Canadian Journal of Economics: A Historic Overview

Konstantinos Metaxoglou*

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Abstract

The paper provides a 50-year overview of the Canadian Journal of Economics, Canada's leading economics journal. I first discuss the evolution of the journal's editorial structure and publication process. I then construct a database of all the articles published during 1968–2017 and perform bibliometric analyses. I find a significant increase in the articles' length as well as an increase in article features that is consistent with a rise in empirical analysis. I also analyze the articles' topical coverage and trends in their discussion of approaches, methodologies, topics, and techniques (AMTTs). International economics accounts for the largest share of the articles. There is also a large increase in the share of articles discussing applied-micro AMTTs after the mid-1990s. Consistent with previous findings, there is a drop in the share of articles with Canadian content. Furthermore, I document an upward trend in co-authorship that has also been documented in other economics journals. Finally, I analyze Google Scholar citations and show that the most cited articles were published between the early 1990s and the late 2000s.

Keywords: editorial structure, bibliometric analysis, topical analysis, authors, collaboration.

JEL codes: A1, B0, D0

*Corresponding address: Department of Economics, Carleton University, 1125 Colonel By Drive, Ottawa, ON K1S 5B6. Email: konstantinos.metaxoglou@carleton.ca. I would like to thank the Canadian Economic Association for providing some of the data used in the paper, Katherine Cuff and Werner Antweiller for answering questions regarding the journal's operations, and David Green for providing his Managing Editor reports. The comments of Katherine Cuff and two anonymous referees helped me improve significantly the original draft. Any remaining errors are mine.

1 Introduction

The paper provides a 50-year overview of the Canadian Journal of Economics (henceforth, the CJE), which has been the primary academic economics journal in Canada since 1968. Through its lifetime, other overview articles have been written about the CJE, but my objective is to analyze the CJE's evolution across several dimensions not explored in these earlier writings.

After discussing some background information on the evolution of the CJE's editorial structure, its positioning in journal rankings and its publication process, I show the results of bibliometric analysis on about 2,800 articles published in the CJE between 1968 and 2017. I structure my findings around five themes: (i) the evolution of the number of articles published and their features, (ii) the research topics, (iii) the preponderance of empirical work, (iv) the increase in collaborative work, and (v) the articles' citations.

I find that the number of articles published by the CJE during 1968–2017 grew at an annual rate of about 0.5%. During this period, the CJE published on average 55 articles per volume. Consistent with the growing article length documented for other journals in economics, the number of pages per article increased from about 10 in the CJE's early years to about 35 in more recent years. There is also a pronounced increase in the number of article features (tables, figures, and equations) and in the number of articles with regression-related discussion, which is consistent with a shift towards empirical analysis.

A more detailed analysis of the articles' topical coverage using Journal of Economic Literature (JEL) codes shows that JEL code F (international economics) is by far the most used code and accounts for about 40% of the articles for which JEL codes are available during 1998–2017. Notably, there is a significant drop in the share of articles with Canadian content from about 40% in the CJE's early years to about 30% in more recent years.

The increase in empirical work documented for other journals is also present for the CJE over the 1968–2017 period. The share of articles discussing causal effects, treatment effects, counterfactuals, and natural experiments increased substantially after the mid 1990s exhibiting somewhat of an s-shaped diffusion pattern. There is a similar pattern in the share of articles discussing fixed effects and difference-in-differences. The share of articles discussing macro-oriented approaches, methodologies, topics, and techniques (AMTTs), such as vector autoregression, cointegration, dynamic stochastic general equilibrium, impulse response functions, and real business cycles, exhibits somewhat of an irregular upward trend. Overall, the share of articles discussing "macro-oriented" AMTTs is substantially lower than the share of articles discussing "micro-oriented" AMTTs.

The CJE has also experienced a large increase in co-authorship over time with the share of single-authored articles dropping from about 85% in the early 1970s to about 25% in the most recent years. Moreover, the CJE has experienced a steady increase in the share of female authors in its articles over time, which reached a peak of about 25% in the early 2010s.

Finally, I analyze which article characteristics better explain the citations received by each article using Google Scholar citations to measure the articles' quality and perception by the profession. I document a hump-shaped pattern with lower citations for older and more recent articles. The most cited articles were published between the early 1990s and the late 2000s. The median number of citations for these articles is between 25 and 45 depending on the volume. As a comparison, the median number of Google Scholar citations for the articles published in the Top 5 economics journals during 1990–2000 is 200 (Card and DellaVigna (2013)). For the top 20 articles published in the CJE, the range of citations is about 450–1,100. Longer articles and articles with more co-authors receive more citations. Articles with estimation-related discussion in their abstracts and commissioned articles also receive more citations.

The paper intends to complement those in the CJE's December 2017 issue that celebrated the 50th anniversary of the Canadian Economics Association (CEA). The papers in the December 2017 issue highlighted the advances and evolution in economic thinking in Canada since June 1967, when the CEA was established.[1] Twenty five years earlier, the February 1993 issue of the CJE celebrated the Association's silver anniversary. The papers in the February 1993 issue described and analyzed how Canadian economics had evolved over the 25 years since the founding of the Association supplementing and updating Johnson (1968).[2]

The remainder of the paper is as follows. Section 2 provides some additional background on the CJE including a discussion of the CJE's visibility and perception by the profession based on journal rankings and a review the CJE's editorial structure. A discussion of the evolution of the publication process follows in Section 3. Section 4 includes the bibliometric analyses and is organized around 5 themes: number of articles and article features; topical coverage; discussion of approaches, methodologies, and techniques; authors and collaborations; and citations. I conclude with a discussion about the CJE's future motivated by my findings on recent trends in its rankings.

2 Background: Editorial Strucutre and Rankings

The CJE has been the primary academic economics journal in Canada since 1968 and publishes both theoretical and empirical papers in all areas of the discipline.[3] In addition, as the flagship journal of the Canadian Economics Association (CEA), the CJE is very interested in high quality empirical papers about the Canadian economy or about Canadian economic issues.[4] On a regular

[1] Brander and Smith (2017) describe the history and current state of economic research in Canada, including the important role played by the CEA.

[2] According to Howitt (1993) the symposium organizer, "these papers paint a detailed picture of a community of scholars becoming increasingly professionalized, doing research of an increasingly technical and mathematical nature, and producing a growing number of publications per year."

[3] According to its Aims and Scope, the CJE seeks to maintain and enhance its position as a major internationally recognized journal and is very receptive to high quality papers on any topic and from any source. Refer to https://www.economics.ca/cpages/cje-home.

[4] The University of Toronto began publishing the first predecessor of the CJE, the annual Contributions to Canadian Economics (CCE), in 1928 ((Brander and Smith, 2017)). The journal continued until 1934 and was replaced by the

basis, there are 4 issues per volume and one volume per year. The issues are published quarterly in February, May, August, and November with occasional deviations.

Every year in its November issue, the CJE publishes the Presidential Address and the Innis Lecture from the Annual Meetings of the CEA similar to the presidential address and the Richard Ely lectures in the American Economic Review from the Annual Meetings of the American Economic Association.[5] The Innis Lecture was established in 1974 in honor of the Canadian economist Harold Adams Innis and was included in the CJE's November issue every year during 1975–2012. In other issues, viewpoint articles that provide state-of-the-art reviews on topics of general interest to economists are often published. The CEA also offers two prizes for articles published in the CJE: the Harry Johnson Prize for the overall best paper in the previous year, and the Robert Mundell Prize, for the best paper written by a young author or authors in the last two calendar years.[6]

Historically, the CJE's editorial tasks have been conducted by a three-tier structure. The top two tiers, composed by the managing editor(s) and associate editors or coeditors, are in charge of the referee process and the editorial decision-making. The third tier is composed by a group of individuals offering their advice on submissions—members of the board in earlier years and editorial advisors in more recent years. Although the position titles have varied over time, the editorial structure has maintained its three tiers. Table 1 provides a list of the senior members of the CJE's editorial board and Table 2 provides summary statistics on their appointments.

As expected, the majority of co-editors and editorial advisors are affiliated with Canadian universities. Table A1 in the on-line Appendix provides information on the spatial concentration of the institutional affiliations for the CJE's co-editors and editorial advisors for 1998–2017.[7] The table makes it very clear that a small number of Canadian universities dominated the institutional affiliation of the more senior members of the editorial boards in this 20-year window with the University of British Columbia and the University of Toronto being particularly dominant. All 4 managing editors are affiliated with Canadian universities, namely, the University of British Columbia, Université de Montréal, the University of Toronto, and McGill University. Half of the journal's co-editors (13/26) are also affiliated with only 3 Canadian universities and, overall, 4/5 of the CJE's co-editors are affiliated with Canadian universities. About 2/3 of the 140 editorial advisors are affiliated with Canadian universities too.

The absence of female economists in prominent editorial positions is a trend shared by the CJE with other journals in the field. Although as of 2017 the CEA had five female presidents, no

Canadian Journal of Economics and Political Science (CJEPS), the official journal of the Canadian Political Science Association (CPSA) published by the University of Toronto Press. The CEA was founded in 1967, following a separation from the CPSA at the 1967 CPSA annual conference. The CEA began publishing its flagship journal, the CJE, in 1968.

[5] Refer to https://www.economics.ca/cpages/innis-lecture.

[6] Refer to https://economics.silkstart.com/cpages/harry-johnson-prize and https://economics.silkstart.com/cpages/robert-mundell-prize.

[7] These are the years for which the institutional affiliation is readily available in the CJE's front matter.

woman served as the CJE's managing editor during the 50-year window I consider.[8] The term of the first female managing editor (Katherine Cuff) started in July 2018. Only 4 women have served as the CJE's co-editors during 1998-2017. In other words, just 15% of the CJE's 22 co-editors were women.[9] Women have also accounted for 15% (21/119) of the editorial advisors during this period. This track record is similar for other journals. Prior to the current American Economic Review (AER) editor (Esther Duflo, 2017–), Pinelopi Goldgerg (2011–2016) was the only AER female editor, and 7 of 43 (16%) current or past AER co-editors are women.[10] Nancey Stokey (2003–2007) and Monika Piazzesi (2006–2014) are the only women who have served as editors of the Journal of Political Economy (JPE).[11] No woman has served as editor of Econometrica (ECTA) and only one woman (Nancy Stokey, 1996–2000) has served as the journal's co-editor. Finally, only 8/260 (less than 5%) of the ECTA's associate editors are women.[12] Hence, although women's presence among the senior editorial board members in the CJE is comparable to that in the AER, a woman became editor of the CJE 7 years later.

The proliferation of economic journals, especially in recent years, has affected the CJE's position in various rankings. Table 3 provides a ranking of a set of general-interest (GI) journals that publish research in all fields of economics according to various sources. The table includes 10 other publications: the AER, the Economic Journal (EJ), the Journal of the European Economic Association (JEEA), the European Economic Review (EER), the International Economic Review (IER), Economica (ENCA), Economic Inquiry (EI), the Economic Record (ER), the Southern Economic Journal (SEJ), and the Scandinavian Journal of Economics (SJE).[13] To be clear, my

[8]The five CEA female presidents are Alice Nakamura (1994–1995), Barbara Spencer (2004–2005), Victoria Zinde-Walsh (2010–2011), Nancy Gallini (2016–2017), and Frances Woolley (2017–2018).

[9]Based on information extracted from the CJE's front matters for 1998–2017, these women are Beverly Lapham (2009–2012), Jenniffer Hunt (2002–2005), Joanne Roberts (2010–2013), and Matilde Bombardini (2015–2017). These are the years for which I was able to identify the gender of members of the editorial board following the same approach as in the case of the gender of authors described in detail in Section 4.4. For years prior to 1998, I was not able to identify the gender for about 20% of the members of the CJE's editorial boards mainly due to the use of initials for first names and the lack of on-line information for these individuals.

[10]See https://www.aeaweb.org/journals/aer/about-aer/editors. These 7 women are: Valerie Ramey (1992–2002), Judith Chevalier (2004–2007), Pinelopi Goldberg (2007–2010, 2017), Hillary Hoynes (2011–2017), Marianne Bertrand (2011–2017), Gita Gopinath (2017), and Emi Nakamura (2017–).

[11]See https://www.journals.uchicago.edu/journals/jpe/past-editors.

[12]See https://www.econometricsociety.org/publications/econometrica/editorial-board/past-associate-editors and https://www.econometricsociety.org/publications/econometrica/editorial-board/past-editors-and-co-editors-econometrica. The women co-editors are: Beth Allen (1989–1992), Susan Athey (2006–2007), Deborah Lucas (2000–2003), Martine Quinzii (1991–2003), Susanne Schennch (2008–2017), Nancy Schwartz (1990–1993), and Nancy Stokey (1989–1992).

[13]Six of the journals listed in the table (AER, EJ, JEEA, EI, ER, and SEJ) are published by economic associations in the U.S., Europe, and Australia. The AER (1911) is published by the American Economic Association, the EJ (1891) is published by the Royal Economic Society, the JEEA (2003) is published by the European Economic Association, the EI (1962) is published by the Western Economic Association, the ER (1925) is published by the Australian Economic Society, and the SEJ (1933) is published by the Southern Economic Association. The remaining four journals are reputable and visible internationally. ENCA (1921) is published by the London School of Economics, the EER (1969) is published by Elsevier, the IER (1960) is published by the Economics Department of the University of Pennsylvania and the Osaka University Institute of Social and Economic Research Association. Finally, the SJE (1899) was initially published as Ekonomisk Tidskrift, subsequently as the Swedish Journal of Economics, and is more recently as the Scandinavian Journal of Economics.

focus is not on parsing the merits and drawbacks of each of these rankings but rather take them as readily available metrics of visibility and perception. The rankings I retrieved from the 5 papers listed in the leftmost column of the table are constructed using metrics based on citations from the ISI Web of Science and the Journal Citation Reports between 1994 and 2007.

The main message of these rankings is that we can group these 11 journals in four tiers. The AER is the only tier-1 journal. The second tier includes the EJ and the JEEA. The EER and the IER are the tier-3 journals. The 4th tier includes the CJE, ENCA, the EI, the ER, the SEJ, and the SJE. Keeping in mind the different total number of journals (69 journals in Engemann and Wall (2009) to 209 journals in Kalaitzidakis et al. (2011)) used in these rankings, the CJE's ranking is between 39 and 104 and is mostly similar to the rankings of ENCA and the EI.

The rankings discussed above can be explained by the large number of specialty (field) journals that have created an intermediate tier between the elite GI outlets, such as the AER, and lower-tier GI outlets like the CJE, as discussed in Brander and Smith (2017). In particular, field journals account for 70%–80% of all journals with a ranking above the CJE ranking in the sources listed in Table 3. Examples of such field journals are the Journal of International Economics, the Journal of Labor Economics, the Journal of Public Economics, the Journal of Development Economics, the Journal of Health Economics, and the Journal of Industrial Economics. To check how much the presence of field journals affects the rankings from the sources listed in Table 3 excluding RePEc, I calculated an adjusted ranking based on an ordering of the journals in terms of their original ranking but eliminating all field journals.[14] This adjusted CJE ranking is between 12 based on the metrics in Kodrzycki and Yu (2006) and 16 based on the metrics in Chang et al. (2016).

Figure 1 shows the CJE ranking according to the Journal Citation Reports for 1997–2017 along with the rankings of the 5 other tier-4 GI journals. The same figure (panel (a)) also shows that the number of journals tracked by JCR more than doubled from about 160 to about 350, which is something that we need to keep in mind in our discussion of the rankings. A common feature of all 6 GI journals is that their ranking generally falls over time with isolated episodes of improvement (panels (b) and (c)). The CJE ranking is 139 in 1997, improves to 84 in 2005, and it falls in later years reaching 268 in 2017. The SEJ is the journal whose ranking generally tracks the CJE ranking most closely during the entire period. Using percentiles to account for the different number of journals tracked over time by the JCR, the CJE is at the 15% percentile in 1997, peaks at 56% in 2010 and levels off at around 25% in the most recent years. Overall, both metrics point to a deterioration in the CJE's ranking that starts in the late 2000s. Figure A1 in the on-line Appendix shows the JCR ranking for all six tier-4 GI journals relative to the AER ranking in 2008 as in Figure 1 in Kalaitzidakis et al. (2011). Once again, the CJE's relative ranking deteriorates starting in 2010.[15]

[14] For example, assume that the original ranking for AER is 1 and the ranking for CJE is 10 and there are only field journals with rankings 2–9. Following my approach, the adjusted ranking is 1 for the AER and 2 for the CJE.

[15] Figure A2 in the on-line Appendix shows an upward trend in the CJE's impact factor (IF) from the Journal Citation Reports (JCR) during 1997–2017. The JCR IF is a citations-based measure of the CJE's performance and

The JCR rankings of CJE can also be explained by the presence of field journals as discussed earlier. In particular, 33 out of the 43 journals with JCR ranking that is better than the CJE ranking in all 21 years during 1997–2017 are field journals. To see how much field journals affect the CJE ranking, and following the same approach as for the rankings in Table 3, I calculated an adjusted JCR ranking using 25 GI journals listed in Table A2 of the on-line Appendix. This adjusted JCR ranking for the CJE shown in panel (d) of Figure 1 starts at 21 in 1997 and reaches 12 in 2002. The deterioration in the CJE's raw ranking beginning in the 2000s is also a feature of the adjusted rankings; the CJE's adjusted ranking is 16 in 2010 and 23 in 2017. Hence, although field journals do explain the levels of the CJE's rankings, they do not seem to explain the trends in its ranking in the most recent years. I offer some thoughts on the implications of these ranking-related findings, along some additional findings, for the future of the CJE at the end of the paper.

3 Publication Process: Submissions and Acceptance Rates

Using information compiled from the managing editors' reports, I constructed an annual series of the total number of articles submitted to the CJE along with the number of articles accepted for publication during 1973–2017. The analysis that follows is mostly descriptive given the nature of the data in hand and points to two basic facts. First, submissions to the CJE increased over time and more so after the mid 1990s. This is especially true for submissions related to international economics, and, to a lesser extent, for submissions related to labor/demographic economics and industrial organization. Second, the CJE's acceptance rate, defined as the ratio of accepted to submitted articles, exhibits a hump-shaped pattern over time reaching its peak in the late 1990s/early 2000s.

In particular, the submissions to the CJE fluctuated somewhere between 150 and 350 articles with an average of about 240 articles exhibiting an upward trend that was more pronounced after 2000 (Figure 2, panel (a)). A simple regression of the logarithm of submissions on a time trend gives a slope coefficient that implies an annual growth rate of about 1%. The R^2 in the same regression is 0.4. The number of accepted articles also exhibited notable fluctuations (15–67 articles) with an average of about 50.

The upward trend up until the late 1980s in the acceptance rate, which increases from about 10% to around 35%, is followed by a downward trend with the acceptance rate dropping to 20%–25% in the later years implying an average acceptance rate of 22%. An alternative calculation of acceptance rates—dividing the number of published articles in year t by the average of the number of submissions in years $t-1$ and $t-2$—as in Card and DellaVigna (2013) produces an annual series

has been consistently included in the reports of the CJE's managing editors. It has also been used by Davies et al. (2008) to assess the CJE's performance relative to other economic journals during 1980–2000 (see their table 1). The JCR IF is calculated as the number of citations tracked by the JCR in year t to the number of articles published in years $t-1$ and $t-2$. For example, in 2009, there were 64 such citations to the CJE's articles published in 2007 and 2008. Given that there were 110 articles published in these two volumes, the JCR-IF is $64/110 = 0.58$.

of acceptance rates that is very similar to the one based on the original calculation and implies a slightly larger average acceptance rate of about 24%. As a comparison, during 1970–2012, the acceptance rate for the Top 5 economics journals (AER, ECTA, JPE, QJE, RESTUD) generally fell from around 15% to about 6% (Card and DellaVigna), which is very close to the acceptance rate for the top journals (7%) reported in Hamermesh (2013).[16]

I also compiled annual data on submissions to the CJE by field, which I plot in panel (b) of Figure 2 for the fields with the best coverage and reasonable homogeneity.[17] The most notable feature of the submissions by field is the surge in submissions related to international economics since the mid 2000s. Between 1995 and 2004, there were 413 submissions to the CJE related to international economics. During the same period, the flagship field journal (the Journal of International Economics), received close to 3,000 submissions of which almost 600 articles (20%) were accepted for publication (Cherkashin et al. (2009)). The submissions related to macroeconomics were relatively stable over time with an average of 40 articles per year. Both industrial organization and labor/demographic submissions experienced growth, especially after the mid 1980s, reaching a peak of close to 50 articles per year in the mid 2000s. If we include submissions related to public economics, the growth in the "micro-oriented" submissions after the late 1990s is more pronounced.

The last piece of analysis in this section pertains to the evolution of the time to first response (henceforth, response time) in the CJE's publication process. Panel (c) of Figure 2 shows a pronounced trend towards a shorter response time between 1976 and up until the late 1980s from about 4 months (130 days) to about 2.5 months (75 days) followed by an opposite trend towards a longer response time up to the mid-1990s reaching a peak of almost 6 months (170 days). The general shorter-response-time trend resumes in the remaining years noting the occasional spikes such as those in the mid 2000s and in the most recent years. As a comparison, based on data for 1970–2017, the average time to first response for papers accepted in the JPE and the QJE in Ellison (2002) was 6.5 months; during the same period, the average time to first response for the CJE was 3.9 months (116 days).[18]

Plausible explanations for the longer response times are longer and more technical submissions, slower refereeing and editing, as well as more and longer revisions requested that have been documented elsewhere for economics journals (Ellison (2002)).[19] Unfortunately, with the data available,

[16] Although submissions with Canadian author address exceeded those with foreign author address before the mid 1980s, the opposite was the case for years up to 2000, the last year for which I was able to retrieve this information.

[17] In recent years, submissions by Journal of Economic Literature (JEL) field are available. However, this is not the case for the earlier years in my sample. For example, in 1973, the submissions for growth, fluctuations, inflation, money, public finance were all reported together. For this reason, and in order to be able to compile time series of submissions with reasonable coverage, I had to do some splicing for international economics and macroeconomics (macro). In the case of international, I spliced submissions for (i) international (1973–1997), (ii) international finance (2002–2013), and (iii) international trade (1998–2013). In the case of macroeconomics, I spliced submissions (i) for growth, fluctuations, inflation, money(1973–1989),(ii) macro, growth, fluctuations, inflation, money (1990–1997), (iii) macro, growth, money (1998–2005), and (iv) macro and monetary (2006–2013).

[18] I calculated the average time for the first response using the response times reported for the JPE and the QJE in Ellison's Table 2 for 1970, 1980, 1985, 1990, and 1992–1997.

[19] Using data for the Top 5 economics journals plus the Review of Economics and Statistics, Ellison finds than an

I was not able to explore further these plausible explanations for the pattern in the CJE's response times. I did, however, explore the relationship between submissions and the response time assuming that authors opt for submissions to journals with shorter response times, all else equal, by regressing the number of submissions to the CJE on the CJE's average response time in the previous 5 years. The slope coefficient in this regression is negative but not statistically significant at conventional levels (less than or equal to 10%) suggesting the lack of a strong relationship between response time and submissions.[20]

4 Bibliometric Analysis

This section describes a bibliometric analysis of the articles published in the CJE in the last 50 years and is organized around 5 main themes: (i) number of articles and article features, (ii) topical coverage, (iii) evolution of empirical approaches, methodologies, and techniques, (iv) authors and collaborations, and (v) citations. Some additional analysis of authors and articles is available in the on-line Appendix.

4.1 Number of Articles and Article Features

I assembled a corpus of all articles published during 1968–2017 using their chronological index readily available from the CJE's website.[21] As in Davies et al. (2008), I focused on refereed articles published in regular issues and I excluded editorial notes, obituaries, book reviews, and similar contributions. I also excluded articles that appear in a two-part special issue published in April 1996.[22] With a corpus of about $2,800$ articles in hand, I used text-mining techniques to extract information, such as the title, abstract, number of pages, equations, tables, figures, from each article.

As a preliminary step for my analysis, I report the coefficient and associated 95% confidence intervals from a log-linear regression of the annual series of the number of articles and several article features on a linear time trend (Figure 3). Although the growth rate of the number of articles per volume is about 0.5%, the growth rate for the article features I collected information for is between 2% (number of pages per article) and 3% (number of tables per article). As a comparison, based on data from Card and DellaVigna (2013), the average growth rate for articles published in the Top 5 economics journals is -0.9% for the 1970–2012 period.[23]

extra page adds 5 days to the time to the first decision.

[20] Using x_t to denote the response time in year t, my explanatory variable is $\overline{x}_t = \frac{1}{5}\sum_{l=1}^{5} x_{t-l}$. Slight variations in the construction of this explanatory variable have no effect on its statistical significance.

[21] The index is available at: `https://economics.ca/cgi/jab?journal=cje&ty=ti`.

[22] This two-part special issue of the CJE contains short articles developed from those originally presented at the 28th annual CEA meeting at the University of Calgary in 1994.

[23] I used the same log-linear regression and the data for their Figure 2, which are available in the Appendix Table 1 of their NBER working paper.

Figure 4 shows the number of published articles (panel (a)) and article features (panels (b)–(e)) by volume and paints a more detailed picture of their evolution over time than the average growth rates discussed in the previous paragraph. Between 1968 and 2017, the number of articles exhibits a general upward trend despite notable fluctuations, such as those in the late 1990s and early 2000s. During this period, the number of articles per volume is roughly between 40 and 75 with an average of about 55. Given that the CJE publishes 4 issues per volume on a regular basis, there are, on average, 14 articles per issue.

The number of pages per article increased steadily from about 10 in the CJE's early years to around 35 in recent years (panel (b)). This pattern is consistent with the "growing article length" trend that has been documented elsewhere; see Lybbert et al. (2018), Khwaja and Mangal (2018a), Card and DellaVigna (2013), among others. According to Card and DellaVigna, a trend towards longer articles could be perceived as a failure. In particular, the authors failed to communicate their findings concisely. The referees and editors failed to detect "fluff" in the original submission or requested too much additional material in the revise-and-resubmit stage.[24] It could also be the case that longer papers are better papers, a possibility that I explore in a subsequent section where I relate the articles' citations to various features, including the number of pages.

Despite some fluctuations, the upward trend is also prominent in the number of tables per article (panel (c) in Figure 4) and the number of figures per article (panel (d)), and more so after the early 1990s. Actually, both features increased by a factor of about 4 during the 1968–2017 period. Along with the upward trend in the number of tables and figures per article, the upward trend in two more article features is consistent with an increase in the number of articles related to (increasingly sophisticated) empirical analysis. The first feature is (a proxy for) the number of equations per article (panel (e)). The second feature is the discussion of regression in an article (panel (f)).[25]

4.2 Topical Coverage

To analyze the CJE's topical coverage, I begin with the published articles' Journal of Economic Literature (JEL) codes. In particular, my analysis includes all articles published during the 1998–2017 period, for which JEL codes are readily available from the CJE's website noting that an article may have several JEL codes. As panel (a) of Figure 5 shows, JEL codes are available for 80% of a volume's articles, on average. In the most recent years, JEL codes are available for almost all the articles in a volume.[26] Additionally, roughly half of the articles have a single "high-level" JEL

[24] A statement by the editors of Econometrica, Quantitative Economics and Theoretical Economics which was published on September 4, 2019, speaks to the possibility of such failure. See `https://www.econometricsociety.org/content/society-journal-editors-plan-address-increasing-paper-length`. See also the WSJ article here and the Twitter handle `#ThePaperIsTooDamnedLong` by David Autor in the 2018 AEA Meetings.

[25] I constructed the proxy for the number of equations by counting the number of occurrences of the equal (`=`) sign in each article. I classified papers as discussing regression if they contained the word regression in their text.

[26] See `https://economics.ca/cje/en/search.php`. Beginning with volume 31 (1998), authors were required to provide JEL codes. However, this requirement was not enforced and there were articles missing JEL codes. The reader should also note that I use a less verbose description of JEL codes compared to their original description.

code (e.g., F) while 40% of them have two (e.g., F and H) such codes.

Panel (b) of Figure 5 shows the count of articles by JEL code. Code F (international) has the largest number of articles (about 370). In percentage terms, articles related to international economics account for about 40% of all articles with JEL codes published during this period. Codes D (microeconomics), E (macroeconomics), and J (labor), follow with roughly 140–200 articles each. Codes H (public), L (industrial organization) and C (mathematical & quantitative methods) have close to 115 articles, while code O (development), which is just below, is the only other code with more than 100 articles. For each of the remaining codes, we see no more than 60 articles. In all, the distribution of articles is pretty skewed towards a handful of codes.

In panel (c), I compare the distribution of the articles published in the CJE across JEL codes to its counterpart for the general-interest journals in Kelly and Bruestle (2011), which consist of the Top 5 economics journals, plus the RESTAT, the IER, and the Journal of Economic Theory (KB-GI). The two distributions look quite similar for most of the JEL codes. In the case of code C (mathematical & quantitative methods), the share of articles published by the KB-GI journals is much higher compared to its analog for the CJE, which is not surprising given that ECTA, the RESTAT, and the RESTUD, are primary outlets for top-notch articles in this area. The share of code-D (microeconomics) articles in the KB-GI journals is also larger than the share of the same articles in the CJE. For both codes, the share of articles published in the KB-GI journals is almost twice as large as the share of articles published in the CJE; 12.5% compared to 7.5%, and 25.5% compared to 12.5%, respectively. The share of articles with JEL code F (international) published by the CJE (24%), however, is close to 4 times as large as the share (5.9%) of the same articles in the KB-GI journals.

Panel (d) shows the evolution of the CJE's topical coverage over time by plotting the share of articles per volume for the top JEL codes. Between 1998 and 2012, the share of articles with JEL code F (international) more than doubled from 23% to 58%. Following a steady decline afterwards, it is about 30% in 2017. JEL code D (microeconomics) shows an increase from about 10% in 1998 to about 36% in 2006. Starting in 2007, it experiences a rather precipitous drop reaching 9% in 2016. Setting aside the spike in 2014, in the last 10 years, code J (labor) also shows a sharp decline from 22% to 4%. Finally, code E (macroeconomics) also lost a lot of ground during the same period dropping from 24% in 2007 to 7% in 2015. However, in the last couple of years, it gained some of that ground back accounting for about 15% of the articles published in the CJE. As a comparison, and for roughly the same period (1995–2012), the share of articles in microeconomics increased from 16% to 27% in the Top 5 economics journals (Card and DellaVigna (2013)). The share of articles in labor, international, and macroeconomics reported by Card and DellaVigna, increased from 16% to 20%, from 7% to 9%, and from 10% to 13.5%, respectively.[27]

For example, I refer to group O as "development" as opposed to "economic development, innovation, technological change, and growth."

[27]The discussion here is based on the averages that Card and DellaVigna report for 1995-99, 2000-04, 2005-09, and 2010-12 in the Table 5 of their Appendix.

As an additional way to analyze the CJE's topical coverage, I examine whether an article has Canadian content. Panel (e) of Figure 5 shows a drop in the share of articles with Canadian content over time from about 40% in the CJE's early years (1968–1972) to 30% in the most recent years (2013–2017).[28] These percentages are very similar to the ones reported by Brander and Smith (2017) for articles with "significant Canadian content" published in the CJE.[29] Consistent with what Brander and Smith also find, the drop in the share of articles with Canadian content is much larger if we use empirical articles only.[30] Although the share of empirical articles with Canadian content is close to 80% in the CJE's first five years (1968–1972) and remains at these levels up until the early 1990s, it drops to 50% in the last five years of my sample (2013–2017).[31]

A natural question to ask is what explains the drop in the CJE's Canadian content. Brander and Smith argue that research on Canadian economic issues has migrated to other outlets and reports published by thinks tanks, the Bank of Canada, Industry Canada, and other government outlets. I argue that Canadian researchers may disseminate their work without subjecting it to the peer review process via less "traditional" channels such as blogs and social media, which can be more effective in attracting the policy markers' attention, especially in the most recent years. However, given that the CJE's editors and coeditors have been very open to publishing high quality research on Canada, I share Brander and Smith's concern on whether this pattern raises the issue of a decline in the supply of specialized, technical, Canada-centric empirical research. I will return to this discussion in the end of the paper.

An additional explanation for the decrease in the CJE's Canadian content is offered by Simpson and Emery (2012). Simpson and Emery analyze publication activity and its Canadian content for faculty in Canadian economics departments and find strong evidence of declining interest in Canadian content for newer faculty hired since 1990 and for faculty in Canada's top-rated departments with hiring and retention decisions aiming to improve their ranking based on top publications aggravating the supply of such content. Setting aside the implications for the Canadian content of the CJE, these findings regarding Canada's top-rated departments may also explain the journal's deteriorating ranking I discussed earlier in Section 2.

A potential final explanation for the drop in the CJE's Canadian content may lie in the authors' demographics as discussed in Scott (1993). Scott categorizes economists as mobile or immobile depending on their desire to work outside Canada and argues that only immobile economists would focus on Canadian content while mobile economists would tend to accumulate knowledge and

[28] I identified these articles via automated text analysis and manual review refining a search algorithm aiming to minimize type I and type II errors.

[29] Brander and Smith report about 40% (30%) of articles having such content for 1968–1970 and 1991–1993 (2014–2016). They offer no explanation of the method they used to classify articles as ones with significant Canadian content.

[30] I treated articles as empirical if they included some data-related analysis based on a manual review of the articles. I also treated a small number of articles related to econometric methodology (e.g., Carter (1973)) as empirical.

[31] The share of empirical articles with Canadian content in Brander and Smith is about 70% in 1968–1970, about 80% in 1991–1993, and about 50% in 2014–2016.

expertise on topics that would be of interest to non-Canadian universities and other potential employers. Scott further argues that it is senior economists that comprise the majority of this group. Following this argument and the general understanding that more senior faculty members publish less frequently relative to younger faculty but also over time, two facts would be necessary to explain the drop in the Canadian content of articles in the CJE. First, that the mobile group's average age is increasing and, second, that the size of the mobile group is becoming larger relative to the immobile group. Additional data would be needed to test this hypothesis.

4.3 Evolution of Empirical Approaches, Methodologies, Topics, and Techniques

In this section, I explore the evolution of empirical approaches, methodologies, topics, and techniques (AMTTs) in the CJE's articles over time, which I summarize in Figure 6. To simplify my task, I follow Bowen et al. (2017). In particular, I focus on the language associated with the AMTTs as opposed to their actual use.[32] Hence, I rely on a dictionary of keywords associated with the AMTTs and, for each article, I create a dummy that equals one if the article uses at least one of the keywords and aggregate these dummies. Overall, I find that the use of empirical AMTTs has been increasing significantly over time, especially in the last 30 years.

By far, the most frequently used empirical tool in economics is regression analysis. I begin my analysis of AMTTs by looking at the shares of articles discussing regressions in general and two of the most common identification techniques in econometrics: two-stage least squares/instrumental variables (2SLS/IV) and fixed effects (panel (a)). Following some fluctuation in the range 25%–35% up until the early 1980s, the share of articles discussing regression (REG) exhibits a strong upward trend reaching 55% during the 2013–2017 period. After some variation with values roughly between 5% and 10% up until the mid 1980s, the share of articles discussing 2SLS/IV follows an upward trend reaching about 20% during the 2013–2017 period. In the case of articles discussing fixed effects (FE), we see more of an s-shaped diffusion pattern. Their share starts taking off in the mid-1980s, when it accounts for less than 1% of all articles, reaching about 25% by the late 2000s and early 2010s, which is around the time of the "Credibility Revolution" discussion in Angrist and Pischke (2010).

Regarding estimation methods, the shares of articles discussing either ordinary least squares (OLS) or Limited Dependent Variables (LDV) increase steadily over time, especially after the late 1980s, reaching a peak of 27% and 20%, respectively, during the 2013–2017 period (panel (b)). The discussion of Maximum Likelihood estimation (MLE) exhibits an irregular mild upward trend accounting for about 10% of the articles by 2013–2017. The share of articles discussing the generalized method of moments (GMM) exhibits an upward trend increasing from 2%–3% in the late 1980s/early 1990s, which is several years after Hansen's 1982 Econometrica article (Hansen (1982)), to about 6%–7%

[32] For example, I use "instrumental variable," "iv," "two-stage least squares," "2sls,", "tsls" for the instrumental-variables dictionary. After flagging the relevant articles and to avoid false positives, I checked each article to make sure that the article indeed discusses the AMTTs of interest.

in the most recent years. Although Bayesian estimation methods (BAYES) are discussed in no more than 2% of the articles up until the late 2000s, that share more than doubles during the 2013–2017 period. Two related points are worth raising here regarding the pattern of the share of articles discussing Bayesian methods. First, many articles are related to macroeconomic topics. Second, one of the most influential macroeconomic articles in recent years, Smets and Wouters (2007), uses a Bayesian likelihood approach to estimate a dynamic stochastic general equilibrium (DSGE) model for the U.S. economy.

The shares of articles in applied microeconomics discussing causal effects (CAUSAL), treatment effects (TREAT), difference in differences (DID), and natural experiments (NATEXP) are shown in panel (c) of Figure 6. The shares of articles discussing these AMTTs take off in the late 1990s, starting at essentially zero, and reach 5%–8% (depending on the AMTT) in the more recent years. The timing and the s-shaped diffusion pattern of these articles resembles that of the articles related to fixed effects discussed above. The increase in the share of articles discussing counterfactuals (COUNTF) starts a few years earlier and is more pronounced. Although the articles discussing counterfactuals account for about 2% of all articles in the late 1980s/early 1990s, they account for almost 20% in the most recent years. Similar patterns in the fraction of papers discussing several of these AMTTs over time are shown for the articles published in the Top 5 economics journals and the National Bureau of Economic Research working papers in Currie et al. (2019). Trying to reconcile the diffusion path in articles discussing these AMTTs with milestones in the literature, I note the very influential work by Card and Krueger (1994) and Imbens and Angrist (1994).[33]

The use of empirical AMTTs in macroeconomics follows a similar pattern. The shares of articles discussing Vector Autoregression (VAR), impulse response functions (IRF), and real business cycle (RBC) models all exhibit somewhat of an irregular upward trend starting in the late 1980s (panel (d)), a few years after two seminal papers in this line of research, namely, Sims (1980) and Kydland and Prescott (1982). The share of articles discussing cointegration (COINT) exhibits almost a Pi-shape pattern reaching a plateau of about 6%–7% between the early 1990s and early 2000s. The beginning of the plateau is a few years after the very important contributions by Engle and Granger (1987) and Johansen (1988). The share of articles discussing dynamic stochastic general equilibrium models (DSGE) is essentially zero until the early 2000s increasing to about 6.5% in the latest years.

Finally, panel (e) shows the evolution in the shares of articles discussing various methods related to inference. Starting with articles discussing heteroskedasticity-robust (HET) inference, we see an increase in the early 1980s, a few years after White (1980), leading to a peak of about 5%

[33]The shares of articles discussing propensity score and regression discontinuity design are smaller (less than 5%) and exceed 1% only in the very recent years. Once again, trying to reconcile these pattern with milestones in the related literature, although matching using the propensity score was proposed in Rosenbaum and Rubin (1983), it seems that it became popular science, at least among many empirical microeconomists, following Abadie et al. (2004)). Some of the most influential RDD articles, were published after 2000; see, for example, Hahn et al. (2001), Imbens and Lemieux (2008), and Lee and Lemieux (2010).

followed by a steady decline until the late 2000s/early 2010s, and an increase to 10% in the most recent years. In the case of articles discussing heteroskedasticity and autocorrelation (HAC) robust inference, we see an increase beginning in the late 1980s, around the time of Newey and West (1987)), that lasts roughly until the early 2000s reaching 3% followed by a mild decline in the next 10 years and returning to 4% in the last 5 years. The share of articles discussing cluster-robust inference (CLUSTER) exhibits a clear upward trend that starts in the 1990s, which is around Moulton (1990), and becomes more pronounced in the early 2000s reaching 18% during 2013–2017. This is a period with very influential writings on cluster-robust inference such as Bertrand et al. (2004), Cameron et al. (2008), and Cameron et al. (2011), among others. As for the share of articles discussing bootstrap-based inference (BOOT), it increases from essentially zero up until the early 1990s to 6% during 1998–2002 despite the fact that Efron's Annals of Statistics article on bootstrap methods was published in 1979 (Efron (1979)). Following a decline in the 2000s, the share of bootstrap-related articles increases to about 10% in the most recent years.

Overall, the use and development of empirical AMTTs has been increasing rapidly since the mid 1990s as expected with the increase in data availability and the improvement in computing power and computer availability that made it possible to perform empirical analyses in a shorter period of time. The is a trend experienced by most economics journals.

4.4 Authors and Collaborations

I now analyze the evolution of the CJE's authorship by highlighting trends in the institutional affiliation of the authors whose work was published in the CJE. I then track the evolution in co-authorship over time and by gender.[34] I follow the methodology of Lybbert et al. (2018), Khwaja and Mangal (2018b), and Andrikopoulos et al. (2016), who performed similar analyses for the American Journal of Agricultural Economics (AJAE), the RESTAT, and the Journal of Econometrics (JOE), respectively.

Panel (a) of Figure 7 shows the average share of authors—weighted by the number of authors—affiliated with Canadian universities using the list of universities in Table 2 of Davies et al. (2008).[35] The same figure also shows the share of authors affiliated with the top Canadian universities, namely, the University of British Columbia, the University of Toronto, Queen's University, and the University of Western Ontario. In general, despite some fluctuations, a downward trend in the share of authors affiliated with Canadian universities in the articles published in the CJE is clear. In particular, if we consider all Canadian universities, the average share of authors affiliated with

[34] Section A.1 in the on-line Appendix provides some discussion related to the most prolific authors (authors with 10 articles or more). It also provides information on the authors and the authors' institutional affiliation for articles that won the Harry Johnson Prize, articles that won the Robert Mundell prize, and commissioned articles, namely, the Canadian Economic Association Presidential Address, the Innis Lecture articles, and Viewpoint articles. In Section A.2 of the on-line Appendix, I analyze the CJE's collaboration network and check whether the authors publishing in the CJE constitute a small world.

[35] For a paper with N authors, each author is assumed to be an equal contributor and is assigned a share of $1/N$.

Canadian universities drops from about 50% during the 1968–1992 period to about 30% during the 1993–2017 period. If we consider the top Canadian universities only, the average share drops from about 25% during 1968–1992 to about 10% during 1993–2017. Over the course of 50 years, there is a drop of 0.7% (0.5%) per year in the share of authors affiliated to (the top) Canadian universities, on average. The drop in the share of Canadian affiliation is consistent with publications in higher-tiered journals than CJE being more relevant in salary and promotion decisions at Canadian universities. Using information from salary disclosure reports of tenured and tenure-track economics professors facilitated by the 1996 Ontario Public Sector Salary Disclosure Act, Sen et al. (2014) estimate that a top-10 (top-21) peer-reviewed journal publication based on the ranking in Kodrzycki and Yu (2006) is associated with roughly a 3% (1%) percent increase in salary with the mean salary in their sample being approximately $128,000. Given that the CJE is neither a top-10 nor a top-21 publication in this ranking and does not command the salary "premium" estimated by Sen et al., it makes sense that fewer faculty members of Canadian universities pursue a publication in the CJE.

Panel (b) of Figure 7 shows the average share of female authors in the CJE articles during 1968–2017. The same figure includes information for the share of female authors in the articles published in the AER, the JPE, and the QJE at various points in time between 1973 and 2011 from Hamermesh (2013). Despite some fluctuations, there is an upward trend from essentially zero in the CJE's early years to more than 20% in the most recent years reaching a peak of about 25% in 2011. Although the same upward trend is present in the AER, the JPE, and the QJE, the share of female authors plateaus at 12.6%. Across all 50 years, the average share of female authors in the CJE is about 12%.[36] Using articles for 1950–2015 for the Top 5 economics journals, Hengel (2019) reports the following shares of female authors per paper: AER (12.5%), QJE (10%), RESTUD (7.7%), JPE (6.3%), and ECTA (4.2%). Therefore, the average share of female authors in CJE's articles is comparable to that reported by Hengel for the AER and exceeds its counterparts for the remaining of Top 5 economics journals during a period that overlaps to a large extent with the one used in my analysis.

In panels (c)–(e) of Figure 7, I show the large increase in co-authorship that the CJE experienced over time. In particular, the share of single-authored articles drops from around 85% in the early 1970s to about 50% in the early 2000s, and to about 25% in the most recent years (panel (c)). A similar rise in co-authorship has been documented by Khwaja and Mangal (2018b) for the RESTAT,

[36] I assigned gender to about 95% of the approximately 4,500 authors following an approach that is similar to that in Hengel (2019). According to my gender coding, 83% of the CJE's authors were males and 12% were females. When applicable, the shares shown in the figure are calculated excluding authors whose gender was not identified. In order to identify the authors' gender, I started with obviously gendered first names (e.g., John, Amanda, etc.) and public lists of first names, which allowed me to assign gender to 74% of the authors. Subsequently, I performed web searches using the authors' names and their affiliations to identify their gender using mainly photos posted on their personal websites. These web searches allowed me to identify the gender of an additional 19% of all authors. Finally, I managed to increase the share of authors whose gender I identified by 2 additional percentage points using their first names and the genderchecker.com database. The remaining authors, who have not been assigned a gender, are primarily authors with either initials only in their first names or with Asian names. Roughly half of them are authors of articles published in the CJE mainly before 1990.

by Lybbert et al. (2018) for the AJAE, and Andrikopoulos et al. (2016) for the JOE.[37] The CJE also experienced an increase in the average number of authors per article that is comparable to the one documented by Card and DellaVigna (2013) for the Top 5 economics journals.

In panels (d) and (e) of Figure 7, I explore co-authorship based on gender between 1968 and 2017. Unsurprisingly, given the dominance of male authors in the articles published by the CJE, the share of single-authored papers by male authors exhibits a pattern over time that is very similar to its counterpart for all authors. The share of co-authored articles with male authors only increased over time from about 10% in the early 1970s to about 40% in the most recent years (panel (d)). Although the share of co-authored articles with both male and female authors also increased over time from essentially zero in the beginning of the sample to about 20% in the latest part of the sample, it remained systematically below the share of co-authored articles by male authors only. The share of co-authored articles by female authors only oscillated somewhere between zero and 7% (2013) during this time.

4.5 Citations

The last piece of my analysis is related to the quality and the perception by the profession of articles published in the CJE using Google Scholar (GS) citations retrieved in March 2019. I first provide some summary statistics on the number of GS citations. I then use a regression analysis to shed some light on the factors affecting citations.[38]

Figure 8 shows the median number of GS citations for articles published in the CJE during 1968–2017, by volume. The same figure also shows the citations' interquartile range to give the reader an idea about the dispersion of their empirical distribution that exhibits a long right tail. The number of articles per volume used to construct these summary statistics lies somewhere between 40 and 75 with an average of 55. Clearly, the most salient feature of the figure is the hump-shaped pattern with fewer citations for older and more recent articles; a similar pattern has been documented by

[37] Andrikopoulos et al. offer a very informative discussion of a series of hypotheses on why authors may collaborate. According to the "labor hypothesis," collaboration among specialized authors may be necessary to produce research output. For example, empirical research in industrial organization may lead to a collaboration between an econometrician and a theorist. A second driving force of collaboration is the need to produce high-quality output due to the increased competition for publishing and the tightening standards of academic publishing ("quality hypothesis") In the case of the "opportunity cost of time hypothesis", valuable time spent on providing comments and feedback on peers' unpublished work is often rewarded with co-authorship as opposed to an acknowledgment. Finally, a researcher may pursue collaborations to produce several papers to mitigate the exposure to the subjective views of editors, and to editorial standards that may incorporate priorities other than the quality of a submitted text ("quality hypothesis"). See also the discussion in Section 3 of Hamermesh (2013) on the reasons behind the increase in co-authorship in economics journals. A more detailed discussion and finding empirical support for these hypotheses for the CJE is beyond the scope of this paper.

[38] There are several reasons for using GS citations to assess the articles' quality. First, citations from the Web of Science (previously known as the Social Science Citation Index) for the CJE are available only beginning in 1998. Second, GS has become the main reference search tool used in many fields, including economics, since its launch in November 2004 (Auffhammer (2009)). Third, GS citations have been used for bibliometric analysis of other economics journals: Top 5 economics journals (Card and DellaVigna (2013)), environmental and resource economics journals (Auffhammer (2009)), the Journal of International Economics (Cherkashin et al. (2009)), to name a few examples.

Card and DellaVigna (2013) for the Top 5 economics journals.[39]

The fewer citations for the most recent articles should not be surprising given that these articles have less time to accumulate citations. A plausible explanation for the surprising pattern of fewer citations for the older articles (offered by Card and DellaVigna) is the nature of the GS. The GS searches through on-line working papers and publications and, hence, is less likely to identify citations to older papers. Overall, the most-cited articles were published between the early 1990s and the late 2000s with the median number of citations ranging between 25 and 45 depending on the volume. During the same period, the 75th percentile is somewhere between 60 and 100 citations depending on the volume. If we look at the 25th percentile of the citations per volume, we see values from just below 10 to no more than 20. As a comparison, Card and DellaVigna show that the median number of citations for the Top 5 economics journals is around 200 during the 1990–2000 period.

The last piece of the descriptive analysis of the citations data is provided in Table A3 of the on-line Appendix, which shows the top 20 articles published in the CJE in terms of GS citations. The range of citations is between 435 for Besedes and Prusa (2006) and $1,064$ for Globerman (1979). Roughly a third of these 20 articles have JEL code F (international) and and a fifth have JEL code O (economic development, innovation, technological change, and growth).[40]

I complement the descriptive analysis of the GS citation patterns above with a regression analysis using the log number of GS citations as the dependent variable and article-level data for the 1998–2018 period, the period for which JEL codes are readily available from the CJE's website (Table 4). My baseline specification has a 4th-degree polynomial in the time between the publication date and March 2019, measured in months. In the remaining specifications, I also control for observable article characteristics such as JEL codes, the length of the article, the number of co-authors, whether there is an estimation-related word in the abstract, whether the article is commissioned (presidential address, Innis lecture, viewpoint), and whether the article is related to research funded by the Social Sciences and Humanities Research Council (SSHRC).[41] The last set of controls I consider pertain to the CJE's managing editors. For the number of co-authors, I use dummies to distinguish between articles that have two authors, and articles that have 3 or more authors. For the number of pages, I use dummies for each of the 4 quartiles of their empirical distribution. To keep the size of the table manageable, I do not report coefficient estimates and standard errors for the dummies that pertain to JEL codes.[42]

[39] Excluding the 114 commissioned articles (presidential address, Innis lecture, viewpoints) has a negligible impact on the statistics reported here and leaves by and large the qualitative nature of the discussion intact.

[40] Section A.1 in the on-line Appendix provides a discussion of GS citations for the following: most prolific authors (authors with 10 articles or more), articles that won the Harry Johnson Prize, articles that won the Robert Mundell prize, and commissioned articles, namely, the Canadian Economic Association Presidential Address, the Innis Lecture articles, and Viewpoint articles.

[41] In Section A.3, I discuss the evolution in the share of articles published by the CJE that acknowledge SSHRC funding.

[42] A couple of clarifications regarding the construction of the variables are due. First, the dummy for whether there is an estimation-related word in the article abstract is equal to one if the text mining of the abstracts identified words

Before discussing the regression results, I provide some descriptive statistics on the dependent and explanatory variables. The mean number of citations is 43 with a standard deviation of 77. In terms of JEL codes, code F (international), which is the most frequent, appears in 38% of the articles followed by codes D (microeconomics, 20%) and J (labor and demographic, 15%). Moreover, 7 JEL codes appear in less than 1% of the articles each. The remaining JEL codes appear in 1.6% to 14% of the articles. Approximately 36% of the articles are single-authored. Close to 43% of the articles have two authors and the remaining 21% have 3 authors. The quartiles of the distribution of the articles' number of pages are 19, 24, and 29. An estimation-related word appears in the abstract of 18% of the articles. Finally, about 3.5% of the articles are commissioned and about 6.5% of them are related to SSHRC-funded research.

I report the regression results in Table 4. The adjusted R-squared ($\overline{R}^2$) for the baseline specification is relatively high (0.23). The JEL-code dummies improve the fit giving rise to an $\overline{R}^2$ of 0.28. The additional observed article characteristics further improve the fit suggesting that they are powerful predictors of citations. In particular, the $\overline{R}^2$ of the richest specification is 0.34. The polynomial terms for time since publication are jointly statistically significant at 1% in all specifications. The JEL code dummies are also jointly significant at 1%. The dummies related to the number of authors and the articles' length are generally significant at either 1% or 5%. The dummies for identifying articles with an estimation-related word in their abstract and commissioned articles are both significant at 1%. Finally, the dummy identifying articles with SSHRC-funded research is quite noisy and appears to be significant only at 10%. As the rightmost column of the table indicates, also controlling for the CJE's managing editors has essentially no material impact on point estimates and model fit.

In terms of the effects on citations, articles with two authors receive 29%–35% more citations than single-authored articles depending on the specification.[43] The citations for articles with three or more authors are 64%–74% higher than the citations for the single-authored ones. Articles in the 2nd quartile of the distribution of the number of pages, receive 28% more citations than their counterparts in the 1st quartile but the effect is not robust to the model specification. Articles in the 3rd quartile have 37%–46% more citations and articles in the 4th quartile have 69%–90% more citations. These findings regarding the articles' length and number of authors are consistent with the findings in Card and DellaVigna for the Top 5 economics journals. The positive effect of the paper length on citations suggests that papers with a larger number of pages may be better. As Card and DellaVigna discuss, this positive effect may also address the concern that longer papers are the outcome of a failed publication process, in which authors failed to communicate their findings concisely, and the referees and editors failed to detect "fluff" in the original submission or requested too much additional material in the revise-and-resubmit stage. The presence of estimation-related

starting with "estim." The approach for constructing the dummy for SSHRC-funded research is the same as the one I used to construct Figure A3.

[43] For the remainder of the discussion, the ranges reported are based on point estimates for the various specifications considered.

words in the abstract increases citations by 66%. Finally, commissioned articles receive almost 113% more citations than regular articles, a finding that is consistent with the CJE's objective to commission high-quality articles with wide visibility in the profession.

5 Conclusion

In the 50 years between 1968-2017, the CJE has evolved along similar paths as other economics journals in many ways but has also developed its own features. In this paper, I document the CJE's evolution along several dimensions. The CJE's editorial board shows a large spatial concentration among a small number of Canadian universities. Perhaps unsurprisingly, the University of British Columbia and the University of Toronto are the most dominant ones in terms of affiliations. During this time, the presence of female economists was scarce at several levels: there was no female editor and only 15% of co-editors were female between 1998 and 2017. Although submissions increased over time, the acceptance rate is hump-shaped with peak of about 35% in the late 1990s and early 2000s.

An analysis of the number of articles and article features over time shows that more and longer articles have been published during this period with a rising share of empirical content. The annual growth rate in the number of published articles is about 0.5%. The number of pages per article increased from about 10 in the CJE's early years to about 30 in the most recent year. There is also an increase in article features that is generally consistent with a rise in empirical analysis. As for the articles' topical coverage, international economics is the field with most pronounced upward trend in terms of published articles in the last 20 years. It is also the field that accounts for the largest share of articles published by the CJE. This is a clear departure from the evolution of other general-interest journals. Surprisingly, perhaps, there is a drop in the share of articles with Canadian content. Having examined the articles' discussion of approaches, methodologies, topics, and techniques (AMTTs), I find a large increase in the share of articles discussing "applied-micro oriented" AMTTs after the mid 1990s.

Collaboration across authors increased over time as did the share of female authors. I document a large increase in the number of authors and collaborations over time along with a large drop in the share of single-authored articles. Despite some fluctuations, there is an upward trend in the share of female authors in the articles published by the CJE with a peak of about 25% in the early 2010s. There is, however, a very notable decrease in the share of authors affiliated with Canadian universities.

Based on an analysis of Google Scholar citations, I find that the CJE's most cited articles were published between the early 1990s and the late 2000s. Longer articles and articles with more co-authors receive more citations. The same is true for articles with estimation-related discussion in their abstracts and commissioned articles. Controlling for the journal's editors leaves these findings

essentially intact.

A review of the CJE's rankings available in past literature points to rankings between 39 and 104, which, to a large extent, reflect the increase in the number of field journals. The CJE ranking is similar to the ranking of two other general interest journals, Economica, published by the London School of Economics, and Economic Inquiry, which is published by the Western Economic Association in the US. Eliminating the field journals in the rankings reviewed implies an adjusted ranking of 12–16. Perhaps the most worrisome sign regarding the CJE's ranking is its downward trend in the last decade or so. This downward trend cannot be explained by the large number of field journals and it occurs during a period in which the CJE transformed from a national journal central to the profession in Canada into a general-interest outlet aiming to international audience, or a national-to-international (N2I) transformation. Despite all this, there is still one aspect of the data that offers some hope. If the increase in submissions in the early 2000s includes a set of high-quality articles, it might help reverse the ranking trends as the citations for those articles grow.

I hope that the paper serves as an opportunity for the Canadian Economic Association (CEA) to reflect on the evolution of its flagship publication. One may argue that the CEA needs to decide whether the CJE should continue on its current course or whether the CJE should undergo an 180-degree or "I2N" transformation publishing Canada-centric papers lacking opportunities at international outlets. My personal view is that this will be a tough decision to make but I have no doubt in the CEA's ability to identify the right course of action to find ways to improve its visibility and recognition in the profession.

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Table 1: Senior members of the editorial board, 1968–2017

managing editors		associate editors		co-editors	
G.C. ARCHIBALD	1974-1974	S. AMBLER	1992-1995	W. ANTWEILER	2008-2013
A. ASIMAKOPULOS	1969-1972	G. ANDERSON	1988-1991	M. BAKER	2013-2017
D. BENJAMIN	2005-2008	M. BOYER	1982-1983	H. BAR-ISAAC	2016-2016
R. BOADWAY	1988-1993	L. CARMICHAEL	1986-1988	D. BERNHARDT	2017-2017
B. BONIN	1972-1974	M. DEVEREUX	1994-1997	M. BOMBARDINI	2015-2017
J.A. BRANDER	1997-2001	J.M. DUFOUR	1984-1987	J. BURBIDGE	1998-2001
L. CARMICHAEL	1993-1994	F.R. FLATTERS	1969-1978	C. BURNSIDE	2007-2010
I.M. DRUMMOND	1968-1969	P. FORTIN	1969-1977	A. CARVAJAL	2015-2017
B.C. EATON	1994-1997	R. HARRIS	1981-1982	M. CRUCINI	2010-2013
D. GREEN	2008-2013	P. HOWITT	1978-1981	M. DEVEREUX	1998-1998
J.F. HELLIWELL	1980-1982	S.R.G. JONES	1995-1997	J. EDERINGTON	2012-2016
S.F KALISKI	1977-1979	G. MACDONALD	1982-1986	J. GALBRAITH	2001-2004
R. LEVESQUE	1971-1972	C. MONTMARQUETTE	1988-1989	K. HEAD	2005-2008
M. PARKIN	1982-1987	K. NAGATANI	1980-1982	I. HORSTMANN	2004-2007
M. POITEVIN	2001-2005	T.K. RYMES	1969-1977	J. HUNT	2002-2005
A. RAYNAULD	1968-1970	L. SALVAS-BRONSARD	1989-1992	S.R.G. JONES	1998-1998
G. ROSENBLUTH	1972-1976	M. SLADE	1991-1994	B. LAPHAM	2009-2012
F. RUGE-MURCIA	2013-2017	L. WAVERMAN	1969-1980	H. LI	2013-2015
				A. MELINO	2004-2007
				M. POITEVIN	1998-2000
				J. RIES	2013-2015
				J.K. ROBERTS	2010-2013
				N. SCHMITT	2007-2009
				M. SMART	2007-2010
				G. SMITH	1998-2001
				N. VAN LONG	2001-2004

NOTES: The list of managing editors, associate editors, and co-editors is based on information extracted from the front matters of the CJE's issues. For additional details, see Section 2.

Table 2: Summary statistics on members of the editorial board, 1968–2017

		appointment (# issues)			
	count	min	max	mean	s.d.
managing editors	20	4	23	12	6
associate editors	26	2	15	7	4
co-editors	26	2	20	11	5
editorial advisors	357	1	31	11	5

NOTES: The summary statistics are based on information extracted from the front matters of the CJE's issues. For additional details, see Section 2.

Table 3: Ranking of general-interest journals

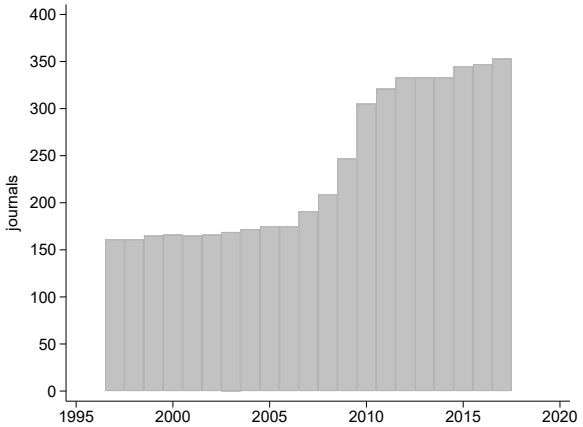
source	N	CJE	AER	EJ	JEEA	EER	IER	ENCA	EI	ER	SEJ	SJE
CMM-2016, Table 4	299	80	1	21	43	31	33	65	58	177	107	96
EngWal-2009, Table 3	69	44	4	9	31	23	11	36	40		63	33
KMS-2011, Table 2	209	41	1	10	20	12	17	58	43	126	70	46
KMS-2003, Table 1	159	42	1	18		14	15	45	36	58	56	27
KodYu-2006, Table 2	181	39	1	18		15	16	68	56	134	69	58
RePEc, Feb-2019	2459	104	3	20	27	24	39	100	106	242	180	76
RePEc 10, Feb-2019	2282	91	2	21	13	36	52	87	93	280	188	66

NOTES: CMM-2016 referes to Chang et al. (2016), EngWal-2009 refers to Engemann and Wall (2009), KMS-2011 refers to Kalaitzidakis et al. (2011), KMS-2003 refers to Kalaitzidakis et al. (2003), and KodYu-2006 refers to Kodrzycki and Yu (2006). The column N indicates the total number of journals used in each ranking. The rankings pertain to the following journals: Canadian Journal of Economics (CJE), American Economic Review (AER), Economic Journal (EJ), Journal of the European Economic Association (JEEA), European Economic Review (EER), International Economic Review (IER), Economica (ENCA), Economic Inquiry (EI), Economic Record (ER), Southern Economic Journal (SEJ), and Scandinavian Journal of Economics (SJE). I report the ranking according to the harmonic mean in Table 4 of Chang et al. (2016). I report the mean ranking in Table 2 of Kalaitzidakis et al. (2011). The IDEAS/RePEc rankings are based on aggregate rankings in February 2019 link. The IDEAS/RePEc 10 rankings are based on aggregate (last 10 years) rankings in February 2019 link. For additional details, see Section 2.

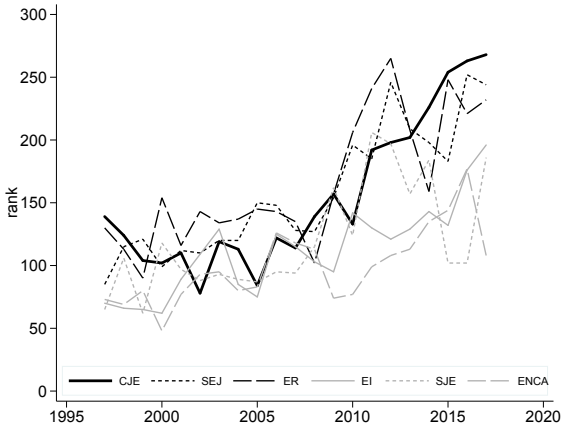
Table 4: Regression analysis of Google Scholar citations, 1998–2017

	(1)	(2)	(3)	(4)	(5)	(6)
Time since pub	0.0472***	0.0381**	0.0413**	0.0465***	0.0457***	0.0460***
	(0.0162)	(0.0161)	(0.0170)	(0.0167)	(0.0145)	(0.0148)
Time since pub^2	-0.0004	-0.0002	-0.0003	-0.0003	-0.0003	-0.0003
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Time since pub^3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Time since pub^4	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
2 authors			0.2582***	0.2525***	0.2994***	0.2986***
			(0.0847)	(0.0834)	(0.0831)	(0.0833)
$\geq$ 3 authors			0.5010***	0.4924***	0.5553***	0.5529***
			(0.1042)	(0.1066)	(0.1034)	(0.1035)
Page count Q2				0.2530**	0.1775	0.1800
				(0.1238)	(0.1231)	(0.1232)
Page count Q3				0.3762***	0.3169**	0.3221**
				(0.1256)	(0.1249)	(0.1247)
Page count Q4				0.6401***	0.5271***	0.5269***
				(0.1365)	(0.1413)	(0.1426)
Estimation related					0.5050***	0.5051***
					(0.0882)	(0.0887)
Commissioned					0.7555***	0.7580***
					(0.2066)	(0.2053)
SSHRC funded					-0.2326*	-0.2358*
					(0.1326)	(0.1333)
Adj. R-squared	0.2303	0.2813	0.2981	0.3181	0.3442	0.3418
Observations	929	929	929	929	929	929
p-value time	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
p-value JEL	.	0.0000	0.0000	0.0000	0.0000	0.0000
p-value ME	.	.	.	.	.	0.8836

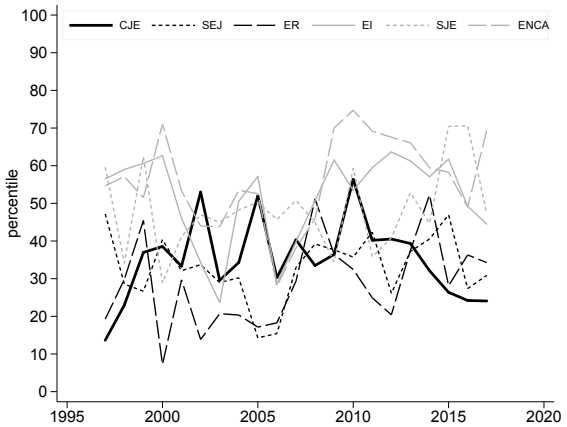
NOTES: I report standard errors clustered by volume. The asterisks denote statistical significance as follows: 1% (***), 5% (**), 10% (*). In the lower part of the table, I report the p-values of the F statistic for testing the joint statistical significant of the polynomial terms for the time since publication (p-value time), JEL code dummies (p-value JEL), and managing editor dummies (p-value ME). For additional details, see Section 4.5.



(a) number of journals ranked



(b) rankings

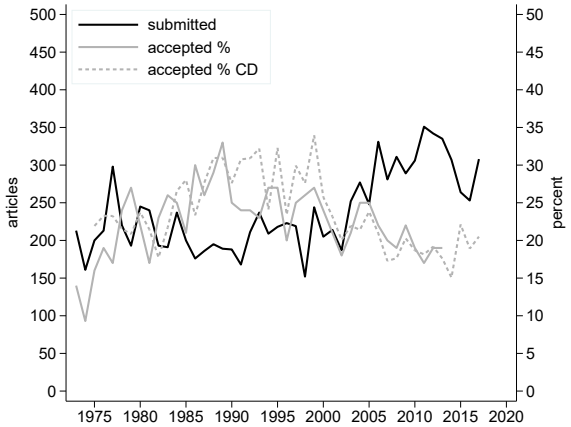


(c) rankings percentile

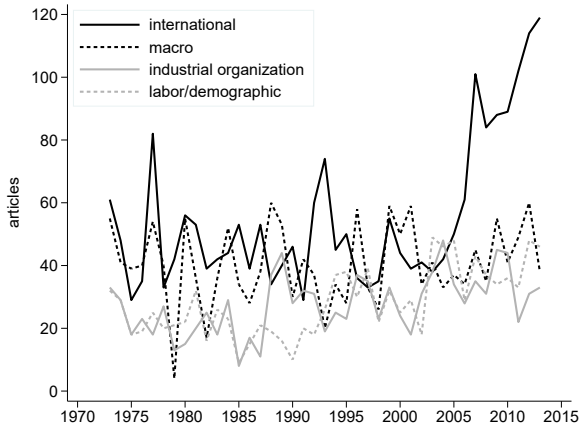
(d) adjusted rankings

Figure 1: Journal Citation Reports journal ranking 1997–2017

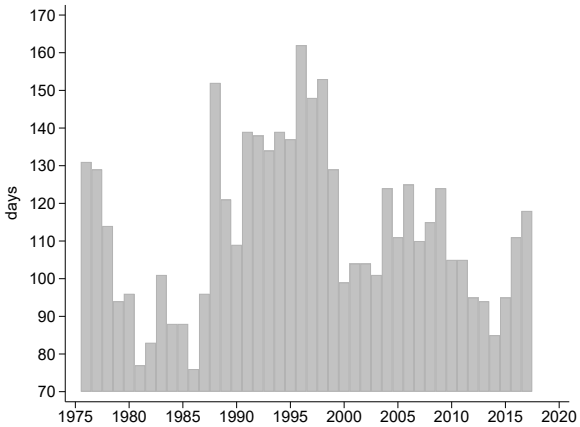
NOTES: The figure is constructed using information retrieved in September 2019. The ranking is based on the Economics-SSCI category. I plot the ranking for the following journals: Canadian Journal of Economics (CJE), Economic Inquiry (EI), Economica (ENCA), Economic Record (ER), Southern Economic Journal (SEJ), and Scandinavian Journal of Economics (SEJ). The adjusted ranking in panel (d) is based on the list of 25 general-interest journals in Table A2 of the on-line Appendix. For additional details, see Section 2.



(a) submissions and acceptance rate, 1973–2017



(b) submissions by field, 1976–2009



(c) time to first response, 1976–2017

Figure 2: Submissions, acceptance rates, and response times

NOTES: The figure is constructed using data from the managing editors' reports. The percent of accepted articles shown by the dashed gray line in panel (a) is calculated by dividing the number of published articles in year t by the average of the number of submissions in years $t-1$ and $t-2$ as in Card and DellaVigna (2013). For additional details, see Section 3.

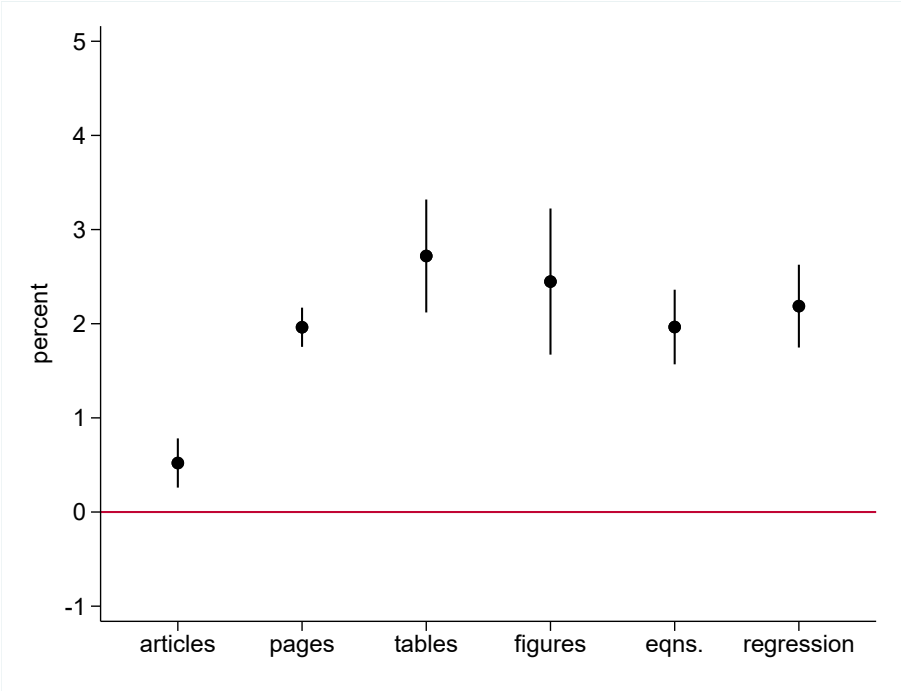
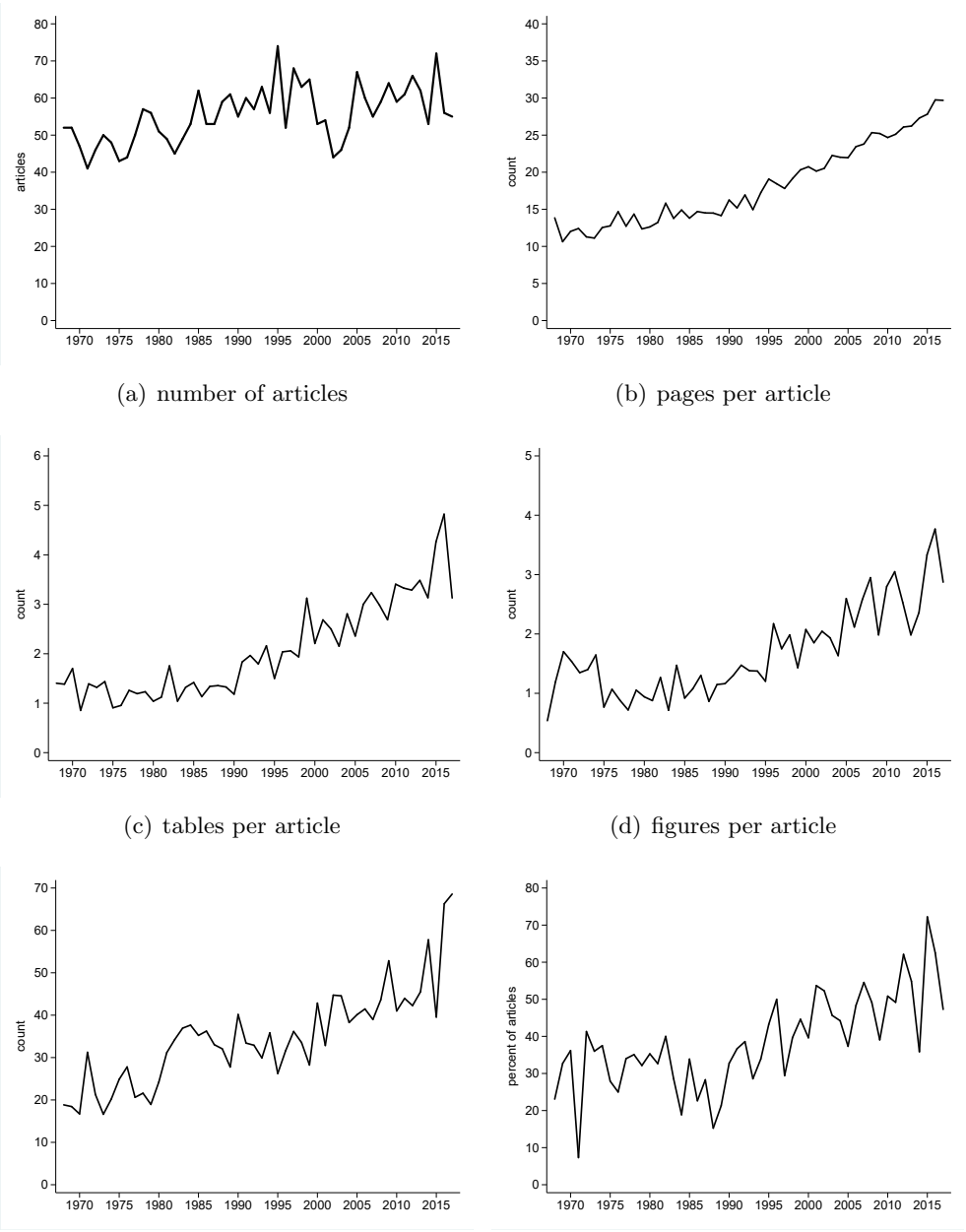


Figure 3: Growth rates of articles and article features, 1968–2017

NOTES: For articles, the growth rate pertains to counts per volume. For pages, tables, figures, and equations, the growth rates pertain to counts per article in a volume. In the case of regression, the growth rates pertains to the number of articles in a volume that contain the word regression. The growth rates are calculated excluding the articles in the two-part special issue published in April 1996. For additional details, see Section 4.1.



(a) number of articles

(b) pages per article

(c) tables per article

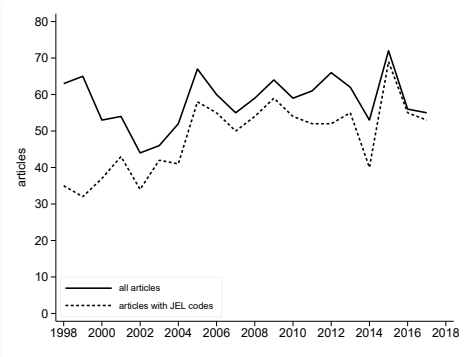
(d) figures per article

(e) equations per article

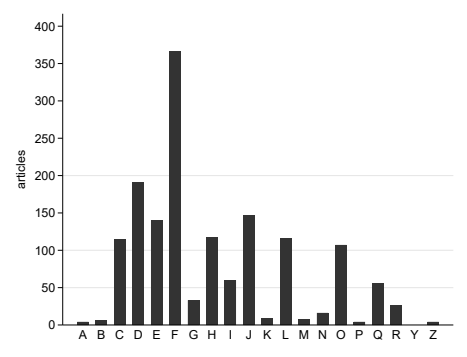
(f) articles discussing regression

Figure 4: Articles and article features, 1968–2017

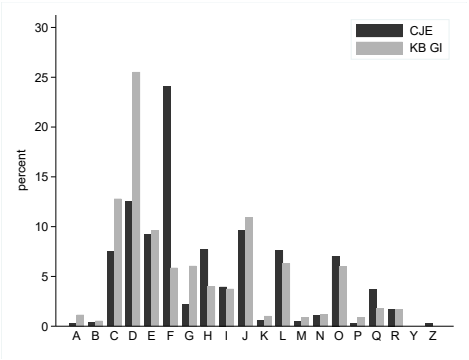
NOTES: The numbers reported in the various panels are based on analysis that excludes the articles in the two-part special issue published in April 1996. For additional details, see Section 4.1.



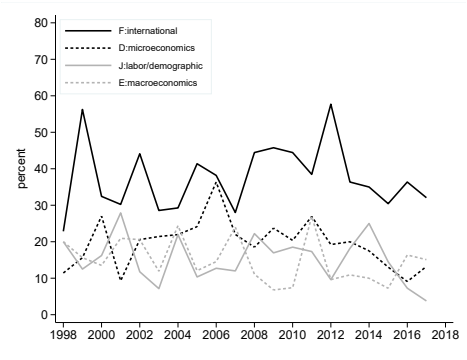
(a) number of articles with JEL codes



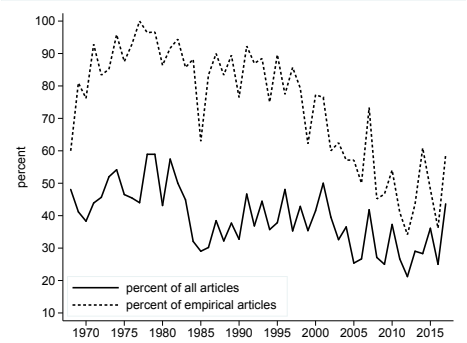
(b) number of articles by JEL code



(c) percent of articles by JEL code



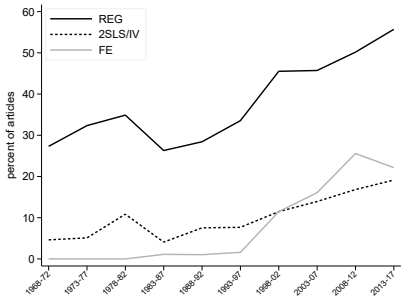
(d) most popular JEL codes



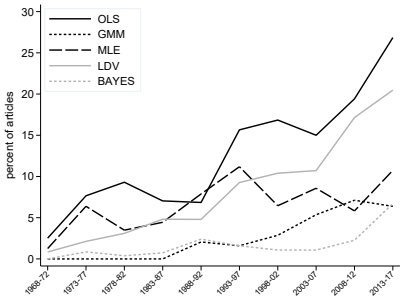
(e) percent of articles with Canadian content

Figure 5: Topical analysis of articles, 1998–2017

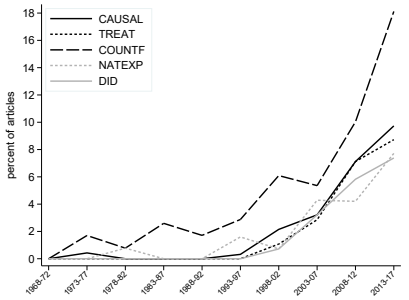
NOTES: The numbers reported for the CJE in panel (a)–(d) are based on the articles' Journal of Economic Literature (JEL) codes that are readily available from the journal's website. I use KB-GI in panel (c) to denote general-interest journals (Top 5 economics journals as defined in the main text plus International Economic Review, Journal of Economic Theory, and Review of Economics and Statistics) in Kelly and Bruestle (2011) for which I report the average of the percentages for 1990–1999 and 2000-2009. The JEL codes are as follows: **A:** General Economics and Teaching; **B:** History of Economic Thought, Methodology, and Heterodox Approaches; **C:** Mathematical and Quantitative Methods; **D:** Microeconomics; **E:** Macroeconomics and Monetary Economics; **F:** International Economics; **G:** Financial Economics; **H:** Public Economics; **I**:Health, Education, and Welfare; **J:** Labor and Demographic Economics; **K:** Law and Economics; **L:** Industrial Organization; **M:** Business Administration and Economics, Marketing, Accounting, Personnel; **N:** Economic History; **O:** Economic Development, Innovation, Technological Change, and Growth; **P:** Economic Systems; **Q:** Agricultural and Natural Resource, Environmental and Ecological; **R:** Urban, Rural, Regional, Real Estate, and Transportation; **Y:** Miscellaneous Categories; **Z:** Other Special Topics. For additional details, see Section 4.2.



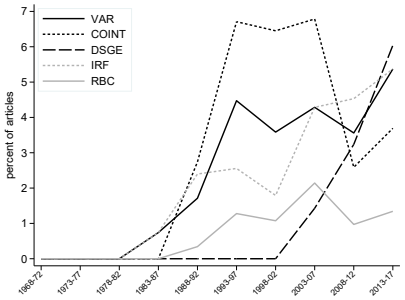
(a) regression, identification



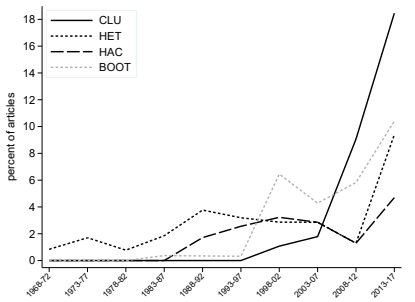
(b) estimation methods



(c) applied microeconomics



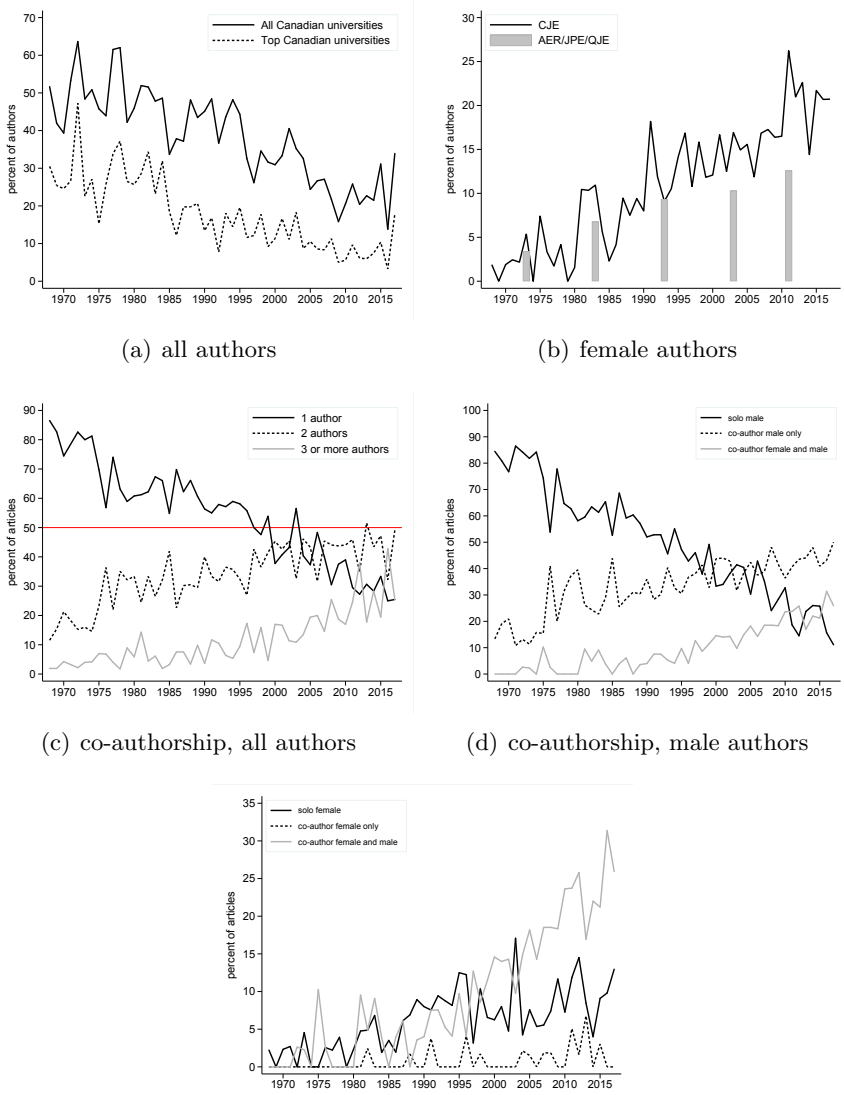
(d) macroeconomics



(e) inference

Figure 6: Approaches, methodologies, topics, and techniques, 1968–2017

NOTES: The figure is constructed using analysis that excludes the articles in the two-part special issue published in April 1996. **Panel (a)**: regression (REG), two-stage least squares/instrumental variables (2SLS/IV), fixed effects (FE). **Panel (b)**: ordinary least squares (OLS), generalized method of moments (GMM), maximum-likelihood estimation (MLE), limited dependent variables (LDV), bayesian estimation (BAYES). **Panel (c)**: causal effects (CAUSAL), treatment effects (TREAT), counterfactuals (COUNTF), natural experiments (NATEXP), difference in differences (DID). **Panel (d)**: vector autoregression (VAR), cointegration (COINT), dynamic stochastic general equilibrium (DSGE), impulse response function (IRF), real business cycle (RBC). **Panel (e)**: cluster (CLU), heteroskedasticity (HET), heteroskedasticity/autocorrelation (HAC), bootstrap (BOOT). For additional details, see Section 4.3



(a) all authors

(b) female authors

(c) co-authorship, all authors

(d) co-authorship, male authors

(e) co-authorship, female authors

Figure 7: Evolution in author characteristics and co-authorship over time, 1968–2017

NOTES: The figure is constructed using analysis that excludes the articles in the two-part special issue published in April 1996. In panels (b)–(d), the analysis also excludes authors whose gender was not identified following the approach discussed in the main text. In the case of AER/JPE/QJE in panel (b), I report the percent of female authors for 1973, 1983, 1993, 2003, and 2011 from Table 1 in Hamermesh (2013). For additional details, see Section 4.4.

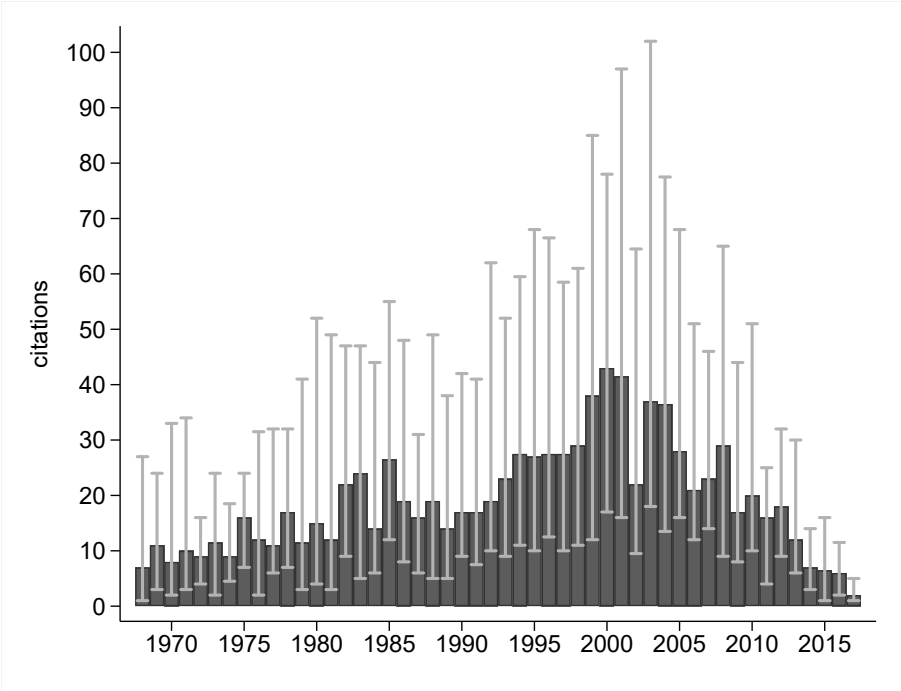


Figure 8: Google Scholar citations, 1968–2017

NOTES: The figure is constructed using Google Scholar citations retrieved in March 2019. The dark gray bars show the median number of citations by volume. The light gray lines indicate the interquartile range of citations by volume. The summary statistics are calculated excluding the articles in the two-part special issue published in April 1996. For additional details, see Section 4.5.