

# THE SUPERIORITY OF ECONOMISTS

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## Data & Methods Appendix

This appendix features the sources, data and methods used to reach the results presented in the paper. The *Superiority-Script-FinalOnline.R* file contains the code that replicates the data (we used the R environment).

We detail each result successively: Gender and doctorates in various disciplines (Figure 1); cross-discipline citations (Table 1); current affiliations and institution of PhD in 3 journals; disciplinary organization (Figure 2); extra-disciplinary citations (Figure 3); inter & intra-journal citations (supplementary); affiliation of AER authors; median and top 10% salaries in various disciplines (Figure 5).

### 1. GENDER AND DOCTORATES IN VARIOUS DISCIPLINES (FIGURE 1)

The data comes from the US National Center for Education Statistics, Integrated Post-secondary Education Data System Completion Survey (1966-2011).

The data is available at:

[http://www.asanet.org/research/stats/social\\_science\\_degrees\\_by\\_gender\\_since\\_1966.cfm](http://www.asanet.org/research/stats/social_science_degrees_by_gender_since_1966.cfm)

> See *degrees&gender.xlsx*

### 2. CROSS-DISCIPLINE CITATIONS (TABLE 1)

The data used in Figure 1 was calculated through a count of citations from one disciplinary journal (*American Economic Review*, *American Political Science Review* and *American Sociological Review*, respectively AER, APSR and ASR hereafter) to one of the first twenty-five journals in each of the three disciplines from 2000 to 2009.

The list of the twenty-five journals, mentioned below, was based on the Paper Influence Index, available at [www.journal-ranking.com](http://www.journal-ranking.com) (the website has an option which enables the calculation of an aggregated index of influence from 2002 to 2010, the closest to our period of choice<sup>1</sup>).

The period examined ranges from 2000 to 2009 and includes all substantial articles published (not including papers & proceedings for the AER). There are 907 articles from the AER, 399 from the APSR, and 353 for ASR.

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<sup>1</sup> For economics, see [http://www.journal-ranking.com/ranking/listCommonRanking.html?journalListId=294&citingStartYear=1901&selfCitationWeight=1&pagingPage=1&sortColumn=r\\_score&externalCitationWeight=1&sortDirection=-1&](http://www.journal-ranking.com/ranking/listCommonRanking.html?journalListId=294&citingStartYear=1901&selfCitationWeight=1&pagingPage=1&sortColumn=r_score&externalCitationWeight=1&sortDirection=-1&)

The initial data was extracted from the *ISI's Web of Social Science*. Because the data is proprietary, we did not release the full database. A sample of the original database and more detailed results are available upon request.

> See *base\_3j\_redux.csv*

The count of citations from a given journal to another one (in the list of the 75) was established automatically by using Perl Compatible Regular Expressions, detailed in the *>Cocites\_journals.csv* document. They were written based on the syntax provided by the Web of Science, but checked and completed manually.

<b>ECONOMICS</b>	<b>POLITICAL SCIENCE</b>	<b>SOCIOLOGY</b>
JOURNAL OF POLITICAL ECONOMY	AMERICAN POLITICAL SCIENCE REVIEW	AMERICAN JOURNAL OF SOCIOLOGY
QUARTERLY JOURNAL OF ECONOMICS	AMERICAN JOURNAL OF POLITICS	AMERICAN SOCIOLOGICAL REVIEW
ECONOMETRICA	PUBLIC OPINION QUARTERLY	SOCIAL FORCES
BROOKINGS PAPERS ON ECONOMIC ACTIVITY	POLITICAL ANALYSIS	ANNUAL REVIEW OF SOCIOLOGY
REVIEW OF ECONOMIC STUDIES	JOURNAL OF CONFLICT RESOLUTIONS	SOCIOLOGICAL METHODS + SOCIOLOGICAL METHODS & RESEARCH
JOURNAL OF ECONOMIC LITERATURE	JOURNAL OF POLITICS	SOCIOLOGY OF EDUCATION
JOURNAL OF FINANCE	LEGISLATIVE STUDIES QUARTERLY	POPULATION DEVELOPMENT REVIEW
AMERICAN ECONOMIC REVIEW	ANNUAL REVIEW OF POLITICAL SCIENCE	SOCIAL NETWORKS
RAND JOURNAL OF ECONOMICS	INTERNATIONAL STUDIES QUARTERLY	JOURNAL OF MARRIAGE AND THE FAMILY
JOURNAL OF FINANCIAL ECONOMICS	BRITISH JOURNAL OF POLITICAL SCIENCE	SOCIAL PROBLEMS
JOURNAL OF LABOR ECONOMICS	JOURNAL OF PEACE RESEARCH	LAW AND SOCIETY REVIEW
JOURNAL OF ECONOMIC THEORY	POLITICAL BEHAVIOUR	SOCIOLOGICAL THEORY
JOURNAL OF ECONOMIC PERSPECTIVES	COMPARATIVE POLITICAL STUDIES	GENDER & SOCIETY
REVIEW OF ECONOMICS AND STATISTICS	POLITICAL PSYCHOLOGY	JOURNAL FOR THE SCIENTIFIC STUDY OF RELIGION
JOURNAL OF ACCOUNTING & ECONOMICS	EUROPEAN JOURNAL OF POLITICAL RESEARCH	RATIONALITY AND SOCIETY
JOURNAL OF LAW & ECONOMICS	JOURNAL OF DEMOCRACY	SOCIAL SCIENCE RESEARCH
JOURNAL OF ECONOMIC GROWTH	COMPARATIVE POLITICS	JOURNAL OF MATHEMATICAL SOCIOLOGY
INTERNATIONAL ECONOMIC REVIEW	JOURNAL OF THEORETICAL POLITICS	WORK AND OCCUPATIONS
REVIEW OF FINANCIAL STUDIES	QUARTERLY JOURNAL OF POLITICAL SCIENCE	SOCIOLOGICAL QUARTERLY
JOURNAL OF MONETARY ECONOMICS	POLITICAL RESEARCH QUARTERLY	RURAL SOCIOLOGY
JOURNAL OF ECONOMETRICS	ELECTORAL STUDIES	BRITISH JOURNAL OF SOCIOLOGY
JOURNAL OF BUSINESS & ECONOMIC STATISTICS	POLITICAL SCIENCE QUARTERLY	SOCIOLOGICAL FORUM
ECONOMIC JOURNAL	POLITICS & SOCIETY	EUROPEAN SOCIOLOGICAL REVIEW
JOURNAL OF HUMAN RESOURCES	EUROPEAN UNION POLITICS	ECONOMY AND SOCIETY
JOURNAL OF INTERNATIONAL ECONOMICS	POLITICAL SCIENCE QUARTERLY	SOCIOLOGY OF HEALTH AND ILLNESS

### 3. CURRENT AFFILIATION & INSTITUTION OF PHD (2003-2012)

The data on 3 journals edited from a single-university (AJS and JPE at the University of Chicago, QJE at Harvard) was collected from the journal's websites and articles. When not mentioned on the article, the information was collected via vitas, webpages, and other disciplinary sources (AEA directories, etc.)<sup>2</sup>.

> The data is available in the *Affil\_PhD\_Journals\_2003-12.csv* file.

### 4. DISCIPLINARY ORGANIZATION (FIGURE 2)

We collected the list of the non-appointed members of the US main disciplinary organization for 2013, and subsequently coded them according to the ranking of their university (*US News & World report ranking*, 2013).

> See *Org-Affiliations.csv*

### 5. EXTRA-DISCIPLINARY CITATIONS (FIGURE 3)

In an attempt to capture long-term evolutions of extra-disciplinary citations, we resorted to a large-scale analysis of references in 5 top journals (*American Economic Review*, *Journal of Political Economics*, *Quarterly Journal of Economics*, *Econometrica*, and the *Review of Economics Studies*).

The original data was collected through the electronic *ISI Web of Social Sciences* database, which gathers information about articles and their respective reference list.

Focusing on the outlet of publication (book, journal, proceeding), we used pattern-detection techniques (regular expressions) to aggregate these references according to their publication title. By so doing, we reduced the total number of references (just below 6,000,000 references) to a list of 100,000 unique references. The table below illustrates the process.

Full reference	Shortened reference	Unique reference
ashley w, quart j ec, 1899	quart j ec	quart j ec
Abdulkadiroglu A, 2009, AM ECON REV, V99, P1954, DOI 10.1257/aer.99.5.1954\n	AM ECON REV	am econ rev
TYE WB, 1985, INT J TRANSPORT FEB	INT J TRANSPORT FEB	int j transport

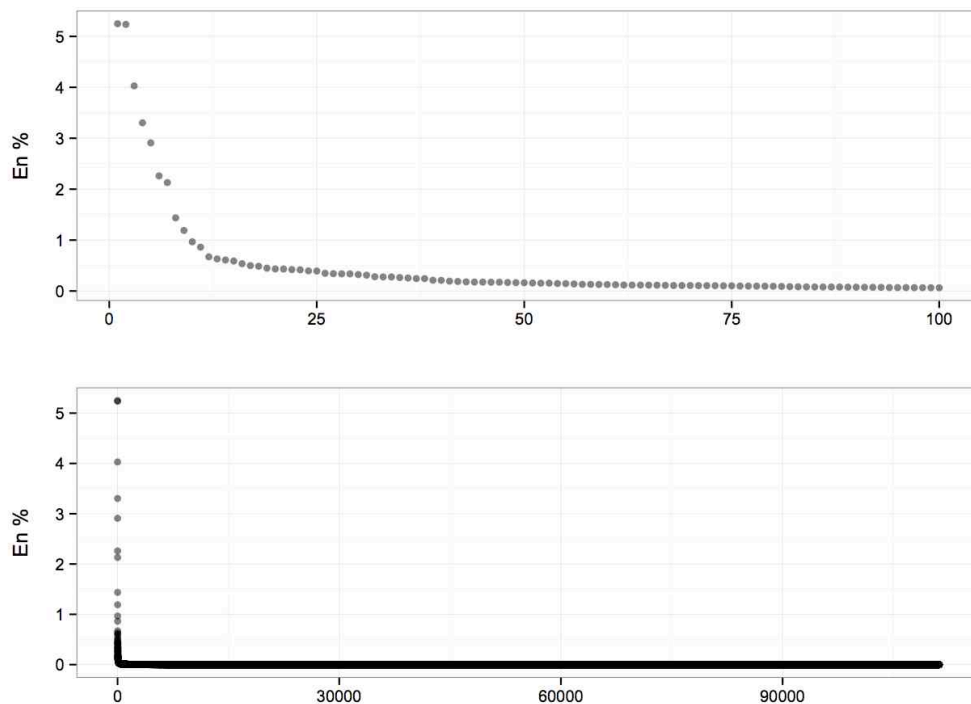
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<sup>2</sup> For further confirmation, we also computed this data for *Social Forces* (Sociology, edited out of the University of North Carolina) and for *World Politics* (Political science, edited out of Princeton University). Never is the home bias so strong than in Economics. Thanks to Mary Shi for her remarkable work on this aspect.

We then hand-coded a fraction of this newly established list of unique references. Because this activity is very time-consuming, and because the distribution follows a power law, we decided to limit ourselves to the first 7,500 items (sorted by frequency). These items account for 76% of all references across journals and periods.

Figure 3A below illustrates this asymmetric distribution, where the first two items (“am econ rev” and “econometrica”) each make up for more than 5% of all the references cited.

**FIGURE 3A: DISTRIBUTION OF PATTERNS**  
Share of each item in all the references lists  
(First 100, and total)

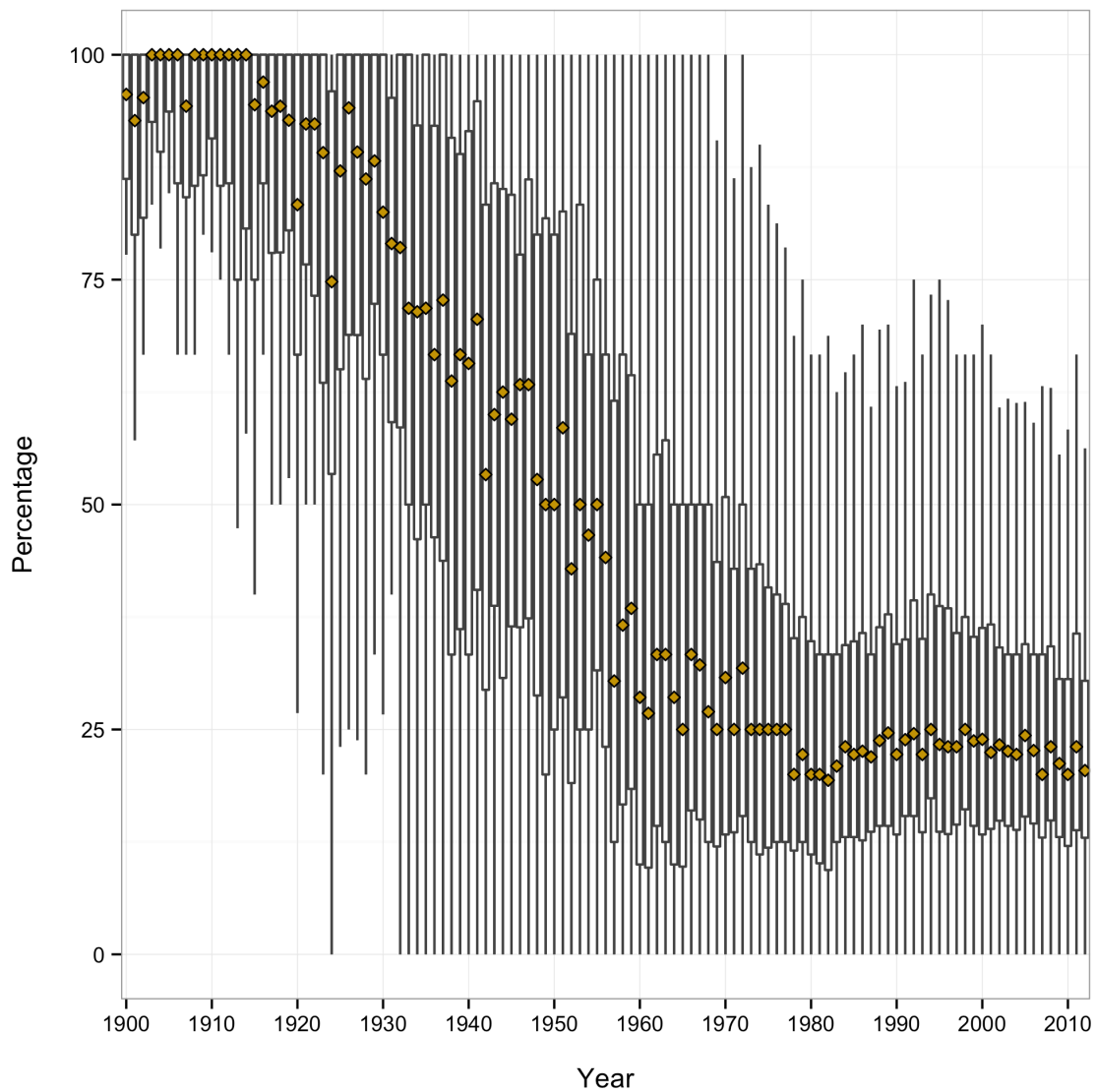


Each of the 7,500 items were classified into one of 26 categories, mostly following disciplinary lines (Economics, Finance, Statistics, Business, Law, Mathematics, etc.). Raw statistical data, often cited in the reference list of some articles, were coded separately, and so were references to media outlets. A category OTHERS was available when the data did not fit in any of the initial categories. So was a category DK (“don’t know”) when, by want of contextual information, we could not attribute any label to a reference – a situation which did arise every so often because of our focus on the publication part of the references. As a consequence, the “unique reference” would only consist in “to be published” or “thesis u chicago.” Those were coded DK.

Intercoder reliability was ensured by training and cross-checking between individual coders. Another classic but thorny issue was the possible evolution of classifications over time. Was the *Journal of Finance* an economics journal when it was launched in the 1950s or a finance one (though the field barely existed back then)? To this effect, we decided to opt for a “backward coding,” that is to code with the current classification (and division of labor) in mind.

Eventually, we focused only on the post-war period where the citations accounted for with our methods were numerous enough (as shown in Figure 3B).

**FIGURE 3B: PERCENTAGE OF REFERENCES ACCOUNTED FOR**  
Boxplot per article (1900-2012)



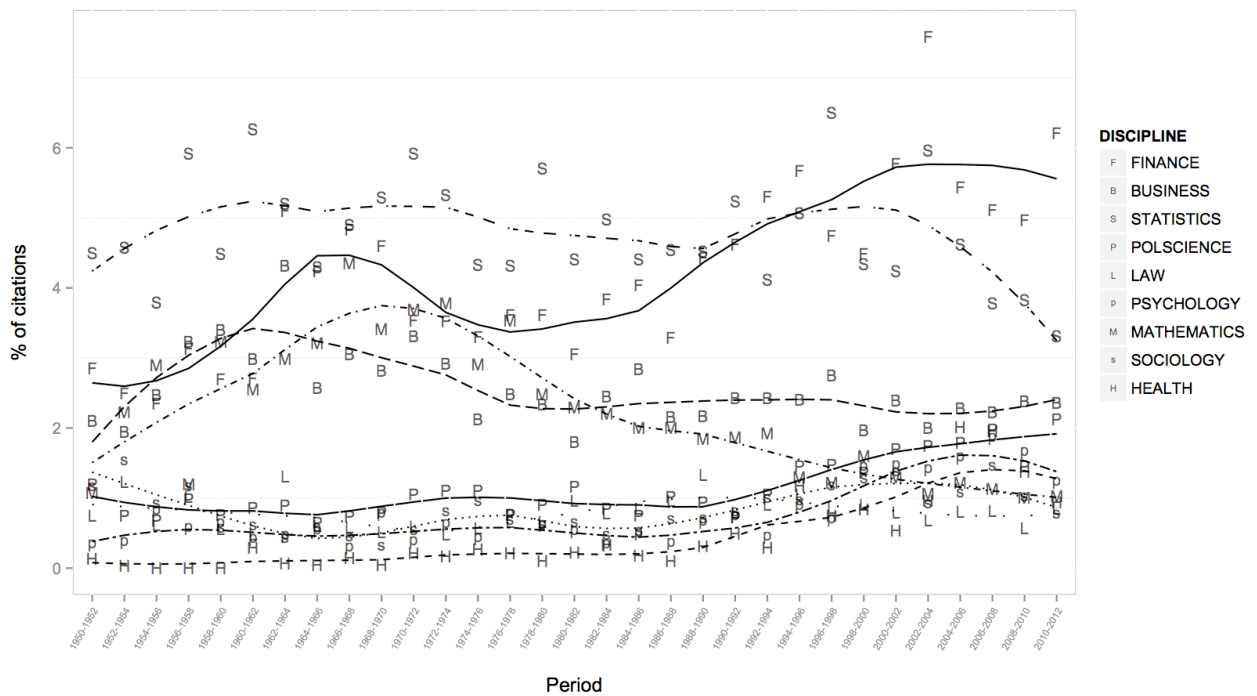
> The coding sheet is available in the *JPE-Coding\_Patterns.csv* spreadsheet.

Because the data is proprietary, we did not release the full database but only an intermediary one, summarizing the results per article. A sample of the original database along with the script used to obtain these results is available upon request.

> *The Base5j\_Disj\_Redux.csv* spreadsheet has detailed information about each article, along with the number of citations to 25 disciplines.

Because many more articles are published in AER than in all the other journals (mostly due to the publication of the “papers and proceedings” series in May<sup>3</sup>), we did standardize our results per journal, in the end giving the same weight to each of them.

**FIGURE 3C: WHO DO ECONOMISTS CITE?**  
Most-cited disciplines in five top journals (1900-2012)



<sup>3</sup> After varied attempts, we eventually did not distinguish between “articles” and “papers and proceedings” for this measure. Several tests performed later on show that the overall results are not affected by it.

## 6. INTER & INTRA-DISCIPLINARY CITATIONS (FIGURE 4)

The *crossrefs.csv* file features different information regarding citation between and within 7 journals (AER, QJE, EJ, JPE, RES, JF & Econometrica), for each year from 1900 to 2010.

- CITING: Citing journal (column)
- YEAR: Year
- Columns 2 to 8: Cited journal
- REFS\_TO\_7J: References made in the citing journal to one of the seven journals in the sample.
- TOTAL\_REFS: Total number of references in the citing journal

The data was compiled using the same procedure as the one described in the cross-discipline citations above, namely using regular expressions. The pattern for each journal is detailed in the table below.

Journal	regex
AMERICAN ECONOMIC REVIEW	am.* ec.* rev.*
QUARTERLY JOURNAL OF ECONOMICS	q.*? j.*? ec.*?
JOURNAL OF FINANCE	j.* financ\$
JOURNAL OF POLITICAL ECONOMY	j.* po.* ec.*
REVIEW OF ECONOMIC STUDIES	rev.* ec.* stu.*
ECONOMETRICA	econometrica
ECONOMIC JOURNAL	^ec.* j.*\$

Figure 4 shows the evolution of cross-citations between these 7 journals since the 1950s. Lines represent the number of citations to a given journal divided by the total citations to the six other journals for this year. Because self-citations are so common, we had to remove them. As such, the graph is meant to provide an indication of the journal's relative importance within dominant economics.

## 7. AFFILIATION OF AMERICAN ECONOMIC REVIEW AUTHORS

The data on the *American Economic Review* was collected from the journal's websites and from the articles. When not mentioned in the paper, the information was collected via vitas, web pages, and other disciplinary sources (AEA directories, handbook of economists).

The coding was made according to self-declared affiliation, as indicated in the articles. When authors mentioned several affiliations (a trait that keeps increasing over time), we adopted the following procedure: if there was a clear order, we opted for the first institution. Otherwise, we gave priority to "economics department" when mentioned equally with any another institution. This tends to under-represent the affiliation diversity, but also avoids artificially boosting the role of certain institutions prone to offer this opportunity. Even with such a conservative measure, the trend is already quite visible.



> This database, *AER\_AFFIL\_3PERIODS.csv*, does not include the “papers and proceedings” published in the May issue.

	1956-1960	2004-2008
Economics department	71.3	67.1
Business School	3.2	17.9
Federal Reserve	0	3.9
Public Affairs	3.2	2.2
Think Tank	2.4	1.5
Foreign Central Banks	0	1.3
World Bank	0	1.1
International Monetary Fund	1.6	0.9
Law School	0	0.5
ILR	1.6	0.5
Private company	0.8	0.5
Other government	4.9	0.4
RAND	2.8	0.3
Political Science	0	0.3
NBER	1.2	0
Others	4.8	1.6

## 8. MEDIAN AND TOP 10% WAGES IN SELECTED DISCIPLINES (FIGURE 5)

Visit > <http://www.bls.gov/oes/tables.htm>