

How Do Authors Respond to Page Limits?*

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Abstract

Academic journals set a variety of policies that affect the supply of new manuscripts. We study the impact of page length policies adopted by the American Economic Review (AER) in 2008 and the Journal of the European Economic Association (JEEA) in 2009, focusing the decision by potential authors to either shorten a longer manuscript, or submit to another journal. For the AER we find little indication of a loss of longer papers – instead, authors responded by shortening the text and reformatting their papers. For the JEEA, in contrast, we estimate that the page length policy led to nearly complete loss of longer manuscripts. These findings provide a revealed-preference measure of competition between journals and indicate that a top-5 journal has substantial monopoly power over submissions, unlike journals one notch below. At both journals we find that longer papers were more likely to receive a revise and resubmit verdict prior to page limits, suggesting that the loss of longer papers may have had a detrimental effect on quality at JEEA. Despite a modest impact of the AER’s policy on the average length of submissions (-5%), the policy had little or no effect on the length of final accepted manuscripts. Our results highlight the importance of evaluating editorial policies.

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1 Introduction

Scholarly journals play a vital role in the production and diffusion of scientific knowledge. Historically, these journals were the primary mode for communicating new findings to a widely dispersed research community.¹ Although working papers, conferences, and other channels fill this function today, journals still serve as critical arbiters of new research in most fields (McCabe and Snyder, 2005). Editors choose policies and select articles for publication: in so doing they influence the success or failure of competing research programs and help determine which ideas get ahead.

Despite long-standing interest by economists in knowledge production², and the importance of journals in this process, there is little evidence on the ways that journals set their editorial policies, and the impacts of these choices.³ Evaluating these policies is important because they affect the types of papers that are published as well as the efficiency of the publication process.

In this paper, we take a step toward filling this gap by studying the impacts of a specific editorial policy – submission page limits. Disciplines differ in the typical length of published articles. Many of the top journals in the hard sciences, including *Science* and *Nature*, impose very short page limits. In economics, by comparison, papers are much longer. The median submission to the *American Economic Review (AER)* in 2007 was about 38 pages long. It is natural to wonder whether these sharp differences in page length standards have any impact on the production or diffusion of knowledge. While economic journals are unlikely to switch to a model of publishing very short papers, an individual journal can move some way towards the hard-science model by restricting the length of submitted or published papers.

Indeed, in September of 2008 the *AER* introduced a 40-page limit for new submissions – the first (and still the only) top-5 economics journal to do so.⁴ The new limit was significant because in the previous year 40% of submissions exceeded the limit.⁵ In March 2009 the *Journal of the European Economic Association (JEEA)* adopted the same policy as the *AER*. Within a few months *JEEA* abandoned the policy, but it remains in effect at the *AER*.

We use anonymized data on submissions to these two journals to evaluate the benefits and costs of the change, emphasizing the perspective of the journal. The envisioned benefits are shorter, more easily digested papers, and possibly a faster editorial process. As for the costs, a

¹The earliest scientific journals were the *Journal des sçavans*, and the *Philosophical Transactions of the Royal Society*, both established in 1655. See McClellan (1985).

²Perhaps the best known economic research on knowledge production has focused on the patenting system: see for example Mansfield (1986) and Griliches (1998). Waldinger (2012) studies the effect of the Nazi expulsion of Jewish faculty from German research universities, and the subsequent effects on colleague productivity.

³There is an (interdisciplinary) body of research on two related issues: the conduct of peer review (e.g., Blank, 1991; Hamermesh, 1994; Jefferson et al., 2007, Ellison, 2002b, 2011; Chetty, Saez, and Sandor, 2012; Welch, 2012) and citation practices (e.g., Stigler and Friedland, 1975; Laband and Tollison, 2000).

⁴The actual limit was 40 pages for articles with 1.5 line spacing, and 50 pages for articles with 2 line spacing.

⁵This percentage counts manuscripts over 50 pages if 2-spaced and over 40 pages if less than 2-spaced.

simple model of author behavior suggests that the introduction of page limits will lead authors to engage in *triage*: shortening manuscripts that fall below some threshold to meet the page limit, and submitting longer papers to the next best alternative journal. The potential loss of longer manuscripts may be a concern, particularly if these articles are of relatively high quality. Note that an author who sends a paper elsewhere but is rejected may later decide to comply with the page limits. Hence, we expect the loss of papers due to a newly-instituted page limit policy to be larger in the short-run than in the medium-run.

In principle the fraction of longer papers that are shortened rather than diverted to other journals can be estimated from the size of the spike in the distribution of manuscript lengths under the page limit policy.⁶ In practice, implementation of this simple test is complicated by variation in font size, line spacing, and margins, all of which can be manipulated to meet a given page limit, and by the possibility of underlying trends in the rate of submission. We adopt a more robust test based on a comparison of submission rates of shorter and longer papers. Assuming that submission rates of both groups are affected by similar trends, and that page limit policies have no effect on the submission rates of shorter papers, a simple difference-in-differences identifies the net diversion of longer papers.

A second insight from the model is that authors will be more willing to shorten a manuscript when the gap between the expected payoff from submitting to the journal in question and the next best alternative – the surplus from the match of paper and journal – is higher. In the limiting case where authors are close to indifferent between outlets, a page limit policy will lead to the loss of nearly all longer submissions. The rate of loss of longer papers therefore provides revealed-preference evidence regarding the extent of competition between journals.

Hence, our analysis of the imposition of page limits serves two main purposes. First, it provides evidence to evaluate the costs and benefits of a significant editorial shift. Second, it allows us to infer the degree of competition for papers between different journals, which is hard to measure otherwise given the lack of data on the choice of journals by authors at submission.

At the *AER* we find that the introduction of page limits led to a rapid fall in the number of longer submissions and the emergence of a spike in the distribution of page lengths around the 40-page limit. To implement our difference-in-differences estimator, we standardize the length of all submissions using detailed data on font size, line spacing, and margins. We then compare submission rates of shorter papers (30 standardized pages or less) versus longer papers (31 or more standardized pages), on the assumption that any shortened paper will be at least 31 pages in length. Our preferred estimates suggest that there was no loss of longer papers at the *AER*, and rule out a loss larger than 8% at standard significance levels. Interpreting these findings in light of our model, our ‘worst case’ estimates suggest that a typical author

⁶This idea is formally identical to the procedure suggested by Meyer and Wise (1983) for estimating the job losses caused by the introduction of a minimum wage. See Card and Krueger (1995, pp. 223-236) for a discussion of the limitations of this approach.

was willing to shorten her paper by at least 22 pages to meet the *AER*'s guidelines, implying that the *AER* is significantly differentiated from the best alternative option for most authors. The finding of no loss of manuscripts at the short horizon of one year is significant because the losses, if any, are likely to be larger in the short-run than in the medium-run.

Given the uncertainty in this estimate, it is also important to consider the risk involved – if some longer papers were lost, were they of higher or lower quality, or from particular fields? We use the likelihood of a revise-and-resubmit verdict as an indicator of quality. Perhaps surprisingly, we find that prior to the policy, longer papers had a *higher* success rate than shorter papers: a paper of 50+ pages was 15 percentage points more likely to receive a revise-and-resubmit verdict than one shorter than 40 pages.⁷ A similar pattern was true at *JEEA*, where we also measure the number of citations received by submitted manuscripts (regardless of publication status) and find that longer manuscripts have more citations on average.

Field-wise we find that the policy had the largest impact on empirical microeconomics (i.e., public, labor, micro-development, and law-and-economics): prior to the policy change 51% of empirical micro submissions were 41 pages or longer, versus 42% of all manuscripts that can be assigned to a field. Interestingly, this is the field for which we see the largest decrease in the number of longer papers after the policy change (-7%), though the relative change is not significantly different than for most other fields.

While our modeling framework addresses the potential costs of a page limit policy, we also examine the potential benefits. We find that the *AER*'s policy led to a 4 page shortening of the average submitted manuscript. Some of this change was due to an increase in density: standardizing for format changes, the page limit policy was associated with a more modest 2-page reduction in length, a roughly 5% decrease. The main cuts occurred in the length of appendices submitted for publication (shorter by 1.5 pages) and tables and figures (shorter by 0.5 pages), with no change in the (standardized) number of pages of basic text.

Looking at final accepted manuscripts, however, we find little impact on length, especially when we consider an expanded sample covering a longer pre- and post-period. Closer examination shows that prior to the policy manuscripts invited for revision were typically shortened by about 2 pages over the course of the revision process, whereas under the new regime final accepted manuscripts were about the same length as initial submissions. Despite the negligible effect on published manuscripts, the reduction in average length of submissions may have reduced the burden on referees and editors. We lack data on handling times for the *AER*. For *JEEA*, however, we find suggestive evidence that shorter papers lead to faster editorial decisions. We instead find no evidence that page limits reduce the number of rounds of revision.

Overall, this evidence suggests that there was a small but significant shortening of papers submitted to the *AER*, if not of the published ones. In the short-run, this reduction must have

⁷This finding seems contrary to a warning posted on the *AER* submission page in the period before 2008, suggesting that longer papers were unlikely to be published.

taken the form of shortening of existing papers. But in the medium-run, did the policy lead economists to write shorter papers? We provide suggestive evidence using a sample of NBER working papers written from 2007 to 2012. We find no evidence of a decrease in page length, or of an increase in papers exactly 39-41 pages long, following the AER page limit policy.

The introduction of page limits had a much different impact at the *Journal of the European Economic Association*. After the policy was introduced there was no spike in the number of submissions close to the page limit. Rather, our estimates suggest that the page limit policy caused a loss of virtually all longer submissions – a pattern that led the *JEEA* editorial team to reverse the policy. The high loss rate suggests that potential submitters perceived relatively small match surpluses at *JEEA*, and were unwilling to shorten their papers. The sharp contrast between the reactions of authors to the same page limit policies at the *AER* and the *JEEA* underscores the differences in market constraints faced by the two journals.

A first implication of our results is the importance of the evaluation of editorial policies. At one journal (*AER*), the editorial policy that we evaluate came at little or no cost, but it yielded few (if any) benefits. At the second journal (*JEEA*), the policy achieved its benefit, but at high costs. The policies also had distributional impacts, affecting some fields, like applied microeconomics, more than others. These findings can inform the design of editorial policies. For example, an alternative policy might focus on the length of accepted manuscripts, and devote special attention to the risk of losing longer submissions.

As such, this paper contributes to a small existing literature on editorial policies. Existing studies mostly focus on the referee process, including the impact of double-blind reports (Blank, 1991) and the use of deadlines and social incentives for referees (Chetty, Saez, and Sandor, 2012). Journals set a number of other policies, from length of the appointment of editors to the posting of the data for replication, most of which are, as far as we know, untested.⁸

A second implication is for our understanding of the industrial organization of academic journals. Using a revealed preference measure—the willingness to shorten longer papers—we provide a measure of the average match surplus associated with submission to a given journal. Our findings suggests that the traditional top-5 journals in economics provide a relatively high match surplus for most authors and face relatively inelastic supplies of manuscripts, whereas journals just outside the top-5 provide much lower surplus and face highly elastic supplies.

Finally, this paper offers an interesting perspective on the ongoing debate about the generalizability of reduced form policy evaluations (e.g., Deaton, 2009; Imbens, 2010). We find that the same policy at two different journals had very different impacts, underscoring the value of multiple case studies or other sources of design variation when the effect of the policy of interest depends on latent structural parameters that vary from case to case.

⁸Brogaard, Engelberg, and Parsons (2012) examine the impact of conflict of interest of editors handling papers by colleagues.

2 A Model of Submission Behavior

Consider the author of a paper of length n who is considering whether to submit to journal i which has a page limit policy, or one of an alternative set of journals which do not. Denote by V_j the expected payoff from submitting to journal j , which includes both the payoff if the paper is ultimately accepted in the journal and the continuation value of an optimal strategy if the paper is rejected. Since we cannot separate these different components, we consider the total expected payoff V_j . Submission to a journal $j \neq i$ entails no extra cost, but submission to journal i with page limits induces cost $c(n)$, reflecting the cost of shortening the paper to the page limit n_{PL} . We assume that $c(n) = 0$ for $n \leq n_{PL}$, and that $c(n)$ is positive and strictly increasing for $n > n_{PL}$.⁹

Define $V_{-i} \equiv \max_{j \neq i} V_j$ as the author's next best alternative. Then she submits to journal i if and only if

$$S_i = V_i - V_{-i} \geq c(n), \quad (1)$$

where S_i is the surplus associated with match between the paper and journal i . In the absence of page limits all papers with $S_i \geq 0$ are submitted. In the presence of page limits, however, an author will only submit if the match surplus exceeds the shortening cost. This leads to a cutoff threshold $n^*(S_i) = c^{-1}[S_i]$, such that if $n \leq n^*(S_i)$ the author shortens the paper and submits it, while if $n > n^*(S_i)$ she submits the paper (as is) to the next best outlet. Since $c(n)$ is increasing, the threshold $n^*(S_i)$ is higher for papers with higher match surplus.

Suppose that there is a distribution of authors with papers ready for submission drawn from some bivariate distribution for n and S_i . In the case of no page limits, we observe the distribution of papers with a positive match value at journal i . Once page limits are introduced, however, only authors with $S_i > c(n)$ submit to the journal. Among papers with $n \leq n_{PL}$ the policy has no effect, so the conditional distribution of page lengths for papers shorter than n_{PL} is the same as in the absence of page limits. Among longer papers, a fraction is shortened, creating a spike in the distribution of page lengths at n_{PL} , while the remainder are lost to other outlets.

One particularly simple version of this model arises when S_i is the same for all authors. In this case, the threshold n^* is the same for all authors, and journal i loses *all* papers longer than n^* , and retains all papers shorter than n^* . Figure 1a illustrates the effect of a page limit policy on the observed distribution of submitted paper lengths in the case where $S_i > c(n)$ for all n . In this case, journal i does not lose any papers: the upper tail of paper lengths is transformed into a spike at exactly n_{PL} . The opposite extreme is illustrated by Figure 1b. In this case, $S_i < c(n)$ for all papers with $n > n_{PL}$ (i.e., $n^* = n_{PL}$). This can happen if there is a relatively high fixed cost of editing papers, and if the surplus match value associated with journal i is

⁹The cost may include a fixed cost F of any shortening, which implies that $c(n) \rightarrow F$ as n approaches n_{PL} from above.

small. In this case, the entire right tail of the distribution of page length disappears, resulting in a higher density of shorter papers among the papers submitted.

More generally, we might expect some combination of compliance with the page length policy, leading to a spike in submissions at n_{PL} pages, and diversion of papers to other outlets, causing a reduction in the inflow of submissions concentrated in the upper tail of page lengths. Depending on how page lengths and the journal-specific match surplus are distributed across authors and fields, the policy may cause a differential loss of papers in certain fields, or from certain groups of authors.

Finally, the model indicates that the potential loss of manuscripts to journal i is likely to be higher in the short-run than in the medium-run. Following the imposition of page limits, an author may decide to send the paper to journal j rather than journal i . If the paper is, however, rejected by journal j , the relative surplus S_i to submission to journal i is now higher given that the set of alternative journals no longer includes j , and the author may decide to shorten the paper and submit to journal i . Hence, a journal which imposes page limits is likely to recover over the medium-run some of the manuscripts lost initially.

3 Page Length Policies and Data

We study the impact of page limit policies introduced at the *AER* in 2008, and at *JEEA* in 2009. We begin by describing these policy changes.

AER Page Limit Policy. Figure 2a presents a simplified timeline of the main editorial policy changes at the *AER* between 2007 and 2010. We constructed this timeline using information contained in snapshots of the *AER* website from past years¹⁰ and correspondence with the managing editor, Steven Stelling, and the editor at the time, Robert Moffitt.

In the years up to and including, 2007, the *AER* attempted to discourage longer submissions, but had no formal page length policy. The instructions on the submission page as of 2007 suggested that authors submit papers in double-spaced format using a 12 point type, and added that ‘*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; however, this page limit was not enforced by the AER editorial office. Other guidelines concerning font size and double-spacing were left unchanged.

In 2008 Robert Moffitt grew concerned about the expanding length of manuscripts published by the AER, and in August of that year instructed the staff to enforce the existing page limit of 50 pages (for double-spaced manuscripts). Following correspondence between the editors, a new policy was posted in September 2008 which prescribed explicit page limits. The key parts of the submission instructions read as follows:

¹⁰We use the *Wayback Machine* website which stored snapshots of the AER submission page every one or two months.

‘READ GUIDELINES THOROUGHLY. PAPERS WILL NOT BE REVIEWED IF THEY DO NOT FOLLOW STYLE GUIDELINES.

Papers should be submitted electronically to <http://mc.manuscriptcentral.com/aer>

Upon receipt of the paper, a confirmation email will be sent electronically. The submission is not complete if a confirmation email has not been received.

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.’*

On September 29, 2008, the editorial office of the AER sent an email to all AEA members informing them of the new policy, and stating that the policy applied to all AEA journals, including the AER and the four American Economic Journals.¹¹ Two weeks later, another email was sent clarifying that the editors of the *American Economic Journals* would be ‘flexible with regard to page length limitations’, but stating that ‘the *American Economic Review*, however, will be strictly enforcing the 40-page (1.5 line spacing) limit.’ After this date, there were no major changes to the page limit policy until July 1, 2011, when the guideline for margin spacing was changed from 1 inch to 1.5 inches.

To summarize, in the three months between July 2008 and September 2008 the AER introduced a strict page limit policy that has remained in place since. At the same time, it also shifted the default for the spacing of submissions from double spacing to 1.5 spacing (though double-spacing was allowed), and imposed a strict 12 point font size requirement. To deal with the line spacing and font size changes that occurred at the same time as the page length policy we develop a standardizing procedure, explained below, which translates the length of all manuscripts (submitted before and after the policy change) to a ‘standardized length’, assuming the manuscript was formatted in 1.5 spacing with 12 point font.

¹¹This email said: ‘Dear Authors: The AEA’s peer-reviewed journals (*The American Economic Review* and the four *American Economic Journals*) have recently made changes to the guidelines for the submission of manuscripts. In particular, we have changed our formatting requirements and our page limit. All manuscripts must be formatted with 1.5 line spacing and should not exceed 40 pages (a 50-page limit applies to double-spaced manuscripts). Manuscripts must use 12-point font. Margins must be one inch at the top, bottom, and sides. Please use Times New Roman or a similar font. These font, margin, and line-spacing requirements also apply to reference lists and tables. Papers will not be sent out for review if they do not follow these guidelines. Our complete guidelines and other information about submissions can be found at <http://www.aeaweb.org/aer/submissions.html> for the AER or the respective *American Economic Journals* Web site.’

In order to study the impact of the page limit policy, we collected data on submissions in the year before and the year after the change. Following a suggestion by the managing editor, we omit the transition period from July 1, 2008 to September 30, 2008, and focus on manuscripts submitted 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). Submissions throughout were made electronically through the Manuscript Central system, which the AER adopted in July 2007. With the permission of American Economic Association Executive Council, we hired a temporary worker at the *AER* home office in Pittsburgh to code information on the 2,868 newly submitted manuscripts during our two-year sample period, 1,406 in the pre-page limit period and 1,462 in the post- period.¹² (We discuss the data collected on each manuscript in more detail below). We also collected data on the *final versions* of manuscripts submitted during our sample period that were ultimately accepted for publication by July, 2012 for a total of 217 manuscripts.

JEEA Page Limit Policy. Figure 2b presents a timeline of the changes taking place at *JEEA* between 2007 and 2010. Until March 2009, *JEEA* did not have specific restrictions on the submission of new manuscripts, other than the required language (English) and the format of submission (electronic). In March 2009, the editors —Fabrizio Zilibotti (managing editor), Marios Angeletos, Orazio Attanasio, and Fabio Canova—decided to introduce a page limit policy modelled on the AER policy. In particular, the submission policy introduced on March 25, 2009 stated: ‘*JEEA has introduced a new guideline that applies to ALL SUBMISSIONS and RESUBMISSIONS. All manuscripts must be formatted with 1.5 line spacing and should not exceed 40 pages (a 50-page limit applies to double-spaced manuscripts) – including figures, tables and references. Manuscripts must use 12-point font. Margins must be one inch at the top, bottom, and sides. Please use Times New Roman or a similar font. These fonts, margins, and line-spacing requirements also apply to reference lists and tables. Manuscripts that exceed this length will be automatically returned by the editorial office to authors with request to make changes so as to abide by the guideline before they can be sent to referees.*’

In June of 2009, two months after the introduction of the policy, the editorial team (at that point including Stefano DellaVigna, who had replaced Orazio Attanasio) 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 website on August 5, 2009.

To study the impact of the JEEA policy we collected data on all submissions 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, 2008 to July 8, 2009); and for approximately nine months following the official removal of the page limit (August 5,

¹²We drop 21 manuscripts which are errors in submissions, trials in the transition to the Editorial Express system, or otherwise not real papers.

2009 to March 31, 2010). As in our analysis of the AER policy change, we omit the transitional period from July 8, 2009 to August 5, 2009. Submissions to JEEA were made electronically through Editorial Express. Our sample contains 883 newly submitted manuscripts, of which 95 were submitted during the period of the page limit policy. We also collected Google Scholar citations for all *JEEA* submissions (whether rejected or not)¹³, and information on the number of days between the first submission and the initial editorial decision.

Data Collection and Measures of Manuscript Length. In the absence of a page limit, authors may select a particular document format for readability or convenience, choosing (for example) a large font size, or simply the default settings in their word processing package. After a page limit is introduced, however, authors have an incentive to increase the density of material in a page. Moreover, at both the AER and JEEA, the introduction of a page length policy coincided with a restatement of the default formatting for submissions. Author responses to both changes make it difficult to measure the effects of the policy change using only information on the page lengths of manuscripts.

Following a pilot test, we developed a procedure to collect information on the formatting of manuscripts which would allow the construction of a ‘standardized’ manuscript length. Specifically, we measured the following variables (Detailed instructions are in the Appendix):

- *Number of pages.* We record separately the number of pages of text and references, the number of pages of tables and figures (when not embedded in the text), the number of pages of appendices intended for publication, the number of pages of appendices not intended for publication, a cover page, and finally pages of abstract, title, or empty pages.
- *Font.* We record the font size used in the main text using an Acrobat function.¹⁴
- *Margins.* We record all four margins using an Acrobat function.
- *Lines per page.* Since it was not possible to accurately measure line spacing, we record instead the number of lines in a full page of text, and use it to infer the line spacing. In case there is no full page of text in a document we record an estimate of the number of lines that would be included in a full page.
- *Are Tables in the text?* We record whether any of the tables and figures are embedded in the text.
- *Number of characters per page and per line.* We record the number of characters in a full page, as well as the number of characters in a full line.¹⁵

¹³The Google Scholar queries require an exact match of the title (using the *allintitle* function) and of the authors (using the *author* function), and were obtained in July and August 2012.

¹⁴In a small number of cases (20) this function did not work properly and we use an imputation of font size.

¹⁵These measures were obtained by copying a segment of text from the PDF manuscripts into Microsoft Word,

Data collection, which took 5-8 minutes per manuscript, was done by a temporary worker at the *AER* office, and a team of research assistants working at Berkeley (for *JEEA* coding). The data collection team also recorded the submission date, the name of the editor, the editorial decision, and any JEL codes submitted by authors.

These detailed measures of formatting allow us to conduct a variety of accuracy checks. For example, we compare the number of characters in a line to an estimate based on font size and margins. Appendix Figure 1a shows a scatterplot of the two measures for *AER* submissions. The two are highly correlated, with a correlation coefficient of 0.78; the correlation in the *JEEA* sample is similarly high at 0.84. We likewise compare the number of characters per page to a prediction based on the estimated number of characters per line (using font size and margin information) and the number of lines in a page. Appendix Figure 1b shows a scatterplot of the two measures, which have a correlation coefficient of 0.96 in both the *AER* and *JEEA* data sets. These reliability checks were also used to detect and correct errors in data coding.

Appendix Table 1 presents an overview of our data set. For each journal we show information for papers submitted when page limits were in effect, and when page limits were not in effect. In the absence of page limits submissions to the *AER* were a little longer (mean=38 pages) than submissions to the *JEEA* (mean=36 pages). Under the page limit policy, submissions to both journals were shortened by about 4 pages (*AER* mean=34 pages; *JEEA* mean=32 pages). In the next section we present graphical analyses of the changing length distributions, as well as detailed information on changes in other formatting characteristics.

4 Results

4.1 American Economic Review

Effect of Page Limits on Submissions. As a point of departure Figure 3a presents a simple comparison of the distributions of page lengths among manuscripts submitted to the *AER* in the year before and the year after the introduction of the page limit policy. In this figure we define manuscript length to include text, tables, figures and any appendices submitted for publication, but exclude cover page(s) or online appendices. Note that in the pre-page limit period, long papers were common, with 44 percent of manuscripts longer than 40 pages, and 15 percent longer than 50 pages. As expected, in the post-page limit 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

and using the character-count feature of Word. In the small number of cases in which copying the text into Word led to illegible symbols, we counted the number of characters per line by hand and imputed the number of characters per page by multiplying the number of characters per line by the number of lines and subtracting 5 percent from the product.

manuscripts, rather than the 50-page limit for double-spaced papers. There is also a large spike of submissions at 39-40 pages, representing 21 percent of submissions in the page limit period, 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 in the post-page-limit period. Exactly what fraction actually shortened their paper, versus simply reformatting it, is less clear, because font sizes, margins and line spacing characteristics all changed with the page limit policy, as we document below.

Figure 3b presents a corresponding figure based on a length measure that includes online appendices and the cover page. For the pre-period, the distribution of manuscript lengths is similar whether we include or exclude online appendices (i.e., those not intended for publication), reflecting the relatively low use of such appendices. In the post period, however, online appendices become more common, and their inclusion changes the visual impression of the policy effect. The spike at 39-40 pages is significantly smaller in Figure 3b than Figure 3a, and there is less indication of a decline in the fraction of manuscripts longer than 50 pages. This pattern suggests that some of the material in longer papers was moved to online appendices, as allowed by the page length policy.

An obvious concern with the simple contrasts in Figures 3a and 3b is that there could be underlying trends in submission behavior that confound the pre/post comparison. To address this concern, Figure 4 presents event-study-style plots of the number of submissions per month in different length categories before and after the introduction of the page limit policy.¹⁶ The total number of submissions per month, shown in the top line of the figure, is relatively stable over our 2-year sample period at around 120 per month. Importantly, 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 sizeable fall ($\sim 60\%$) in the number of submissions ≥ 42 pages, accompanied by 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.

The page limit policy was also associated with a rise in the number of papers of length ≤ 38 pages. In the absence of formatting changes, one might not have expected a 40-page limit to affect the number of submissions ≤ 38 pages. In fact, manuscript formatting changed substantially after the introduction of page limits, leading to a rise in the number of papers under the 40 page limit. For example, an author with a double-spaced manuscript of 42 pages of text who simply switched to 1.5 spacing would end up submitting a 32 page paper.¹⁷

¹⁶The manuscript counts in Figure 4 are smoothed using a 3-month average, except at the policy shift. Note that we did not measure manuscript length for the transitional period from July to September of 2008.

¹⁷In a Word document using 12 point Times Roman font and left justification, a single page of text at 1.5 spacing contains ~ 31 lines, while a single page of text at 2.0 spacing contains ~ 23 lines, a (roughly) 25% difference in page density.

Figures 5a-5d document the formatting changes the introduction of the page limit policy. In the pre- period, the modal line spacing (Figure 5a) was double-spacing, as required by the AER submission rules; still, more than half of the submissions used a line spacing ≤ 1.5 . In the post-page limit period, only about 10 percent of submissions are double-spaced, and the modal spacing is 1.5. Interestingly, while single-spaced manuscripts are rare in the post-period, 20-30 percent of submissions use line spacing of 1.2-1.3, a form of cheating that allows authors to cram additional material into the 40 page limit. We also observe a shift in margin spacing (Figure 5b), with a tendency for narrower margins after the introduction of page limits. As with line spacing, there is some evidence of cheating in the post-period, with 13 percent of manuscripts having margins ≤ 1.8 inches total. Figure 5c shows more modest changes in font size, with some convergence to a 12 point font after the page limit policy was introduced, though still about 10% of submissions in the post-period use an 11 point font.¹⁸

As an overall measure of the manuscript density, we use the number of characters (including spaces) in a full page of text.¹⁹ As shown in Figure 5d, the page limit policy led to a sharp increase in manuscript density, with a rise in the modal number of characters per page from around 2,000 (the expected density in a double-spaced 12 point font paper) to 2,800 (the expected density for a 1.5-spaced document using 12 point font). Thirteen percent of manuscripts submitted in the post period have >3000 characters/page, substantially more than technically permissible under the page limit policy.

We use our estimate of characters per page to construct a standardized measure of length, assuming 2,550 characters per page – the average density for a paper formatted at 1.5 spacing with 12 point font and 1” margins.²⁰ Specifically, we compute standardized length = actual length \times characters per page/2550, rounded to the nearest integer. We then add the number of pages of tables and figures, plus any pages of appendix materials that are included for publication, plus any abstract or title pages.

Figure 6 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 number of papers between 20 and 25 pages, offset by a small rise in the number between 26 and 30 pages. Compared to the distribution of unadjusted page lengths (Figure 3a), 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.

¹⁸Our understanding is that, while the AER staff monitored the length of each manuscript submitted and returned to the authors papers with egregious violations, it did not attempt to enforce the rules for relatively small formatting violations.

¹⁹As noted in Appendix Figure 1b, this measure is very highly correlated with an estimate based on characters per line and number of lines per page.

²⁰Assuming 91.5 characters per line times and 31 lines per page, and allowing a ten percent reduction for half-lines and other features of a typical manuscript, yields a density of 2,550 characters/page.

As noted earlier, changes in the density of papers mean that we cannot infer the relative number of longer papers that were shortened versus diverted to other journals simply from the before- and after-distributions of page lengths. Instead, we build on the analysis in Figure 4 and compare the numbers of shorter and longer submissions per week before and after the introduction of page limits. 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 simple difference in differences 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. We adopt a relatively low threshold to minimize the change of counting as short papers submissions which, before our reformatting, were affected by the page limit policy. Among the 361 papers submitted in the post-limit period with a length of 39-41 pages (i.e., papers at the spike), only 5 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.²¹

Figure 7 presents a scatter plot of the number of submissions of shorter and longer papers for each week in the pre-page limit year (blue circles) and in the page limit year (red squares). We also show the predicted number of longer submissions, based on the relationship between short and long submissions in the pre-period. The post-observations are if anything scattered somewhat above the predicted line, providing no evidence of a relative loss in longer submissions.

To obtain a point estimate of the loss of longer manuscripts, we estimate the following difference-in-difference specification

$$n_{L,t} - n_{S,t} = \alpha + \beta d_{PL,t} + \varepsilon_t, \quad (2)$$

where $n_{L,t}$ is a measure (in levels or logs) of the number of longer submissions in week t , $n_{S,t}$ is the number of shorter submissions in the same week, and the indicator variable $d_{PL,t}$ is equal to 1 for observations in the page length regime, and 0 otherwise. The coefficient β measures the relative change in the number of longer versus shorter submissions in the post-period.

The underlying components of this difference in differences are presented in Table 1. Comparing columns 1 and 3 (or 2 and 4), 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* (e.g., the number of submissions 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 actually 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

²¹Only 1% are ≤ 30 standardized pages, but 12% are ≤ 35 pages in standardized length, suggesting that formatting changes could exert some effect on submissions in the 31-35 page range.

implies an 8.9% increase in longer submissions (standard error=6.3%). Using the logarithm of weekly submissions the implied difference of differences is slightly larger (14.0%).

A possible concern with these estimates is that the number of submissions per week is serially correlated, leading an OLS procedure to understate the standard error of the estimated difference in differences. In fact, the residuals from equation (2) are essentially uncorrelated (e.g., 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 OLS estimates.

While the point estimates suggest that the AER’s page limit policy had no negative effect on submissions of longer papers, the relatively large sampling error means we can only rule estimates of β smaller than -0.6 papers per week, a worst case loss of 2.2% of the total weekly submission flow. In the context of the "common surplus" version of our model in which all manuscripts longer than n^* are diverted to other outlets, note that this worst-case loss implies:

$$1 - F(n^*) = 0.022,$$

where F is the distribution of pre-policy page lengths. Using the observed distribution we infer that:

$$n^* = F^{-1}(1 - 0.022) = 65 \text{ pages.}$$

Thus the data suggest that a typical author considering submitting a paper to the AER would be willing to cut **at least 25 pages** to comply with the limit, and more likely up to any number of pages.²²

We investigate the robustness of our estimate of the impact of the page length policy in a series of alternative specifications shown in Table 2. The top row shows our baseline difference-in-difference estimate of 1.50 longer papers per week. In row 2 we present 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).²³ The estimated coefficient on shorter papers is 0.24 (standard error=0.12) which is far from 1. Nevertheless, the estimated effect of the page length policy on longer papers is similar to the baseline estimate, at 1.35. In row 3 we add a linear trend to the quasi-differenced model, allowing different long run trends in submission rates of shorter and longer papers. The estimated trend coefficient is close to 0, and this specification yields a point estimate quite close to our baseline.

Finally, in row 4 we shift the threshold for defining shorter and longer papers from 30 to 35 standardized pages. As noted above, there is some evidence that formatting changes alone

²²This lower bound makes no allowance for the imprecision of the 0.978 quantile. A simple way to include this factor is to find the lower bound of the 95% confidence interval for the 0.978 quantile, using Woodruff’s approximation, which Sitter and Wu (2001) shows works reasonably well. The Woodruff lower bound for the 0.978 confidence interval in the distribution of pre-policy page lengths is 62 pages.

²³I.e., we estimate $n_{L,t} = \alpha + \beta d_{Post,t} + \gamma n_{S,t} + \varepsilon_t$.

could lead to an increase in the number of papers in the 31-35 (standardized) page range. In any case, the number of papers in this range rises relatively fast, and moving these papers from the "longer" group to the "shorter" group causes the estimate of β to fall to -1.35 papers/week, implying a modest diversion of longer papers away from the AER (a net loss of 5% of total submissions). Interpreting this point estimate in terms of a common surplus version of our model, we would infer an estimate for the triage threshold of

$$n^* = F^{-1}(1 - 0.05) = 58 \text{ pages},$$

and a worst-case lower bound of $n^* = 51$ pages.²⁴ Based on the overall evidence, however, we suspect that an estimate of -1.35 for the loss of longer papers is too negative, and that estimates based on comparisons of papers ≤ 30 pages and > 30 pages are more likely to be correct. Nevertheless, the sensitivity of our estimated impact of the policy has to be taken into consideration.

Our preferred estimate is that page limits caused little or no loss of papers at the AER. Yet we cannot reject a small loss of longer papers, and an alternative specification suggests a modest loss. If there was any loss, 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 8a shows a non-parametric 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 monotonically increases with the number of pages. Indeed, 20% of the 221 papers longer than 50 (normalized) pages received a revise-and-resubmit decision, compared to only 6.9% 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 do not have access to citation information for 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 8b 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.

We also used information from the JEL codes of papers submitted to the AER to examine the impact of the page limit policy across different fields. Specifically, we used the (up to 3) JEL codes provided by authors to count the number of submissions in 8 subfields: theory; labo-

²⁴The lower bound difference in differences is $-1.35 - 2 \times 1.06 = -3.47$ longer papers/week, which is a 12.85% reduction in total submissions. The 0.875 percentile of page lengths in the pre-period is 51 pages. Allowing for estimation error in the quantile itself would further lower the lower bound estimate to 49 pages.

ratory experiments; macroeconomics (including international macro); applied microeconomics (public economics, labor, micro-development, and law and economics); industrial organization; econometrics; and all other fields.²⁵ This analysis does not include the *25%* of submissions which do not report the JEL code. (Papers can be counted in up to 3 of these categories, depending on the number of JEL codes provided). We then conducted a difference-in-difference analysis similar to Table 1 by subfield.

The results are summarized in Table 3. The first two rows of the table show the average weekly submission rate by field (in the year before the page length policy) and the fraction of submissions longer than 40 pages. There are substantial differences across fields in their submission rates to the AER, and in the length of typical papers. Theory, macroeconomics, and applied micro together represent over 3/4 of all submissions, while econometrics, finance, and lab experiments account for relatively few papers. Papers in empirical micro are relatively long (mean length of 51 pages in the pre-period) while lab-based experimental papers are relatively short (32 pages). Across all fields but macro there was a general increase in overall submissions to the AER in the year after the page length policy was introduced. More importantly for our purposes, in all fields except applied econometrics and econometrics there was a larger increase in the submission rate of longer papers than shorter papers. The relatively large loss of longer papers in empirical micro is noteworthy because this was the field that submitted the longest papers prior to the policy. We cannot reject, however, that the difference in differences for empirical micro is the same as for any of the other fields.

Benefits of Page Limits. So far, we have evaluated the potential costs for a journal in imposing page limits. We now turn to estimating the benefits of imposing page limits. Recall that the main motivation for the page limit policy was to shorten the length of papers published by the *AER*. Possible secondary benefits include making submitted papers easier to read and reducing the handling time for reaching an initial editorial decision.

In Panel A of Table 4 we compare the average length (excluding online appendices) of all new manuscripts submitted in the year before and after the page limit introduction. The average manuscript length is shorter in the post period by 3.9 pages, about 10 percent of the initial manuscript length, a difference which is statistically significant. The difference is about the same in a regression-adjusted comparison which controls for editor fixed effects and for 8 field fixed effects, as reported in the last column. However, this comparison does not take into account changes in density of the text. When we use the standardized page length measure, the shortening of papers is reduced to 1.6 pages (2.2 pages regression-adjusted), a little less than 5 percent of the initial length.

Which portions of a paper change in length? The next rows in Panel A show that the

²⁵We 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**.

page limit policy did not lead to any shortening in the number of pages of text, but led to a half-a-page reduction in the number of pages of tables and figures. The biggest change, however, took place in the length of appendices, which decreased from 4 to 2.5 pages. The shorter published appendices were more than compensated by longer online appendices which went from 0.6 pages to 3 pages.

Hence, the page limit policy led to a modest shortening in the length of all submitted papers, especially in the published appendices. But what about the papers which end up being published? Panel B displays the page length of the final accepted version of manuscripts which receive a revise-and-resubmit, or are accepted upon first submission.²⁶ In this sample of 224 papers, we find no statistical evidence of a difference in manuscript length in the pre- and post- period, though the point estimates suggest a small reduction in length caused by the policy of 0.7 pages (1.8 pages when regression-adjusted).

To check the robustness of this conclusion, in Panel C we extend the sample of accepted papers by including any submission which received a revise and resubmit from January 2006 to June 2007 and was accepted 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 verdict 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 0.7 pages (after regression adjustment).

We conclude that the page limit policy did *not* have much effect on the length of published papers, though the small sample sizes make precise inferences difficult. One of the reasons for the smaller effect on accepted papers is that, while submitted papers became shorter in the revision process in the pre-policy period (-2.2 standardized pages), with the policy in place the revision process has essentially no net effect on manuscript length (+0.3 standardized pages). (This finding is muted in the smaller sample of Panel B.)

Finally, it is possible that, while not affecting the length of accepted papers much, the page limit made the revision process faster. In the bottom row of Panel B we measure the number of rounds of revision required for acceptance of a paper in the baseline sample²⁷. We find no evidence of such shortening in the revision process after adjusting for editor fixed effects.

Overall, the *AER's* limit policy did not succeed in significantly reducing the length of published papers, or in reducing the duration of the revision process for accepted papers.

²⁶This sample does not include all papers which receive an R&R because about 10 percent of the papers which received an R&R were ultimately rejected and another 10 percent have not been accepted by June 2012.

²⁷We do not produce this statistic for the extended sample because the number of stages of revision for papers submitted before 2007 is mechanically high because by sample design we do not capture papers that were accepted before July 2007.

Nevertheless, it is possible that the policy reduced the burden on referees and editors by making it easier to adjudicate initial submissions. While we do not have access to data on the time to initial decision at the *AER*, we do observe decision times at the *Journal of the European Economic Association*. Figure 8c shows a non-parametric regression of time to initial decision on (standardized) paper length, using data from *JEEA*. Longer papers are associated with longer decision times, though we hesitate to draw a causal conclusion on the effect of page length, since it is possible that if the same paper were made shorter it would have been even harder to adjudicate, and for the *AER* at least the main impact of the page length policy was to lead to shorter papers (rather than fewer submissions of long papers).

Short-run versus Medium-run. Finally, so far we have side-stepped the distinction between short-run and medium-run responses to the policy change. In the short-run, the latent distribution of page length is given; authors of longer papers intending to submit to the *AER* have no choice but to shorten their papers. But in the medium run, authors planning to submit to the *AER* may decide to write shorter papers to start with, presumably at a lower cost compared to shortening an existing draft. In addition, authors of longer papers may have decided in the short-run to send the paper elsewhere but, if rejected, they may ultimately find it optimal to shorten the paper and submit to the *AER*. On both grounds, we expect a larger impact of page limits in the short-run than in the medium-run. This makes the result of no page loss over the relatively short one-year period quite striking evidence of the large surplus the *AER* offers in the eyes of the authors. Also, the time series plot in Figure 4 provides evidence that authors responded to the page limit distribution by shortening papers even in the very first month or two after the reform.

While we do not have evidence on the order in which authors may have decided to send their papers to journals²⁸, we attempt to provide some direct evidence on whether the *AER* page limits ultimately led authors to write papers differently. To do this, we downloaded a subsample of NBER working papers issued between 2007 and 2012, and examined trends in the relative fractions of papers of different lengths. Since we could not code all the working papers, which are about 1,000 per year, we coded about 270 per year, quasi-randomly determined in the following way: we coded articles in 2007 from w13,023 to w13,140 (issued in the Spring of 2007) and then from w13,400 to w13,550 (issued in the Fall of 2007). For each of the following years, we coded articles with the corresponding series numbers, but starting with 14,000 (in year 2008), then with 15,000 (in year 2009), and so on until the Spring of 2012.

Figure 9 shows the time series evidence on the page length of these working papers from the second quarter of 1997 to the second quarter of 2012. The figure shows no evidence that in the quarters following the page limits the average page length of the working papers got shorter. The length is quite constant around 45 pages and, if anything, it gets slightly longer.

²⁸Oster (1980) provides an analysis of the optimal order under a set of assumptions.

In a perhaps more revealing test, there is also no change in the fraction of NBER working papers which are 39-41 pages long, as one may have expected if papers are written to comply with the AER page limits. While the patterns in the figure are for non-normalized length, the patterns using normalized length are very similar, given that the formatting of the NBER working papers did not change significantly over time. While the NBER working papers are not representative of all working papers written in economics, this evidence does suggest that the AER page limit likely did not change how papers are written, and rather led to ex-post shortening in the case of AER submissions.

4.2 Journal of the European Economic Association

The *Journal of the European Economic Association* imposed page lengths for a relatively short 3.5 month interval. We compare papers submitted in this period to those submitted before and after. As shown in Figure 10a, the histograms of page lengths are noisier than the ones for the AER, reflecting the smaller numbers of submissions to JEEA, particularly in the page length policy period. Still, it appears that the policy change had a different impact than at the AER. Specifically, there is less indication of a spike in submissions at or near the page limit.

Figure 11 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 interesting, and quite different from the corresponding graph for the AER. Most importantly, the drop in submissions of longer papers in the policy period of April-June 2009 is associated with a corresponding drop in total submissions, but no increase in the fraction of papers close to the page limit. Taken together, these patterns suggest that JEEA authors responded to the page limit policy by diverting most of the papers that were above the page limit to other journals. It is also interesting that after the removal of the page limit policy, submissions appear to have quickly returned to their pre-page limit rates.

As for the case of the AER, the page length policy coincided with the introduction of new guidelines for manuscript formatting that may confound changes in the number of shorter and longer papers. Using the same procedures we developed for the AER, we estimate standardized page lengths for all submissions to the JEEA. The distributions with and without the page limit policy are shown in Figure 10b. In contrast to the corresponding figure for the AER (Figure 3b) there is no suggestion of a rise in the density of papers around the page limit, consistent with the impression from Figure 11 that many – if not most – longer papers were diverted rather than shortened.

To proceed to a statistical test, we separate papers into shorter papers and longer papers using a threshold of 30 standardized pages. Figure 11 shows a scatterplot of weekly number of submissions of short and long papers, using dark squares for the 15 weeks with a page limit policy. Note that in 13 out of the 15 weeks with a page limit policy the number of longer

submissions was below the predicted line, a pattern that rejects the null hypothesis of equal probability of occurrence with a p-value of under 1 percent.

Table 5 presents a difference-in-difference analysis of the JEEA page length policy. Relative to the weeks with no page limits, the weeks with page limits are characterized by slightly more short submissions (2.6 per week versus 2.4) but significantly fewer longer submissions (3.7 per week versus 5.7). The difference-in-difference estimator implies a loss of 2.15 longer manuscripts per week, and is statistically different from 0.²⁹ This 2.15 paper per week loss represents a 38% reduction in the inflow of longer papers. The specification for the log of the weekly number of submissions, which omits data for weeks with zero submissions, estimates a somewhat larger loss of 52.9 percent of the longer submissions, also statistically different from zero.

Column 2 of Table 2 presents a series of alternative specifications for the difference in differences model that probe the robustness of this estimate. As with the same analysis for the AER, adopting a quasi-differencing approach or adding a trend to the model has little impact on the estimated effect of the policy. Moving the threshold for defining shorter and longer papers from 30 to 35 pages, however, leads to some attenuation of the estimate. Again, however, we prefer the estimates based on the threshold at 30 pages.

In terms of the common surplus version of our model, the loss of 2.15 longer manuscripts per week as a result of the page length policy suggests that nearly all submitters of longer manuscripts to the JEEA were unwilling to try to shorten their paper, and preferred instead to submit elsewhere. Specifically, the point estimate of -2.15 longer manuscripts per week implies a loss of 26.7% of all manuscripts. At the 95% level of confidence the lower and upper bound losses are 48.9% and 4.6%, respectively. The point estimate of the loss implies an estimate for n^* of:

$$n^* = F^{-1}(1 - 0.267) = 41 \text{ pages}$$

with upper and lower bounds of 35 and 53, respectively.³⁰ Note that the 41-page point estimate suggests that 100% of longer papers were diverted to other journals when the JEEA had a 40-page limit.

5 Conclusion

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

²⁹The 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.

³⁰We can account for sampling error in the distribution function using the lower bound of the 95% confidence interval around the 0.511 quantile as our worst case estimate, and the upper-bound of the 95% confidence interval around the 0.954 quantile as our best-case estimate. Using Woodruff's procedure for the sampling errors of the quantiles, these are 34 and 54 pages, respectively.

the page-limit policies adopted by the *Journal of the European Economic Association* and the *American Economic Review* were identical, authors responded to the JEEA limit by shifting virtually 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 the JEEA versus the AER. The 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 nearly a century – has monopoly 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 mid-level journals with multiple competitors face relatively elastic 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 substantial increase in submissions to *JEEA* from 2009 on following a sharp reduction in the average time-to-first-decision. In contrast, data presented by Ellison (2002a) shows a relatively weak relationship between changes in submission rates and trends in time-to-first-decision at the top-5 journals over the 1980s and 1990s.

Even at the *AER*, where the page limit policy had relatively small costs to the journal in terms of lost submissions, it also appears to have had relatively small benefits. In particular, despite the goal of reducing the length of published papers, the average length of accepted manuscripts was not significantly impacted. It is possible that an alternative policy – perhaps linked directly to the length of final accepted manuscripts – could have accomplished the same objective at lower cost, particularly for authors of higher quality, longer papers.

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A Appendix: Procedures for Measuring Manuscript Characteristics

Instructions for the coding of each manuscript

- *MC Total Pages (total count of pages).*
- *Pages of text and references (include pages of references, but exclude abstract and title page)*
- *Pages of Tables and Figures(if not embedded in text)*
- *Pages of Appendix (not including Online Appendix)*
- *Pages of Online Appendix/Do Not Publish*
- *Cover Page*
- *Pages of Abstract/Title/Contents/Blank Pages*
- *Page Check*

The first measure is the simple raw count of the number of pages. It is followed by a decomposition into six categories of the number of pages. These categories are exclusive (that is, a page should be counted into one category or another, not in both) and should sum up to the original number, which is checked by the column Page Check, which is the sum of the six categories.

The following are notes on how page numbers are counted:

MC Total pages. Notice that, due to the presence of a cover page and often title page, this number is typically one or two pages longer than the page number on the last page of the manuscript. You can read the total number of pages off of PDF Acrobat.

Pages of text and references. This is the sum of pages of text and of references, as well as endnotes (for the papers that have endnotes). This includes adding the references also in the case in which the references come at the end of the paper, possibly after the Tables and Figures. This also includes counting pages of text in which Tables and Figures are inserted in the text (see also below). It does not instead include the abstract and title page.

Pages of Tables and Figures. This counts pages of Tables and Figures coming at the end of the text (with the exception of Appendix Tables and figures, see below). This is more common in empirical papers, but it includes theory papers where Figures are presumably plots of models). If the Tables and Figures are embedded in the text, instead do not count them as separate pages as per above. Here, be careful because sometimes the Tables and Figures come after pages of Appendix, you can recognize them though because they will be denoted Figure 1 or Table 1, etc.

Pages of Appendix. This counts the pages of Appendix (typically either mathematical appendix or Data construction), as well as the case of Appendix Tables and Figures. Appendix Tables and Figures are labeled Appendix Table 1, Appendix Figure 1, etc., and should be counted as Appendix instead of as pages of Tables and Figures. (Exception: If it is only one such Appendix Table or Figure, it is then ok to count it instead as part of Tables and Figures if it speeds things up) Notice that in some cases the Appendix figures and tables are not labeled Appendix but are signified with just an “A” – same also for some Appendices themselves; these should be counted in this category.

Pages of Online Appendix/Do Not Publish. Count separately the pages of Online Appendix from the pages of Appendix. You will identify the Online Appendix because they typically come at the end of the paper and (at least in the AER) they are clearly labeled along the lines of “Online Appendix, not for publication”. Online Appendix Tables and Figures are called Online Appendix Table 1 and so on; these should be counted as Pages of Online Appendix, not as pages of Appendix.

Cover Page. The cover page is typically the first page and the AER and also the first page in NBER working papers. It is occasionally missing, or occasionally double, but typically this will equal 1.

Pages of Abstract/Title/Contents/Blank. Number of pages of abstract, title, and contents,

and blank pages. This is typically 1 or 2, does not include the cover page which is counted in the category above. Notice: If one page contains abstract and title, and also a few lines of text, do not count it as text, given that the text is just a small portion, count as Abstract/title. If the text is more than half page, then count the whole page as text, do not count the title page.

Notice: If there is an extra blank page at the end, do not count it as text, but add it into the Abstract pages count. Also: If the last page of text is just a few words up to $\frac{1}{4}$ page, do not count it as text. Count with Abstract pages.

Also notice: How to count half pages: (i) If the remaining half of the page is blank, round up and count as full pages. That is, suppose that a paper has 22 full pages of text and one half page (that is, the rest of the page is empty), count as 23 pages. (ii) If the page is half text and half appendix, round and count as part of text. So if there are 22.5 pages of text and 3.5 pages of appendix, count as 23 pages of text and 3 pages of Appendix.

- *Are Tables/Figures in text*

Simply observe quickly going over the text whether the Tables and Figures are at the end in a separate section, as they usually are (in which case type “no”) or they are embedded in the text (in which case type “yes”)

Sometimes there are figures or tables both within the text and also at the end. In this case, mark “yes” for this column. For the Tables/Figures page count include only the number of pages for the figures and tables at the end of the paper.

- *Font*

Record font size as follows: Use Acrobat-Tools bar-“Advanced Editing”-Touchup Text Tool, then highlight some part of main text, right click and see “Properties”, it’s in the “Text” tab. Useful shortcut: It may be faster to put the advanced editing bar on the side, click”View”-”Tool bars”-”Advanced Editing”.

(Method 2: Choose Advanced > Print Production > Output Preview, and select ”Object Inspector” for the Preview. Click on the text you’re wondering about, and the font that was used should be displayed in the Output Preview panel.)

Round the font number to the closest integer, that is, if the program returns 11.98, record 12 as font. In cases in which the font is not close to a round number, let’s say it is 11.31 or 11.69, round to the closest decimal, that is, 11.3 and 11.7 in these cases. This is relatively uncommon and this may indicate an unusual font or so, which we should know about.

- *Margins Used: Top, Bottom, Left, Right*

First, pick a “normal page” of text. This means not the abstract or a page with title, or one with footnotes, and not the final page, as it may be partially empty.

Then record the margins as follows. Use Acrobat-Document bar ”Document”-“Crop Pages”. This will show the margins. Useful shortcut to do this is to press ”Ctrl+Shift+T”. Then find the margin size using the arrows until you find the correct margins for each dimension (Top, Bottom, Left, Right). Record margins with one-decimal digit accuracy, that is, 0.8, or 1.1, do not worry about second digit.

In measuring the margins, use the arrows to go all the way to the text in the page. So for example for the bottom margin do not stop at the page number, and for the top number do not stop at the header, if it exists. Do not use the method of checking “remove White Margins” to obtain the margins. It has proven to be inaccurate, we need to do it with the little arrows by hand.

- *Number of lines of text in a page*
- *Number of characters in a page*
- *Number of characters in a line*
- *Imputed Line Count*

Look for a page that has the plainest and most dense text, with no formulas, footnotes, section headings or Figures. If you find it, use this page and count by hand the number of lines and record it in the column “Number of Lines of text in a page”. Leave the column “Imputed Line Count” empty as this column is relevant only for the next part.

If there is not a full page like that, look for a page that is as dense as possible, this will often be one of the first few pages (typically the introduction), which are less likely to contain

formulas and figures. Then count the lines in the page by hand as above, not counting as lines the footnotes or formulas, and record as “Number of Lines of text in a page”. This for example could be, say, 25 lines. Then, estimate the number of lines of text that would replace the formula, footnotes, or section headings which you did not count, add it to the count of normal lines, and fill in the column “Imputed Line Count”. Continuing the example, if you found 3 extra lines that would fit where an equation was, record in the Imputed Line column 28, which is $25+3$. Notice that some authors format large spaces between paragraphs. You do not need to correct for these in the imputation unless the space is very large, in which case you should count it too in the imputation.

In either case, use the following procedure to obtain the number of characters. To record the “Number of characters in a page”, copy the full page in Acrobat selecting it with the mouse, then using the copy function (Ctrl+C), then paste into a blank page in Word (Ctrl+V), and measure number of characters using Review, Word Count, Characters (with spaces). If there were equations, delete them first from the count of the copies page, as the symbols can disrupt the count. Also, do not copy footnotes as the text is much denser and would give a misleading number. Keep in mind to look over the page of text that you copied into word, as some characters sometimes copy strangely into Word. It is not uncommon, for example, for the characters “fi”, “fl”, and “ff” to copy as symbols if the paper was typeset in LaTeX and the fonts were not uploaded. In this case, do a quick addition to correct the overall number. So for example, if there were ten such cases, you should add 10 to the total number of characters as in each case that this occurs two characters (say “ff”) are replaced with one symbol, which is counted as just one character.

If you encounter symbols or abnormalities when using the Ctrl+V command, look for the yellow “paste” icon at the bottom right corner of the pasted text and select the last option, “Keep Text Only”, as seen in the picture below. Or, choose another page and try again.

For the measure of “Number of characters in a line”, copy from the page above 5 full lines, that is, not the first or last one in a paragraph, and then use the count function in Word as above, and record the average (that is, divide by 5)

- *Date*

Record date of completion. We use this to keep track how long it takes to do each entry to see if we can speed up the procedure.

- *Updated/Reviewed*

This is not relevant on first pass. But if I get back to you and ask you to check an entry, after you have made the necessary changes (if any), insert a “v” to indicate that the correction has been made, so I will know that this entry has been checked.

- *Notes*

Add here anything unusual (if any) about this paper. For example, if a paper has an unusually high top Margin, say 2.5 inches, it makes sense to record it here, so I will not think that it’s an error.

Figure 1a. Predicted Distribution of Page Length with No Loss of Submissions

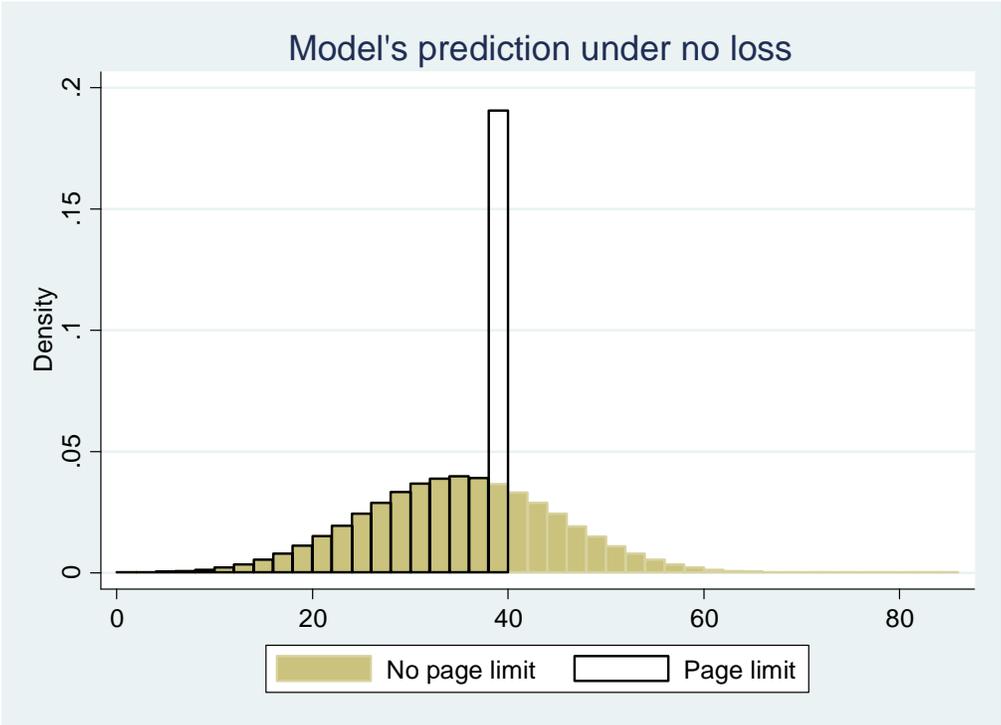


Figure 1b. Predicted Distribution of Page Length with Complete Loss of Submissions

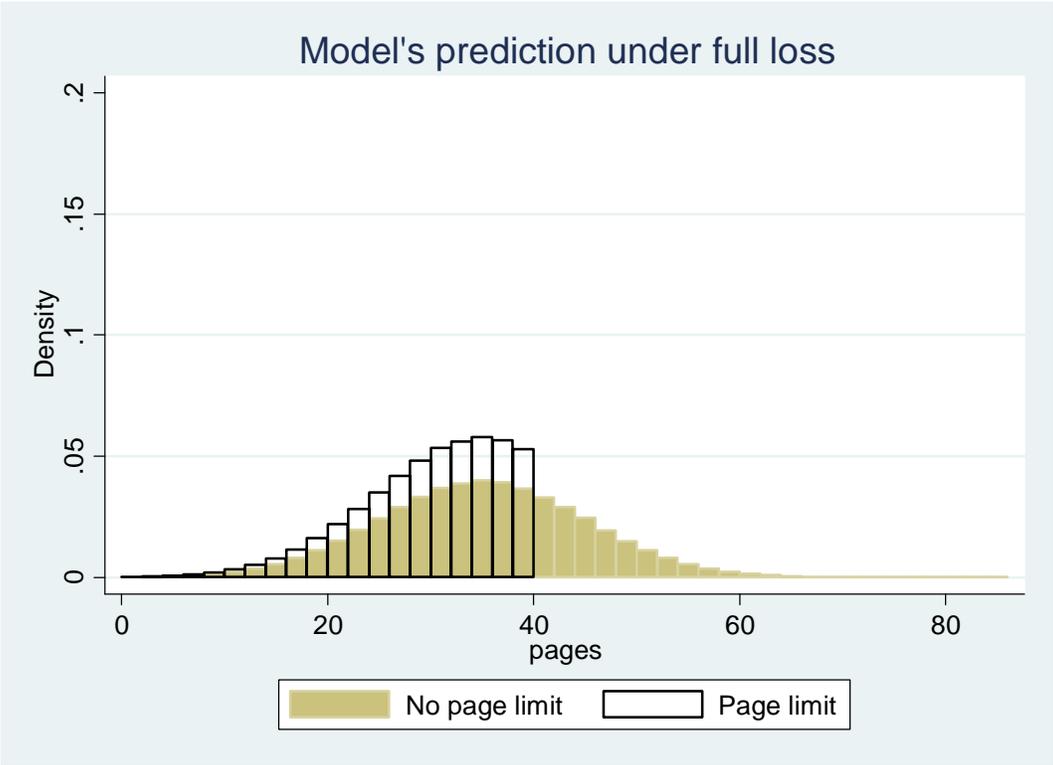


Figure 2a. Timeline of changes at the *American Economic Review* (2007-2010)

Changes in AER submission guidelines and co-editors

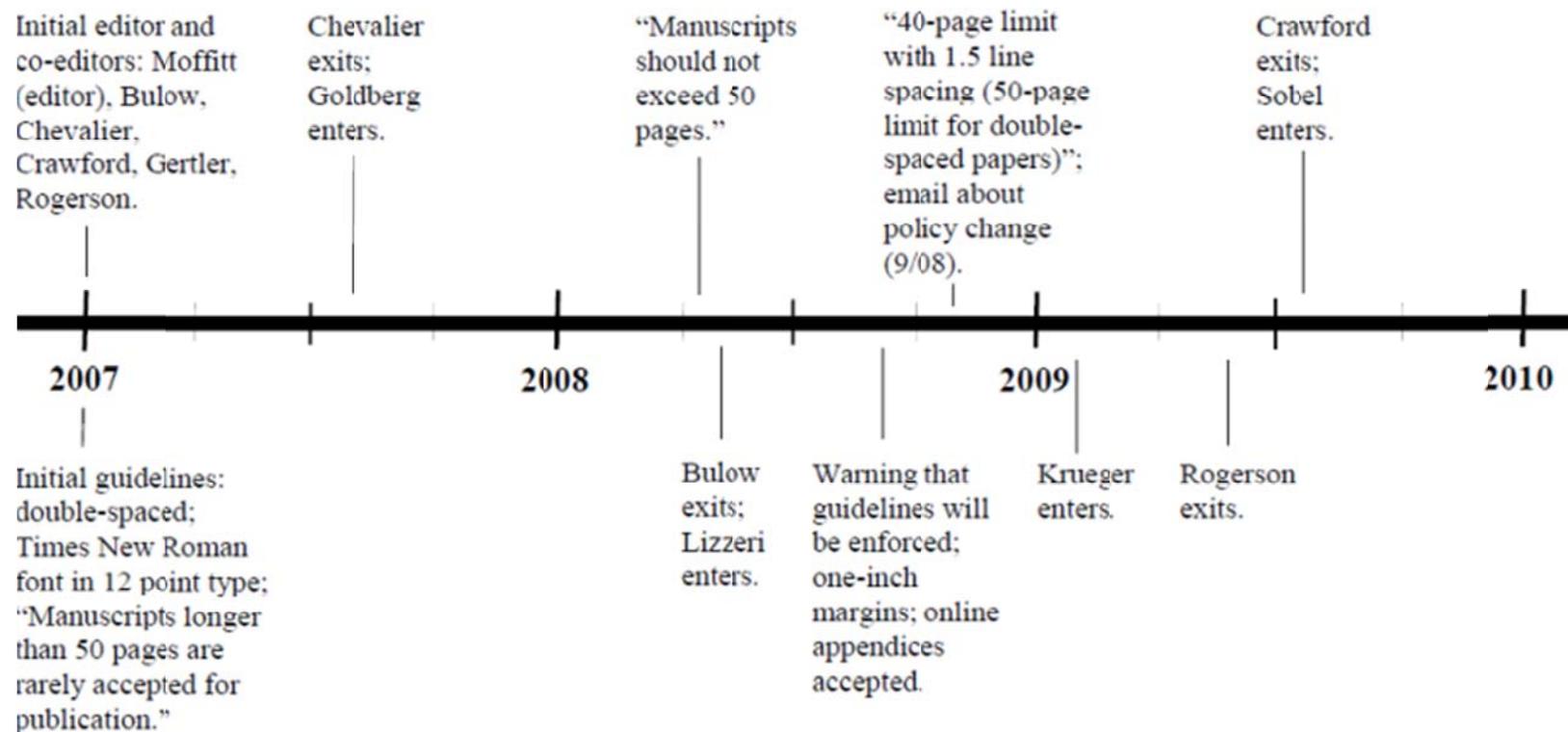


Figure 2b. Timeline of changes at the *Journal of the European Economics Association* (2007-2010)

Changes in JEEA submission guidelines and editors

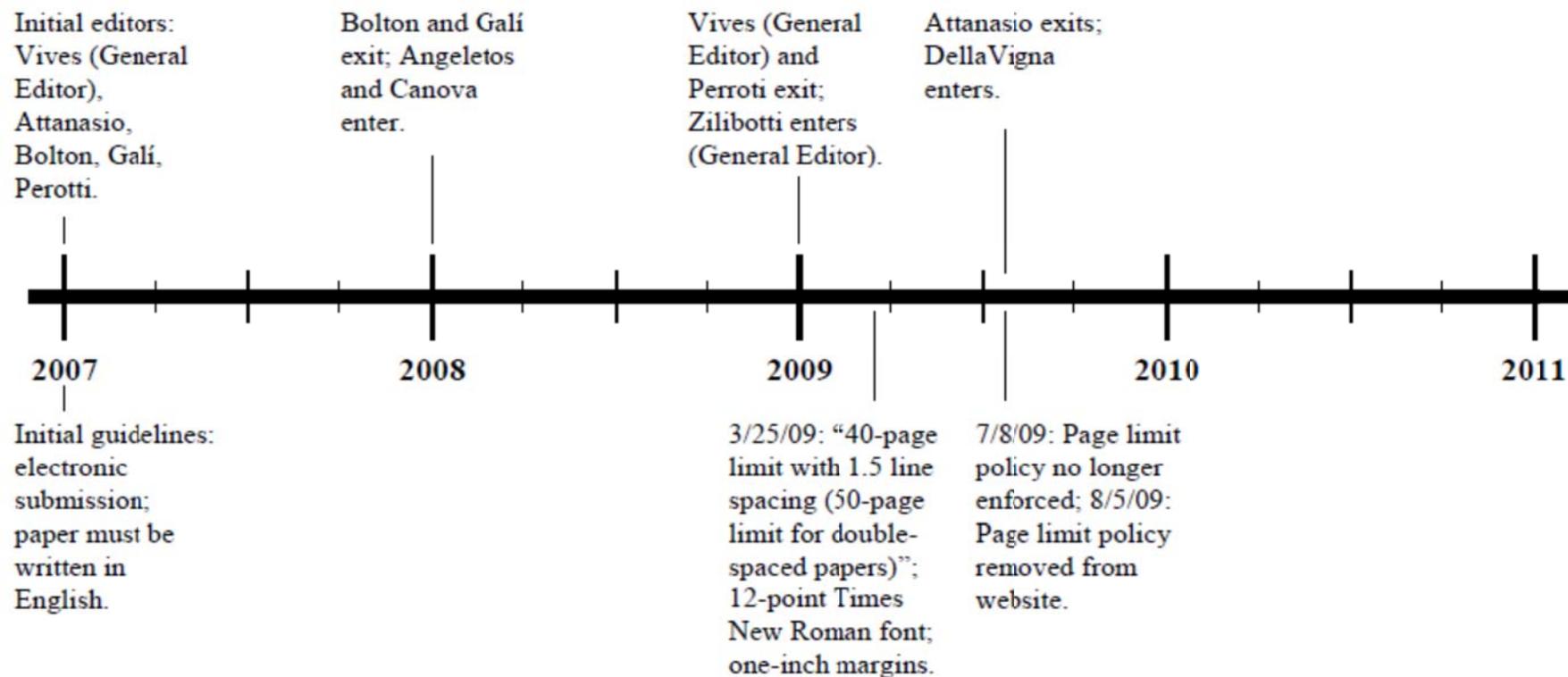


Figure 3a. Distribution of Manuscript Length (AER, excludes cover and online appendix)

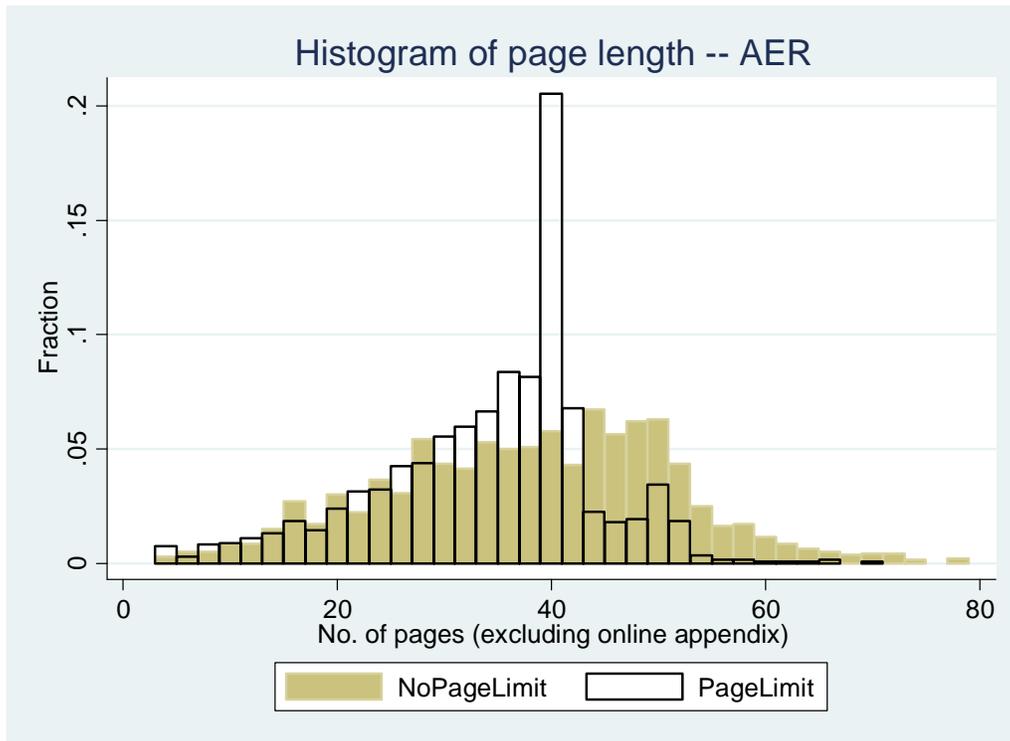


Figure 3b. Distribution of Manuscript Length (AER, includes cover and online appendix)

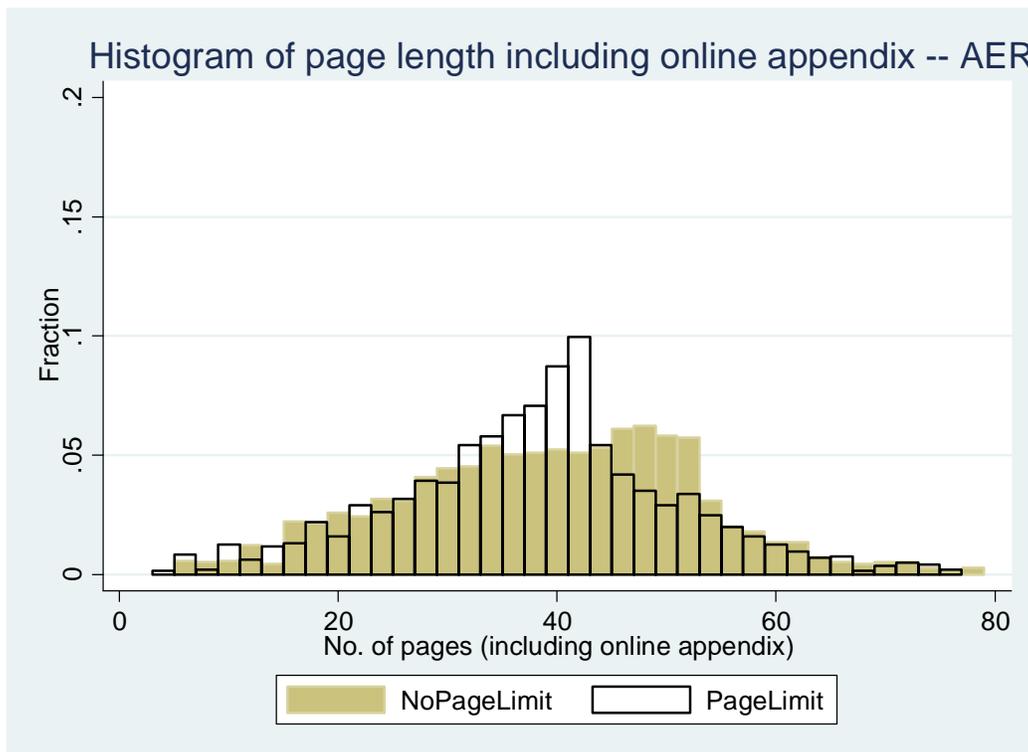
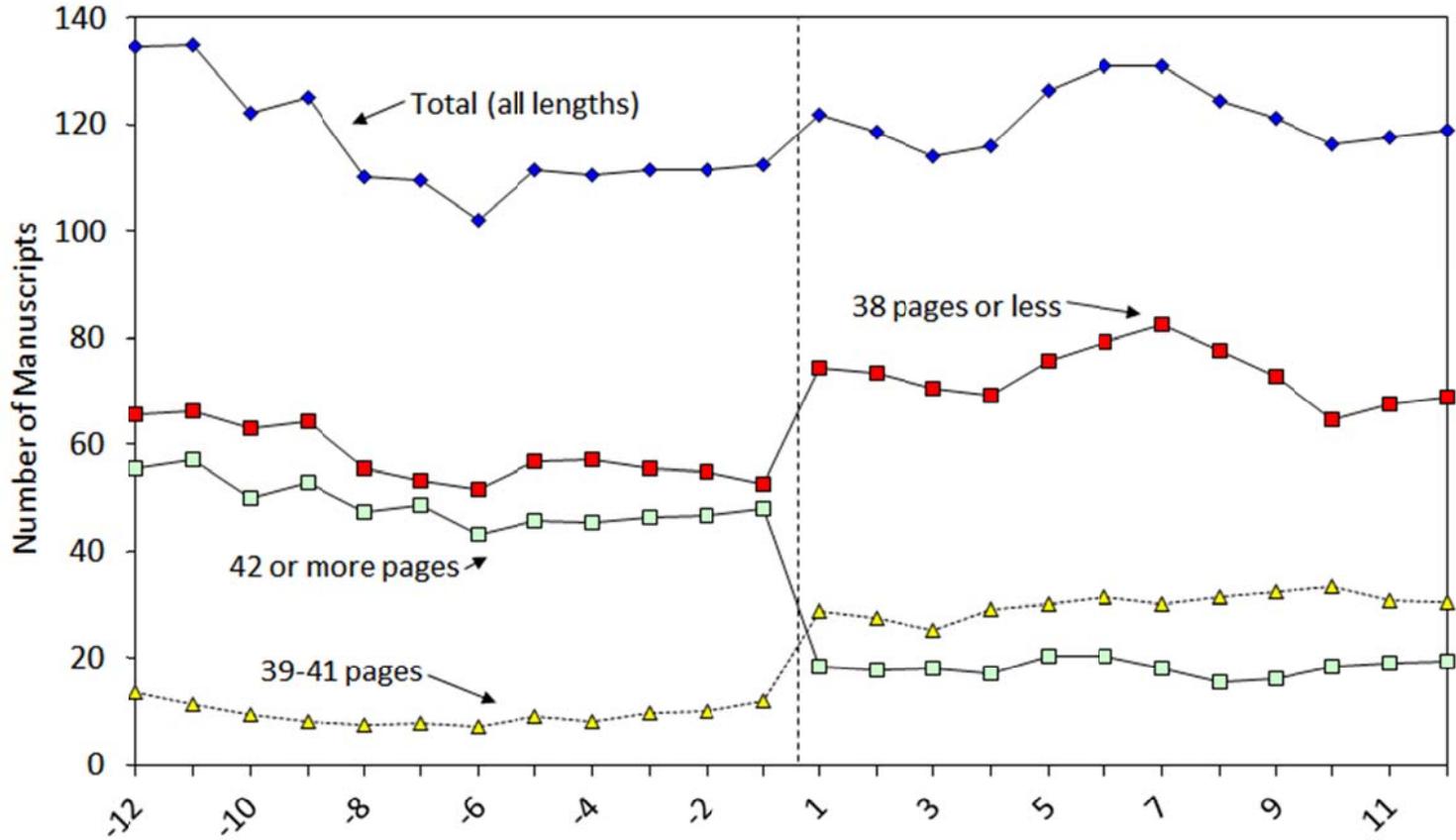


Figure 4. Number of AER Submissions by Month and Length



note: manuscript counts are smoothed using 3-month moving average (except in months -1 and 1)

Figures 5a-5d. Distribution of Detailed Measures of Manuscript Length

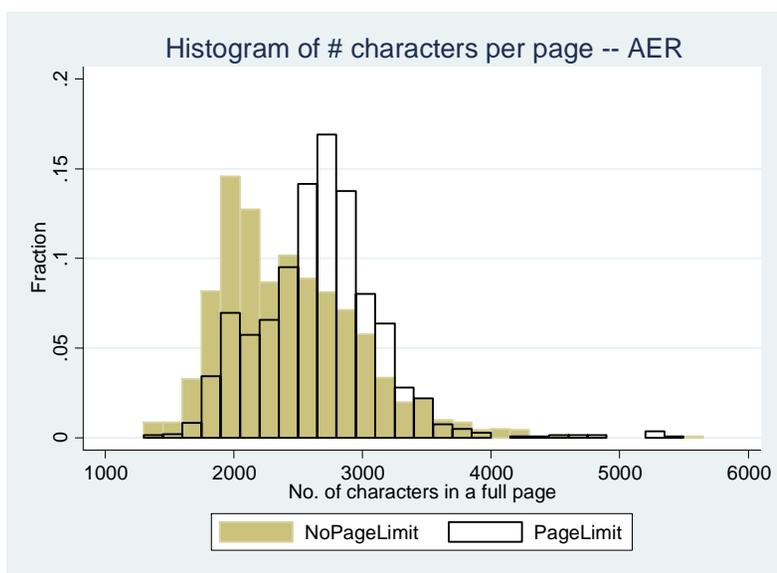
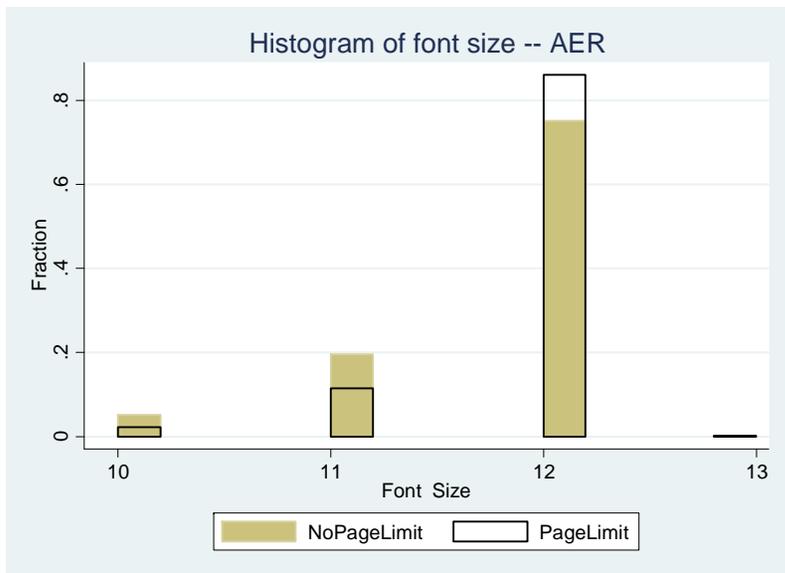
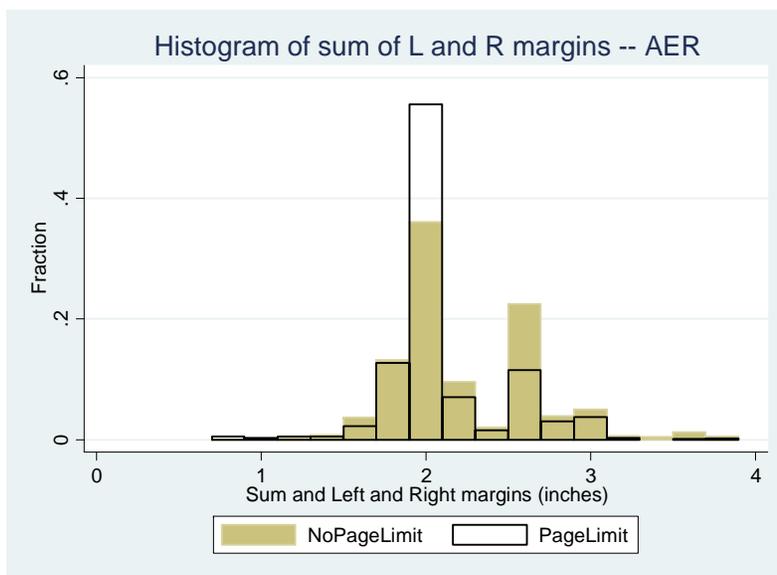
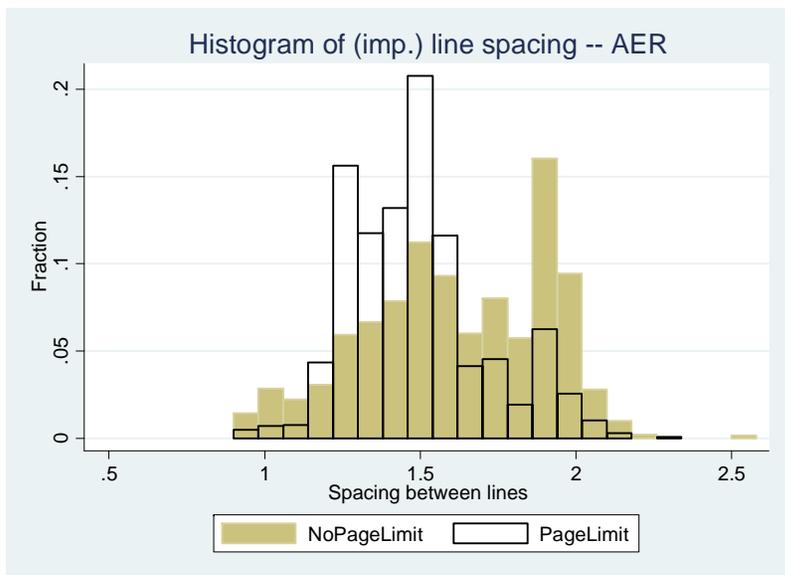
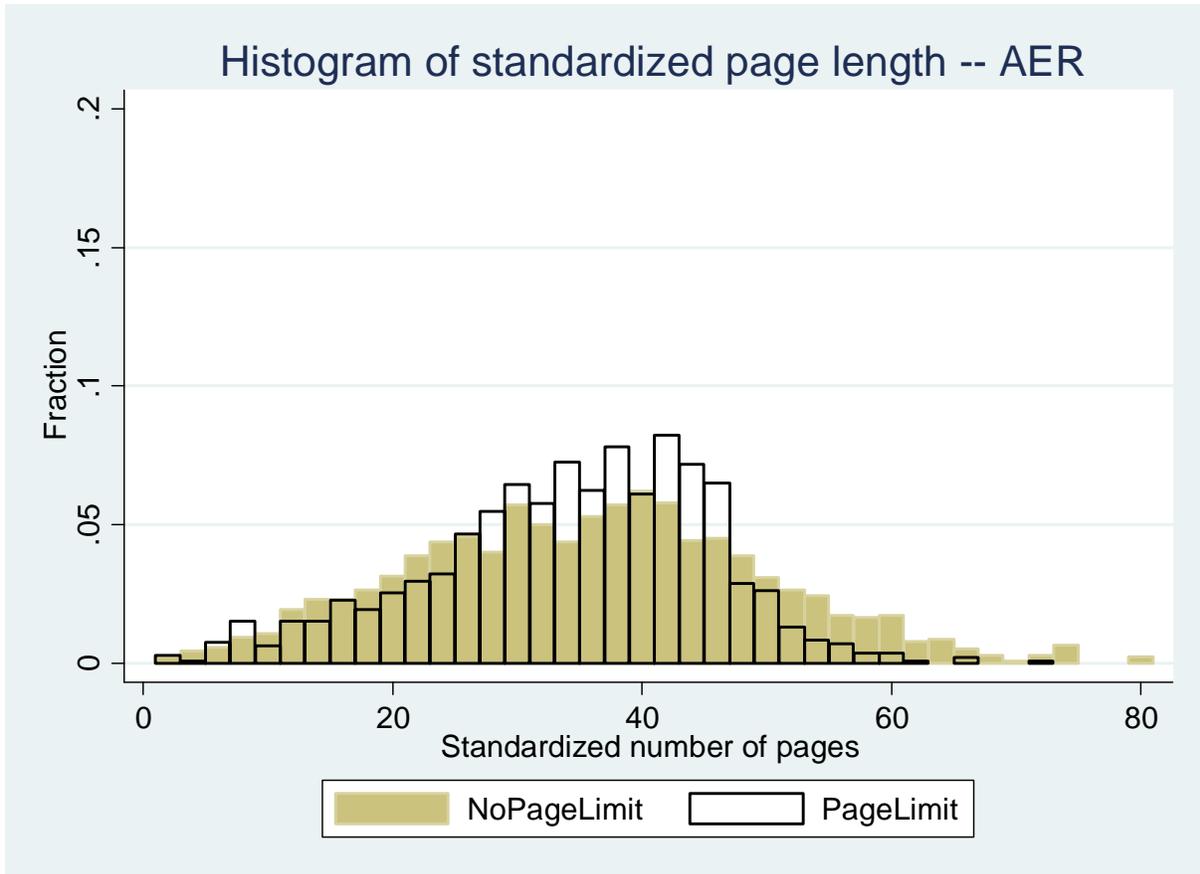


Figure 6. Distribution of Manuscript Length with Standardized Page Density (AER, excludes cover and online appendix)



Note. We standardize the page length using information on the number of characters per page (Figure 5d), compared to the expected number of characters per page for a manuscript which complies with the AER page limit policies for 1.5 spacing. See text for details.

Figure 7. Scatterplot of weekly AER submissions by normalized length

Numbers of Longer and Shorter Submissions by Week, AER

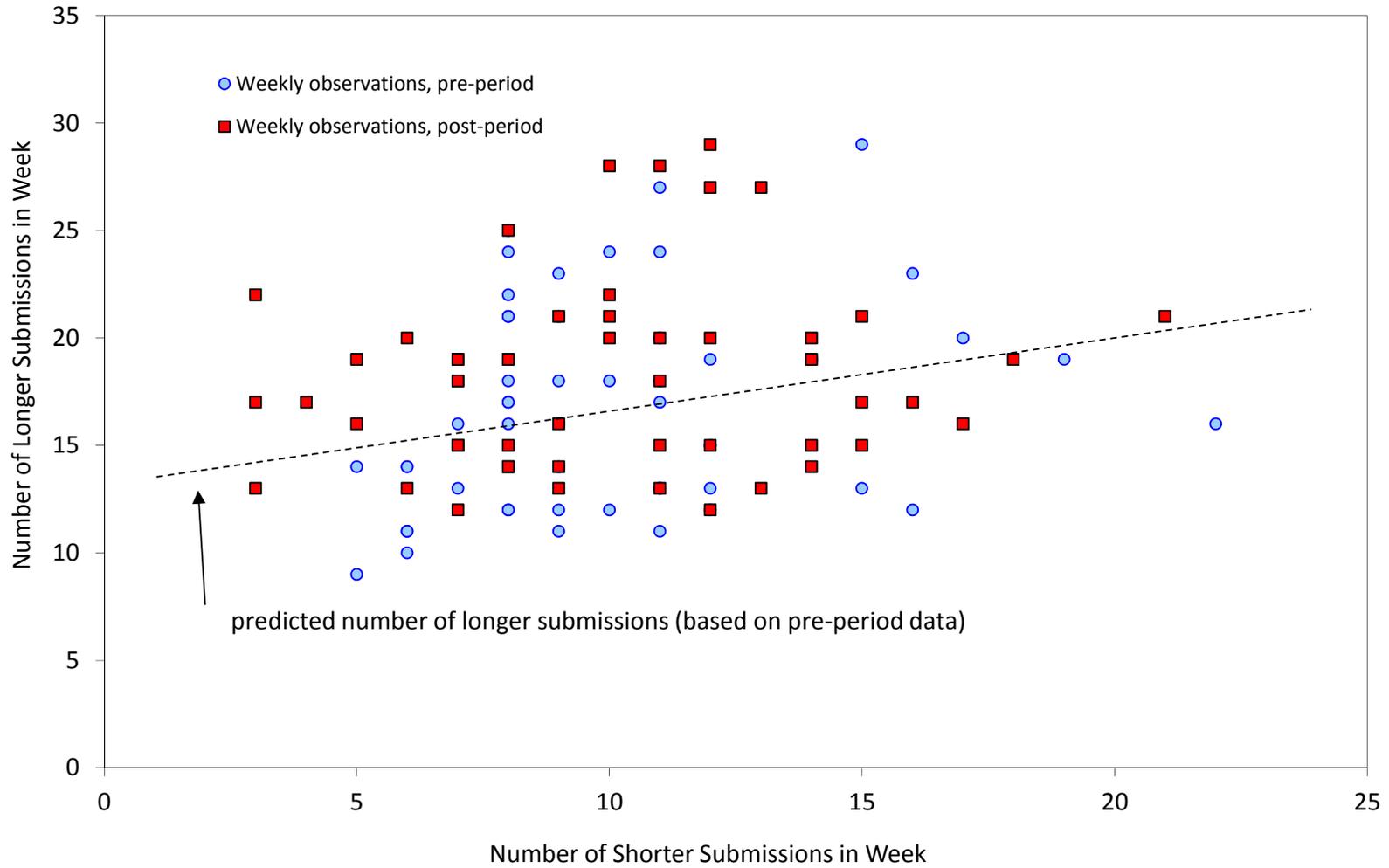


Figure 8a. Probability of Revise-and-resubmit decision as function of page length (AER)

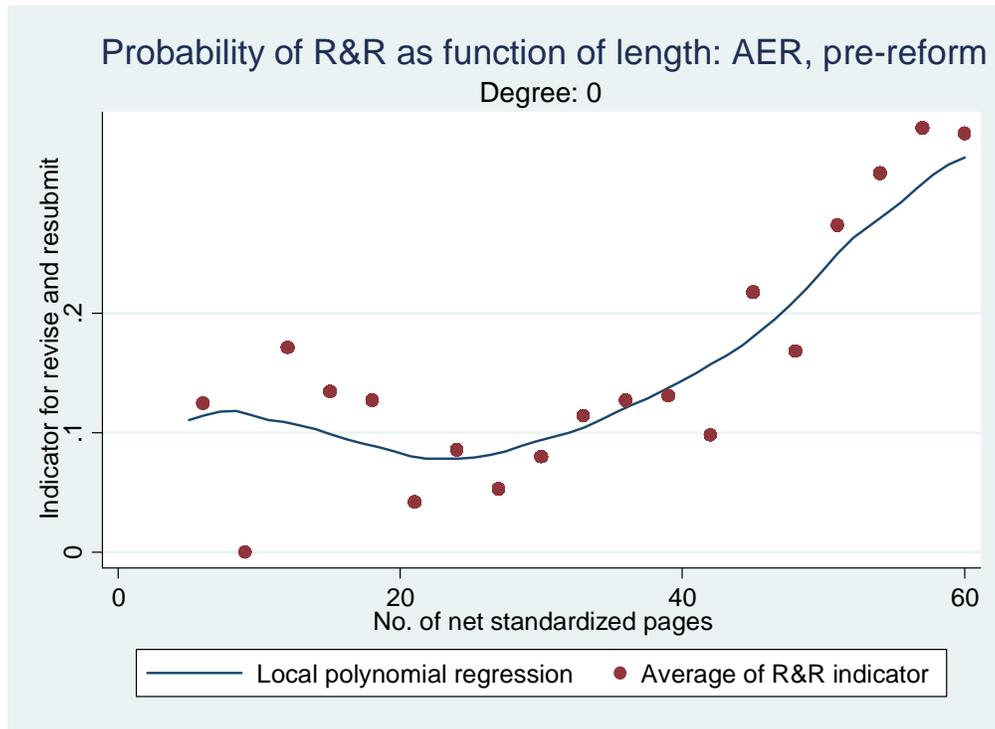


Figure 8b. Average number of Google Scholar citations as function of page length (JEEA)

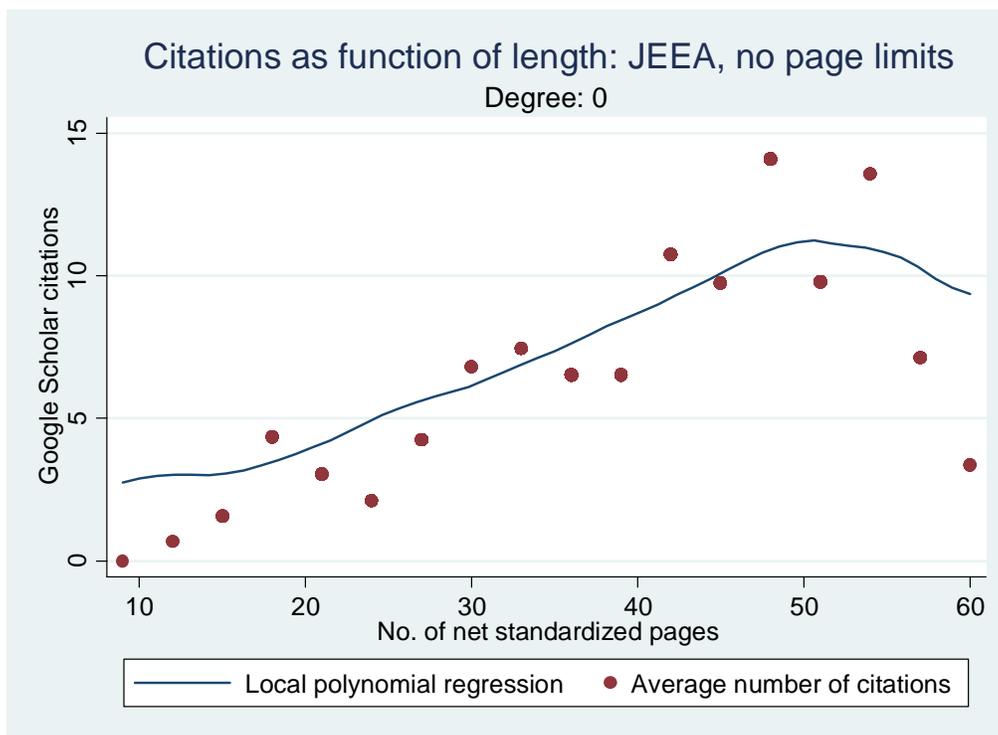


Figure 8c. Average days to decision as function of page length (JEEA)

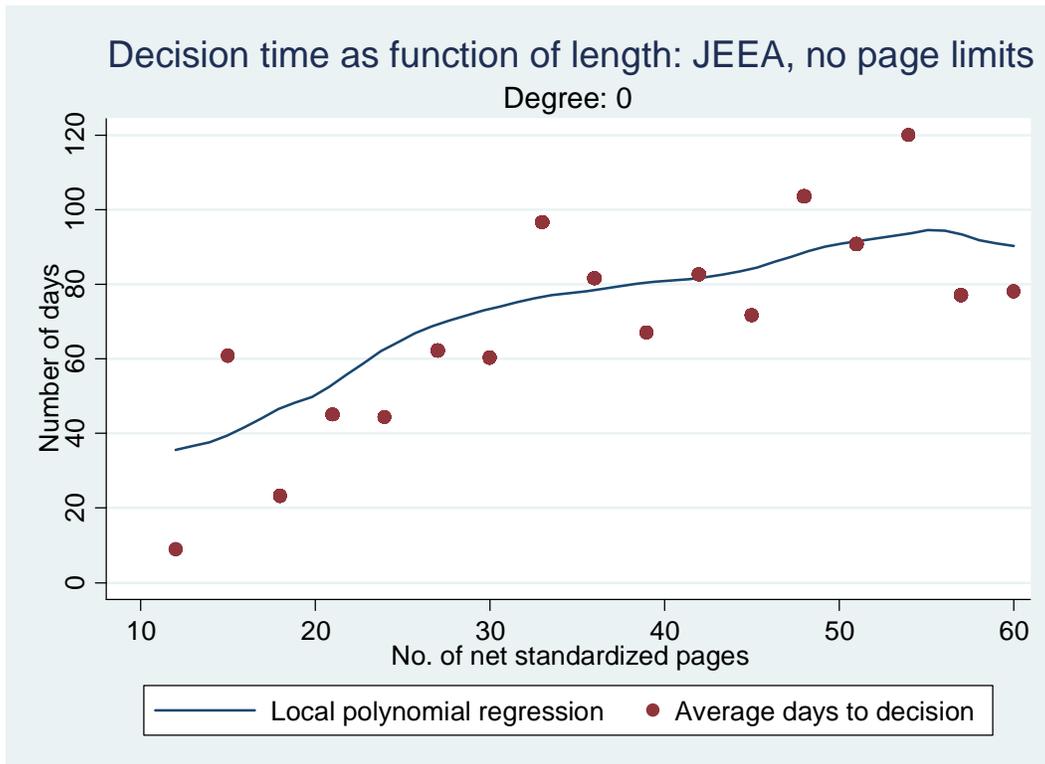


Figure 9: Page Length Characteristics of NBER Working Papers

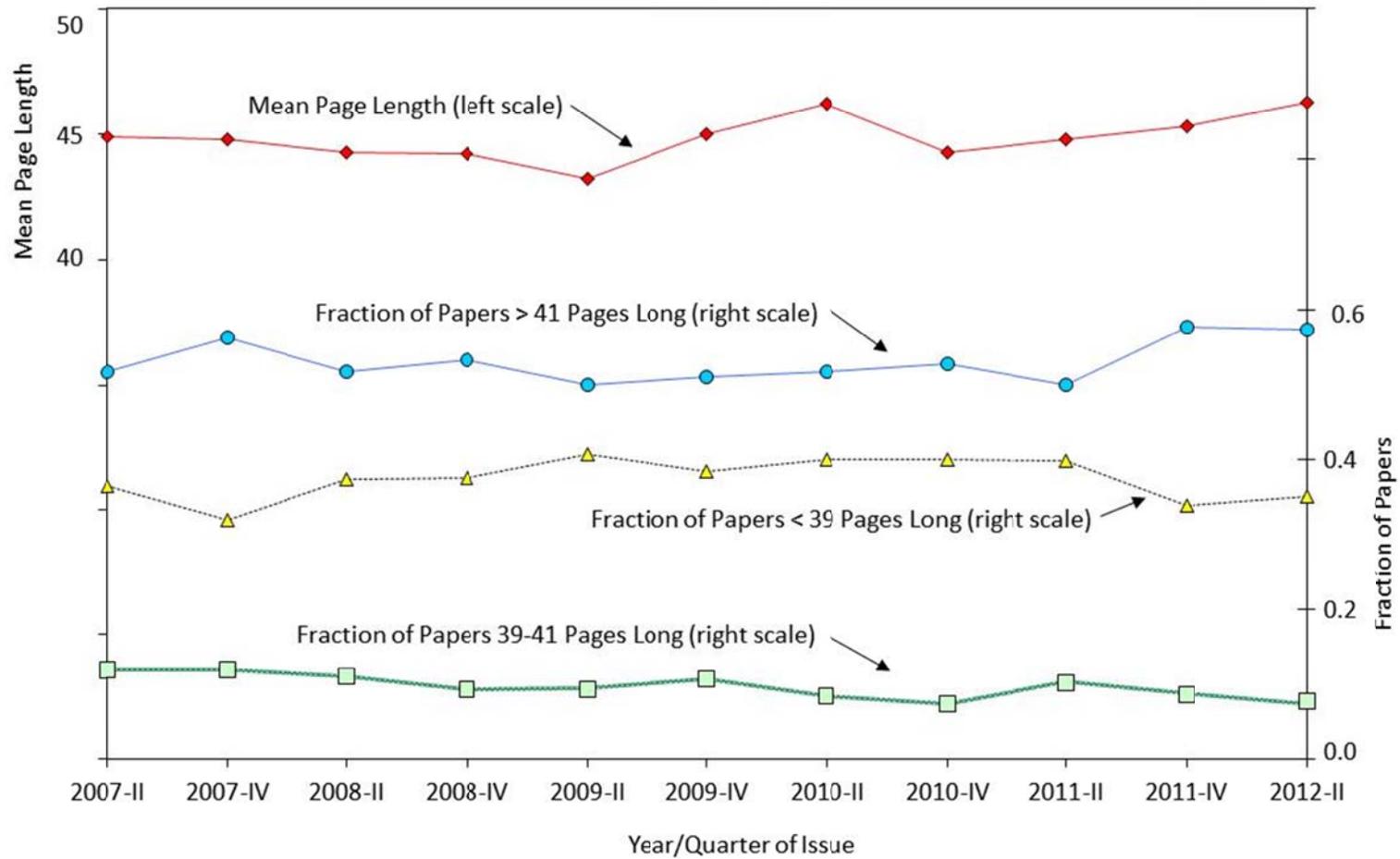


Figure 10a. Distribution of Manuscript Length (JEEA, excludes cover and online appendix)

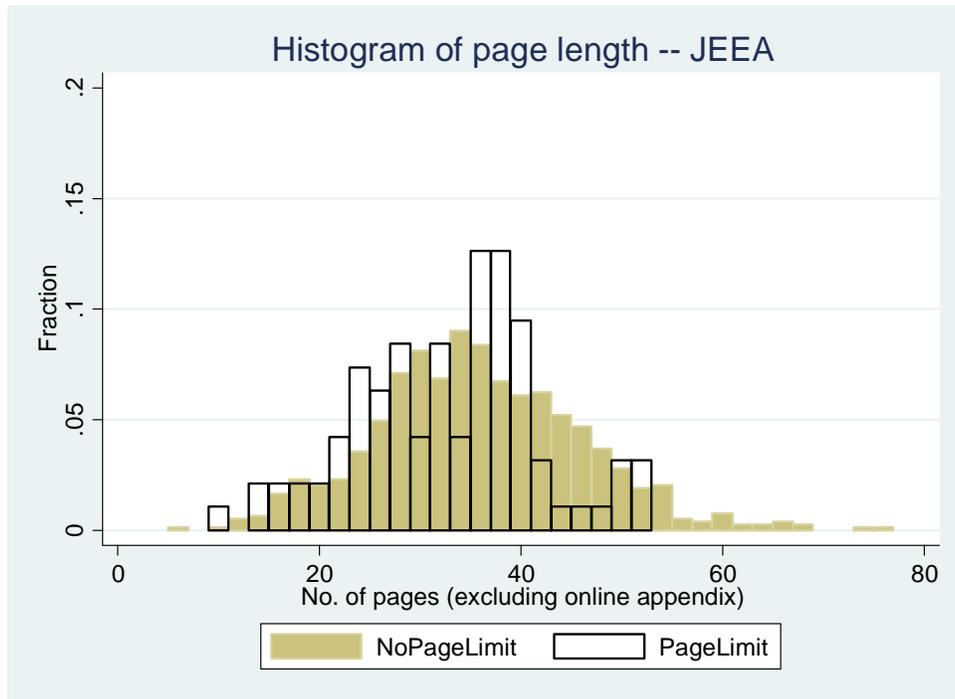


Figure 10b. Distribution of Manuscript Length with Uniformed Page Density (JEEA, excludes cover and online appendix)

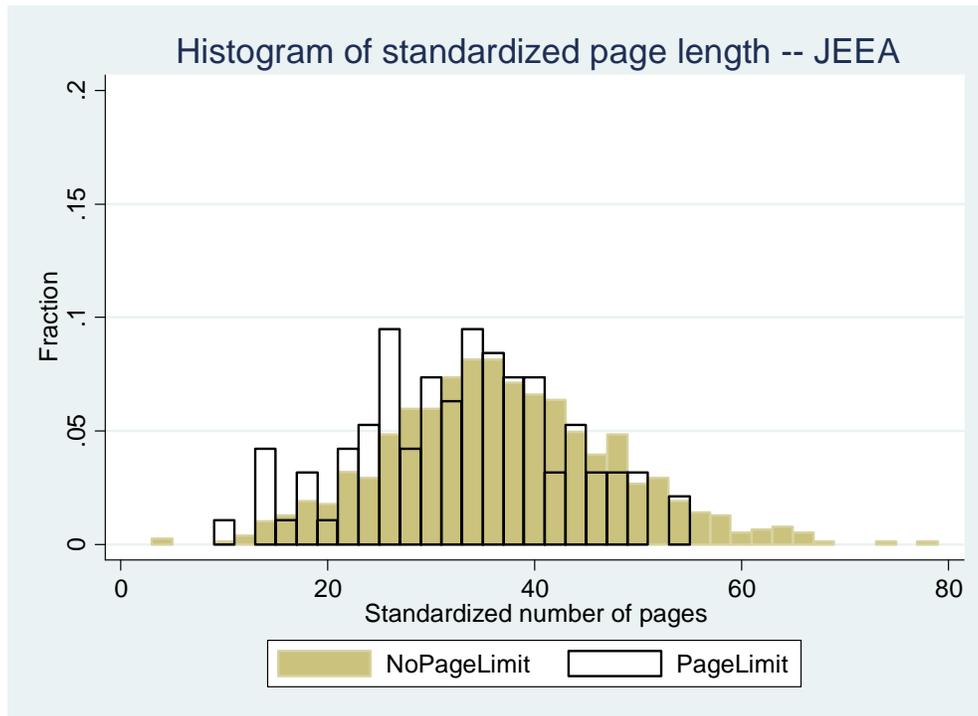
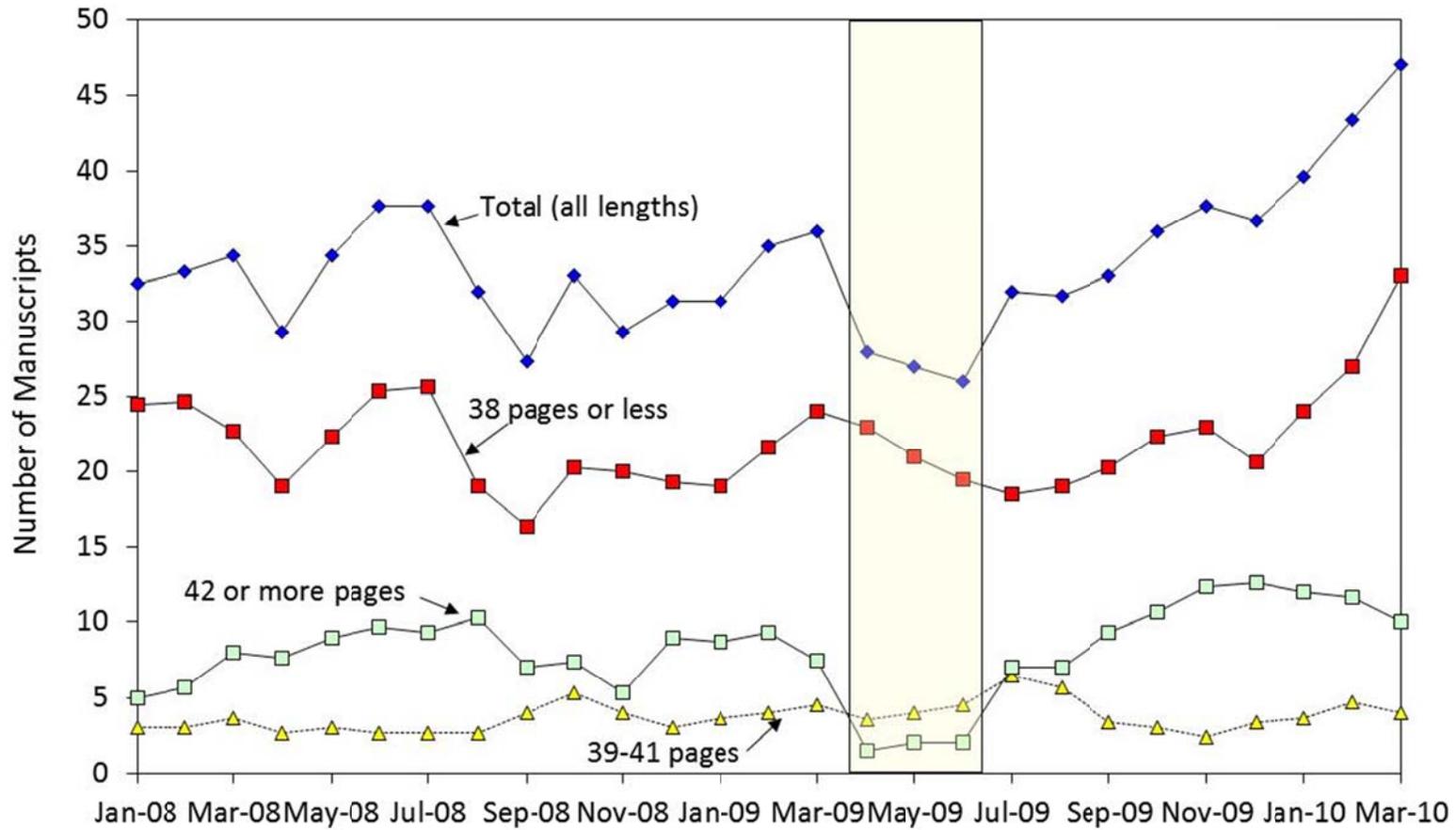


Figure 11. Number of JEEA Submissions by Month and Length



note: manuscript counts are smoothed using 3-month moving average (except at policy seams)

Figure 12. Scatterplot of weekly JEEA submissions by normalized length

Numbers of Longer and Shorter Submissions by Week, JEEA

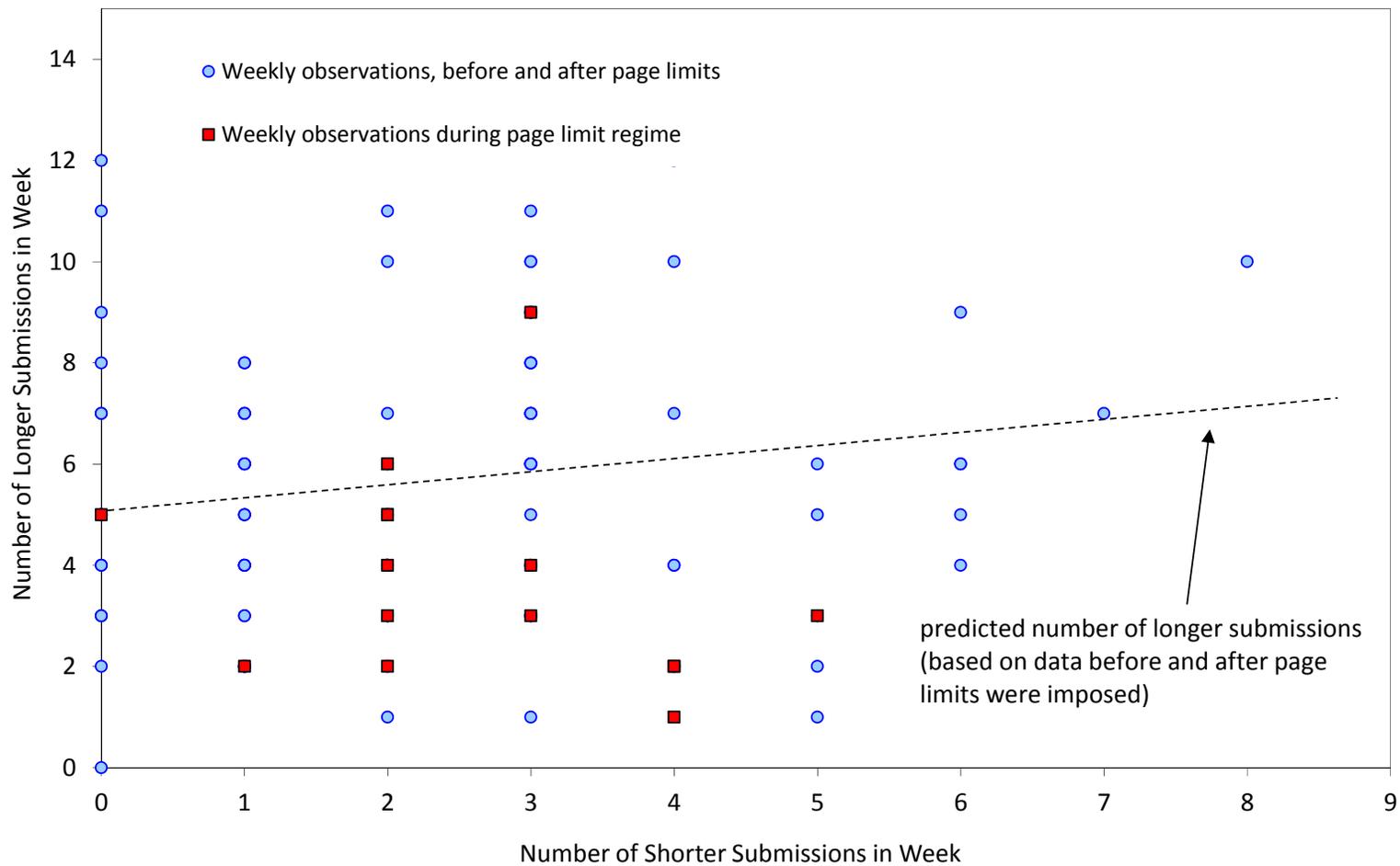


Table 1: Difference in Differences Analysis of Impact of Page Limit Policy on Submissions per Week of Longer versus Shorter Manuscripts, *American Economic Review*

	Year Before Limits Imposed		Year After Limits Imposed		Difference: After-Before	
	Number (1)	Log of Number (2)	Number (3)	Log of Number (4)	Number (5)	Log of Number (6)
Shorter Manuscripts (30 pages or less)	10.21 (0.50)	2.268 (0.046)	10.02 (0.55)	2.216 (0.062)	-0.19 (0.74)	-0.053 (0.077)
Longer Manuscripts (31 pages or more)	16.79 (0.66)	2.781 (0.039)	18.10 (0.61)	2.869 (0.032)	1.31 (0.90)	0.088 (0.051)
Difference: Longer - Shorter	6.58 (0.73)	0.513 (0.050)	8.08 (0.76)	0.653 (0.066)	1.50 (1.05)	0.140 (0.082)

Notes: standard errors in parentheses. Sample includes weekly data for one year prior to page limit policy (July 2007-June 2008) and one year after (October 2008-September 2009). Manuscript lengths are measured using standardized page lengths -- see text.

Table 2: Robustness Checks for Models of Number of Submissions of Longer Papers to AER and JEEA During Imposition of Page Limits

	AER (1)	JEEA (2)
1. Baseline model (difference-in-differences)	1.50 (1.05)	-2.15 (0.89)
2. Quasi-difference model (unrestricted coefficient on shorter manuscripts)	1.35 (0.89)	-1.98 (0.81)
coefficient of shorter manuscripts	0.24 (0.12)	0.22 (0.16)
3. Quasi-difference model with linear trend	1.57 (2.15)	-2.12 (0.82)
trend coefficient	0.00 (0.03)	0.01 (0.01)
coefficient of shorter manuscripts	0.23 (0.12)	0.19 (0.16)
4. Alternative 35 page threshold for distinguishing shorter/longer papers (difference-in-differences)	-1.35 (1.06)	-1.47 (0.87)

Notes: standard errors in parentheses. See notes to Table 1.

Table 3: Difference-in-Differences in Submissions of Longer versus Shorter Papers to AER

	All Papers (1)	Theory (2)	Laboratory Experiments (3)	Macro (4)	Applied Micro (excl. IO) (5)	IO (6)	Econometrics (7)	Finance (8)	All Other Fields (9)
<u>Year Before Page Limits Imposed</u>									
Total Submissions/Week	27.0 (0.9)	8.4 (0.4)	2.2 (0.2)	5.9 (0.4)	7.8 (0.4)	2.5 (0.2)	1.7 (0.1)	2.2 (0.2)	3.3 (0.3)
Pct. of Submissions Over 40 pages (unstandardized)	42.1	37.4	31.7	44.6	50.9	45.8	34.6	39.0	39.8
Shorter Submissions/Week (standardized <=30 pages)	10.2 (0.5)	3.4 (0.3)	0.9 (0.1)	2.2 (0.2)	2.2 (0.2)	1.0 (0.1)	0.7 (0.1)	0.8 (0.1)	1.3 (0.2)
Longer Submissions/Week (standardized >30 pages)	16.8 (0.7)	5.0 (0.3)	1.2 (0.2)	3.8 (0.3)	5.6 (0.3)	1.5 (0.2)	1.0 (0.1)	1.4 (0.2)	2.1 (0.2)
<u>Year After Page Limits Imposed</u>									
Total Submissions/Week	28.1 (0.9)	9.6 (0.5)	2.3 (0.3)	5.9 (0.4)	8.3 (0.3)	2.5 (0.2)	1.8 (0.2)	2.9 (0.2)	3.5 (0.3)
Shorter Submissions/Week (standardized <=30 pages)	10.0 (0.6)	3.4 (0.3)	0.9 (0.2)	1.8 (0.2)	2.7 (0.2)	0.8 (0.1)	0.9 (0.1)	0.8 (0.1)	1.1 (0.2)
Longer Submissions/Week (standardized >30 pages)	18.1 (0.6)	6.2 (0.4)	1.4 (0.2)	4.1 (0.3)	5.6 (0.3)	1.6 (0.2)	1.0 (0.1)	2.1 (0.2)	2.4 (0.2)
<u>Difference: After-Before</u>									
Total Submissions/Week	1.1 (1.3)	1.2 (0.6)	0.1 (0.4)	-0.1 (0.5)	0.5 (0.5)	0.0 (0.3)	0.2 (0.2)	0.7 (0.3)	0.1 (0.4)
Shorter Submissions/Week (standardized <=30 pages)	-0.2 (0.7)	-0.2 (0.4)	-0.1 (0.2)	-0.4 (0.3)	0.5 (0.3)	-0.1 (0.2)	0.2 (0.2)	0.1 (0.2)	-0.2 (0.2)
Longer Submissions/Week (standardized >30 pages)	1.3 (0.9)	1.3 (0.5)	0.2 (0.3)	0.3 (0.4)	0.1 (0.4)	0.1 (0.2)	0.0 (0.2)	0.6 (0.3)	0.3 (0.3)
Longer-Shorter (Diff-in-diffs)	1.5 (1.1)	1.3 (0.6)	0.3 (0.3)	0.7 (0.5)	-0.4 (0.6)	0.3 (0.3)	-0.1 (0.3)	0.5 (0.3)	0.5 (0.4)

Notes: standard errors in parentheses. Sample includes 52 weeks before page limit policy and 52 weeks after. Papers are assigned to a field based on having at least one JEL code in the respective field. Not all submissions have JEL codes, and many submissions have 2 or more JEL codes -- thus papers can appear in two or three fields. See text for classification of fields based on JEL.

Table 4: Impact of Page Limits on Manuscript Length -- AER

	No Policy in Place	Policy in Place	Difference	Reg. adjusted Difference
<u>Panel A: All First Submissions:</u>				
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	.5 (.4)	0 (.4)
Mean number of pages of tables and figures	4.8	4.2	-.5 (.2) **	-.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		
<u>Panel B: Final accepted version of papers invited for revision^a</u>				
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)	-1.8 (2.4)
Change in no. of pages, standardized, from 1st submission	-1.2	-0.8	.4 (2.0)	.1 (2.6)
Number of rounds of revision	1.7	1.9	0.19 (.09) **	-.04 (.10)
Sample size	114	110		
<u>Panel C: Final accepted manuscripts, expanded sample^b</u>				
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 no. of pages, standardized, from 1st submission	-2.2	0.3	2.5 (1.4) *	3.3 (2.1)
Sample size	218	211		

Notes: Stars indicate statistical significance at 10% (1 star) 5% (2 stars) or 1% (3 stars). See notes to Table 1.

^aIncludes papers accepted in first round without revision.

^bSee text for description of expanded sample.

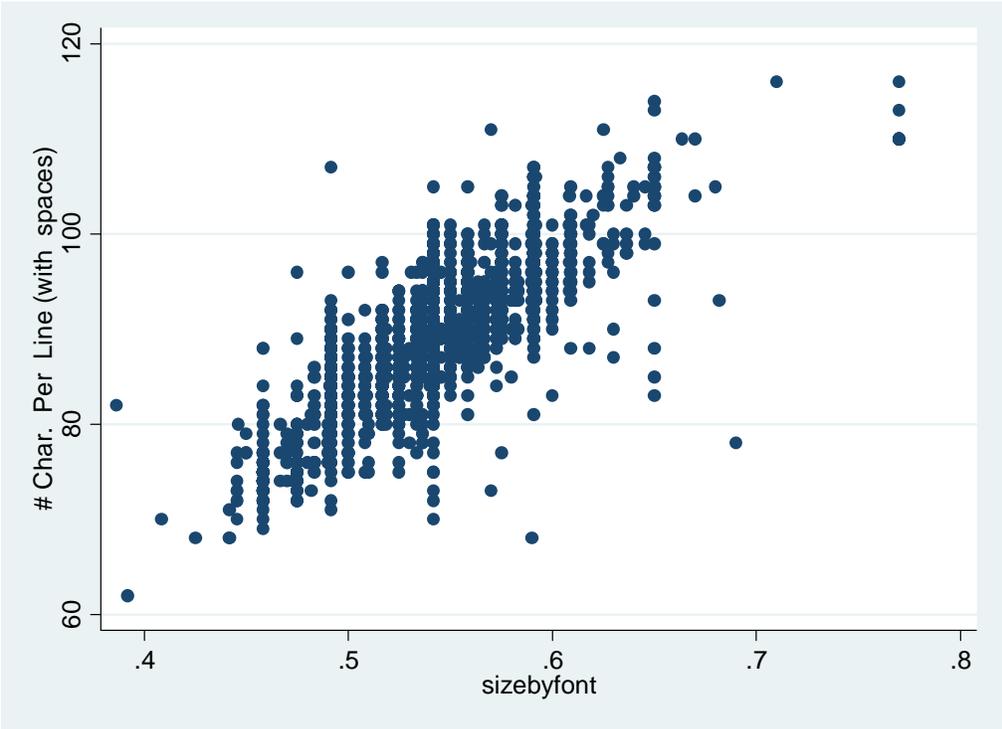
Table 5: Difference in Differences Analysis of Impact of Page Limit Policy on Submissions per Week of Longer versus Shorter Manuscripts, *Journal of the European Economic Association*

	Weeks with no Limits Imposed		Weeks with Limits Imposed		Difference: With-Without Policy	
	Number (1)	Log of Number (2)	Number (3)	Log of Number (4)	Number (5)	Log of Number (6)
Shorter Manuscripts (30 pages or less)	2.38 (0.18)	0.860 (0.066)	2.60 (0.34)	0.944 (0.114)	0.22 (0.49)	0.084 (0.169)
Longer Manuscripts (31 pages or more)	5.66 (0.31)	1.600 (0.056)	3.73 (0.53)	1.177 (0.145)	-1.93 (0.81)	-0.445 (0.164)
Difference: Longer - Shorter	3.29 (0.33)	0.730 (0.085)	1.13 (0.70)	0.202 (0.210)	-2.15 (0.89)	-0.529 (0.220)
Number of Weeks [*]	98	98/83	98	15/14	113	113/97

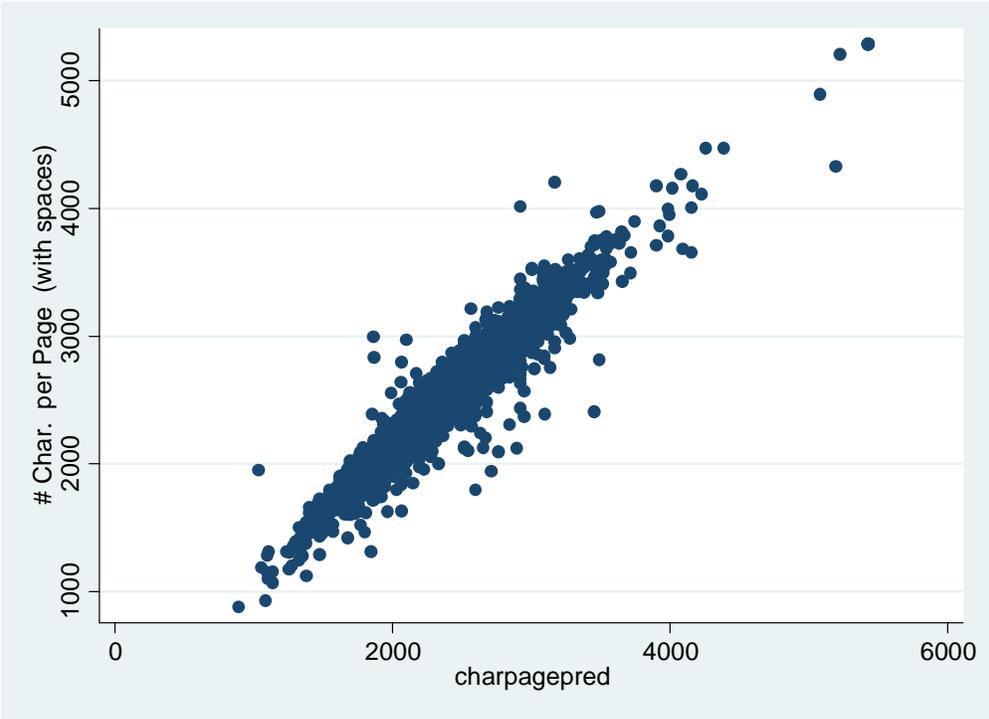
Notes: standard errors in parentheses. Sample includes weekly data for 64 weeks prior to page limit policy (January 1 2008 to March 24, 2009), 15 weeks while page limit policy was in effect (March 25, 2009 to July 8, 2009), and 34 weeks after page limit policy was removed (August 2009-March 2010). Manuscript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

* Observations with 0 submissions are excluded. There are 17 weeks in the period with no page length policy with 0 submissions of shorter manuscripts and 1 week in the page length policy period with 0 submissions of shorter papers.

Appendix Figure 1a. Validity check of the measure of characters in a line (AER)



Appendix Figure 1b. Validity check of the measure of characters per page (AER)



Appendix Table 1: Summary Statistics on Manuscript Submissions

	AER		JEEA	
	No Policy	Length Policy	No Policy	Length Policy
Number of Submissions	1404	1462	788	95
<u>Actual Page Lengths:</u>				
Mean	37.8	33.9	36.4	32.3
Median	39.0	36.0	36.0	34.0
Standard Deviation	13.9	10.2	11.0	9.1
<i>Distribution (%):</i>				
0-20 pages	11.9	10.8	7.4	9.5
21-38 pages	38.0	49.6	57.0	68.4
39-41 pages	8.0	24.7	9.8	12.6
42-50 pages	26.8	12.0	18.9	6.3
51+ pages	15.3	2.9	7.0	3.6
<u>Standardized Page Lengths:</u>				
Mean	35.5	33.9	32.3	32.6
Median	36.0	35.0	34.0	33.0
Standard Deviation	14.7	11.3	9.1	9.8
<i>Distribution (%):</i>				
0-20 pages	15.5	12.9	6.7	10.5
21-38 pages	42.6	49.7	53.6	62.1
39-41 pages	9.4	10.8	9.6	8.4
42-50 pages	18.4	22.6	19.7	16.8
51+ pages	14.2	3.9	10.4	2.1

Notes: For AER, "No policy" period refers to year before adoption of page length policy, "Length Policy" refers to year after adoption of page length policy. For JEEA "No Policy" refers to combined period of 15 months before adoption of policy and 9 months following abandonment of policy; "Length Policy" refers to 3.5 month period during which page length policy was in effect.