

Page Limits on Economics Articles: Evidence from Two Journals[†]

David Card and Stefano DellaVigna

Forty years ago the top journals in economics published relatively short articles. The median length of the papers in the *American Economic Review*, *Econometrica*, the *Journal of Political Economy*, the *Quarterly Journal of Economics*, and the *Review of Economic Studies* in the early 1970s was under 20 pages. As shown in Figure 1, the typical length of the articles published in these journals has nearly tripled since then to around 50 pages.¹ The trends have been similar at all five journals and also across fields, leading to widespread concern about the allocation of journal space and the readability of articles.

In response to these concerns the *American Economic Review* (AER) introduced a page limit for submissions in 2008, becoming the first and still the only one of the top five economics journals to do so: as explained below, the AER page limit is 40 pages for papers with 1.5-line spacing and 50 pages for double spacing. The policy change was significant: over 40 percent of submissions in the previous year had exceeded what became the new limit. In March 2009, the *Journal of the European*

¹ We use a “standardized” page length. The AER is relatively dense: current articles are about 30–40 pages, which is about 50 of our standardized pages. The QJE lays out a page in a more readable format; their articles are 50+ pages on average.

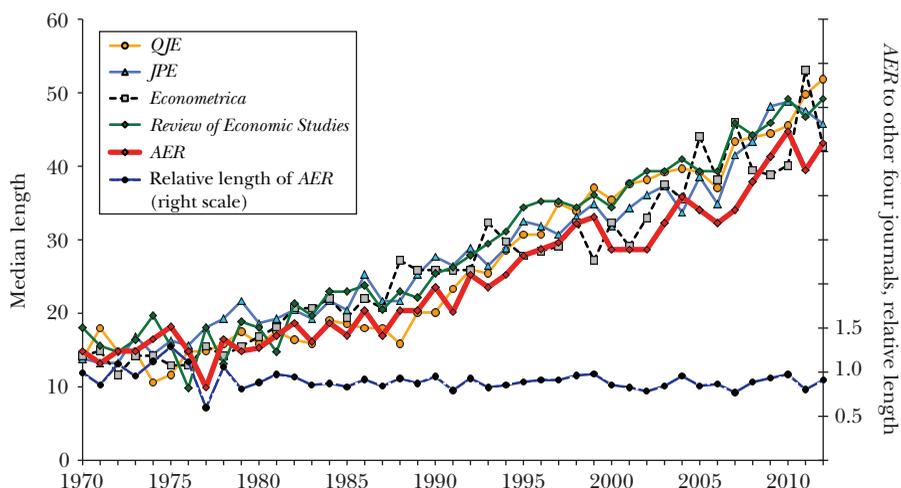
■ *David Card is the Class of 1950 Professor of Economics and Stefano DellaVigna is the Daniel Koshland, Sr. Distinguished Professor of Economics and Professor of Business Administration, both at the University of California, Berkeley, California. Card is Director of the Labor Studies Program and DellaVigna is a Faculty Associate, National Bureau of Economic Research, Cambridge, Massachusetts. Their email addresses are card@econ.berkeley.edu and sdellavi@econ.berkeley.edu.*

[†] To access the online Appendix, data Appendix, and disclosure statements, visit

<http://dx.doi.org/10.1257/jep.28.3.149>

doi=10.1257/jep.28.3.149

Figure 1

Standardized Lengths of Papers Published by Top-Five Journals

Notes: The measures of page length shown in Figure 1 are standardized to take into account the differences over time and between journals in the number of characters per page of text. Shorter papers, comments, replies, and notes are also excluded. 2012 page lengths are based on articles published before November 2012.

Economic Association (JEEA) followed suit, adapting the *AER* policy nearly verbatim. Within a few months *JEEA* abandoned the submission limit, though it remains in effect at the *AER*.

We use anonymized submissions to *AER* and *JEEA* to evaluate the costs and benefits of the policy change at the two journals. On the benefit side, shorter submissions may lead to shorter published papers, freeing up space for additional articles. Space in the top economics journals is very scarce. Despite some increase in total pages published, the top five journals currently publish fewer articles per year than they did in the 1970s and have far lower acceptance rates (Card and DellaVigna 2013). Shorter submissions may also be easier for editors and referees to evaluate, helping to reverse the trend toward longer adjudication times (Ellison 2002). On the cost side, the introduction of page limits may cause some authors to choose another outlet for their paper rather than spend the time to shorten it. The loss of longer manuscripts is a concern if longer articles are more likely to be cited, as “impact factors” based on citations are widely used to compare journals. Shorter submissions may also be harder to read if authors use formatting tricks to meet the page limit threshold or to suppress important details of their work.

The fraction of authors who respond to a page limit by diverting their work to other outlets provides direct information on the elasticity of supply to a particular journal and the degree of market power the journal enjoys. We find that the

introduction of page limits at the *AER* led to an immediate drop in the number of longer submissions and the emergence of a spike in the distribution of page lengths centered around the 40-page limit. Comparing the inflow of new submissions that were at or above the threshold to the inflow of papers below the page limit, we conclude that there was no loss of longer papers at the *AER*. Instead, we infer that a typical author was willing to shorten his or her paper by *at least 22* pages to meet the *AER*'s guidelines. This implies that the *AER* is viewed as highly differentiated from other journals.

How did authors accomplish these cuts? On average, the policy led to a four-page shortening of submitted manuscripts. Two pages were eliminated by formatting changes; 1.5 pages were cut by reducing the length of appendices submitted for publication; and 0.5 pages were eliminated by cutting tables and figures. Controlling for formatting changes, we find *no change* in the number of pages of basic text material submitted by authors. Moreover, we find no significant effect on the length of final accepted manuscripts at the *AER*, suggesting that the new policy did nothing to relieve the competition for journal space at the *AER*. This lack of response is confirmed by the absence of any trend in the relative length of published papers in the *AER* compared to the other top-five journals, shown by the bottom line in Figure 1.

We find a much different pattern of authors' responses to the page-length policy at the *Journal of the European Economic Association*. In particular there was no spike in the distribution of submissions following the introduction of page limits at *JEEA*. Instead, virtually all longer submissions were diverted to other outlets—a pattern that led the *JEEA* editors to reverse the policy after only a few months. The willingness of authors to “go elsewhere” points to a highly competitive market for economics articles at the level below the top five journals.

In the final section of the paper, we return to the interpretation of our findings and their implications for the design of editorial policies. In particular, we consider the question of whether shorter papers are indeed better. We show that prior to the page-length policy at the *AER* longer papers had a *higher* likelihood of receiving a revise-and-resubmit verdict than shorter papers. This is the opposite of a warning posted on the *AER* submission page in 2007 stating that longer papers were “rarely accepted for publication.” It is consistent, however, with the pattern of substantially *higher* citation rates to longer papers published in the top five economics journals over the past four decades (Card and DellaVigna 2013) and with evidence on citations for submissions to the *JEEA*, which shows higher citations for longer submissions irrespective of whether they were ultimately accepted or rejected for publication in the *JEEA*.

In light of this evidence, we conclude that page length policies may be counterproductive for journals that face more elastic supplies of manuscripts, like *JEEA*. For journals with substantial market power, like *AER*, page length policies appear to impose fewer costs on the journal, but it is an open question whether the social costs to authors of shortening their papers are offset by other benefits. The most obvious potential benefit—of making published papers shorter—has not been realized.

Submission Behavior in the Presence of a Page Limit

The author of a paper perceives some payoff from submitting it to a particular journal, reflecting the likelihood it will be accepted for publication and the value of having the paper appear in that journal. If the highest-payoff journal imposes a binding page limit, the author faces a choice: shorten the paper, or submit it to the next best alternative. Assuming that the cost of shortening the paper is increasing in the size of the cuts needed to meet the limit, the author will shorten the paper if its length falls below a threshold that depends on the author's *match surplus*—the gap in payoffs between submission to the journal in question and the payoff to the next best alternative outlet (for more details, see the working paper version of Card and DellaVigna 2012). Depending on how page lengths and the journal-specific match surpluses are distributed, the imposition of a page limit at a journal will cause larger or smaller losses in submissions to that journal. At one extreme, when the match surpluses associated with a journal are large for nearly all potential authors, that journal may be able to impose a page limit and only lose a few very long papers. At the other extreme, when the match surpluses associated with a journal are small, most papers exceeding the journal's page limit will be diverted to other outlets, and only those requiring minimal cuts will be modified to meet the submission limit.

This simple model suggests that after the imposition of a binding page limit, the distribution of page lengths among submissions to the journal will exhibit a spike at the page limit reflecting the fraction of longer papers that have been cut to meet the threshold. If the policy commands complete compliance, there will be no submissions above the threshold, and the fraction of lost papers can be estimated by comparing the size of the spike to the number of papers that would have been above the threshold in the absence of the policy.

Actually conducting such a comparison is complicated by two factors. First, in the absence of a page-length policy, authors have wide latitude in how they format their paper and may use extra pages to make the paper easier to read—for example, by placing each figure on a separate page or by using wide margins. Once a length policy is introduced, authors of longer papers can often shorten their paper by making small (and legitimate) format changes. Thus, to actually compare page length distributions before and after a page-length policy one needs to develop standardized measures of page length. Once page lengths are standardized, the predicted “spike” in page lengths at exactly the page limit becomes fuzzy, making it harder to measure its size. A second concern is that pre–post comparisons of standardized page length distributions make no allowance for trends. As explained below, we therefore use comparisons between submission rates of papers of different lengths to conduct a more robust analysis.

Page Limits at the *American Economic Review*

Prior to 2008, the *AER* sought to discourage longer submissions but had no formal page-length policy. The instructions on the submission page in 2007

suggested that authors submit papers in double-spaced format using 12-point type, and noted: “Manuscripts longer than 50 pages are rarely accepted for publication.” A sterner warning that “Manuscripts should not exceed 50 pages” was added in April 2008 but was not enforced by the editorial office.

In August 2008, Robert Moffitt, Editor of the *AER*, instructed the staff to enforce the existing page limit. A new policy with explicit page limits was posted in September 2008, with these key features:

1. All manuscripts must be formatted with 1.5 line spacing and must not exceed 40 pages (50-page limit applies to double-spaced manuscripts). This limit includes reference lists, figures, and tables.
2. Manuscripts must use 12-point font. Margins must be one inch top, bottom, and sides. Please use Times New Roman or similar font. These font, margin, and line-spacing requirements also apply to reference lists and tables.
3. You must include the words “Not for Publication” at the beginning of any lengthy appendix. The 40-page limit can be exceeded by an appendix if it is clearly marked as such.

The *AER* editorial office sent an email informing AEA members of the new policy on September 29, 2008.²

Comparing Manuscript Lengths Before and After

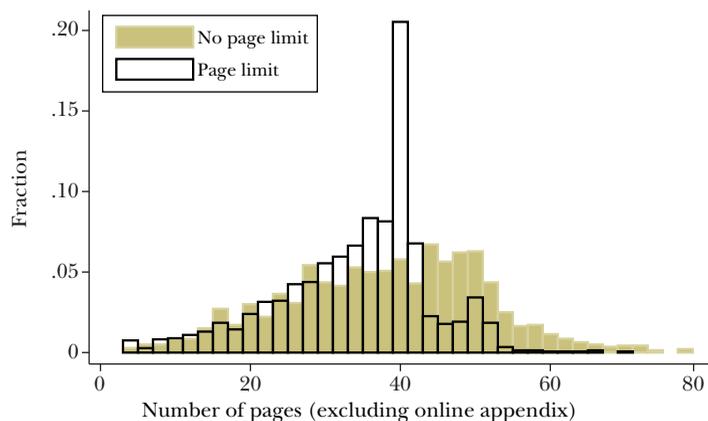
We collected data on new submissions to the *AER* from the year before and the year after the page-length policy change. Following the advice of the Managing Editor of the journal, we omit the transitional period from July 1, 2008, to September 30, 2008, and focus on the 1,406 manuscripts submitted from July 1, 2007, to June 30, 2008, and the 1,462 manuscripts submitted from October 1, 2008, to September 30, 2009. Detailed information on these 2,868 papers was collected by a temporary worker at the *AER* office using submission records from the Manuscript Central system.³ (We drop a small number of manuscripts that had errors in submission or were otherwise invalid). We also collected data on the *final accepted* versions of all papers that were submitted during our sample period and accepted for publication by July 2012—a total of 224 manuscripts.

Figure 2 overlays the distributions of (unadjusted) page lengths among manuscripts submitted to the *AER* in the year before and the year after the introduction of the page limit policy. In the before period, long papers were relatively common,

² On July 1, 2011, the margin spacing rule was increased from 1 inch to 1.5 inches.

³ Specifically, we measured the number of pages, the font, the margins, the lines per page, and the number of characters per page and per line. These detailed measures allow us to conduct a variety of accuracy checks. For example, we collected direct information on the number of characters per page (from a sample manuscript page) and also collected information on font size, line spacing, and margin sizes that can be used to estimate characters per page. Figure 2b in the online Appendix shows a scatterplot of the two measures, which have a correlation coefficient of 0.96 in both the *AER* and *JEEA* datasets. These reliability checks were also used to detect and correct errors in data coding. Table A1 in the online Appendix presents summary statistics for the datasets. Detailed instructions to the coders are available in the online Appendix available with this paper at <http://e-jep.org>.

Figure 2

Distribution of Manuscript Lengths at *AER* Before and After Page Limit Policy

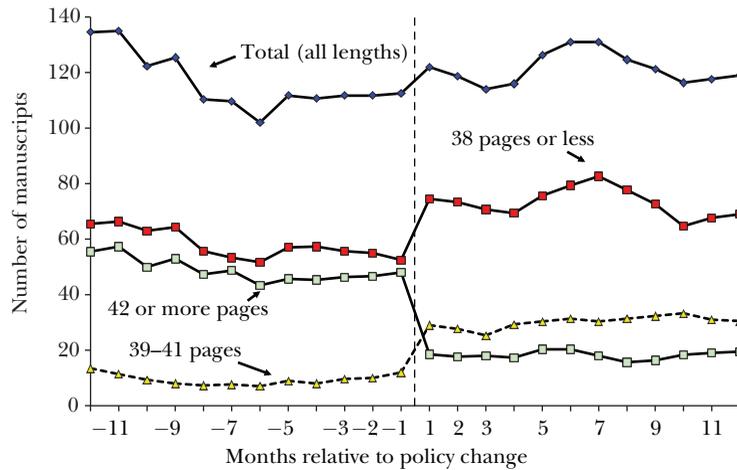
Notes: The sample includes all manuscripts submitted to the *AER* from July 1, 2007, to June 30, 2008 (the “pre” period with no page limits), and from October 1, 2008 to September 30, 2009 (the “post” period of page limits). Manuscript length includes the count of pages of text, tables, figures, and any appendices submitted for publication and excludes the cover page(s) and any online appendices.

with 44 percent of manuscripts longer than 40 pages, and 15 percent longer than 50 pages. In the after period, only 3 percent of papers are longer than 50 pages, indicating a small number of exceptions to the stated length policy. Interestingly, the number of 41–50 page manuscripts also declines very substantially, reflecting the fact that most authors adhered to the 40-page limit for 1.5-spaced manuscripts, rather than the 50-page limit for double-spaced papers. As expected, there is a large spike in post-policy submissions at 39–40 pages, representing 21 percent of submissions compared to just 6 percent in the pre-page limit period. This spike suggests that many authors reformatted or shortened their papers to submit to the *AER*.

A concern with the simple contrast in Figure 2 is that there could be underlying trends in submission behavior that confound the pre–post comparison. To address this concern, Figure 3 plots the number of submissions per month in different length categories before and after the introduction of the page limit policy. The total number of submissions per month, shown in the top line of the figure, is relatively stable over our two-year sample period at around 120 per month. There is no evidence of a decline in the total number of submissions after the introduction of page limits, as would be expected if a significant number of longer papers were diverted to other outlets. The introduction of page limits did lead to a sharp decrease in the number of submissions of 42 pages or longer, coupled with a rise in the number of papers around the limit (39–41 pages). Both of these shifts appear to have been fully realized by the first month of full implementation of the policy in October 2008.

Many of the changes in the distribution of page lengths documented in Figures 2 and 3 are attributable to changes in formatting of the papers, rather than

Figure 3
Number of AER Submissions by Month and Length



Notes: Manuscript counts are smoothed using 3-month moving average except at the policy change. Manuscript length includes pages of text, tables, figures, and appendices submitted for publication and excludes the cover page(s) and any online appendices.

to reductions in the actual size of the submissions. Prior to the page limit policy, for example, about a third of the papers were double-spaced, whereas after the introduction of the policy the large majority of papers adopted 1.5-line spacing. An author with a double-spaced manuscript of 42 pages who simply switched to 1.5 spacing would end up submitting a 32 page paper. There is also a shift toward narrower margins after the page-length policy was adopted.⁴

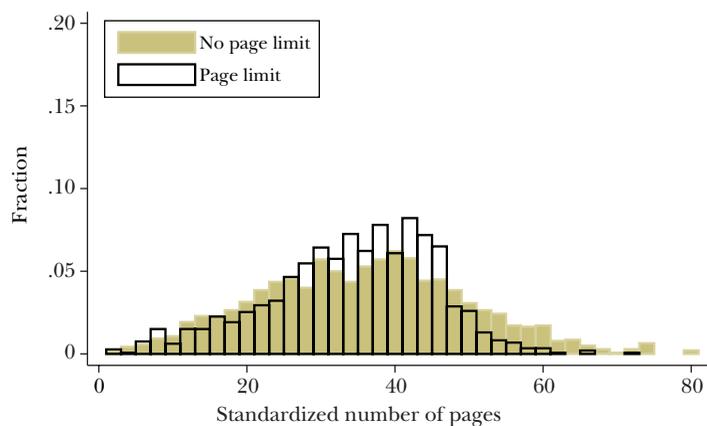
We summarize the impacts of these formatting changes using information on the number of characters per page. Prior to the page-length policy, the average number of characters per page was 2,250—a little over the expected density of a double-spaced 12-point font paper. After the policy, the modal density increased to 2,560 characters—close to the expected density of a 1.5-spaced document using 12-point font with no offset equations or major gaps. Interestingly, 13 percent of manuscripts submitted after the policy change have more than 3,000 characters/page, substantially above the limit that is technically permissible.

To facilitate comparisons of manuscripts before and after the policy change we construct a standardized measure of length based on the average number of characters per page in the document. Specifically, we define:

$$\text{standardized length} = \text{actual length} \times \text{characters per page}/2550.$$

⁴ We document these changes in online Appendix Figures 4a–d, available with this paper at <http://e-jep.org>.

Figure 4

Distribution of Standardized Manuscript Lengths at AER Before and After Page Limit Policy

Notes: See note to Figure 2. In this figure, page lengths are standardized assuming 2,550 characters per page, which is the expected density assuming 12-point font, 1.5-line spacing, and 1-inch margins.

We assume a standardized page has 2,550 characters, which is the expected density of a page formatted at 1.5 spacing with 12-point font and 1-inch margins, assuming 91.5 characters per line times 31 lines per page, and allowing a 10 percent reduction for partial lines associated with paragraph endings and section headings. We then add the number of pages of tables and figures, plus any pages of appendix materials included for publication, plus any abstract or title pages to obtain the total standardized length of each submission.

Figure 4 shows the distribution of standardized page lengths before and after the policy change. Compared to the pre-period, the post-period has fewer longer papers and more papers of intermediate length (30–45 pages). There is also a small decrease in the fraction of papers between 20 and 25 pages, offset by a small rise in the fraction between 26 and 30 pages. In contrast to the distribution of unadjusted page lengths (in Figure 2), the spike at 40 pages is no longer visible in the standardized distribution, reflecting the wide variation in page densities among submissions of 39–40 pages.

Under the assumption that submission rates would trend together in the absence of any policy change, and that submissions of shorter papers are unaffected by the policy, a difference-in-differences approach allows us to infer the change in the number of longer papers caused by the policy. We use a threshold of 30 standardized pages to classify shorter (≤ 30 pages) and longer (> 30) papers. Among the 361 papers submitted in the post-period with an unadjusted length of 39–41 pages (that is, papers at the page-length spike) only five have a standardized length of 30 pages or less, so we believe the number of submissions with ≤ 30 standardized pages is unlikely to have been much affected by the page length policies.

Table 1

Difference in Differences Analysis of Impact of Page Limit Policy on Submissions per Week of Longer versus Shorter Manuscripts, *American Economic Review*

	<i>Year before limits imposed</i> (1)	<i>Year after limits imposed</i> (2)	<i>Difference: After – Before</i> (3)
Number of shorter manuscripts (30 pages or less)	10.21 (0.50)	10.02 (0.55)	–0.19 (0.74)
Number of longer manuscripts (31 pages or more)	16.79 (0.66)	18.10 (0.61)	1.31 (0.90)
Difference: Longer – Shorter	6.58 (0.73)	8.08 (0.76)	1.50 (1.05)

Notes: Standard errors are in parentheses. The sample includes 52 weekly observations for one year prior to the page limit policy (July 2007–June 2008) and 52 weekly observations for one year after (October 2008–September 2009). Manuscript lengths are measured using standardized page lengths. See text.

We estimate the following difference-in-differences specification

$$n_{L,t} - n_{S,t} = \alpha + \beta d_{PL,t} + \varepsilon_t$$

where $n_{L,t}$ represents the number of longer submissions in week t ; $n_{S,t}$ is the number of shorter submissions in the same week; $d_{PL,t}$ is an indicator equal to 1 for observations from the period during which page limits are in effect; and ε_t is an error term. The coefficient β measures the relative change in the number of longer versus shorter submissions in the post-period.

The underlying components of the difference in differences are presented in Table 1. Comparing columns 1 and 2, there was essentially no change in the number of shorter papers submitted per week following the adoption of the page limit policy by the *AER*: that is, the number of shorter papers submitted per week was 10.21 in the pre-period and 10.02 in the post-period. By comparison, the number of longer manuscripts submitted per week increased slightly, from 16.79 to 18.10, leading to a difference in differences of $\hat{\beta} = 1.50$ manuscripts per week, with a standard error of 1.05. Relative to the pre-policy submission rate of 16.8 per week, this implies an 8.9 percent *increase* in longer submissions (standard error = 6.3 percent).⁵

⁵ A possible concern with these estimates is that the number of submissions per week is serially correlated, leading an ordinary least squares procedure to understate the standard error of the estimated difference in differences. In fact, the residuals from the equation are essentially uncorrelated (first order serial correlation = –0.01; second order correlation = –0.01) so quasi-differencing the data to remove serial correlation and re-estimating leads to an estimated coefficient and standard error that are essentially identical to the corresponding ordinary least squares estimates. We present results using the log of the number of submissions in online Appendix Table 2.

While this point estimate suggests that the *AER*'s page limit policy had no negative effect on the submission rate of longer papers, the sampling error means we can only rule out estimates of β smaller than -0.6 papers per week, a worst case loss of 2.2 percent of the total weekly submission flow. Our preferred estimate is that page limits caused no loss of papers at the *AER*.

Let us assume that authors who are considering submitting a paper to the *AER* have a certain fixed threshold of page length (for simplicity, we will assume the threshold is the same across authors) beyond which they are unwilling to consider shortening the paper and will instead submit their paper to another journal. In the original pre-period distribution of papers, the 97.8 percentile of page lengths was a paper of 65 pages. Given that the worst-case scenario involves losing 2.2 percent of submissions, it follows that authors are willing to cut their papers from 65 to 40 pages—a reduction of 25 pages—to submit to the *AER*.⁶

If there was any loss of longer papers, what types of papers were more likely to be diverted to other journals? One important characteristic is the quality of papers, which we measure by whether a paper receives a revise-and-resubmit decision. Figure 5A shows a nonparametric regression of the revise-and-resubmit indicator on the number of (standardized) pages among papers submitted prior to the page limit policy. The figure provides strong evidence that the quality of papers increases with the number of pages. Indeed, 20 percent of the 221 papers longer than 50 (normalized) pages received a revise-and-resubmit decision, compared to only 6.9 percent of the 1,185 papers shorter than 50 pages. Hence, any loss of longer papers could have negative impact on quality.

A second measure of quality of manuscripts is the number of citations. While we were unable to construct citation information for submissions to the *AER*, we obtained Google Scholar citations for all the manuscripts submitted to *JEEA*. Limiting attention to papers submitted to *JEEA* in the periods with no page limits, Figure 5B plots a local polynomial regression of the number of citations as a function of the normalized paper length. The number of citations is generally increasing in the length of the manuscript. The average citation count for the 87 papers longer than 50 (standardized) pages is 12.6, compared to 7.3 for the 636 papers shorter than 50 pages, confirming that longer manuscripts are on average more important contributions.

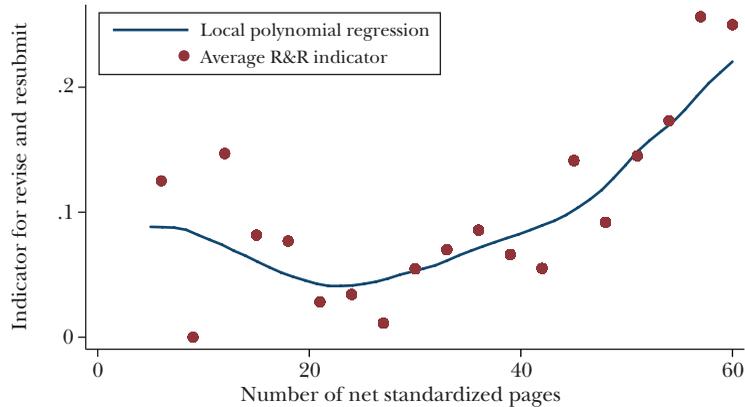
The positive correlation between pages and citations in Figure 5B is also present across published papers in top economics journals. In Card and DellaVigna (2013), we show that papers in the upper quintile of the length distribution published in

⁶ We investigate the robustness of our estimate in a series of alternative specifications shown in online Appendix Table A2, available with this paper at <http://e-jep.org>. The results are very similar if we use a quasi-differenced specification in which we include the number of shorter papers submitted in a week as a control variable with an unrestricted coefficient (rather than assume a coefficient of 1.0 as in the baseline model) or if we add a linear trend to the quasi-differenced model, allowing different long-run trends in submission rates of shorter and longer papers. The results are more sensitive to shifting the threshold for defining shorter and longer papers from 30 to 35 standardized pages, which would suggest a modest loss of papers.

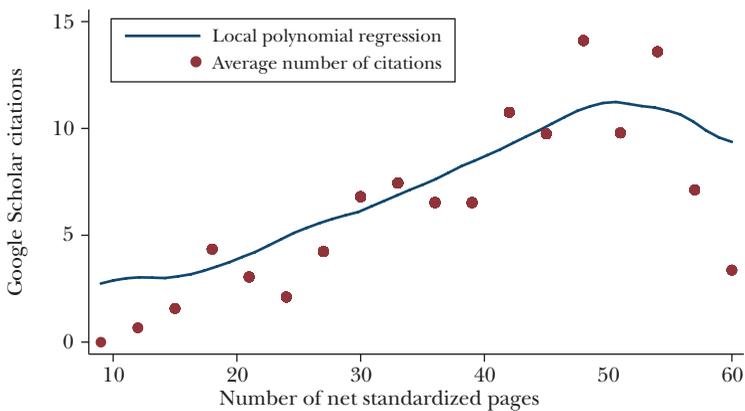
Figure 5

Relationship between Page Length and Quality Measures (*AER* and *JEEA*)

A: Probability of Revise-and-Resubmit (R&R) as a Function of Length:
AER, pre-reform (Degree: 0)



B: Citations as a Function of Length: *JEEA*, No Page Limits (Degree: 0)



Notes: Figure 5A shows nonparametric regression of the probability of receiving a revise-and-resubmit verdict for manuscripts submitted to *AER* in the year before page limits were adopted, as a function of standardized manuscript length. Figure 5B shows nonparametric regression of the number of Google Scholar citations (as of July/August 2012) to manuscripts submitted to *JEEA* in the no-page-limit period.

the top five journals from 1970 to 2012 have 50 percent more citations than those in the middle quintile, controlling for many other features of the papers. Similar specifications fit to articles from the *AER* alone imply 40 percent higher citations for papers in the top versus the middle of the length distribution. (Both these exercises excluded notes and replies, as well as the annual Papers and Proceedings issue of the *AER*).

We also examined the impact of the page limit policy across different fields. Specifically, we used the (up to three) *JEL* codes provided by authors to count the number

of submissions in eight subfields: theory; laboratory experiments; macroeconomics (including international macro); applied microeconomics (public economics, labor, micro-development, and law and economics); industrial organization; econometrics; finance; and all other fields.⁷ This analysis does not include the 25 percent of submissions that do not report a *JEL* code. (Papers can be counted in up to three of these categories, depending on the number of *JEL* codes provided). We then conducted a difference-in-differences analysis similar to Table 1 by subfield (with details in online Appendix Table 4). Across all fields but macro, there was an increase in overall submissions to the *AER* in the year after the page-length policy was introduced. In all fields except applied microeconomics and econometrics, the increase in the submission rate of longer papers was greater than for shorter papers. Interestingly, there was a relatively large loss of longer papers (a decline of 7 percent) in empirical micro—the field that had typically submitted the largest fraction of long papers prior to the policy. We cannot reject the hypothesis, however, that the difference in differences for empirical micro is the same as for any of the other fields.⁸

Benefits of Page Limits?

The primary motivation for the page limit policy at the *AER* was to shorten the length of published papers. In the first panel of Table 2, we compare the average length (excluding online appendices) of all first submissions in the year before and after the page limit introduction. The first row shows that there was a significant 3.9 page reduction in the average lengths of submitted manuscripts after the policy in the post period. Taking account of formatting changes by examining standardized page lengths (second row), however, the reduction in page lengths is only 1.6 pages. The difference is a little bigger (−4.2 pages) in a regression-adjusted comparison that controls for editor and field fixed effects. The last column in Table 2 reports the difference after accounting for such controls.

Which portions of a paper changed in length? The next rows in the upper panel show that the page limit policy did not lead to any shortening in the number of pages of text, but led to a half-page reduction in the number of pages of tables and figures and a 1.5 page reduction in the length of appendices intended for publication. The latter was offset by a 2.4 page increase in the length of online appendices (that is, appendices not intended for publication and not counted in our measure of page length).

Overall the page limit policy led to a modest shortening of submitted papers. What about the papers that were ultimately accepted for publication? The second panel of Table 2 focuses on the final accepted versions of papers that were originally

⁷ We assign the fields using JEL codes as follows: theory = D, C7; laboratory experiments = C9; macroeconomics = E, F, I, O4, O5, O11; applied micro = H, I, J, K, and O except O4, O5, O11; IO = L; econometrics = C, except C7 and C9; finance = G.

⁸ We also considered whether the page limit policy at the *AER* led people to write shorter working papers in the anticipation of having to comply with the policy. Using measures of the length of NBER working papers written between 2007 and 2012, we find no evidence of a shift in length following the page-length policy. Details are in online Appendix Figure 7, available with this paper at <http://e-jep.org>.

Table 2
Impact of Page Limits on Manuscript Length—AER

	<i>No policy in place</i> (1)	<i>Policy in place</i> (2)	<i>Difference</i> (3)	<i>Regression- adjusted difference</i> (4)
All first submissions:				
Mean number of pages	37.8	33.9	−3.9 (.5)***	−4.2 (.5)***
Mean number of pages, standardized	35.5	33.9	−1.6 (.5)***	−2.2 (.5)***
Mean number of pages of text, standardized	25.6	26.1	0.5 (.4)	0.0 (.4)
Mean number of pages of tables and figures	4.8	4.2	−0.5 (.2)**	−0.5 (.2)**
Mean number of pages of appendix	4.0	2.5	−1.5 (.2)***	−1.6 (.2)***
Mean number of pages of online appendix	0.6	3.0	2.4 (.2)***	2.6 (.2)***
Sample size	1,406	1,462		
Final accepted version of papers invited for revision^a				
Mean number of pages	40.6	39.4	−1.2 (1.9)	−2.2 (2.4)
Mean number of pages, standardized	40.5	39.8	−0.7 (2.0)	−1.9 (2.4)
Change in number of pages, standardized, from 1st submission	−1.2	−0.8	0.4 (2.0)	0.1 (2.6)
Number of rounds of revision	1.7	1.9	0.19 (0.9)**	−0.04 (.10)
Sample size	114	110		
Final accepted manuscripts, expanded sample^b				
Mean number of pages	40.8	39.1	−1.6 (1.4)	−1.3 (2.0)
Mean number of pages, standardized	40.2	39.9	−0.3 (1.4)	−0.7 (2.0)
Change in number of pages, standardized, from 1st submission	−2.2	0.3	2.5 (1.4)*	3.3 (2.1)
Sample size	218	211		

Notes: Entries in the final column are regression-adjusted with controls for editor/coeditor and field of submission. And see notes to Table 1.

^a Includes papers accepted in first round without revision.

^b See text for description of expanded sample.

*, **, and *** indicate statistical significance at 10 percent, 5 percent, or 1 percent.

submitted during the sample window of plus-or-minus one-year from the policy change.⁹ In this sample of 224 papers, we find a very small and statistically insignificant reduction in the standardized length of accepted papers (−0.7 pages, standard error = 2.0).

To check the robustness of this conclusion, in the last panel of Table 2, we extend the sample of accepted papers by including submissions that received an

⁹ This sample does not include all papers that received a “revise and resubmit” verdict because about 10 percent of these papers were ultimately rejected and another 10 percent were still under review as of June 2012.

initial revise-and-resubmit verdict between January 2006 and June 2007 and were accepted for publication between July 2007 and June 2012. (Papers accepted before July 2007 are not included in the *AER*'s Manuscript Central database and cannot be tracked.) We also include submissions from October 2009 to September 2010 that received a revise-and-resubmit and were accepted by June 2012. In this extended sample of 429 papers, we confirm the main finding that the (standardized) length of published papers remained nearly unchanged after the introduction of page limits, with an estimated shortening of only 0.3 pages, or 0.7 pages after regression adjustment.

One of the reasons for the smaller effect on accepted papers is that while the revision process led to a shortening of papers in the pre-policy period (-2.2 standardized pages), this tendency was actually reversed in the post-policy period, leading to a *lengthening* of papers during the revision process ($+0.3$ standardized pages). (The pattern is qualitatively similar but muted in the smaller sample shown in the second panel). This reversal suggests that referees and editors were previously asking for papers to be cut, but under the new policy were asking for additional material to be added to the manuscript.

To put these changes in length in perspective, recall from Figure 1 that the typical paper published in the top five journals increased in length by about 30 pages from 1970 to 2012, with about a 12 page increase between 2002 and 2012. Relative to these trends the estimated impact of the page limit policy is small. Figure 1 also shows the ratio of the median length of papers in the *American Economic Review* to the average of papers in the other top-five journals. This ratio has remained between 80 percent and 100 percent over the period from 2005 to 2012, with no trend. We conclude that the page limit policy did *not* have much effect on the length of published papers in the journal.

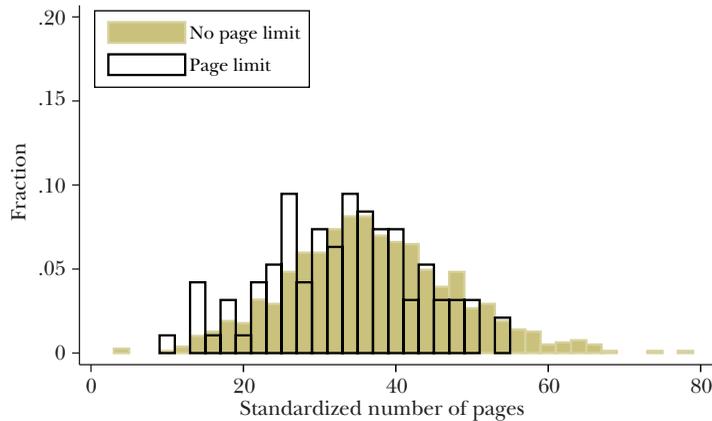
Finally, it is possible that, while not affecting the length of accepted papers by much, the page limit made the revision process faster. In the middle panel of Table 2 we show the number of rounds of revision required for accepted papers in the baseline sample. We find no evidence of a speed up. Indeed, the number of rounds actually rose slightly, but after adjusting for editor fixed effects, the change is very close to zero.

Page Limits at the *Journal of the European Economic Association*

Until March 2009, the *Journal of the European Economic Association* had no page length restrictions on new submissions. On March 25, 2009, the editors introduced a page limit policy modeled on the *AER* policy: that is, 1.5-line spacing, a 40-page limit (including figures, tables, and references), and 12-point font. Within two months after the introduction of the policy, the editorial team became concerned that the page limit policy was hurting the number of submissions. Following an internal debate, enforcement of the page-length policy halted on July 8, 2009, and the policy was removed from the *JEEA* website on August 5, 2009.

Figure 6

Distribution of Standardized Manuscript Lengths at *JEEA* in Periods With and Without Page Limit Policy



Note: Page lengths are standardized assuming 2,550 characters per page, which is the expected density assuming 12-point font, 1.5-line spacing, and 1-inch margins.

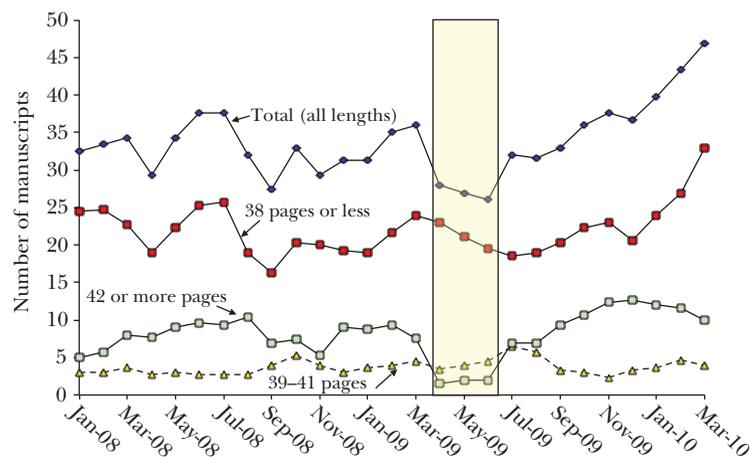
We collected data from electronic records of submissions to the *JEEA* for a period of 15 months before the introduction of the policy (January 1, 2008, to March 24, 2009); for the 3.5 months period during which the page limit policy was in place (March 25, 2009, to July 8, 2009); and for approximately nine months following the official removal of the page limit (August 5, 2009, to March 31, 2010). As in our analysis of the *AER* policy change, we omit from most of the analysis the transitional period, in this case from July 8, 2009 to August 5, 2009.¹⁰ Our sample contains 883 newly submitted manuscripts, of which 95 were submitted while page limits were in effect.

We compare papers submitted during the page limit period to those submitted before or after. As at the *AEA*, the page-length policy at *JEEA* coincided with the introduction of new guidelines for manuscript formatting. Using the same procedures we developed for the *AER*, we estimate standardized page lengths for all submissions to the *JEEA*. The distributions of standardized page lengths with and without the page limit policy are shown in Figure 6. In contrast to the corresponding figure for the *AER* (Figure 4), there is no rise in the density of papers around the page limit.

Figure 7 presents time series evidence on the number of monthly submissions for *JEEA* before, during, and after the page-length policy was in effect. Several features of this graph are quite different from the corresponding graph for the *AER*. Most importantly, the drop in submissions of longer papers in the policy period of

¹⁰ We include the transitional period only in the time-series graph in Figure 7.

Figure 7

Number of *JEEA* Submissions by Month and Length

Notes: Manuscript counts are smoothed using 3-month moving average except at the policy change. Manuscript length includes pages of text, tables, figures, and appendices submitted for publication and excludes the cover page(s) and any online appendices.

April–June 2009 is matched by a parallel drop in total submissions. Taken together with the fact that there was no increase in the fraction of papers close to the page limit, this pattern suggests that *JEEA* authors responded to the page limit policy by diverting most of the papers that were above the page limit to other journals. After the removal of the page limit policy, submissions appear to have quickly returned to their pre-page-limit rates.

We again carried out a simple difference-in-differences analysis, splitting papers into shorter papers and longer papers using a threshold of 30 standardized pages. The results, presented in Table 3, show that during the page limit period, *JEEA* received slightly more shorter submissions (2.6 per week versus 2.4) but significantly fewer longer submissions (3.7 per week versus 5.7). The difference-in-differences estimator implies a loss of 2.15 longer manuscripts per week, which is statistically different from 0.¹¹ The implied loss of 2.15 papers per week represents a 38 percent reduction in the inflow of longer papers.¹² Interpreted through the lens of a version of our simple model in which all authors have the same surplus from submitting to *JEEA*, the loss of 2.15 longer manuscripts per week suggests that nearly all authors of longer manuscripts were unwilling to shorten their paper, and preferred instead to submit elsewhere.

¹¹ The residuals from this weekly regression model are very slightly positively correlated (first order correlation = 0.049). Quasi-differencing the data and re-estimating we obtain a point estimate of -2.16 , with an estimated standard error of 0.94.

¹² Online Appendix Tables 3 and 5, available with this paper at <http://e-jep.org>, present a series of alternative specifications for the difference-in-differences model that probe the robustness of this estimate.

Table 3

Difference-in-Differences Analysis of Impact of Page Limit Policy on Submissions per Week of Longer versus Shorter Manuscripts, *Journal of the European Economic Association*

	Period with no page limits (1)	Period with page limits (2)	Difference: After – Before (3)
Number of shorter manuscripts (30 pages or less)	2.38 (0.18)	2.60 (0.34)	0.22 (0.49)
Number of longer manuscripts (31 pages or more)	5.66 (0.31)	3.73 (0.53)	–1.93 (0.81)
Difference: Longer – Shorter	3.29 (0.33)	1.13 (0.70)	–2.15 (0.89)
Number of weeks	98	15	113

Notes: Standard errors are in parentheses. Sample includes weekly data for 64 weeks prior to page limit policy (January 1, 2008, to March 24, 2009), 15 weeks while page limit policy was in effect (March 25, 2009, to July 8, 2009), and 34 weeks after page limit policy was removed (August 2009–March 2010). Manuscript lengths are measured using standardized page lengths. See text.

Concluding Thoughts

How do authors respond to page limits on new submissions? Our analysis shows that the answer depends on the competitive position of the journal that imposes the limit. Although the policies adopted by the *Journal of the European Economic Association* and the *American Economic Review* were identical, authors responded to the *JEEA* limit by diverting all or nearly all of their longer manuscripts to other outlets, whereas authors responded to the *AER* by reformatting and shortening their manuscripts. A simple model of author behavior suggests that these very different responses can be explained by differences in the perceived surplus associated with a publication at *JEEA* versus the *AER*. *JEEA*—a respected but relatively new journal—faces substantial competitive constraints on its policy choices. In contrast the *AER*—a top journal with a reputation built over a century—has market power and can raise the cost of submission with little or no loss of supply.

We suspect that these findings also apply to other dimensions of journal policy. Specifically, we conjecture that journals below the top five face a relatively elastic manuscript supply and can raise or lower submission rates by systematically varying the expected time to first decision or the quality of refereeing. While we have no direct evidence on this response, it is anecdotally consistent with a near-doubling in submissions to *JEEA* from 2009 to 2012 following a sharp reduction in the average time-to-first-decision. It is also consistent with the successful emergence of the four *AEJ* journals from the American Economic Association which offer a generally fast turn-around to submissions. In contrast, data presented by Ellison (2002) show

a relatively weak relationship between changes in submission rates and trends in time-to-first-decision at the top five journals over the 1980s and 1990s.

Even at the *AER*, where the page limit policy led to little or no loss in submissions, it also appears to have had few benefits. In particular, despite the goal of reducing the length of published papers, the average length of accepted manuscripts was not significantly impacted. Arguably, a policy that forces hundreds of authors each year to spend time shortening papers without any obvious benefits should be reconsidered.

More generally this paper highlights the importance of evaluating editorial policy choices. Such evaluation is rare in economics, with the notable exception of Blank's (1991) evaluation of double-blind refereeing, the evaluation by Brogaard, Engelberg, and Parsons (2014) of conflict of interest rules, and the study by Chetty, Saez, and Sandor in this issue on referee deadlines and incentives.

Returning to the issue of manuscript length, there may be a legitimate concern about the trend shown in Figure 1 toward ever-longer papers in the top five journals. Perhaps a more aggressive page-length policy, such as a 30-page limit, could shorten the length of published papers. We suspect that such a policy would come at some cost, even to a top journal like the *AER*. More importantly, since journals are very concerned about citations and longer articles garner more citations, it is unclear whether the goal of reducing page lengths is even justified.

One could argue that the observed correlation between citations and article length is driven by the willingness of editors to allow extra space to papers they believe will be influential. But evidence such as we have assembled in Figures 5A and 5B on probability of acceptance, and on citation rates for all submissions (regardless of publication status), support the view that longer papers are "better" papers. Of course, it may be possible to preserve the quality of the longer papers while shortening them at the margin, though we are unaware of any causal evidence on the benefits (or costs) of shortening a given paper.

Instead of seeking to place limits on papers in existing journals, perhaps the economics profession would benefit from an alternative journal with a focus on shorter papers. There may be an interesting parallel in the field of social psychology. The top journal in this field, the *Journal of Personality and Social Psychology*, publishes relatively long articles, as do other influential journals in the discipline. In 1988, however, a new journal, *Psychological Science*, was created to mirror the format of *Science*. Research papers submitted to *Psychological Science* can be no longer than 4,000 words. By comparison, this paper, which is not long by economics standards, is around 6,500 words long. *Psychological Science* has quickly emerged as a leading journal in its area. In social psychology, journals publishing longer articles coexist with journals specializing in shorter, high-impact articles.

We speculate that authors who wanted to submit to an *Economic Science* journal with very tight page limits would adopt a different form of writing, with less space devoted to expansive introductions, model development, and specification testing. Editors and referees of such a journal would also have to adopt different standards, placing more weight on actual findings and less on the framing and interpretation

of the results. Whether publications in *Economic Science* would be as highly valued by the economics profession as those currently published in the top five journals is an open question.

■ *We are very grateful to Penny Goldberg, Robert Moffitt, Stephanie Raimander, Steve Stelling, and Fabrizio Zilibotti for their assistance in this project. We also thank Laura Ristau for her outstanding work in coding thousands of manuscripts in the AEA office, a team of undergraduates at Berkeley (Noah Dreyman, Kaiji Gong, Sam Johnson, Ki Sung Kim, Wonsoon Kim, Sunny Lee, Seongjoo Min, Zi Peng, Tim Semenov, Eileen Tipoe, Brian Wheaton, and Janice Zhou), as well as Alex He, Xuan Li, and Jeff Sorenson for excellent research assistance. We thank Esther Duflo, Liran Einav, Penny Goldberg, Hilary Hoynes, Larry Samuelson, Ivo Welch, Justin Wolfers, and audiences at the 2012 NBER Summer Institute (Labor Studies), at Harvard University, at Mannheim University, and at UC, Santa Cruz for useful comments.*

References

- Blank, Rebecca M.** 1991. "The Effects of Double-Blind versus Single-Blind Reviewing: Experimental Evidence from *The American Economic Review*." *American Economic Review* 81(5): 1041–67.
- Brogaard, Jonathan, Joseph Engelberg, and Christopher Parsons.** 2014. "Networks and Productivity: Causal Evidence from Editor Rotations." *Journal of Financial Economics* 111(1): 251–70.
- Card, David, and Stefano DellaVigna.** 2012. "Revealed Preferences for Journals: Evidence from Page Limits." *NBER Working Paper* 18663.
- Card, David, and Stefano DellaVigna.** 2013. "Nine Facts about Top Journals in Economics." *Journal of Economic Literature* 51(1): 144–61.
- Ellison, Glenn.** 2002. "The Slowdown of the Economics Publishing Process." *Journal of Political Economy* 110(5): 947–93.

