EUR ECON	79	151
J DEV STUD	80	86	J ECON HIST	80	61	ENERGY J	80	42	REV INT POLIT ECON	80	65
ENVIRON DEV ECON	81	55	S AFR J ECON	81	175	J AGR ECON	81	115	J REGIONAL SCI	81	121

MATH SOC SCI	82	107	REAL ESTATE ECON	82	112	WORLD ECON	82	58	ECON EDUC REV	82	107
EXPLOR ECON HIST	83	59	ECONOMET THEOR	83	89	BRIT J IND RELAT	83	121	ENERG POLICY	83	163
J POPUL ECON	84	80	J APPL ECONOM	84	62	LABOUR ECON	84	67	LAND ECON	84	56
J REAL ESTATE FINANC	85	71	WORLD BANK RES OBSER	85	50	J ECON DYN CONTROL	85	90	J REAL ESTATE FINANC	85	126
J TRANSP ECON POLICY	86	89	INT J IND ORGAN	86	47	APPL ECON	86	127	J MONETARY ECON	86	53
ENERGY J	87	76	ECON GEOGR	87	57	ECON GEOGR	87	84	CAN J DEV STUD	87	83
MANCH SCH	88	97	ECON EDUC REV	88	90	J COMP ECON	88	112	GROWTH CHANGE	88	135
MON LABOR REV	89	96	OXFORD ECON PAP	89	76	SMALL BUS ECON	89	151	BROOKINGS PAP ECO AC	89	24
J COMP ECON	90	81	SCAND J ECON	90	78	J RISK UNCERTAINTY	90	103	OXFORD ECON PAP	90	100
REAL ESTATE ECON	91	72	J AGR ECON	91	149	GAME ECON BEHAV	91	82	ECON TRANSIT	91	39
J FORECASTING	92	93	ECON DEV Q	92	123	SCAND J ECON	92	83	INT J IND ORGAN	92	35
J ECON PSYCHOL	93	115	PUBLIC CHOICE	93	33	J ECON HIST	93	57	J REGUL ECON	93	43
INQUIRY-J HEALTH CAR	94	112	REV ECON DYNAM	94	46	ECON DEV Q	94	53	J HOUS ECON	94	97
J REGUL ECON	95	95	PAP REG SCI	95	147	DEV ECON	95	147	J APPL ECONOM	95	74
KYKLOS	96	79	J TRANSP ECON POLICY	96	97	ECONOMET THEOR	96	94	SCAND J ECON	96	94
ECON TRANSIT	97	84	J INT MONEY FINANC	97	70	ECONOMICA	97	87	J MONEY CREDIT BANK	97	57
JPN WORLD ECON	98	108	REV INCOME WEALTH	98	83	J ECON MANAGE STRAT	98	63	CAN J ECON	98	86
WORLD ECON	99	88	ECON POLICY	99	32	J RURAL STUD	99	106	J COMP ECON	99	47
J PROD ANAL	100	104	REV IND ORGAN	100	60	ECON POLICY	100	14	SCOT J POLIT ECON	100	68
ADV ECONOMETRICS	101	53	IMF STAFF PAPERS	101	52	ENERG POLICY	101	133	J ENVIRON ECON MANAG	101	38
HOUS POLICY DEBATE	102	85	MACROECON DYN	102	49	REV ECON DYNAM	102	50	REV IND ORGAN	102	62
FISC STUD	103	63	CAMBRIDGE J ECON	103	75	REV INT POLIT ECON	103	60	CAN PUBLIC POL	103	130
RESOUR ENERGY ECON	104	94	OXFORD REV ECON POL	104	84	ECON TRANSIT	104	134	TELECOMMUN POLICY	104	82
CONTEMP ECON POLICY	105	114	EASTERN EUR ECON	105	171	GROWTH CHANGE	105	95	J MATH ECON	105	136
J ECON	106	113	INT J GAME THEORY	106	81	CAN J DEV STUD	106	149	J INT ECON	106	69
INT J FINANC ECON	107	100	J REGIONAL SCI	107	122	ECON THEOR	107	98	INT ECON REV	107	67
APPL ECON LETT	108	154	J MATH ECON	108	116	ENVIRON PLANN C	108	100	J LABOR RES	108	42
J REGIONAL SCI	109	98	J REAL ESTATE FINANC	109	105	CHINA ECON REV	109	130	ECON HIST REV	109	118
INT REGIONAL SCI REV	110	69	INT TAX PUBLIC FINAN	110	80	INT REGIONAL SCI REV	110	85	ECON THEOR	110	99
ECON HIST REV	111	109	SMALL BUS ECON	111	124	KYKLOS	111	69	J FORECASTING	111	73
J MACROECON	112	119	LABOUR ECON	112	58	ADV ECONOMETRICS	112	70	J INST THEOR ECON	112	32
J AGR RESOUR ECON	113	138	J REGUL ECON	113	45	J POST KEYNESIAN EC	113	73	NBER MACROECON ANN	113	18
WORLD BANK RES OBSER	114	87	J HOUS ECON	114	100	J ECON BEHAV ORGAN	114	118	ANN REGIONAL SCI	114	128
J AFR ECON	115	92	REV INT POLIT ECON	115	85	REAL ESTATE ECON	115	113	J POST KEYNESIAN EC	115	139
J AGR ECON	116	117	J COMP ECON	116	63	J REGUL ECON	116	66	INT REGIONAL SCI REV	116	129
J HOUS ECON	117	90	ENERG POLICY	117	165	MANCH SCH	117	105	MACROECON DYN	117	55
AGR ECON	118	122	SOC CHOICE WELFARE	118	108	WELTWIRTSCH ARCH	118	79	APPL ECON LETT	118	154
ENERG POLICY	119	145	ECON TRANSIT	119	59	PUBLIC CHOICE	119	138	J INT MONEY FINANC	119	81
JPN ECON REV	120	116	FOOD POLICY	120	168	J JPN INT ECON	120	41	SOC CHOICE WELFARE	120	105
DEV CHANGE	121	139	ENVIRON DEV ECON	121	53	AUST J AGR RESOUR EC	121	109	WORLD BANK RES OBSER	121	31
NEW ENGL ECON REV	122	101	GROWTH CHANGE	122	146	MACROECON DYN	122	22	ECONOMET THEOR	122	134
J ECON SURV	123	99	CAN J DEV STUD	123	114	POLICY STUD J	123	125	OXFORD B ECON STAT	123	138

J POLICY MODEL	124	150	WELTWIRTSCH ARCH	124	119	INT TAX PUBLIC FINAN	124	88	INT REV LAW ECON	124	8
REG STUD	125	129	KYKLOS	125	98	INT REV LAW ECON	125	128	J ECON ISSUES	125	87
J EVOL ECON	126	102	EXPLOR ECON HIST	126	101	INT J GAME THEORY	126	104	FISC STUD	126	147
ECON REC	127	123	WORLD ECON	127	79	J FORECASTING	127	117	J EVOL ECON	127	127
J POST KEYNESIAN EC	128	125	ENERGY J	128	86	J ECON SURV	128	75	EXPLOR ECON HIST	128	149
IDS BULL-I DEV STUD	129	153	APPL ECON LETT	129	170	MATH SOC SCI	129	116	ENVIRON RESOUR ECON	129	72
SMALL BUS ECON	130	135	J AGR RESOUR ECON	130	160	S AFR J ECON	130	156	J JPN INT ECON	130	122
J INST THEOR ECON	131	136	SCOT J POLIT ECON	131	91	J LABOR RES	131	144	FOOD POLICY	131	156
EUR REV AGRIC ECON	132	141	J JPN INT ECON	132	99	PAP REG SCI	132	137	WELTWIRTSCH ARCH	132	131
FOOD POLICY	133	148	J FORECASTING	133	96	ANN REGIONAL SCI	133	101	IMF STAFF PAPERS	133	76
ENERG ECON	134	126	TELECOMMUN POLICY	134	111	EXPLOR ECON HIST	134	97	ECON PLANN	134	153
DEV ECON	135	149	J LABOR RES	135	65	EUR REV AGRIC ECON	135	153	INF ECON POLICY	135	77
SCOT J POLIT ECON	136	134	INT REGIONAL SCI REV	136	120	APPL ECON LETT	136	165	ENERG ECON	136	164
ANN REGIONAL SCI	137	121	FISC STUD	137	93	RESOUR ENERGY ECON	137	108	EUR J IND RELAT	137	116
INT REV LAW ECON	138	132	J INST THEOR ECON	138	54	NEW ENGL ECON REV	138	107	WORLD ECON	138	64
BRIT J IND RELAT	139	127	ECON HIST REV	139	133	J ECON PSYCHOL	139	114	J ECON GROWTH	139	46
PAP REG SCI	140	118	CAN PUBLIC POL	140	155	POST-COMMUNIST ECON	140	157	ECON REC	140	50
JAHRB NATL STAT	141	130	J AFR ECON	141	144	J ECON ISSUES	141	163	LABOUR ECON	141	152
OPEN ECON REV	142	131	B INDONES ECON STUD	142	88	J EVOL ECON	142	132	JPN WORLD ECON	142	106
CAMBRIDGE J ECON	143	137	J POST KEYNESIAN EC	143	136	JPN WORLD ECON	143	135	INT J GAME THEORY	143	84
J LABOR RES	144	144	EUR REV AGRIC ECON	144	167	ENERG ECON	144	120	NEW ENGL ECON REV	144	133
ECON MODEL	145	152	ANN REGIONAL SCI	145	148	J REAL ESTATE FINANC	145	161	ECON POLICY	145	59
B INDONES ECON STUD	146	147	RESOUR ENERGY ECON	146	117	TJDSCHR ECON SOC GE	146	150	KYKLOS	146	101
ECONOMIST-NETHERLAND	147	133	INT REV LAW ECON	147	9	SCOT J POLIT ECON	147	160	J ECON SURV	147	80
AUST J AGR RESOUR EC	148	140	J EVOL ECON	148	134	ECON REC	148	148	HITOTSUB J ECON	148	113
CHINA ECON REV	149	128	JPN WORLD ECON	149	128	J INST THEOR ECON	149	152	ECONOMIST-NETHERLAND	149	143
GROWTH CHANGE	150	142	MANCH SCH	150	139	J AGR RESOUR ECON	150	168	REV ECON DYNAM	150	124
ECON DEV Q	151	151	ADV ECONOMETRICS	151	115	J TRANSP ECON POLICY	151	123	DEV ECON	151	159
J ECON ISSUES	152	162	J ECON ISSUES	152	118	TELECOMMUN POLICY	152	131	CHINA ECON REV	152	78
ECON GEOGR	153	146	J MACROECON	153	162	SOC CHOICE WELFARE	153	166	B INDONES ECON STUD	153	66
CAN PUBLIC POL	154	157	INT J FINANC ECON	154	129	HITOTSUB J ECON	154	155	INT TAX PUBLIC FINAN	154	162
TELECOMMUN POLICY	155	161	DEV ECON	155	172	OPEN ECON REV	155	142	JAHRB NATL STAT	155	167
CAN J DEV STUD	156	156	ECON REC	156	71	ECON HIST REV	156	154	J AFR ECON	156	165
S AFR J ECON	157	155	NEW ENGL ECON REV	157	127	AFR DEV REV	157	119	INT J FINANC ECON	157	145
ECON PLANN	158	143	CHINA ECON REV	158	102	INF ECON POLICY	158	96	AFR DEV REV	158	158
INT J URBAN REGIONAL	159	163	AUST J AGR RESOUR EC	159	138	CONTEMP ECON POLICY	159	139	AUST J AGR RESOUR EC	159	117
J SOC POLICY	160	159	J ECON	160	152	J POLICY MODEL	160	159	POST-COMMUNIST ECON	160	141
REV INT POLIT ECON	161	166	J ECON SURV	161	95	J MEDIA ECON	161	162	MANCH SCH	161	144
AFR DEV REV	162	124	ENERG ECON	162	158	RESOUR POLICY	162	167	ENVIRON DEV ECON	162	44
J RURAL STUD	163	168	ECON PLANN	163	151	INT J FINANC ECON	163	140	J POLICY MODEL	163	146
ENVIRON PLANN C	164	172	J POLICY MODEL	164	161	ECON MODEL	164	158	J AGR RESOUR ECON	164	161
POLICY STUD J	165	167	ECON MODEL	165	159	EMERG MARK FINANC TR	165	141	ECON MODEL	165	150

POST-COMMUNIST ECON	166	165	EUR J IND RELAT	166	140	EUR J IND RELAT	166	145	EUR REV AGRIC ECON	166	169
POLIT EKON	167	170	INF ECON POLICY	167	103	EASTERN EUR ECON	167	164	J AGR ECON	167	166
EASTERN EUR ECON	168	174	JPN ECON REV	168	154	J MACROECON	168	169	J MACROECON	168	170
INF ECON POLICY	169	160	POST-COMMUNIST ECON	169	164	ECONOMIST-NETHERLAND	169	126	JPN ECON REV	169	168
RESOUR POLICY	170	169	ECONOMIST-NETHERLAND	170	156	JPN ECON REV	170	170	OPEN ECON REV	170	155
EUR J IND RELAT	171	164	HITOTSUB J ECON	171	143	POLIT EKON	171	171	RESOUR ENERGY ECON	171	173
FINANC A UVER	172	176	JAHRB NATL STAT	172	173	J ECON	172	176	J ECON	172	174
TIJDSCHR ECON SOC GE	173	177	AFR DEV REV	173	166	ECON PLANN	173	175	ENERGY J	173	172
HITOTSUB J ECON	174	158	OPEN ECON REV	174	169	J MATH ECON	174	173	ADV ECONOMETRICS	174	171
EMERG MARK FINANC TR	175	175	POLIT EKON	175	176	JAHRB NATL STAT	175	174	EMERG MARK FINANC TR	175	178
J URBAN PLAN D-ASCE	176	171	EMERG MARK FINANC TR	176	174	EKON CAS	176	178	FINANC A UVER	176	175
J MEDIA ECON	177	173	FINANC A UVER	177	177	J URBAN PLAN D-ASCE	177	172	POLIT EKON	177	177
EKON CAS	178	178	EKON CAS	178	178	FINANC A UVER	178	177	EKON CAS	178	176

Since economics journals represent only a small fraction of the universe of social science journals, it is plausible that the overall-impact rankings of economics journals can be explained largely by their impact outside the economics discipline. This assumption is confirmed by the strong correlation (0.90) between the economics-impact rankings with the rankings of economics journals according to their influence on non-economics journals, which we calculated using a method similar to the one used to calculate the policy-impact rankings. Among the 20 most highly rated journals within economics, *Journal of International Economics* and *International Economic Review* are cited the least frequently (or in the least prestigious publications) in the social sciences literature as a whole.

The policy-impact rankings of economics journals are similar to the economics-impact rankings in some respects. Prestigious economics journals such as *American Economic Review*, *Quarterly Journal of Economics*, *Journal of Political Economy*, *Econometrica*, and *Journal of Economic Perspectives* continue to appear in the top ten according to policy impact. This may be partially attributable to the selection of policy journals, all of which are somewhat economics-relevant and more than half of which overlap with economics journals. Leading economics journals presumably have stronger influence on these types of policy journals than on policy-oriented social science journals in general.

On the other hand, policy-impact rankings for many other journals differ substantially from their economics-impact rankings. Theoretical journals, especially those that are highly mathematical, such as *Journal of Economic Theory* and *Economic Theory*, drop significantly in the policy-impact rankings. Nevertheless, *Econometrica*, *Journal of Econometrics*, and *Review of Economics and Statistics* remain nearly as highly ranked as they are within economics.

Moving up most notably in the policy-impact rankings are journals in the fields of development economics, urban and regional economics, agricultural economics, and labor economics. Examples of such journals appearing in the top 25 include *American Journal of Agricultural Economics*, *Housing Policy Debate*, *Journal of Development Economics*, *Journal of Development Studies*, *Journal of Human Resources*, and *World Development*. *Journal of Health Economics* remains in the top three, but the two other health economics journals at the very top in the overall-impact rankings now slide somewhat.

While some policy research journals found in our economics list such as *Journal of Policy Analysis and Management* and *Journal of Social Policy* move up smartly in going from the economics-impact rankings to the policy-impact rankings, most of the others in this category fall in the standings. This finding suggests that policy research journals tend to draw contributions from highly ranked economics journals or economics journals with broad policy implications, while citing each other less often.

5.2 Influence per Article

Although journals tend to promote themselves by providing measures of their readership or citations, researchers should be interested in whether a typical article published in one journal has more or less influence than a typical article published in another. In many cases, rankings by adjusted impact-per-article are similar to those already discussed. In the within-economics approach, per-article rankings and all-articles journal rankings are strongly correlated (0.95). The most noteworthy exceptions are the journals that publish only small number of articles but manage to achieve relatively high influence for the journal as a whole, such as *NBER Macroeconomics Annual*, *Brookings Papers on Economic Activity*, and *Journal of Economic Growth*.²⁰ According to JCR, these journals published only 36, 102 and 73 articles, respectively, in the 1996-to-2003 study period, and they rank numbers 1, 3, and 5, respectively, in our per-article rankings. *American Economic Review*, which published more than one thousand articles in the study period, remains in the top ten. However, another large journal, *Economics Letters*, falls from 24 to 70, once its specialization in very short pieces is taken into account.

Per-article rankings differ more from total-articles rankings under the overall-impact approach. *Journal of Law and Economics* achieves the top spot. Journals in health economics and development, some of which attain much greater prominence in the overall-impact than in the

²⁰ The authors of articles appearing in *NBER Macroeconomics Annual* and *Brookings Papers on Economic Activity* are selected by the editors of these publications rather than being chosen from among a pool of submissions. Their high rankings may be irrelevant for researchers deciding where to submit their papers but they remain relevant for those who evaluate the research productivity of authors. Excluding these two journals from the body of journals undergoing ranking, but including them as sources of citations advances *Econometrica* and *Review of Economic Studies* to 4th and 5th place, respectively, in the per-article rankings, similar to their positions in the per-journal rankings.

economics-impact rankings, fall in the per-article rankings. In addition to the journals already mentioned in the within-economics context, *International Review of Law and Economics*, *Journal of Labor Economics*, *National Tax Journal*, *Journal of Industrial Economics*, *Review of Economic Studies*, and *Review of Financial Studies* advance substantially and are among the highest-ranked 25 journals on a per-article basis. For most of the other journals, per-article rankings by overall impact are fairly similar to their per-article rankings by economics impact, and the correlation for the entire sample of journals is 0.80. In addition, as in the total-articles rankings, per-article rankings under the overall-impact method are strongly correlated with the per-article rankings by adjusted impact on noneconomics journals (correlation 0.91).

Journal standings by policy impact on a per-article basis follow many of the patterns already discussed for economic impact and overall impact. The top spot is won by *Brookings Papers on Economic Activity*, followed by *Quarterly Journal of Economics* and *NBER Macroeconomics Annual*. The high influence of articles in *Brookings Papers* and the *Macroeconomics Annual* may be indicative of the potentially greater policy relevance when editors assign topics, as opposed to leaving these choices to the researchers themselves. Alternatively, they may reflect the status that policy-oriented scholars confer upon economics journals whose authors are selected by the journal editors.

5.3 Insights from Adopting a Content-based Definition of Economics

The journals we considered from the non-economics categories in *JCR*, which have been ignored in other studies ranking economics journals, vary greatly in their rankings. Several journals—*Industrial and Labor Relations Review*, *International Money and Finance Review*, and *Journal of Financial Studies*—appear in the top 50 in the economics-impact rankings, measured by impact-adjusted citations both in total and per article. Most others are in the middle-to-lower range in economics impact.

Economics-oriented journals outside the *JCR* economics category generally achieve much higher ranks in the overall-impact and policy-impact rankings. Some even rise to the top range. Thus, the inclusion of these journals is important in order to capture the channels

through which the economics discipline influences social sciences at large and policy-related publications in particular.

5.4 The Effects of Journal Characteristics on Rankings: Regression Analysis

The summary presented above is based largely on examples of relatively well-known journals. In order to determine the factors systematically associated with a journal's position in various ranking exercises and to summarize better the patterns of rankings in general, we estimated simple multivariate linear regressions using some of the variables in our journal-scoring database (Table 3). The regressions are not intended to provide a full explanation of the factors affecting the rankings, since many factors at play, such as the editors' and authors' characteristics, are not captured by our database. The dependent variables are the journal rankings in the six specifications, from 1 to 178. Therefore, independent variables serving to move journals higher in the rankings are associated with a negative coefficient.

Whether examined in a narrow or a broad or a targeted context, journals publishing more articles tend to have greater influence than journals containing fewer articles. By contrast, a journal's size has no systematic effect on the average influence per article. Therefore, authors should not expect to have their articles cited any more frequently, or in more prestigious publications, if they appear in journals that publish large numbers of other articles.

As commonly believed, publishing theoretical or mathematical research tends to raise a journal's standing within the economics discipline. Such an orientation also improves an economics journal's rankings in the social sciences at large, although not as much as in economics. On a per-article basis, theory-oriented journals tend to have more influence among policy journals, but again not as much as within just economics.²¹

²¹ We did not include sophistication in the regressions because this variable is highly collinear with theoretical orientation and policy orientation.

Table 3 Regression Analysis of Economics Journal Rankings

Independent Variable	Total Journal Ranking			Per Article Ranking		
	Economics Impact	Overall Impact	Policy Impact	Economics Impact	Overall Impact	Policy Impact
Highly Theoretical ¹	-40.20 *** (8.68)	-18.30 ** (9.38)	-14.60 (9.62)	-44.29 *** (9.27)	-31.60 *** (9.86)	-28.02 *** (10.02)
Highly Empirical/Applied ²	-6.55 (9.94)	-16.27 (10.74)	-26.90 ** (11.01)	-12.45 (10.60)	-17.24 (11.28)	-25.68 ** (11.46)
Strong Policy Orientation ³	-8.73 (8.14)	-15.60 * (8.79)	-23.42 *** (9.02)	-11.33 (8.68)	-8.92 (9.23)	-24.36 *** (9.39)
JCR Economics Category ⁴	-27.38 *** (8.53)	11.21 (9.21)	-4.01 (9.45)	-28.12 *** (9.10)	-18.55 * (9.68)	-9.70 (9.83)
Interdisciplinarity ⁵	-5.63 (6.67)	-21.99 *** (7.20)	-10.48 (7.39)	-3.56 (7.12)	-10.51 (7.57)	-9.44 (7.69)
Average Number of Articles per Year	-0.46 *** (0.10)	-0.59 *** (0.11)	-0.49 *** (0.12)	-0.08 (0.11)	-0.09 (0.12)	-0.07 (0.12)
Constant	150.03 *** (12.62)	135.40 *** (13.63)	148.35 *** (13.99)	141.38 *** (13.47)	136.74 *** (14.32)	138.50 *** (14.56)
R Squared	0.32	0.20	0.16	0.22	0.12	0.09
Adjusted R Squared	0.29	0.17	0.13	0.19	0.09	0.06

Notes:

1 Equals 1 if content variable "theory" is equal to 2, 0 otherwise.

2 Equals 1 if content variable "empirical" is equal to 2, 0 otherwise.

3 Equals 1 if included in policy journal list, 0 otherwise.

4 Equals 1 if included in economics category in *JCR*, 0 otherwise.

5 Equals 1 if classified in more than one category in *JCR*, 0 otherwise.

An empirical/applied orientation plays an important role in boosting a journal's rankings based on policy impact, but does not turn out to be a robust factor affecting a journal's rankings within economics or in the social sciences at large. These findings bear important implications for scholars and journal editors who want to build broader influence outside of economics. They also help to explain why some comprehensive journals with both theoretical and empirical focuses, such as *American Economic Review* and *Quarterly Journal of Economics*, perform well in all rankings.

As discussed, the iterative method assigns differential weights to journal citations, depending on how frequently the citing journals are cited by other journals. To help evaluate how our journal rankings are affected by the number of citations versus the prestige of citing journals, we estimated similar regressions using the unweighted rankings produced in the first iteration and compared them with those produced through iteration. Within

economics, articles in empirical journals received almost as many citations as articles in theoretical journals, as shown in the first-iteration rankings (Appendix Table 2). Therefore, it is the smaller average influence of the journals citing articles in empirical journals that reduces their influence on the profession, as compared with theoretical journals. By contrast, there appears to be no systematic difference in the prestige of the policy journals citing empirical versus theoretical economics journals, so the coefficients from using the first-iteration rankings are very similar to those from using the citation-adjusted rankings.

The final three variables test whether an economics journal's field, broadly defined, has an effect on its impact-adjusted citations. One of these variables indicates whether or not the journal has a strong policy orientation. Another denotes whether or not the journal is listed in the *JCR* economics category, providing an indicator of whether or not it is encompassed by the traditional view of economics, and was therefore included in previous ranking studies. Not surprisingly, journals receive greater attention within their own circles. Policy impacts are higher for policy-oriented journals, and economics impacts are higher for *JCR*-designated economics journals. On the other hand, the regressions do not provide compelling evidence that being in either of these categories yields greater influence on standing among all social science journals, after controlling for the mix of theoretical versus empirical content. The last variable is an indicator of whether or not a journal is interdisciplinary, measured by whether or not *JCR* lists the journal in more than one field. Journals in econometrics and mathematical methods, international economics, and some planning- and business-oriented fields are frequently cross-listed. Being interdisciplinary has an insignificant effect, except in the case of overall social sciences citations.

6. Conclusion

Evaluations of the research productivity of economists tend to restrict their focus to the publications in the *Journal Citation Reports* economics category. This study extends the impact-adjusted citations-based ranking method so as to make it applicable to the use of alternative evaluative criteria. It expands the scope for impact-adjusted computations from journals in a particular discipline to the whole body of social science journals. It further extends the method

to determining a journal's influence according to a targeted set of journals. This technique is applied to ranking economics journals according to their influence on policy journals, but it can be applied more generally to any case in which the body of evaluating literature differs from the body of literature being evaluated.

In all, the study compares the results of six different ranking methodologies: influence within economics, within social sciences, and within policy, each of which is measured according to total impact-adjusted citations as well as by average impact-adjusted citations per article. We argue that adjusting total citations by the number of articles published in each cited journal is a control for size superior to other controls that focus on the number of pages or characters. Furthermore, it is our preferred method when using citations to gauge the expected influence of a scholarly paper.

Using a ranking based on total citations within economics, *American Economic Review* ranks highest, followed by *Quarterly Journal of Economics*, *Econometrica*, *Journal of Political Economy*, and *Review of Economic Studies*. Applying the same body of citations but adjusting for the number of articles published in the cited journals results in *NBER Macroeconomics Annual* attaining the top ranking and *Brookings Papers on Economic Activity* and *Journal of Economic Growth* also rising to the top five. The four rankings using broader bodies of citing literature yield some different frontrunners—*Journal of Economic Perspectives*, *Journal of Health Economics*, and *Journal of Law and Economics*—along with *American Economic Review* (for policy impact, not adjusted for the number of articles). In addition, the relative standings of many other journals are different from what they are in the base case that measures total impact-adjusted citations within economics. The changes in rankings are due in part to idiosyncratic factors about each journal's readership, notably the relatively broad interest outside economics in certain topics in applied microeconomics as well as economic development. The changes are due also to differences in the relative importance that different literatures assign to theoretical and empirical contributions. Finally, they reflect the finding that journal size has no systematic effect on influence per article, regardless of which body of citing literature is used.

The second major contribution of the study lies in investigating the interdisciplinary communication patterns among social sciences based on including the universe of the social

science journals in *JCR*. This analysis identifies the list of disciplines that contribute to the development of economics as well as the disciplines that draw significant contributions from economics. On the one hand, we confirm other researchers' conclusions that the economics literature is more self-contained than almost any other social science discipline. On the other hand, we find that economists draw considerably from mathematical methods used in other social sciences, not just those used in economics. Our results also serve to highlight mutual links between some economics journals and journals in the environmental studies and planning and development literatures that have been largely ignored in previous discussions of *JCR* categories.

This paper has focused on characteristics of articles and journals, and on the intensity of citations across journals. Much more extensive research would be needed to identify which types of contributions from the economics literature are used most in other fields—contributions to methodology, theory, or empirical questions or results. This would require categorizing and identifying the nature of specific citations, not just tallying them.

In recent years, the Internet has opened a new and increasingly prominent communication channel in the intellectual community. Studies appear to be cited more and more in electronically-available working paper form before being published. Furthermore, several journals have “gone electronic” without abandoning the refereeing process that characterizes many of the existing academic publications. It is natural to ask how these and other changes in the structure of publications and citations affect the relevance of ranking studies. The application of the impact-adjusted citations methodology to these alternative outlets would require that they be included in the data as both citing and cited publications. The criteria for inclusion in the *JCR* database do not impose any obvious barriers for electronic journals.²² Those who are interested in continuing to use ranking studies should hope that the entry of electronic journals with relatively short refereeing and publication lags will serve to produce quicker dissemination of economic research in general. This would reduce the proportion of studies that are cited as working papers, which generally lack the quality controls

²² Further broadening the database to encompass working papers poses the problem of duplication of citations: Any journal article referred to in a working paper would automatically be cited again in the published version.

imposed by journals. In the meantime, based on our findings regarding total versus per-article citations, we urge those who may undertake studies of the influence of working paper series to consider their impacts *per working paper*, not just in total.

Appendix Table 1 Policy Journals and their Overlap with Economics

Policy Journal	Also Economics Journal?	Policy Journal (continued from the left)	Also Economics Journal?
ADMIN SOC	N	J POLICY ANAL MANAG	Y
AFR DEV REV	Y	J POLICY MODEL	Y
AGR ECON	Y	J PUBL ADM RES THEOR	N
AM REV PUBLIC ADM	N	J SOC POLICY	Y
AUST J AGR RESOUR EC	Y	J TRANSP ECON POLICY	Y
AUST J PUBL ADMIN	N	J URBAN AFF	N
B INDONES ECON STUD	Y	J URBAN PLAN D-ASCE	Y
BROOKINGS PAP ECO AC	Y	J URBAN TECHNOL	N
CAN J DEV STUD	Y	J WORLD TRADE	N
CAN PUBLIC ADMIN	N	LOCAL GOV STUD	N
CAN PUBLIC POL	Y	NATL TAX J	Y
CONTEMP ECON POLICY	Y	NBER MACROECON ANN	Y
DEV CHANGE	Y	OXFORD REV ECON POL	Y
DISASTERS	N	POLICY POLIT	N
ECOL ECON	Y	POLICY SCI	N
ECON DEV Q	Y	POLICY STUD J	Y
ECON GEOGR	Y	PROG PLANN	N
ECON J	Y	PUBLIC ADMIN DEVELOP	N
ECON POLICY	Y	PUBLIC ADMIN REV	N
EDUC EVAL POLICY AN	N	PUBLIC INTEREST	N
EDUC URBAN SOC	N	PUBLIC MONEY MANAGE	N
ENERG POLICY	Y	REG STUD	Y
ENERGY J	Y	REV ECON STAT	Y
ENVIRON DEV ECON	Y	SOC NATUR RESOUR	N
ENVIRON PLANN C	Y	SOC POLICY ADMIN	N
ENVIRON URBAN	N	STUD COMP INT DEV	N
EUR J IND RELAT	Y	SUSTAIN DEV	N
EUR URBAN REG STUD	N	TRANSPORTATION	N
FINANC A UVER	Y	URBAN AFF REV	N
FISC STUD	Y	URBAN EDUC	N
GROWTH CHANGE	Y	URBAN LAWYER	N
HABITAT INT	N	WORK EMPLOY SOC	N
HOUS POLICY DEBATE	Y	WORLD BANK ECON REV	Y
IDS BULL-I DEV STUD	Y	WORLD BANK RES OBSER	Y
IMF STAFF PAPERS	Y	WORLD DEV	Y
INQUIRY-J HEALTH CAR	Y	WORLD ECON	Y
INT DEV PLANN REV	N		
INT J FINANC ECON	Y		
INT LABOUR REV	N		
INT REV ADM SCI	N		
J AFR ECON	Y		
J AM PLANN ASSOC	N		
J DEV STUD	Y		
J ECON PERSPECT	Y		
J EUR PUBLIC POLICY	N		
J HEALTH POLIT POLIC	N		
J HUM RESOUR	Y		
J PLAN EDUC RES	N		
J PLAN LIT	N		

(continued to the right)

Appendix Table 2 Regression Analysis of Economics Journal Rankings after First Iteration

Independent Variable	Total Journal Ranking			Per Article Ranking		
	Economics Impact	Overall Impact	Policy Impact	Economics Impact	Overall Impact	Policy Impact
Highly Theoretical ¹	-29.59 *** (8.80)	-24.01 *** (8.96)	-15.54 (9.67)	-32.16 *** (9.89)	-26.26 *** (10.13)	-28.90 *** (10.12)
Highly Empirical/Applied ²	-23.12 ** (10.13)	-21.14 ** (10.32)	-27.78 ** (11.14)	-25.09 ** (11.39)	-26.93 ** (11.67)	-25.42 ** (11.66)
Strong Policy Orientation ³	-10.01 (8.25)	-9.92 (8.40)	-26.02 *** (9.07)	-15.49 * (9.28)	-19.10 ** (9.50)	-25.92 *** (9.49)
JCR Economics Category ⁴	-18.72 ** (8.68)	0.26 (8.84)	-2.41 (9.54)	-26.39 *** (9.76)	-5.58 (10.00)	-8.90 (9.99)
Interdisciplinarity ⁵	-6.76 (6.73)	-16.59 ** (6.85)	-10.75 (7.40)	-5.32 (7.57)	-15.77 ** (7.75)	-9.65 (7.74)
Average Number of Articles per Year	-0.71 *** (0.11)	-0.77 *** (0.11)	-0.52 *** (0.12)	-0.06 (0.12)	-0.08 (0.12)	-0.08 (0.12)
Constant	166.16 *** (12.86)	154.58 *** (13.09)	151.39 *** (14.13)	149.41 *** (14.46)	139.02 *** (14.81)	140.16 *** (14.79)
R Squared	0.31	0.29	0.17	0.13	0.09	0.09
Adjusted R Squared	0.29	0.26	0.14	0.10	0.06	0.06

Notes:

- 1 Equals 1 if content variable "theory" is equal to 2, 0 otherwise.
2. Equals 1 if content variable "empirical" is equal to 2, 0 otherwise.
- 3 Equals 1 if included in policy journal list, 0 otherwise.
- 4 Equals 1 if included in economics category in *JCR*, 0 otherwise.
- 5 Equals 1 if classified in more than one category in *JCR*, 0 otherwise.

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