

# Readership and Citations as Alternative Measures of Impact

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**Abstract.** This paper undertakes a statistical analysis of citations and readership of papers published in the journal *Constitutional Political Economy*. Its focus is not the usual attempt to assess the relative impact of articles or authors but rather to suggest that readership (downloads) is a more general measure of impact and one that should be given more attention. Downloads are not simply a product of citations; nor are citations a simple product of downloads. They are distinct measures of impact. Moreover, neither can be fully accounted for by their modest interdependence, the methodology used in the papers, nor their years in print. Papers and authors are evidently judged one at a time by their readers and by those who subsequently cite papers that they have read.

**Keywords:** Citations, Downloads, Ranking of Journals, Constitutional Political Economy

**JEL Categories:** A10, B10, D7

## 1. Introduction

The use of citations as a method of ranking journals has gradually become the norm in economics after first being suggested by Bush, Hamelman, and Staaf (1974) as a possible alternative to subjective measures of an economic journal's or scholar's academic significance or impact. Bush et al. argued that citations have numerous advantages over more subjective survey-based assessments. Opinion surveys of impact tend to reflect the respondent's affiliation, peer group, and specialization, so each assessment tends to be conditioned on the social networks of respondents, rather than an unconditional or unbiased assessment. Citations, in contrast to opinions, are both directly observable and countable.

They provide an objective indicator of the impact of individual articles, scholars, departments, and universities on subsequent research.

During the period of the Bush et al. study (1966–1970), most of the citations in economics were received by four journals, the *American Economic Review*, *Econometrica*, *Journal of Political Economy*, and *Quarterly Journal of Economics*.<sup>1</sup> The subsequent digitization and publishing of citation data in the early 21st century has allowed all manner of weighted citation counts to be calculated and overall indices of those counts to be developed. Research Papers in Economics (RePEc) provides a variety of such weighted indices, which perhaps surprisingly, find the same four economic journals to be the citation leaders 45 years later.<sup>2</sup>

There is by now an extensive literature on the use of citations and weighted citations as measures of economic journal and department quality, much of which was undertaken in the days before citation counts were available online. See, for example, Laband and Piette (1994) for a survey of such studies. Johnson (1997) looks at editorial and other effects that may account for differences in citations among journals. More recently, Card (2013) analyzed trends in the citations from the 10 most cited journals, noting declines in acceptance rates and increases in the length of papers and number of coauthors. These studies and others demonstrate that the use of citations to rank journals, economic departments, and individual articles, books, and economists is now the norm, rather than the exception. Although subjective rankings have not completely disappeared, they may be considered evidence of the specializations, networks, and peer groups of the persons surveyed rather than of the impact of particular journals, departments, or authors.

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<sup>1</sup> The Bush et al. study was not the first to use citations as an indicator of a paper or journal's impact. The Social Citation Index was, of course, initially assembled with such measures in mind, and earlier statistical analyses had been undertaken. See, for example, Garfield (1972). However, to our knowledge, the Bush study was the first to focus on economic research.

<sup>2</sup> See <https://ideas.repec.org/top/top.journals.all.html> for examples of the wide variety of possible citation counts and weighted indices of citations that are possible and thought to be of interest.

In this paper, we suggest that another objective measure of an article's influence, namely readership or downloads is equally objective and useful, namely readership as proxied the number of time that a paper is downloaded or accessed. A paper that is not read is unlikely to be cited in future research, thus readership may be regarded as a prerequisite for citations. Moreover, that a paper is read but not cited may well affect subsequent research and other academic outputs. Not all readers of academic research routinely publish their research in academic journals. What is read surely influences the manner in which readers subsequently think about the subjects covered in the articles, chapters, and books read, even when it is not cited in their research. When the readers are college professors, the articles read may indirectly influence the manner in which a subject is taught and thereby how their students will think about the material covered in class. When the readers are employed by think tanks or government agencies, reading a research paper or book may influence their assessments of public policies and their own research without producing citations. And in some cases, such writings will influence the thoughts of policy makers and thereby public policies. Readership is thus a broader indicator of an article's or journal's influence than citations are—one that is associated with all of the impacts that a journal article may have.

Whether readership or citations are judged to be most important will vary according to one's conclusions about the most important purposes of research. Is it to increase the stock of human knowledge or to induce further research? We believe that both effects are worthy of attention and that readership is a better indicator of the former than citations are.

The statistical analysis undertaken in this paper focuses on articles published in *Constitutional Political Economy* (CPE) and attempts to demonstrate that downloads and citations are different phenomena. This is admittedly a narrow focus that may be of interest mainly to persons reading or publishing in that journal. However, our approach is general and provides a point of departure for future efforts to assess the relative impact of journals and individual authors by gauging their readership. Focusing on a single journal avoids problems associated with broader studies including variation in citation practices among

subject areas and journals. It also avoids prestige or status effects that are unconnected to the substance of the articles published in particular journals.

To the best of our knowledge, no previous paper has considered the possibility that downloads may serve as an independent and more general measure of impact than citations.

## 2. The Most Cited and Downloaded Papers in *Constitutional Political Economy*

Of course, perfect data on readership are not available; indeed, even cited papers are not always read by the citing author. We use downloads (or number of accesses) as a proxy for readership. Data on downloads/accesses have recently been made available by Springer, which publishes numbers of downloads and citations for each of their published articles. Springer updates both those counts frequently on its journal websites.<sup>3</sup> Springer's citation counts were changed in late 2019 to include citations from *CrossRef* as well as *Web of Science*. *CrossRef* includes a somewhat broader cross-section of citations than the *Web of Science*, although not as broad those provided by *Google Scholar*. This change increased citation counts for most articles on the Springer websites.<sup>4</sup>

Most of the data for this study were assembled by Cardazzi who developed a “data scraping” program in R that collected titles, authors, dates, citations, and downloads from every paper published in CPE from its first issue in 1990 through June 2019. Citations and

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<sup>3</sup> We acknowledge that downloads are not a perfect indicator of readership. Some downloads are read by more than one person—for example, those on university reading lists for classes—others may never be read, either because the individual downloading the article fails to find the time to do so or when automated downloads are undertaken by various repositories and web-crawlers. Of course, the same is true of many of the articles cited by authors. Articles are often cited because “everyone else” does so, rather than because they have actually influenced their research. Indeed, such citations may have been generated by a Google Scholar search after early drafts of a paper were already written. Or, papers written by friends or colleagues may have been included on reference lists although they had little or no impact on the research. Such gratuitous citations tend to overstate an article or author's effect on research. The usual citation measures may also sometimes undercount a publication's effect on subsequent research, because they do not usually include citations in books or articles in books and count citations from only a subset of the world's many academic journals.

<sup>4</sup> The first drafts of this paper were written in 2019 and used the *Web of Science* citations, which exhibited somewhat greater overlaps on the 25 most cited and downloaded tables—about twice as many—and also somewhat different statistical results. Overall, however, the results were qualitatively very similar to those reported in this paper. The 2019 results are available upon request.

downloads for those papers were tracked through June 2020. Our database includes authors, titles, citations, shares, and downloads for 658 separate publications.<sup>5</sup> Marsella subsequently determined the methodology of each paper by looking for tables of statistical results and for equation-based models in each paper.

We begin our analysis of the data assembled with a look at what might be considered outliers among the papers published in CPE. One might anticipate that downloads are largely driven by citations and therefore the most cited papers would also be the most downloaded. However, this is not the case. Appendix 1 includes Table 1a, which lists the 25 most downloaded papers in CPE, and Table 2a, which lists the 25 most cited papers. Besides satisfying curiosity about the most read and most cited papers in the journal, there are several points of interest.

First, only three papers appear on both lists. (An asterisk appears after the papers that are on both lists.) Widely read articles are not necessarily cited and widely cited papers are not necessarily widely read. This suggests that citations and downloads are substantially different phenomena. Second, even the most cited papers are cited far less often than they are read. The most downloaded papers are read more than 10 times more often than they are cited. Moreover, it is not always the case that the most cited papers are read (downloaded) more frequently than less cited papers. Third, the papers with the most downloads tend to be papers published written in the second half of the period in which CPE has been in print. This is evidently not a property of digitization but of reader preferences. For much of the past twenty years, one could just as easily download old papers as more recent papers.

That the most downloaded papers are relatively new may account for their less frequent appearance on the most cited list; although, if citations drove downloads, that would not have been the case. It would be the case, however, if papers that attracted a reader's attention are more likely to be read and subsequently cited.

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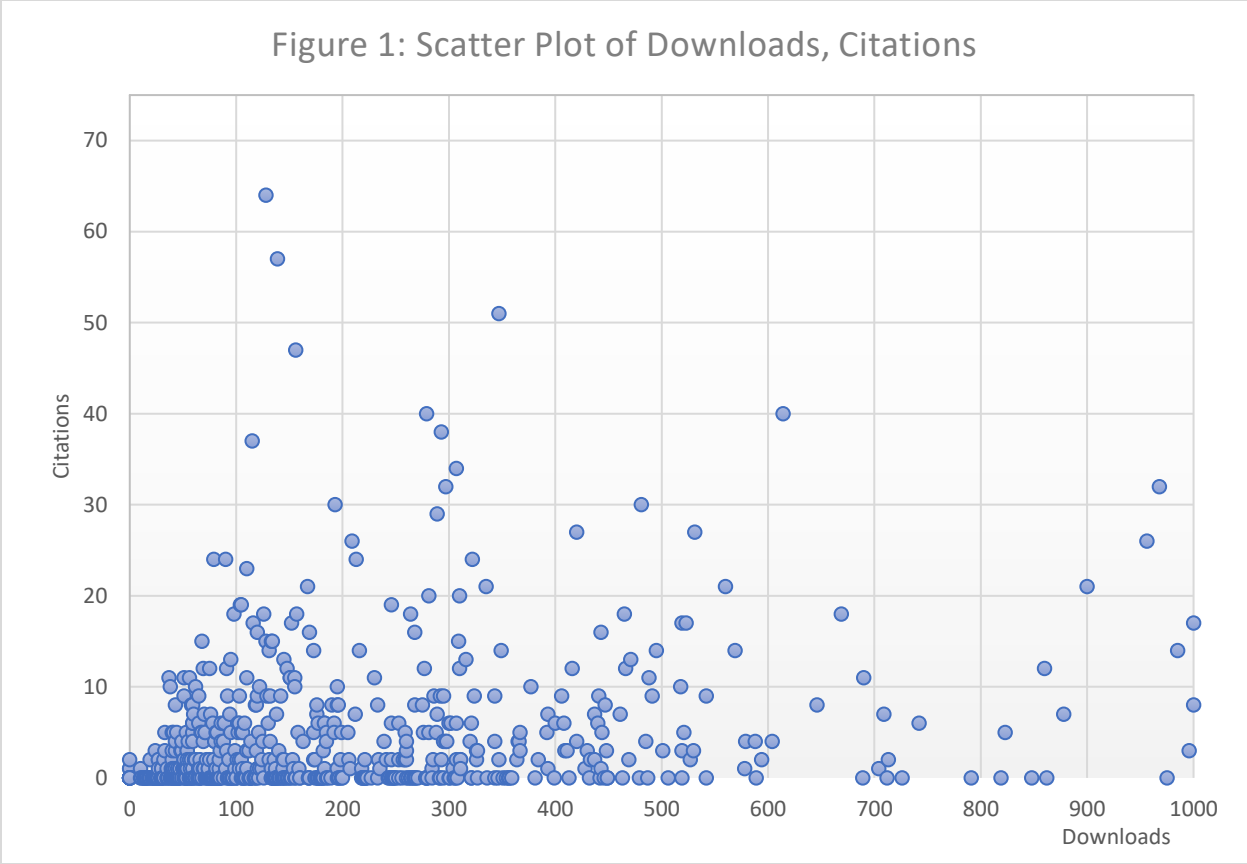
<sup>5</sup> We also collected data on “shares”, which Springer tabulated in 2019, but that variable was never found to have a statistically significant effect on citations or downloads in our preliminary estimates and so that variable was dropped from our study.

### 3. Statistical Properties of Downloads and Citations of Papers in *CPE*

The next section of the paper provides a statistical analysis of citations and downloads in *CPE*. It does not attempt to assess the relative impact of articles or authors but to determine the extent to which downloads can be regarded as independent measures of impact. Our findings suggest that citations and downloads are not entirely independent from one another, but they are substantially distinct phenomena. Citations are not simply a product of downloads, nor downloads a product of citations.

We begin with an overview of the overall distribution of downloads and citations to articles in *CPE*. Figure 1 provides a scatter plot of article downloads and citations through June 2020. It is truncated a bit so that the plot is sufficiently clear to provide insights about the general pattern of citations and downloads. The plot omits the 16 most downloaded articles (those with more than a 1,000 downloads) and the two most highly cited articles.

As with Tables 1 and 2, there are several points of interest. First, notice that there are many widely read papers that are never cited. Several papers were downloaded more than 800 times but never cited. On the other hand, there are only three papers with positive citation counts that were never downloaded. Second, the main mass of citations and downloads is roughly rectangular. That rectangle lies between 0 and 600 downloads and 0 and 20 citations. Third, outside that rectangle, the outliers include many combinations of citations and downloads. For example, papers with between 900 and 1,000 downloads have from 0 to 181 citations (the latter being beyond the scale used in Figure 1).



We now shift from what might be termed pattern recognition or visual statistical analysis to quantitative analysis. Table 1 provides descriptive statistics for the cumulative distributions of downloads and citations for all articles, book reviews, and editorial comments published in *Constitutional Political Economy*. It includes all articles published from its founding until June 2019 and citations and downloads through June 2020.

**Table 1: Descriptive Statistics**

	N	Mean	St. Dev.	Min	Max
Citations	652	4.99	11.57	0	181
Downloads	658	284.85	1,200.78	0	29,000
Number of Authors	652	1.373	0.64	1	4
Page Count	620	15.87	8.37	1	49
Years in Print	658	15.87	8.48	1	30
Statistical Analysis	658	0.15	0.36	0	1
Mathematical Model	658	0.26	0.44	0	1
Book Review	658	0.085	0.28	0	1
Editorial Note	658	0.014	0.12	0	1

The average piece in CPE has received about 5 citations and was downloaded about 285 times. The median paper was downloaded 138 times and received 1 citation from the Springer sources. The ratio of average downloads to average citations is a bit under 50 to 1, whereas the ratio of median downloads to median citations is more than 100 to 1. By either measure, the typical paper in CPE is read far more times than it is cited.<sup>6</sup>

The difference between average and median citations and downloads demonstrates the skewness of both distributions. Outliers are important determinants of average-based measures of journal and author impacts in CPE, as in most other journals.

#### **4. Statistical Evidence of Temporal and Other Dependencies**

We next examine several relatively simple statistical dependencies that the sequence of decisions that generates downloads and readership are likely to exhibit. First, even if the two distributions are entirely independent of one another, there is likely to be a temporal dependence for both citations and downloads because both tend to accumulate through time. Other things being equal, papers that have been in print or available online longer will have accumulated more citations and a broader readership. However, we anticipate that downloads are likely to be somewhat more common in the period immediately following publication than later and that citations will be more common after a paper is read. Second, there is likely to be a statistical dependence between downloads and citations. A paper is unlikely to be cited unless it has first been read, and once cited, a paper may subsequently be read by researchers that read the paper in which it has been cited.

##### **Some Basic Relationships Between Downloads and Citations**

We decided to focus most of our attention on published articles. Book reviews and editorial notes were thus culled from the data set. To reduce the effects of outliers, we also dropped the 10 most cited articles. Tables 1a and 2a demonstrate that outliers exist and are

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<sup>6</sup> The citation counts reported by Springer are quite conservative, *Google Scholar* Citations for the most cited papers are three to four times greater than the Springer counts for the most cited papers on Table 2a. We also attempted to scrape data from *Google Scholar*, but Google blocks large-scale scraping efforts from accessing their website.



likely to have undue influence on estimates that include them. To make the estimates directly comparable, we also dropped all observations with missing values. (Table 3a in Appendix 2 demonstrates that truncations did not change the results very much and also that book reviews and editorial notes have quite different mean citations and downloads than articles.) These adjustments reduced the sample size from 658 to 551.

Table 2 reports ordinary least-square estimates of the log of downloads and log of citations. Each series was increased by 1 to avoid problems associated with the log of zero. We also estimated quadratic of these models and obtained similar results. The clearest evidence that downloads and citations are different phenomena is provided by the estimates reported in columns 1 and 3. Their constants and intertemporal relationships are quite different. The relatively larger constant term for downloads reflects the fact that the average paper is downloaded far more than it is cited. Downloads mainly occur when papers are first published, thus downloads fall with time in print. A paper that is not downloaded soon after publication is not likely to be downloaded in the future. In contrast, the coefficient for the log of time-in-print for citations is positive. Citations tend to accumulate through time. The longer a paper is in print, the more citations it tends to attract.<sup>7</sup>

**Table 2: OLS Estimates of Intertemporal Relationships and Interdependencies (1990–2020, 551 observations)**

	<i>Dependent Variable</i>			
	Log(Citations +1)		Log(Downloads+1)	
	(1)	(2)	(3)	(4)
Log (Years in Print +1)	0.370 (4.65)***	0.616 (8.83)***	-0.597 (12.56)***	-0.679 (15.08)***
Log (Downloads +1)		0.055*** (9.35)		

<sup>7</sup> This timing effect is somewhat clearer in the quadratic forms, which have opposite signs on the coefficients for both the unsquared and squared terms of years in print. In quadratic temporal estimates of downloads, the unsquared coefficient for time in print is positive, and the coefficient for the squared term is negative, indicated higher downloads during the few years of publication than in later years. The log-based estimates capture the stronger of the two relationships.

Log(Citations +1)				0.267 (9.35) <sup>***</sup>
Constant	0.369 (2.07) <sup>***</sup>	-3.04 (7.60) <sup>***</sup>	6.61 (51.59) <sup>***</sup>	6.51 (54.47) <sup>***</sup>
Observations	551	551	551	652
R <sup>2</sup>	0.037	0.171	0.223	0.330
F Statistic	21.63 <sup>***</sup>	56.07 <sup>***</sup>	157.87 <sup>***</sup>	135.19 <sup>***</sup>

Note: \* indicates  $p < 0.1$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$

The estimates of columns 2 and 4 provide evidence of the dependence between downloads and citations. The estimates reported in columns 2 and 4 imply that citations rise with downloads and that downloads rise with citations, holding time in print constant. The increased R-square and F-statistics imply that the relationships are statistically significant ones, although the effect is larger for citations, where the F-statistic more than doubled, than for downloads. (Indeed, the F-statistic declined somewhat for downloads when the effects of citations on downloads were taken into account.) Overall, the effect of downloads on citations appears to be more systematic than the effect of citations on downloads.

### **A Lean Behavioral Models of Downloads and Citations**

A behavioral model of downloads and citations would entail a sequence of decisions like the following. A potential reader scans the table of contents of a journal looking for research that sounds of interest. Of those that appear interesting, a scholar may read the abstract, and, based on what the abstract implies about how the research is undertaken and its complementarities with a potential reader's own interests and research, a scholar may download and subsequently read articles of special interest. A subset of the articles read may subsequently influence one's research and be cited, or used in other academic activities and not cited.

Both the methodology and subject of the paper are likely to influence the decision to download and subsequent decisions to cite particular papers. A similar sequence takes place when the process starts with a Web search of some kind, as with ones undertaken using *Google Scholar*. A secondary sequence of decisions to download a paper occurs when reading a

downloaded paper. A paper cited in an article read may attract a reader’s interest, inducing him or her to download and read the earlier paper, which may subsequently be cited.

The above sequence of searching and decision making implies that the probability that a paper is read varies with its thoroughness, readability, and complementarity with a scholar’s own research. An article’s page length and number of authors may be used to estimate a paper’s thoroughness, because a longer piece undertaken by a substantial research team often implies that more time and talent have been invested in a given paper. The methodology of paper is likely to affect the probability that it will complement a reader’s own research or not. Theory papers may be of greater interests to theorists than other types of papers, and econometric-based papers may be of greater interest to those who undertake inductive research. Prose pieces may appeal more to persons whose research also tends to lead to such papers, or who find such papers more suitable for reading after work hours than more technical papers. Book reviews are less likely to be cited than research articles, because their effects on research emerge by inducing particular books to be read, rather than through their own direct impact. And it is the book rather than the review that tends to be cited. (See Table 3a for evidence of this effect.)

Table 3 investigates whether these extensions of the lean temporal models estimated in Table 2 shed further light on the pattern of citations and downloads. The estimates reported take account of possible effects of an article’s page length, number of authors, use of mathematical models, and econometrics on citations and downloads. In general, these other factors provide only a very small increase in the explanatory power of the first models. Article characteristics account for very little of the variation in cumulative downloads or citations.

**Table 3: Extended OLS Estimates**

	<i>Dependent Variable:</i>			
	Log(Citations+1)		Log(Downloads+1)	
	(1)	(2)	(3)	(4)
Log (Years in Print +1)	0.360 (4.92) <sup>***</sup>	0.643 (8.56) <sup>***</sup>	-0.562 (10.69) <sup>***</sup>	-0.655 (13.06) <sup>***</sup>
Log(Downloads+1)		0.504 (9.06) <sup>***</sup>		

Log(Citations+1)				0.260 (9.06)***
Log(Page Length)	0.020 (0.32)	0.0173 (0.29)	0.0053 (0.12)	0.0001 (0.003)
Log(Number of Authors)	0.204 (1.59)	0.115 (0.96)	0.176 (1.92)*	0.123 (1.44)
Mathematical Model	-0.136 (1.23)	-0.0797 (0.77)	-0.111 (1.41)	-0.076 (1.03)
Econometrics	0.257 (1.85)*	0.166 (1.28)	0.180 (1.81)*	0.113 (1.21)
Constant	0.133 (0.36)	-3.128 (6.99)***	6.47 (31.64)***	6.436 (33.72)***
Observations	551	551	551	551
R <sup>2</sup>	0.050	0.175	0.236	0.335
F-Statistic	5.86***	19.29***	33.58***	45.82***
<i>Note:</i>	*indicates p < 0.1, **p < 0.05, and ***p < 0.01			

Nonetheless, the results are of some interest. The results reported in columns 1 and 3 can be regarded as reduced form estimates of the behavioral model sketched out above. The reduced form estimates support the hypothesis that methodology and authorship affect both downloads and citations. Papers that use econometrics attract more readers and are cited somewhat more frequently, and papers with more coauthors attract more readers. The latter provide additional evidence that downloads and citations are different phenomena, in that the effect of the number of authors is distinguishable from zero in the downloads equation but not in the citations equation.

The estimates reported in columns 2 and 4 suffer to some degree from simultaneous equation bias, although the results reported in Table 2 suggests that downloading and citing published articles take place in different years rather than simultaneously. The temporal effects of with the natural sequence through which most citations (of non-outliers) take place implies that the estimates of column 2 of Table 3 provide evidence of the strength of causality, whereas those of column 4 suffer from reverse causality, rather than simultaneous equation bias. Interpreted in this way, the results reported in column 2 imply that a 1 percent

increase in readership increases citations by about a 0.5 percent, holding article authorship, length, and type constant.

## 5. Conclusions

This study has argued that readership and citations are distinct measures of an article's influence and that both are worthy of attention. It has also provided some statistical evidence in support of these two hypotheses. Articles are read far more often than they are cited. Citations and downloads exhibit different time profiles, with downloads more likely to take place shortly after an article is published and citations some years after it is published. Readership does not mechanically cause citations, nor citation downloads. Only a relatively small fraction of the variation in downloads and citations are accounted for by their interdependence.

The empirical parts of the paper have focused on a single journal because that is a reasonable place to start. That approach also avoids a variety of estimation issues associated with differences among fields of study, editorial policies, and preexisting journal reputation. The focus on a single journal whose publications are multi-methodological and cross the boundaries of political science, economics, and law allows us to conduct the study in an "other things being equal" setting for a wide variety of article types.

Overall, our arguments and results suggest that downloads and citations of papers are largely *sui generis*. Although papers published in CPE are more routinely read than cited, more than two-thirds of the variation in downloads and citations was unexplained by the variables collected for this study. Pieces published in CPE are evidently assessed one at a time by readers and researchers, and the impact of readership appears to be distinct from that of citations. The impact of reading an article that is cited is more obvious than when it is not; but, reading an article one never cites is nonetheless likely to affect a reader's future thoughts, teaching, and research even when it is not cited.

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## Appendix 1: The Most Downloaded and Cited Papers in CPE

Table 1a: The 25 Most Downloaded Papers (1990–2019)

Author(s)	Article Title	Publication Year	Downloads
Thomas C. Leonard*	Richard H. Thaler, Cass R. Sunstein, Nudge: Improving Decisions about Health, Wealth, and Happiness	2008	29,000
Toke S. Aidt	Rent Seeking and the Economics of Corruption	2016	7,900
Todd Sandler	Buchanan Clubs	2013	4,900
Pablo Paniagua	The Institutional Rationale of Central Banking Reconsidered	2017	1,900
Simon Hug	Some Thoughts about Referendums, Representative Democracy, and Separation of Powers	2009	1,800
Robert Sugden	Why Incoherent Preferences Do Not Justify Paternalism	2008	1,600
Dennis C. Mueller	Gordon Tullock: Economic Gadfly	2016	1,500
Viktor J. Vanberg	Liberal Constitutionalism, Constitutional Liberalism and Democracy	2011	1,500
Arthur Schram	Gordon Tullock and Experimental Public Choice	2016	1,200
Benno Torgler*	Tax Morale, Rule-Governed Behaviour and Trust	2003	1,200
George Tridimas	Constitutional Choice in Ancient Athens: The Evolution of the Frequency of Decision Making	2017	1,100
Stephen Drinkwater and Colin Jennings	Expressive Voting and Two-Dimensional Political Competition: An Application to Law and Order Policy by New Labour in the UK	2017	1,100
Eli Salzberger & Stefan Voigt	Separation of powers: New Perspectives and Empirical Findings—Introduction	2009	1,100
Jason Brennan	Rawls' Paradox	2007	1,100
Charles B. Blankart	The European Union: Confederation, Federation or Association of Compound States?	2007	1,100
Scott A. Beaulier & J. Robert Subrick	The Political Foundations of Development: The Case of Botswana	2006	1,100
Moamen Gouda	Islamic Constitutionalism and Rule of Law: A Constitutional Economics Perspective	2013	1,000
George Tridimas	A Political Economy Perspective of Direct Democracy in Ancient Athens	2011	1,000
Shigeki Kusunoki	Hayek on Corporate Social Responsibility	2016	996
Paul Dragos Aligica & Vlad Tarko	State Capitalism and the Rent-Seeking Conjecture	2012	985
José Antonio Cheibub & Svitlana Chernykh	Are Semi-Presidential Constitutions Bad for Democratic Performance?	2009	975
Lorenz Blume & Stefan Voigt	Federalism and decentralization—A Critical Survey of Frequently Used Indicators	2011	968
Matthew Soberg Shugart	Presidentialism, Parliamentarism, and the Provision of Collective Goods in Less-Developed Countries	1999	956
James M. Buchanan*	The Domain of Constitutional Economics	1990	938
Sandra F. Joireman	Colonization and the Rule of Law: Comparing the Effectiveness of Common Law and Civil Law Countries	2004	900

**Table 2a: The 25 Most Cited Papers( 1990-2019)**

<b>Author(s)</b>	<b>Article Title</b>	<b>Public- ation Year</b>	<b>Springer Citations</b>
James M. Buchanan*	The Domain of Constitutional Economics	1990	181
Benno Torgler*	Tax Morale, Rule-Governed Behaviour and Trust	2003	91
Peter C. Ordeshook	Constitutional Stability	1992	85
Thomas C. Leonard*	Richard H. Thaler, Cass R. Sunstein, Nudge: Improving Decisions About Health, Wealth, and Happiness	2008	70
Cass R. Sunstein	Constitutionalism, Prosperity, Democracy: Transition in Eastern Europe	1991	64
William N. Butos and Roger G. Koppl	Hayekian Expectations: Theory and Empirical Applications	1993	57
Viktor Vanberg & Wolfgang Kerber	Institutional Competition Among Jurisdictions: An Evolutionary Approach	1994	51
Viktor J. Vanberg	Organizations as Constitutional Systems	1992	47
Martin Rode & Sebastian Coll	Economic Freedom and Growth. Which Policies Matter the Most?	2012	40
Stefan Sinn	The Taming of Leviathan: Competition Among Governments	1992	40
Alfredo G. Esposto & Peter A. Zaleski	Economic Freedom and the Quality of Life: An Empirical Analysis	1999	38
Richard N. Langlois	Do Firms Plan?	1995	37
Alexander W. Salter	Is There a Self-Enforcing Monetary Constitution?	2014	34
Lorenz Blume & Stefan Voigt	Federalism and Decentralization—A Critical Survey of Frequently Used Indicators	2011	32
R. Mark Isaac, Deborah Mathieu & Edward E. Zajac	Institutional Framing and Perceptions of Fairness	1991	32
Olga Shvetsova	Endogenous Selection of Institutions and Their Exogenous Effects	2003	30
Roger D. Congleton	On the Durability of King and Council: The Continuum Between Dictatorship and Democracy	2001	30
James M. Buchanan	How Can Constitutions Be Designed So That Politicians Who Seek to Serve “Public Interest” Can Survive and Prosper?	1993	29
Lorenzo Sacconi & Marco Faillo	Conformity, Reciprocity and the Sense of Justice. How Social Contract-Based Preferences and Beliefs Explain Norm Compliance: The Experimental Evidence	2010	27
Erich Weede	Political Regime Type and Variation in Economic Growth Rates	1996	27
Matthew S. Shugart	Presidentialism, Parliamentarism, and the Provision of Collective Goods in Less-Developed Countries	1999	26
Robert Sugden	Normative Judgments and Spontaneous Order: The Contractarian Element in Hayek’s Thought	1993	26
Roger D. Congleton, Andreas Kyriacou, & Jordi Bacaria	A Theory of Menu Federalism: Decentralization by Political Agreement	2003	24
Salvatore Rizzello & Margherita Turvani	Institutions Meet Mind: The Way out of a Deadlock	2000	24
James M. Buchanan	I Did Not Call Him “Fritz”: Personal Recollections of Professor F. A. von Hayek	1992	24



## Appendix 2: Representative Full-Sample Estimates

**Table 3a: Full Sample Estimates with Article Types**

	<i>Dependent variable:</i>			
	log(Citations + 1)		log(Downloads + 1)	
	(1)	(2)	(3)	(4)
log(Years in Print)	0.362*** (0.067)	0.556*** (0.068)	-0.610*** (0.064)	-0.716*** (0.063)
Theory Model?	-0.090 (0.103)	-0.065 (0.098)	-0.078 (0.099)	-0.052 (0.094)
Econometric Model	0.253* (0.129)	0.207* (0.124)	0.148 (0.124)	0.073 (0.119)
Review	-1.217*** (0.151)	-0.521*** (0.168)	-2.189*** (0.145)	-1.833*** (0.145)
Editor's Note	-1.048*** (0.353)	-0.107 (0.356)	-2.959*** (0.339)	-2.653*** (0.325)
log(Downloads + 1)		0.318*** (0.039)		
log(Citations + 1)				0.292*** (0.036)
Constant	0.200 (0.192)	-1.924*** (0.319)	6.680*** (0.184)	6.622*** (0.176)
Observations	652	652	652	652
R <sup>2</sup>	0.120	0.202	0.443	0.494