

Schumpeter vs. Keynes Redux: “Still Not Dead”*

John T. Dalton[†]

Wake Forest University

Lillian R. Gaeto[‡]

Vanderbilt University

July 2022

Abstract

Diamond (2009a) compares the citation time series for Schumpeter and Keynes from 1956 to 2006. Citations to Schumpeter steadily increase throughout the period, whereas citations to Keynes begin to level off and then trend slightly downward beginning in the 1990s. As a result, citations to Schumpeter begin to outstrip those to Keynes. This paper replicates Diamond (2009a) and extends the analysis to 2017, which incorporates citations since the onset of the Great Recession. The replication confirms the results in Diamond (2009a). The analysis beyond 2006 shows citations to Schumpeter remain larger than to Keynes, but citations to Keynes undergo a resurgence. The paper argues the Great Recession helped renew interest in Keynes. Google Trends data for Schumpeter and Keynes are compared and provide evidence showing the heightened interest in Keynes during the Great Recession. For example, in the United States, the peak of Keynes’s search interest occurs in February 2009, five months after Lehman Brothers declared bankruptcy.

JEL Classification: B30, B20, B00

Keywords: Joseph Schumpeter, John Maynard Keynes, citations, Web of Science, Google Trends

*We thank seminar participants at Duke University, the 2019 APEE conference, and the 2020 Southern Economic Association Conference. We thank a co-editor and two anonymous referees for comments leading to substantial improvements in the paper. We also thank Andrew Logan for valuable research assistance. The usual disclaimer applies.

[†]Contact: Department of Economics, Kirby Hall, Wake Forest University, Box 7505, Winston-Salem, NC 27109. Email: daltonjt@wfu.edu

[‡]Contact: Department of Economics, Vanderbilt University, VU Station B 351819, 2301 Vanderbilt Place, Nashville, TN 37235. Email: lillian.r.gaeto@vanderbilt.edu

1 Introduction

Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back.

—John Maynard Keynes 1936, p. 383

As the epigraph from Keynes suggests, ideas matter. This is true for policy, for academics, and, more generally, for how members of society view and organize the world around them. Deirdre McCloskey has recently argued that ideas enriched the world, as economic liberty and bourgeois dignity unleashed the creativity necessary to power modern economic growth (McCloskey 2006, McCloskey 2010, McCloskey 2016). Leighton and López (2013) build a conceptual framework in which ideas implemented by non-market entrepreneurs—the madmen, intellectuals, and academic scribblers of their book’s title—are central to political change.

With foundational contributions to the study of entrepreneurship, innovation, and creative destruction on the one hand and aggregate demand and the use of fiscal and monetary policy to manage crises on the other, the ideas of Joseph Schumpeter and John Maynard Keynes remain relevant to scholars and policy-makers today. But, which author is more influential, as, say, measured by annual citations?¹ We wager most respondents to this question would guess Keynes and many, mostly policy-makers, would not even know of Schumpeter.² Yet Diamond (2009a) shows citations to Schumpeter began to outstrip those to Keynes beginning in the 1990s.

¹We fully acknowledge the imperfect nature of citations as a measure of scholarly influence. For example, citations can be positive or negative towards an author, citation inflation can occur over time, analyzing aggregate citations misses the granular level of influence, etc. Moreover, scholarly influence can simply become part of the fabric of analysis without an explicit citation. In our comparison, this might arise when a writer, on the one hand, uses a Keynesian approach to understand the macro economy or, on the other hand, views development through the lens of creative destruction. All of these limitations are well known. Yet it is also well known that citations are highly correlated with other measures of scholarly distinction (Diamond 1986). Our paper provides one perspective on the legacies of Schumpeter and Keynes. See Medema (2009) for a thorough discussion on the use of citations in the history of economic thought.

²Davis, Figgins, Hedengren, and Klein (2011) present evidence from a survey of economists showing a similar preference for Keynes. When asked the question, “Are there any economic thinkers of the twentieth century and now deceased whom you regard with great respect, admiration, or reverence?,” Keynes was the top choice amongst respondents, followed by Friedman, Samuelson, Hayek, and then Schumpeter as the fifth most popular choice.

The sample period in Diamond (2009a) is 1956-2006, which does not cover the years of the Great Recession and its aftermath, years which saw many scholars and policy-makers reach into the past for answers to deal with contemporary problems. Indeed, one of the central policy debates during the Great Recession was austerity versus stimulus, or what the optimal level of government intervention should be in the face of crisis, a debate, in one sense, between the defenders and detractors of the ideas put forth in Keynes's *The General Theory of Employment, Interest, and Money* (*GT*). Robert Skidelsky, a biographer of Keynes, for example, left nothing to the reader's imagination by entitling his salvo into the debate as *Keynes: The Return of the Master*, a book which includes the following statement on its cover: "Why, Sixty Years After His Death, John Maynard Keynes Is the Most Important Economic Thinker for America" (Skidelsky 2009).

In terms of continued interest in Schumpeter since 2006, Thomas McCraw's biography, *Prophet of Innovation: Joseph Schumpeter and Creative Destruction* (McCraw 2007), was published in 2007 and widely hailed as a major achievement, both in terms of its biographical scholarship and the emphasis it placed on the importance of Schumpeter as a thinker. In his review of the book, Solow (2007), for example, opines on the comparison between Schumpeter and Keynes, stating, "Today, some sixty years after their deaths, Schumpeter's star probably outshines Keynes's."³

Of course, the importance of Diamond (2009a)'s original contribution, and why we believe it is worth replicating, goes well beyond professional gossip. Consider the colorful terms in which Drucker (1983) frames the different outlooks of the two economists: Keynes was a heretic, Schumpeter an infidel. What he means by this is that Keynes, for all his upheavals to classical economics, was still working within the tradition of equilibrium analysis, whereas Schumpeter viewed the economy as perpetually in motion, always in dynamic disequilib-

³It should be noted, however, that Solow (2007) was writing before the problems in the U.S. subprime mortgage market had fully transformed into the Great Recession. As Solow (2007) does in his review, Schumpeter and Keynes have often been considered rivals. Schumpeter certainly considered Keynes a rival during his own life, as, for example, his strong negative and personal reactions to the publications of Keynes's *A Treatise on Money* and *GT* attest (Swedberg 1991, pp. 76, 118-119). The rivalry serves as one narrative device in *The Man Who Discovered Capitalism*, a 2016 documentary on Schumpeter and his ideas. Dalton and Logan (2020a) describe how the documentary, including the comparison between Schumpeter and Keynes, can be used in the classroom. Although shortly after their deaths Keynes would clearly have taken the prize, Schumpeter's influence has grown steadily over time.

rium. Schumpeter (1934, p.64) contrasts his view with the standard circular flow and static equilibrium analysis thusly, “Development in our sense is a distinct phenomenon, entirely foreign to what may be observed in the circular flow or in the tendency towards equilibrium. It is spontaneous and discontinuous change in the channels of the flow, disturbance of equilibrium, which forever alters and displaces the equilibrium state previously existing.”

Schumpeter would go on to place the entrepreneur and innovation at the heart of his theory of development and his views on economics, more generally, which were based on his vision of a dynamic world. Innovation unleashes creative destruction on the world, as new ideas obsolete old ways of being, disrupt the status quo, and lay the foundations of the future. This incessant creative destruction fuels economic growth, which leads to increases in standards of living and longer, more fulfilling lives. The Schumpeterian vision remains central not only for how economists view the world but also for the practice and teaching of economics throughout the discipline.⁴

In light of the Great Recession and the continued interest in Schumpeter and Keynes, we return to Diamond (2009a)’s contribution and compare the citation time series of Schumpeter and Keynes from the Web of Science database. Our sample period covers the years 1956-2017, which includes more than a decade’s worth of new data since the publication of Diamond (2009a). Our analysis is as follows: First, we replicate Diamond (2009a) and extend the analysis to 2017. Second, given possible citation inflation in recent years, we analyze the data in the form of ratios, which gives us a sharper comparison between the two authors and allows us to more cleanly compare the two time series. Third, we briefly compare citations outside of economics to better understand Schumpeter’s influence. Fourth, we provide evidence from Google Trends data suggesting heightened interest in Keynes during the Great Recession.

To be clear, our paper is conceived as a replication exercise of Diamond (2009a), not a comprehensive comparative study of Schumpeter versus Keynes. The replication dictates our methodology, which by using the Web of Science database is the same as Diamond (2009a). We only go beyond this methodology when providing a deeper interpretation for the years since the sample period in Diamond (2009a). Replication studies are essential for scientific

⁴See Dalton and Logan (2020c) for further discussion of Schumpeter’s vision.

progress, yet economics as a field has been slow to embrace them. In this context, our paper makes a contribution by responding to the so-called replication crisis ignited by Ioannidis (2005).⁵

Our analysis reveals a number of significant results. In our replication, all of our results for the period up to 2006 are broadly consistent with those in Diamond (2009a), so no results from Diamond (2009a) have been overturned. Extending the data to 2017 shows total annual citations to Schumpeter continue to outstrip those to Keynes. The main point of Diamond (2009a) still stands, i.e. Schumpeter’s influence, as measured by citations, has grown over time, even surpassing that of Keynes. However, whereas the citation time series for Keynes in Diamond (2009a) shows a clear plateauing or possibly even a slight downward trend beginning in the mid 1980s, our updated series shows a clear reversal of fortune for Keynes. Total annual citations to Keynes have been increasing since the mid 2000s. The same patterns hold true when comparing the total annual citations of *Capitalism, Socialism and Democracy* (*CSD*) and *GT*. *CSD* continues to have more citations than *GT*, as documented in Diamond (2009a), but citations to *GT* have undergone a resurgence, which was not present in the data in Diamond (2009a). The proportion of Schumpeter’s citations coming from *CSD* show an upward trend in Diamond (2009a), but extending the data to 2017 now reveals a clear downward trend beginning in 2003. *CSD* is becoming relatively less important as a source of Schumpeter’s influence. We show this is partly due to the increasing proportion of Schumpeter’s citations coming from *The Theory of Economic Development* (*TED*). Our citation results related to *TED* are consistent with the citation analysis of *TED* in Becker, Knudsen, and Swedberg (2012).

To complete the replication, we next turn to total annual citations in economics publications only and consider the same three cuts of the data. Here too we benefit from extending

⁵In recent years, concern over the lack of replication studies in economics has led to a growing literature aimed at diagnosing the problem and recommending solutions. Duvendack, Palmer-Jones, and Reed (2017) present data showing that while the number of replication studies has increased over time, replications still remain uncommon. Mueller-Langer, Fecher, Harhoff, and Wagner (2019) show from 1974 and 2014 a mere 0.1% of publications in the top 50 economics journals were replication studies. Even when papers are replicated, the results can be discouraging. For example, Chang and Li (forthcoming) only successfully replicate 22 of 67 macroeconomics papers, or 33%, from 13 well-regarded journals using author-provided files. Christensen and Miguel (2018) provide a comprehensive survey of the literature on these widespread problems in economics.

the time series to 2017, as the results differ in important ways from those in Diamond (2009a)'s sample. In Diamond (2009a)'s sample, total citations to Schumpeter and *CSD* are steadily increasing, whereas those to Keynes and *GT* experience the same change in trend beginning in the mid 1980s. For economics publications only, however, total citations to Keynes and *GT* do not simply level off but experience a clear and significant downward trend. As a result, by the end of Diamond (2009a)'s sample, total citations to Schumpeter and Keynes and their two magna opera appear fairly even. Extending the data to 2017 shows the resurgence in citations to Keynes and *GT* holds for economics publications as well. Total citations to Schumpeter and Keynes are fairly even, with Schumpeter having a slight edge, whereas citations to *GT* clearly dominate those to *CSD*, which is consistent with our interpretation that the Great Recession created a renewed interest in the ideas in *GT*. The proportion of Schumpeter's citations coming from *CSD* exhibits similar patterns as in the data for all publications. *CSD* is becoming relatively less important for Schumpeter's citations, which is again partly explained by the increasing proportion of Schumpeter's citations from *TED*.

Moving beyond our replication exercise and, thus, beyond the analysis presented in Diamond (2009a), we calculate four citation ratios: the Schumpeter-to-Keynes and *CSD*-to-*GT* ratios for all publications and for publications in economics only. We argue these trends match well with what is happening in the field of economics, 1956-2017. For example, the Schumpeter-to-Keynes citation ratio for economics publications only shows four distinct periods: 1) an initial period of slight dominance by Keynes, 1956-1972, 2) a period of heightened dominance by Keynes, 1973-1988, 3) a period of growth in the ratio, 1989-2005, during which Schumpeter becomes more influential relative to Keynes, and 4) a period in which the growth of the ratio comes to a halt but Schumpeter remains slightly dominant. In the first period, Keynesian economics is the dominant paradigm in macroeconomics. The second period coincides with the stagflation of the 1970s and the emergence of "freshwater macroeconomics" as an alternative paradigm.⁶ Keynes is being cited heavily as researchers wrestle with his

⁶Freshwater macroeconomics is a term that came to refer to the group of macroeconomists leading the charge in the 1970s against the prevailing Keynesian consensus. These economists were located in places like the University of Chicago, University of Minnesota, and University of Rochester, all situated near the Great Lakes in North America and, thus, the label "freshwater."

ideas and formulate new ideas. At the same time, this is setting the stage for the plateauing of Keynes's citations already mentioned in the underlying citation data.

In the third period, with Keynes's citations reaching a plateau, the Schumpeter-to-Keynes ratio begins to grow, as Schumpeter's citations are steadily increasing. This passing of the torch from Keynes to Schumpeter was anticipated by Giersch (1984) when declaring the dawn of the "Age of Schumpeter." This period coincides with a renewed interest in Schumpeter's work, the explosion in the literature on growth theory being a prime example. At the same time, this period coincides with the onset of the Great Moderation, which means business cycle fluctuations and how to manage them become less of a concern, keeping down the citations to Keynes. This, of course, ends with the Great Recession, and there is a renewed interest in Keynes in the fourth period. Another advantage to using citation ratios is their simplicity, and we think they provide a useful empirical tool for researchers interested in comparative analysis of different economists.

We briefly discuss the citation patterns for Schumpeter and Keynes outside the field of economics. These results reveal Schumpeter's dominance over Keynes began much earlier than in economics with Schumpeter's citations permanently surpassing Keynes's nearly three decades sooner in fields outside of economics. The example of Political Science illustrates how influential *CSD* has been outside of economics. One implication from this set of results is that economists likely significantly underestimate Schumpeter's influence.

Our last set of results provides empirical evidence from a different source, Google Trends, in support of our hypothesis that the resurgence in citations to Keynes was in part fueled by the Great Recession and the renewed interest in Keynesian thought on the part of academics and policy-makers. Search interest in Schumpeter and Keynes has been trending downward in both the U.S. and the world as a whole over the period 2004-2017. The Great Recession is correlated with a temporary spike in search interest for both economists in the U.S. but only for Keynes worldwide. Comparing search interest in Schumpeter and Keynes directly shows Keynes is searched more heavily than Schumpeter both in the U.S. and the world and especially during the Great Recession. These results show the enduring value of Schumpeter and Keynes and their relevance for current policy debates. Schumpeter and Keynes are still

not dead.⁷ Or, as Keynes wrote, “Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist” (Keynes 1936, p. 383).

2 Replicating and Extending Diamond (2009)

The developers of the Web of Science citation data continually update the data with new sources, so replication exercises will rarely yield quantitatively exact results compared to the originals.⁸ However, it seems reasonable to expect the original qualitative results to hold up under replication. This is precisely what we find when replicating the results in Diamond (2009a): all of our qualitative results over the period corresponding with the sample in Diamond (2009a), 1956-2006, are the same, but some of the magnitudes differ. Of course, we also extend Diamond (2009a)’s original sample to include the Great Recession and as many years afterwards as currently available. Our sample covers the years 1956-2017.

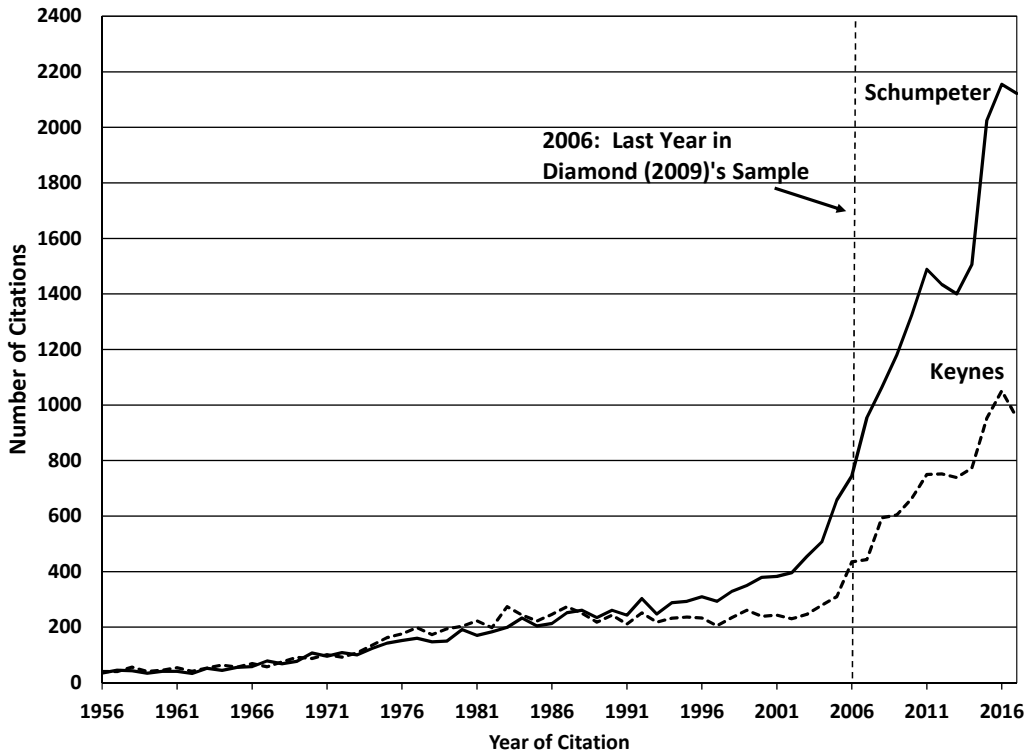
In order to make as clear a comparison as possible, we present our results in the same order as those in Diamond (2009a).⁹ Figure 1 shows the total citations per year for both Schumpeter and Keynes. The vertical dotted line at 2006 marks the end of Diamond (2009a)’s sample period. We keep the vertical dotted line in the other figures but choose to suppress the label to reduce clutter. The results in figure 1 closely match those in Diamond (2009a) but for one exception. Total citations to Schumpeter and Keynes remain close to one another from 1956-72, Keynes outstrips Schumpeter from 1973-1986, and Schumpeter begins to dramatically outpace Keynes beginning in 1988. These qualitative features in the data match those in Diamond (2009a) with slight variation in the timing of the movements. The

⁷Hence, the title of our paper, which is also a play on Diamond (2009a)’s title: Schumpeter vs. Keynes: “In the Long Run Not All of Us Are Dead.” Diamond (2009a)’s title is inspired by Samuelson (2003, p. 467): “Now, at the turn of the millennia, when total-factor-productivity has remarkably soared in America and abroad, both fools and sages sing Schumpeter’s praise. That would have amused and pleased this worldly scholar who in some dark hours of the night used to despair in his German-shorthand diaries of justly deserved praises passing him by. So Keynes was wrong: in the long run not all of us are dead.”

⁸Of course, we control what we can by following the research design in Diamond (2009a) as closely as possible, using the search terms “Schumpeter, J*,” “Cap* Soc*,” “Keynes, J*,” and “Gen* The*,” for example. See the appendix in Diamond (2009a) for further details.

⁹This means our figures 1-6 exactly correspond to figures 1-6 in Diamond (2009a). We have even tried to format our figures in a similar fashion to make the visual comparison as straightforward as possible for the reader.

Figure 1: Citations Per Year to Schumpeter and Keynes (All Publications)

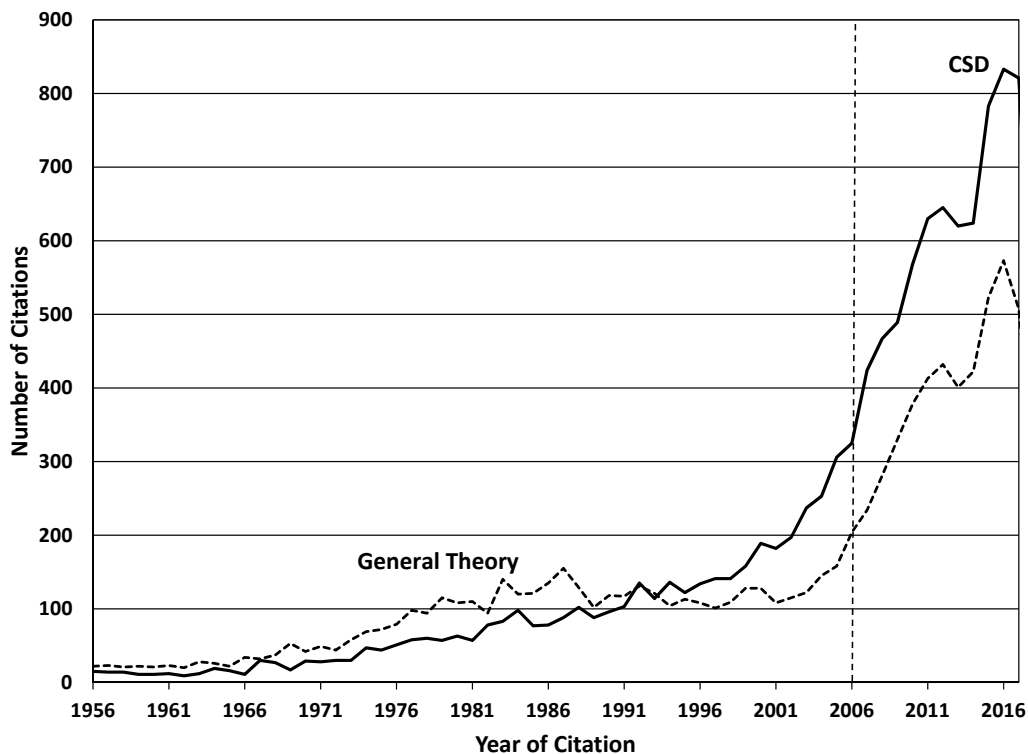


only noticeable difference between our results and those in Diamond (2009a) comes towards the very end of Diamond (2009a)’s sample period. The magnitudes for both Schumpeter and Keynes become a lot larger. For example, in 2006, Diamond (2009a) shows Schumpeter and Keynes with approximately 400 and 200 total citations, respectively, whereas our results are nearly double: 744 for Schumpeter, and 435 for Keynes.

Three main results emerge in the post-Diamond (2009a) period. First, Schumpeter continues to be cited more heavily than Keynes. This means Diamond (2009a)’s central point, that Schumpeter’s influence remains strong long after his death, continues to hold true as measured by total citations.¹⁰ Second, citations to Keynes have undergone a resurgence after a long period of stagnation roughly corresponding with the mid 1980s until the mid 2000s. Although the results in Diamond (2009a) show citations to Keynes increasing in 2005 and 2006, there is no way to discern a change in the trend. Indeed, quite the opposite appears

¹⁰Diamond (2007) finds corroborating evidence for this point using a different approach. An analysis of bestselling books using Amazon.com’s “Search Inside the Book” feature shows references to Schumpeter increasing over time, albeit over a short sample period of 2004-2007. The majority of these references are to creative destruction.

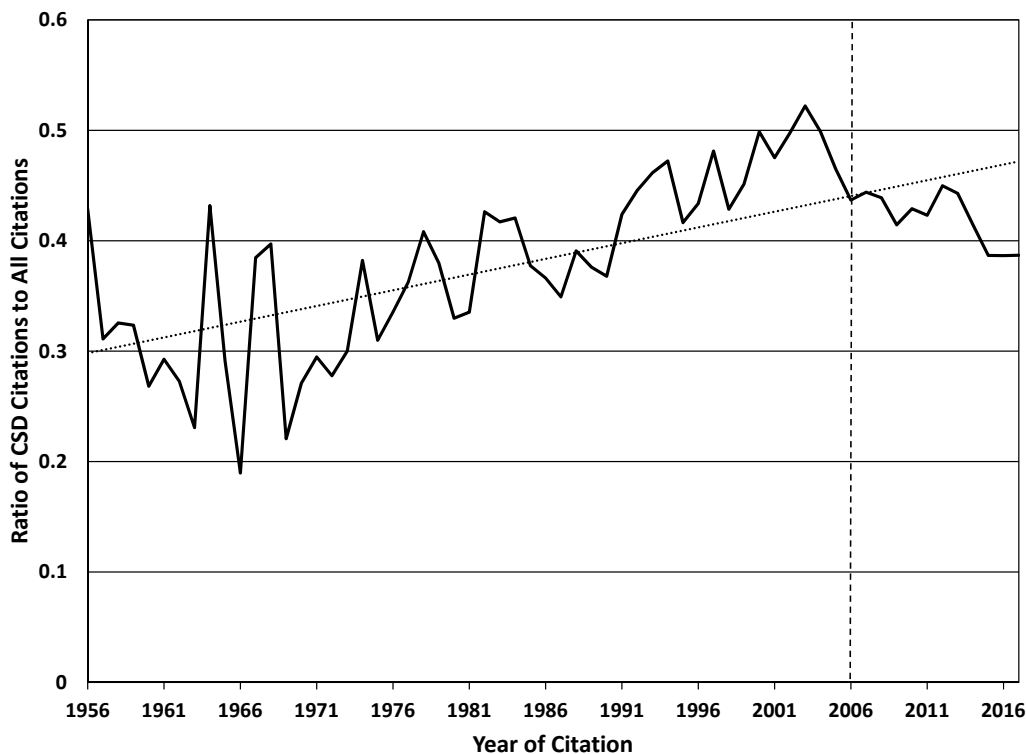
Figure 2: Citations Per Year to *Capitalism, Socialism and Democracy* and *The General Theory* (All Publications)



to be the case. A striking subplot emerging from Diamond (2009a)’s results is the plateau or, even, slight decline in the time series for citations to Keynes. This evidence likely points towards the rise of freshwater macroeconomics and the declining influence of Keynes among economists, macroeconomists in particular, during Diamond (2009a)’s sample period. In terms of total citations, our results show Keynes’s influence is again on the rise after 2006, which we think is most likely attributable to the interest in Keynesian thought in response to the Great Recession. Third, the magnitude of the increase in citations since 2006 appears quite large, which may suggest citation inflation. We explore the two issues of the resurgence of Keynes and possible citation inflation in more detail in section 3. Before doing so, we complete the rest of the replication results.

The qualitative results again follow Diamond (2009a) when we look at citations to Schumpeter’s and Keynes’s most prominent works, *CSD* and *GT*. In figure 2, *GT* has strictly more citations per year than *CSD* until 1992 when the advantage switches to *CSD*. Citations to *CSD* continue to outstrip those to *GT* throughout the rest of the period. Just like citations

Figure 3: Proportion of All of Schumpeter’s Citations that Are Citations to *Capitalism, Socialism and Democracy* (All Publications)



to Keynes undergo a resurgence, though, citations to *GT* also pick up again when extending the sample to 2017. Although the difference in citations between *CSD* and *GT* remains, the average annual growth rates in citations are nearly identical after 2006 at 9.3% and 9.2% for *CSD* and *GT*, respectively. Although both books are still gaining citations, the reason *CSD* continues to outstrip *GT* is likely due to its broader influence. Whereas *GT* mainly appeals to economists, *CSD* is read broadly throughout the social sciences. Indeed, as Dalton and Logan (2020c) argue, although innovation and entrepreneurship are the mechanisms driving Schumpeter’s theory about the dynamics of the economy, by expanding his vision in *CSD* to include the broader social world, Schumpeter contributes to our understanding not only of economics but also of history, sociology, law, philosophy, political science, and more. This interpretation for why citations to *CSD* outstrip those to *GT* is consistent with our results below (figure 5), which show citations to *GT* are greater than those to *CSD* when considering economics publications only.

In the next figure, we look specifically at the composition of Schumpeter’s citations. The

proportion of all Schumpeter’s citations that are to *CSD* is plotted over the standard time horizon. In figure 3, the data match those in Diamond (2009a) for the 1956-2006 time period. The data seem to follow a general upward linear trend until 2003 when the proportion reaches a maximum of 0.52. From 2003 to the end of our sample, however, a downward trend emerges, which is a noticeable difference from the results in Diamond (2009a). *CSD* is becoming a less important source of citations for Schumpeter relative to his other works.

The most logical choice to consider is Schumpeter’s *TED*, which was first published in 1911 and laid out Schumpeter’s theory of innovation and entrepreneurship. *TED* remains relevant as an introduction for the role innovation and entrepreneurship can play in economic theory.¹¹ Becker, Knudsen, and Swedberg (2012) provide a detailed retrospective on the influence of Schumpeter’s *TED* over the first one hundred years since its publication.

In order to test the hypothesis that *TED* is cutting into *CSD*’s share of citations, we collect the annual citations for the search term “The* Econ* Dev*,” which is consistent with how we construct our other search terms in the Web of Science database.¹² The proportion of all Schumpeter’s citations that are to *TED* is, indeed, steadily increasing during the latter half of our sample period. This result is consistent with the citation analysis of *TED* reported in Becker, Knudsen, and Swedberg (2012), which shows an explosion in citations to *TED* in top five management journals after 1985.¹³ We find a similar trend with the emergence of entrepreneurship as a discipline.¹⁴ In terms of our sample, from 2003 to 2017, for example, the proportion of citations to *TED* increases from 0.32 to 0.46. This helps explain the decline in the proportion of Schumpeter’s citations to *CSD* after 2003. *TED* continues to be influential for many scholars in the fields of business, entrepreneurship, and management.

¹¹See Diamond (2009b) for how the movie *Other People’s Money* can be used to teach Schumpeter’s concept of creative destruction, and see Dalton and Logan (2020b) for how the movie *Joy* can be used to teach the theories Schumpeter develops in *TED*.

¹²See our discussion of search terms in footnote 8 and further details in the appendix in Diamond (2009a).

¹³The timing of 1985 is related to the publication of Nelson and Winter (1982), which Becker, Knudsen, and Swedberg (2012) credits with introducing the field of management to Schumpeter’s ideas.

¹⁴Unfortunately, the Web of Science database does not contain a separate category for Entrepreneurship. Instead, we track citations to Schumpeter, *TED*, and *CSD* contained in three journals in the field of entrepreneurship: *Entrepreneurship: Theory and Practice*, *Journal of Business Venturing*, and *Strategic Entrepreneurship Journal*, which were founded in 1976, 1985, and 2007, respectively. We find the creation of these journals do provide a new source of citations to Schumpeter with *TED* receiving a larger share than *CSD*. We do not include a figure with this information because of space considerations but are happy to make these data available upon request.

Figure 4: Citations Per Year to Schumpeter and Keynes (Economics Publications Only)

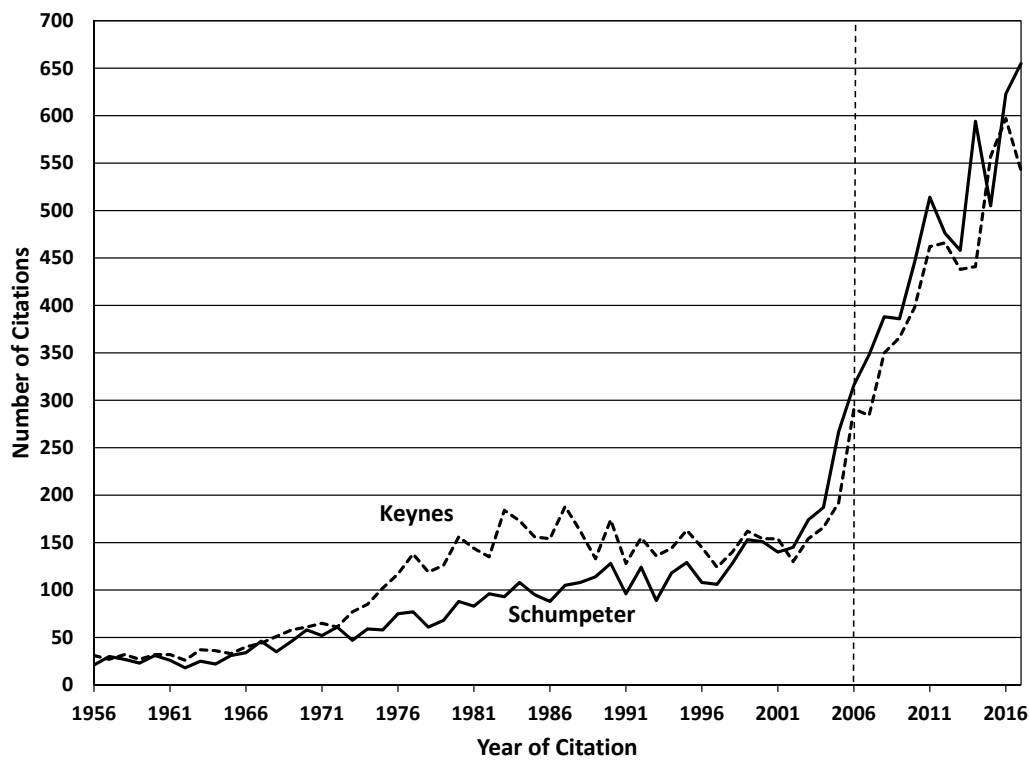
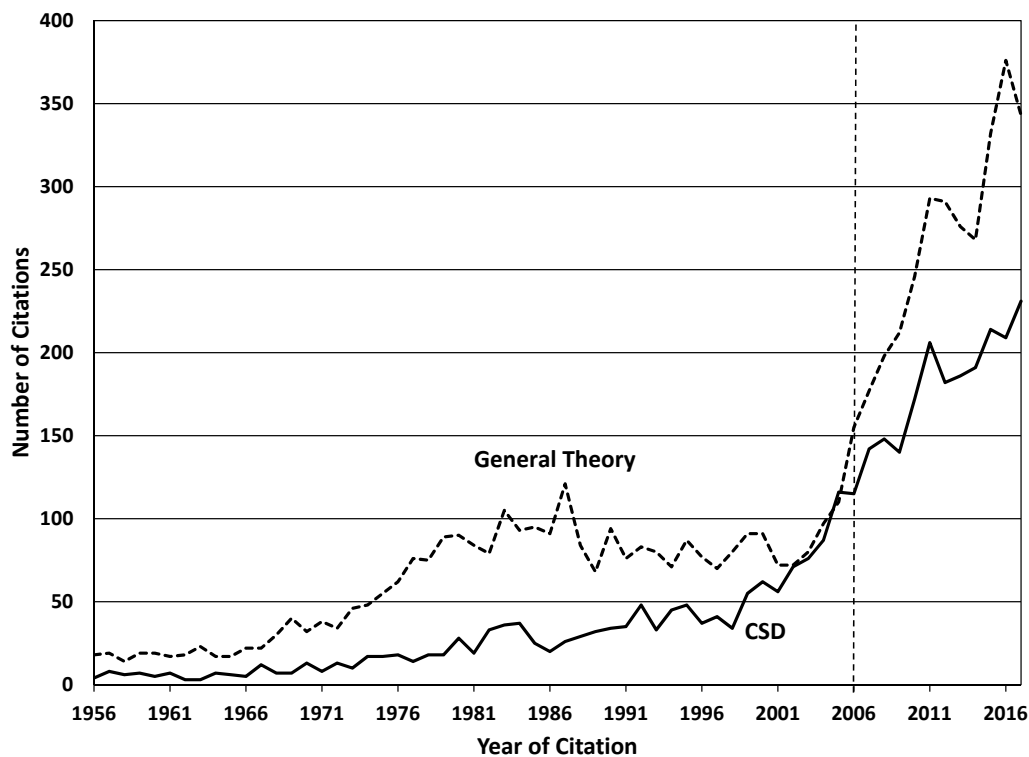


Figure 5: Citations Per Year to *Capitalism, Socialism and Democracy* and *The General Theory* (Economics Publications Only)



Now we focus specifically on the popularity of the two authors within economics publications only. We filter the citations to include just the citations in publications that fall under the Economics and Business Finance categories defined by the Web of Science database. Note, this method differs slightly from Diamond (2009a), but this is due to the fact that the Web of Science database has changed and been updated to include the option to search by categories.¹⁵ Nevertheless, the results we obtain for the 1956-2006 period qualitatively align with those in Diamond (2009a), and, thus, we argue the data are capturing the same effect.

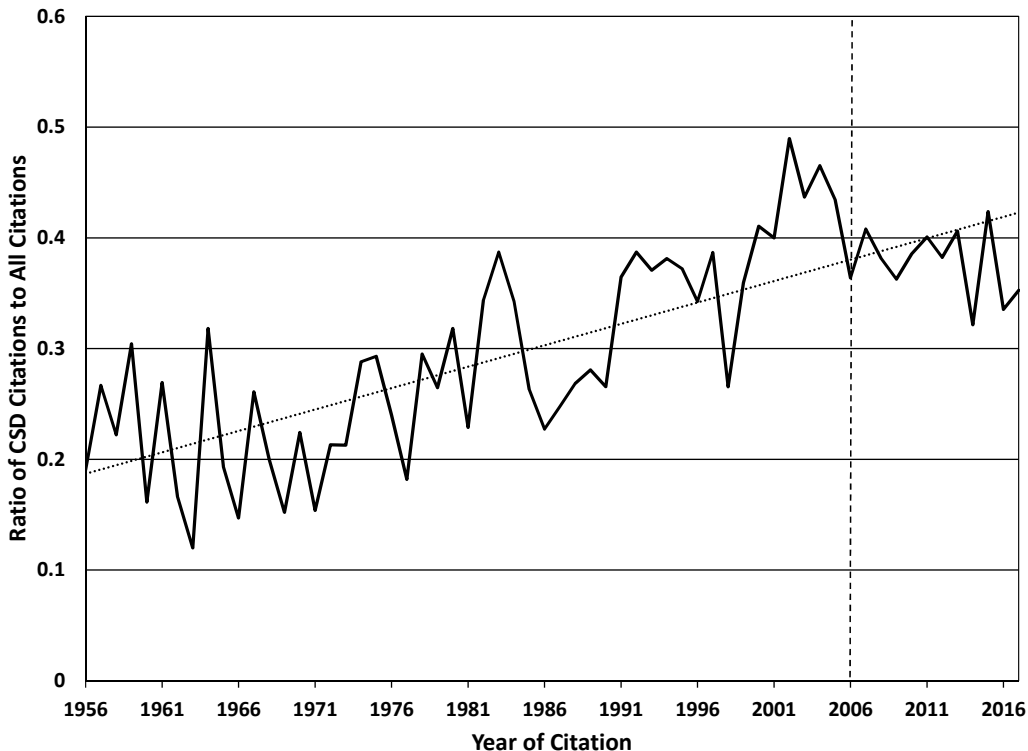
Figure 4 parallels figure 1 by showing total citations per year for Schumpeter and Keynes but for economics publications only. The data replicate the qualitative features in Diamond (2009a). For 1956-2006, citations to Keynes dominate those to Schumpeter with Schumpeter only reaching parity towards the end of the period. This differs from figure 1 where Schumpeter dominates Keynes starting in 1988 and continues to do so for the rest of the sample. In economics publications only, it is not until 2002 that Schumpeter has more citations than Keynes at 145 and 130, respectively. Afterwards, the citations to the two authors move in tandem with Schumpeter maintaining a slight lead. The contrast between figure 1 and figure 4 tells us that Schumpeter's surpassing of Keynes in citations is driven by publications that do not fall into the Economics and Business Finance categories of the Web of Science database. When it comes to each author's effect on the current field of economics, the authors appear to be influencing the discipline in a similar magnitude. The resurgence in citations to Keynes is also evident after extending the data to 2017.

Figure 5 compares the citations per year for *CSD* and *GT* for economics publications only. The results until 2006 again closely match those in Diamond (2009a), with *CSD* trending upwards and only catching up to *GT* at the very end of the Diamond (2009a)'s sample period. The upward trend in citations to *CSD* continues after 2006. Whereas Diamond (2009a) concludes *GT* is trending moderately downwards in economics publications, the updated sample clearly shows a resurgence in citations to *GT*. Although citations to Schumpeter and Keynes in economics publications only are similar in magnitude after 2006 (figure 4), figure 5 shows *GT* being cited much more frequently than *CSD*. This result is consistent with

¹⁵See the bottom of page 536 and footnote 7 in Diamond (2009a) to see exactly how he searches for economics publications only.

our interpretation that the Great Recession played a role in the resurgence in citations to Keynes. *GT* and the ideas and policies it spawned create a framework for responding to crises in the short run, whereas the focus in terms of the economics in *CSD* is much more on the long run, e.g. growth and innovation.

Figure 6: Proportion of All of Schumpeter’s Citations that Are Citations to *Capitalism, Socialism and Democracy* (Economics Publications Only)



Our last replication result looks at the ratio of *CSD* citations to all of Schumpeter’s citations in economics publications only. The patterns in figure 6 match those for all publications in figure 3. As a proportion of all of Schumpeter’s citations, citations to *CSD* match the upward trend seen in Diamond (2009a), but that trend seems to have reversed in the post-Diamond (2009a) period. Although citations to *CSD* continue to increase (figure 5), citations to other works by Schumpeter are increasing at a faster rate in economics only publications. For example, the proportion of Schumpeter’s citations in economics publications only to *TED* increases from 0.37 to 0.44 between 2003 and 2017.

3 Schumpeter vs. Keynes Beyond Diamond (2009)

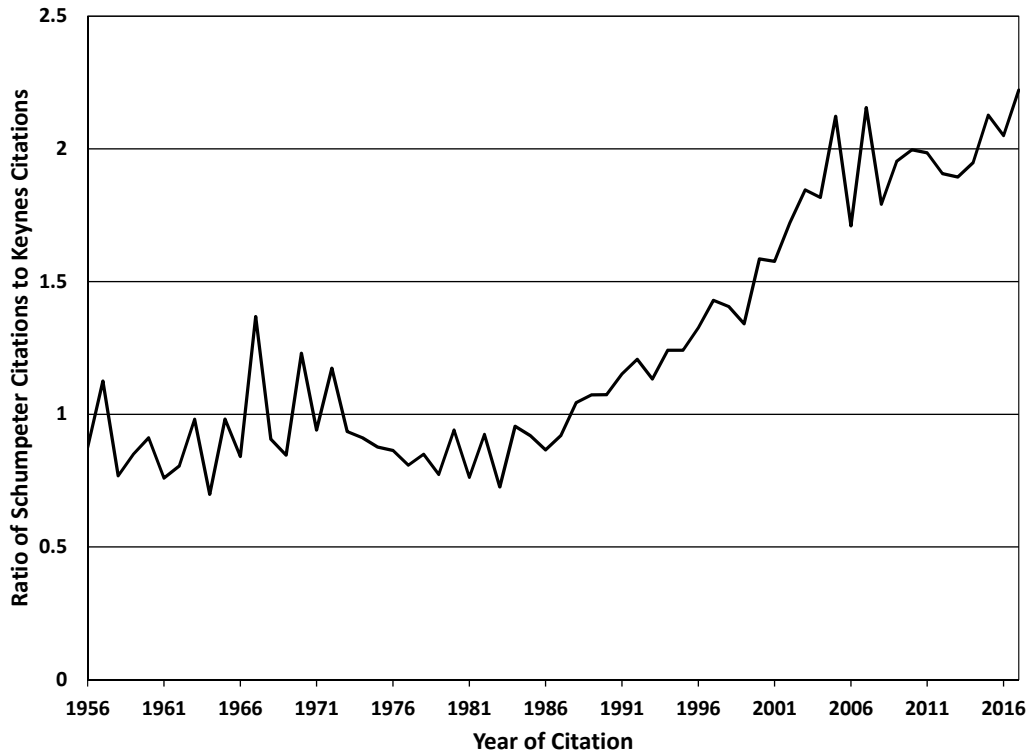
In this section, we extend our analysis beyond just replicating and updating the data in Diamond (2009a) by providing some additional analysis to more thoroughly interpret the results in both papers. As mentioned in section 2, two issues emerging from our results are 1) the magnitude of the increase in citations relative to the citations reported in Diamond (2009a) and 2) the resurgence of citations to Keynes in the post-Diamond (2009a) period, which we now address in sections 3.1 and 3.3. We also briefly discuss in section 3.2 citations in non-economics publications only to more clearly show what is contributing to the difference in citations between Schumpeter and Keynes.

3.1 Schumpeter vs. Keynes Citation Ratios

Citations are not a perfect measure of intellectual influence. One potential problem discussed by Diamond (2009a) is so-called citation inflation, the idea that average citations per paper trend upwards over time. Citation inflation is one possible reason why the magnitude of the increase in citations after 2006 appears so large in our figures. For example, for figure 1 showing the total citations per year for Schumpeter and Keynes, the average annual growth rate in total citations is 7.5% for Schumpeter and 6% for Keynes, 1957-2006, and 11% for both Schumpeter and Keynes, 2006-2017. Of course, another possibility is that both Schumpeter and Keynes are becoming more influential over time. However, the Google Trends data, which is a different metric of influence, presented in section 3.3 suggest otherwise. In either case, one practical problem for the reader after including data after 2006 is that clearly identifying the variation across years and comparing Schumpeter to Keynes becomes difficult. The figures in Diamond (2009a), for example, are much clearer and simpler to interpret on a year by year basis because the magnitude in the change of the time series across the sample period is much smaller. Since there is no reason to suspect citation inflation would affect Schumpeter and Keynes differently, looking at the ratio of citations controls for the possibility of inflation and makes for a clean comparison of the two economists relative to one another.

Figures 7 - 10 present the citation ratios comparing Schumpeter and Keynes: figure 7

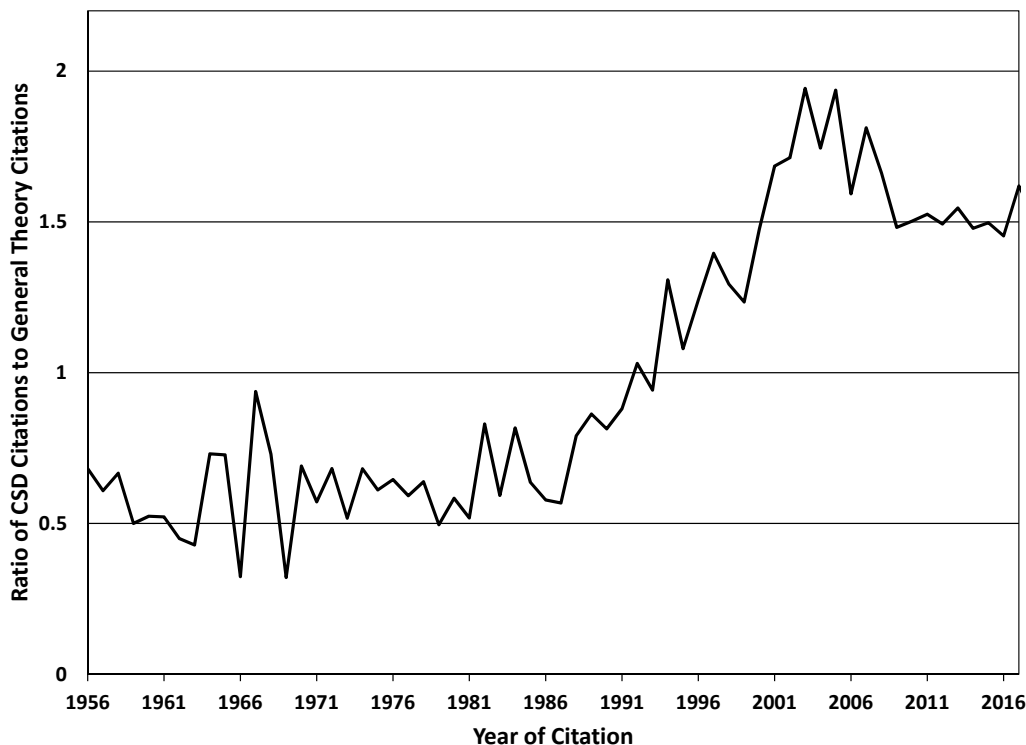
Figure 7: Schumpeter-to-Keynes Citation Ratio (All Publications)



shows the Schumpeter-to-Keynes citation ratio for all publications, figure 8 shows the *CSD*-to-*GT* citation ratio for all publications, figure 9 shows the Schumpeter-to-Keynes citation ratio for economics publications only, and figure 10 shows the *CSD*-to-*GT* citation ratio for economics publications only.

In terms of citations in all publications, the Schumpeter-to-Keynes ratio averages 0.91 from 1956 to 1987. After 1988, the ratio permanently passes 1 and steadily grows thereafter. The ratio does not dip significantly below this upward trend even after the onset of the Great Recession, and Schumpeter is currently being cited twice as much as Keynes. Figure 8 shows both some similarities and differences for the case of the *CSD*-to-*GT* citation ratio for all publications. Overall, the qualitative pattern looks similar to the Schumpeter-to-Keynes ratio with an initial period of *GT* being cited more frequently followed by *CSD* being cited more frequently. The timing for when *CSD* surpasses *GT* occurs later, 1994 compared to 1988. However, after the ratio passes 1, the upward trend clearly comes to a pronounced halt in the latter period, which is noticeably different compared to the Schumpeter-to-Keynes

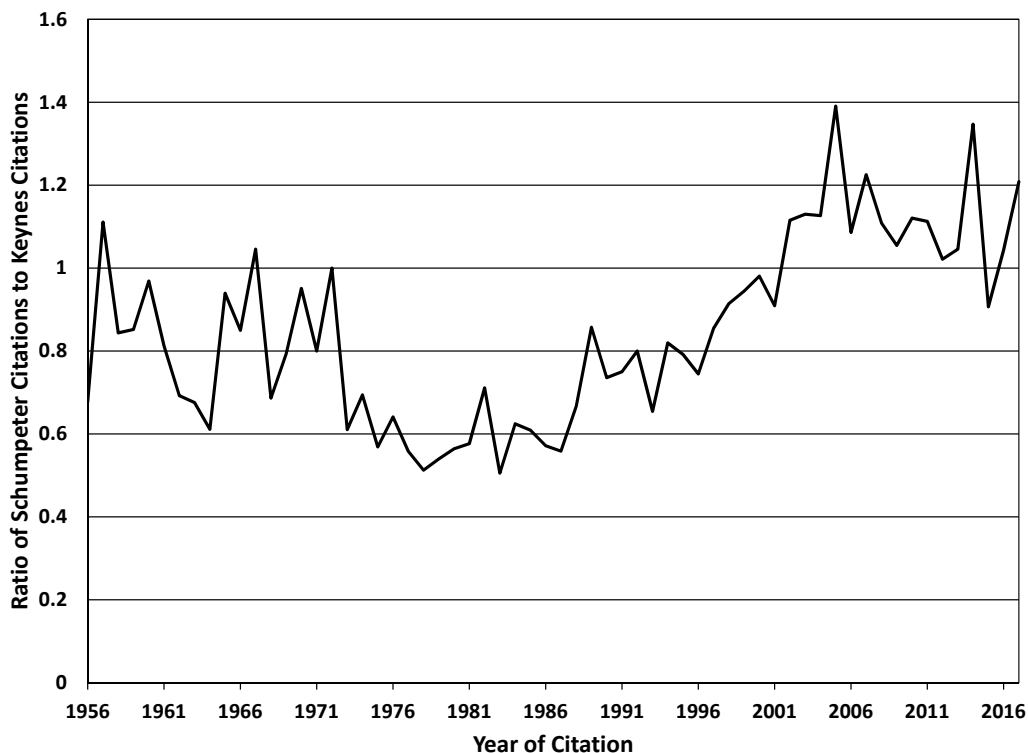
Figure 8: *Capitalism, Socialism and Democracy*-to-*The General Theory* Citation Ratio (All Publications)



ratio. The quantities in figures 7 and 8 also differ. Comparing over the same period 1956 to 1987, the *CSD*-to-*GT* citation ratio averages 0.61, which is considerably smaller than the 0.91 average for the Schumpeter-to-Keynes ratio. Whereas the Schumpeter-to-Keynes ratio exhibits a good amount of parity between the two authors in the first half of our sample, the same cannot be said when comparing each author’s magnum opus.

The Schumpeter-to-Keynes ratio for economics publications only (figure 9) shows some major differences compared to all publications. For example, the ratio does not consistently exceed 1 until 2002, which shows Schumpeter’s influence surpasses Keynes’s much later in economics publications. There also now appears to be four qualitative moves in the series: 1) an initial period of slight dominance by Keynes, 1956-1972, when the ratio averages 0.84, 2) a period of heightened dominance by Keynes, 1973-1988, when the ratio averages 0.59, 3) a period of growth in the ratio, 1989-2005, during which Schumpeter becomes more influential relative to Keynes, and 4) a period in which the growth of the ratio comes to a halt, mirroring the period identified in figure 8, but Schumpeter remains slightly dominant (from 2006-2017,

Figure 9: Schumpeter-to-Keynes Citation Ratio (Economics Publications Only)



the ratio averages 1.11).

We think the following interpretation helps explain what might be driving the changes in the relative influence of the two economists across these four periods: In the first period, Keynesian economics is a reigning and fashionable paradigm, e.g. “We are all Keynesians now.”¹⁶ The second period coincides with the stagflation of the 1970s and the emergence of freshwater macroeconomics as an alternative paradigm to the Keynesian approach. Keynes is being cited heavily as researchers wrestle with his ideas and formulate new ideas. At the same time, this is setting the stage for the plateauing of Keynes’s citations already mentioned in our discussion of the underlying citation data. In the third period, with Keynes’s citations reaching a plateau, the Schumpeter-to-Keynes ratio begins to grow, as Schumpeter’s citations

¹⁶This quotation is attributed to Milton Friedman and was quoted in an article in *Time* magazine. The quotation became famous as a summary for the prevailing consensus that government intervention during times of economic crisis was the appropriate policy response. Interestingly, though, Friedman’s full quotation was not reproduced in the *Time* article. He subsequently wrote a letter to the magazine which was published on February 4, 1966: “Sir: You quote me [Dec. 31] as saying: “We are all Keynesians now.” The quotation is correct, but taken out of context. As best I can recall it, the context was: “In one sense, we are all Keynesians now; in another, nobody is any longer a Keynesian.” The second half is at least as important as the first.”

are steadily increasing. This period also coincides with a renewed interest in Schumpeter’s work, as the literature on growth theory explodes after the publication of papers such as Romer (1986), Lucas (1988), and Romer (1990).¹⁷ One of the strands of literature emerging from the work on growth theory during this period is the so-called Schumpeterian growth theory, which formalizes Schumpeter’s idea of creative destruction.¹⁸ At the same time, this period coincides with the onset of the Great Moderation, which means business cycle fluctuations and how to manage them become less of a concern, keeping down the citations to Keynes. This, of course, ends with the Great Recession, and there is a renewed interest in Keynes in the fourth period. This interpretation is also consistent with the underlying data in figure 4.

Figure 10: *Capitalism, Socialism and Democracy-to-The General Theory Citation Ratio (Economics Publications Only)*

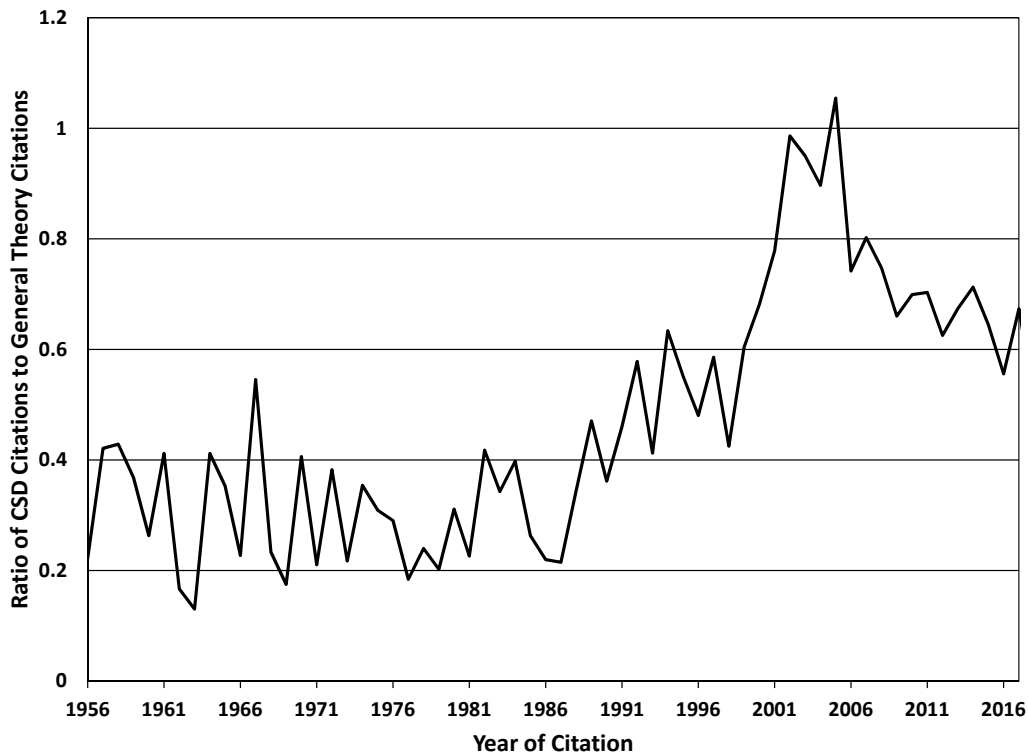


Figure 10 presents the *CSD-to-GT* citation ratio for economics publications only. This ratio also differs when only looking at economics publications but only quantitatively. The

¹⁷Warsh (2006) provides a detailed narrative describing these discoveries and the history of growth theory in general.

¹⁸See Aghion, Akcigit, and Howitt (2014) for a survey of Schumpeterian growth theory.

qualitative patterns in the series look quite similar, but all the data are just shifted down in magnitude. For example, the ratio only exceeds 1 during a single period, which is a big difference compared to the ratio for all publications seen in figure 8.

3.2 Schumpeter vs. Keynes Outside of Economics

Many fields outside of economics have, of course, been influenced by economic thinkers, including Schumpeter and Keynes. Although citations to these two economists in fields outside of economics are implicit in our graphs showing the replication of Diamond (2009a), it is still useful to briefly discuss these citations explicitly. Figures 11 and 12 show the total number of citations to Schumpeter versus Keynes and the total number of citations to *CSD* versus *GT*. The citations in both figures are taken from publications outside of the Economics and Business Finance categories defined by the Web of Science database.

There are a number of interesting points to note when viewing the data in this way. As

Figure 11: Citations Per Year to Schumpeter and Keynes (Non-Economics Publications Only)

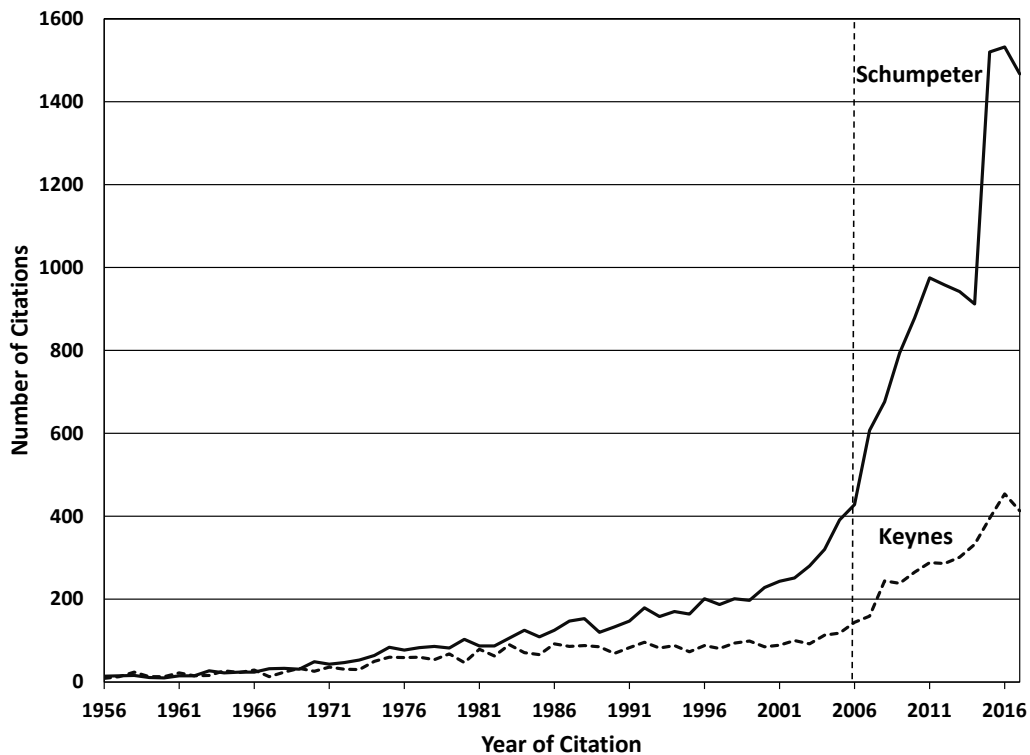
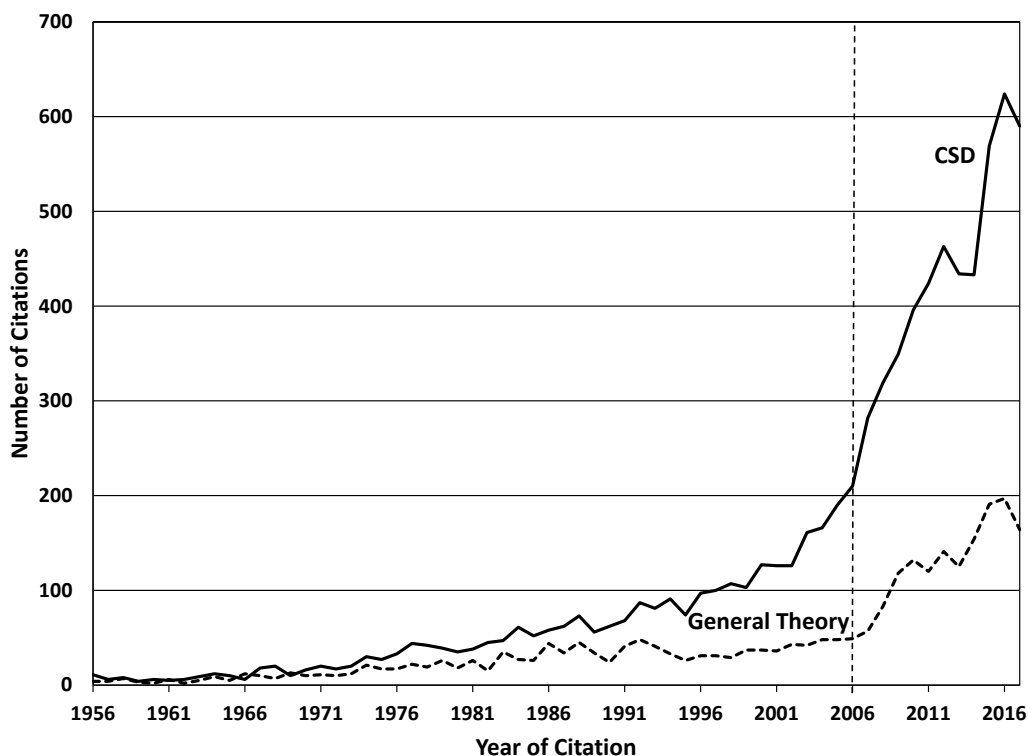


Figure 12: Citations Per Year to *Capitalism, Socialism and Democracy* and *The General Theory* (Non-Economics Publications Only)



is expected, citations to Schumpeter and *CSD* outstrip those to Keynes and *GT*. Not only are Schumpeter’s citations surpassing Keynes’s, but Schumpeter’s citations are surpassing Keynes’s much earlier than in economics publications only. Citations to Schumpeter permanently surpass those to Keynes beginning in 1970, whereas figure 4 shows citations to Schumpeter in economics publications only surpass Keynes beginning in 2002 and remain only slightly higher thereafter. Likewise, citations to *CSD* permanently surpass those to *GT* beginning in 1970. This framing, however, obscures *CSD*’s dominance over *GT*, because there are only three years, all occurring before 1970, in which citations to *GT* outstrip those to *CSD*. One implication from this analysis is that economists likely significantly underrate Schumpeter’s influence relative to Keynes’s, especially if economists primarily read and cite work from economics publications only.

So, what fields outside of economics are citing Schumpeter? Answering this question comprehensively is clearly outside the scope of this paper. Instead, we briefly discuss the example of how Schumpeter remains influential in the field of political science. The Web of

Science database contains a separate category for Political Science.¹⁹ Citations to Schumpeter in political science resemble a similar pattern as we have seen previously, steadily increasing over time and dramatically so in the final years of our sample. We would expect to see citations to *CSD* receiving a large share of these citations. Not only does *CSD* describe Schumpeter’s theory of democracy, large sections of the text deal with a central question in political science, and all of the social sciences in general, i.e. the optimal role of government in society. Indeed, the median share of Schumpeter’s citations attributed to *CSD* is 0.61 over our sample period of 1956-2017, which is higher than that in all publications (figure 3) and economics publications only (figure 6).

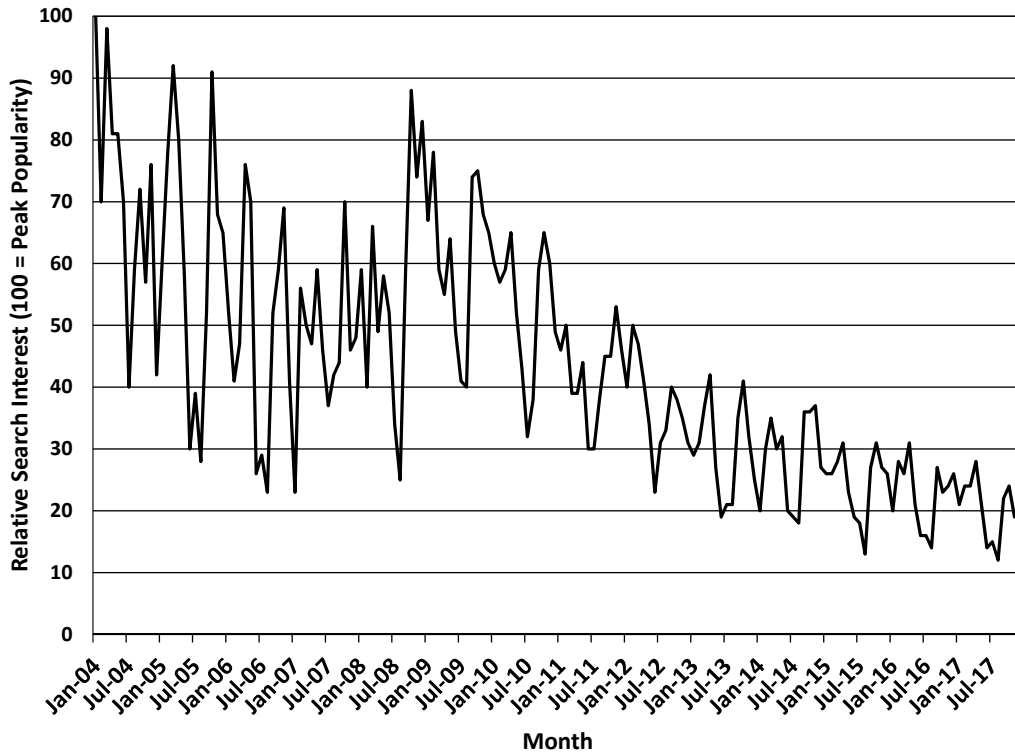
3.3 Schumpeter vs. Keynes in the Google Trends Data

In this section, we introduce an additional metric, namely Google Trends data, by which to measure the relative influence of the two authors over time. In addition, the Google Trends data help make sense of the resurgence of citations to Keynes in the post-Diamond (2009a) period we observe in the Web of Science data. Figures 13 through 18 present monthly data on the popularity of the economists in terms of how often they were searched on Google from January of 2004 to December of 2017. The data are standardized on a 0 to 100 scale where the numbers represent search interest relative to the highest point on the chart for the given region and time. The maximum value of 100 is the peak popularity for the term, and a score of 50 means that the term was half as popular and so on. A value of 0 means that there was not enough data for this term. Google searches are clearly a much broader measure of influence than the citation counts in the Web of Science data, as any individual with internet access can potentially affect the measure. Importantly, though, Google Trends data provide us with a barometer to measure influence “in the moment,” which is useful for connecting real world events with changes in influence.²⁰

¹⁹We do not show the citation data for political science in the form of figures due to space constraints. These data are available upon request.

²⁰Google Ngrams data, for example, are less well suited for capturing these in the moment changes. Google Ngrams data track the number of times a specific word is mentioned in the text of the books appearing in its database. The Google Ngrams results for the terms “Keynes” versus “Schumpeter” and “Keynesian” versus “Schumpeterian” show that Keynes/Keynesian appear more frequently than Schumpeter/Schumpeterian. However, Keynes/Keynesian levels off beginning in 1990/1980, whereas Schumpeter/Schumpeterian steadily increases but, in the case of Schumpeterian, appears to slow down in more recent years. This shows the gap

Figure 13: Google Searches for Schumpeter (U.S.)



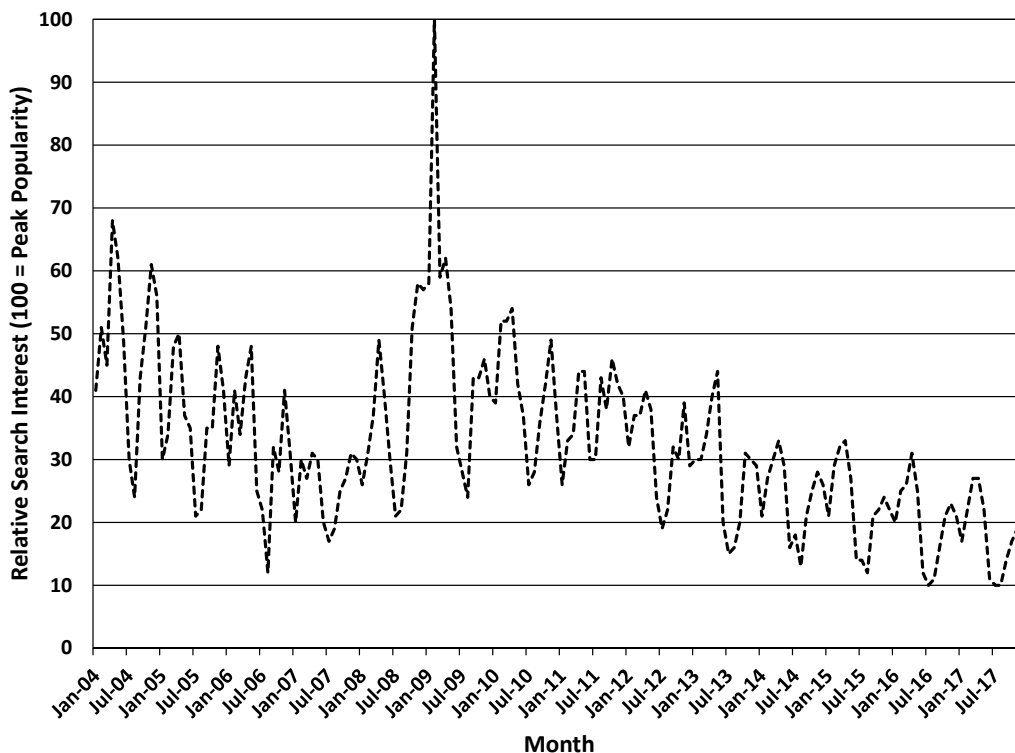
First, we look at the search results in the U.S. and then we extend the data to worldwide searches. Because of the way the peak popularity is standardized to be 100, it makes sense to compare the search data for Schumpeter and Keynes separately in figures 13 through 16 and then to combine and standardize their results in figures 17 and 18. We use the recommended search term feature on Google Trends to define our search.²¹

Figure 13 presents the Google Trends data for Schumpeter in the U.S. Two features of the data are worth noting. The first, and perhaps most surprising, feature of the data is that Schumpeter achieves peak popularity at the initial data point and actually has a *declining* trend over time. This contrasts markedly with the Web of Science citation data.

between Keynes and Schumpeter is closing in the Google Ngrams data. The direction and timing of the time series are consistent with our findings in the Web of Science data, i.e. Keynes is leveling off while Schumpeter continues to grow. The Google Ngrams data also show an increase in Keynes/Keynesian after 2010, which is consistent with the idea of a resurgence in the influence of Keynes after the Great Recession. Of course, we should note the Google Ngrams data are a different metric than the citation data in the Web of Science database. Since the purpose of our paper is to replicate the findings in Diamond (2009a), we confine our discussion of Google Ngrams to this note.

²¹This means we type, say, “Joseph Schumpeter” into the search bar, wait for the auto suggestions to appear, and then click on “Joseph Schumpeter, Economist.” Likewise, typing in “Keynes” yields “John Maynard Keynes, British economist” as our search term.

Figure 14: Google Searches for Keynes (U.S.)



Since January 2004, Schumpeter’s popularity, as measured by Google Trends, has been falling, albeit somewhat unevenly. The second feature of the data worth noting is the spike in interest shortly after the onset of the Great Recession. Search interest in Schumpeter reaches 88 in October 2008, one month after Lehman Brothers declared bankruptcy. After this peak, however, search interest steadily declines, reaching its lowest point of 12 towards the end of the sample period in August 2017.²²

Google searches for Keynes in the U.S. reach a peak much later than Schumpeter according to the data in figure 14. Keynes receives the maximum score of 100 in February of 2009, five months after Lehman Brothers declared bankruptcy and when the U.S. economy was in the midst of the Great Recession, which officially ended in June of 2009 according to the NBER’s dating. Following this month of peak popularity, Keynes’s relative search interest trends downward just like Schumpeter and reaches a low of 10 in August 2017. Thus, the

²²There also seems to be a seasonal aspect to the data, with the summer months (May, June, July, and August) often having lower relative search interest values than the other months of the year. Although speculative on our part, this could reflect the academic school year. We see a similar seasonal trend when looking at the Google Trends data for Keynes.

Figure 15: Google Searches for Schumpeter (Worldwide)

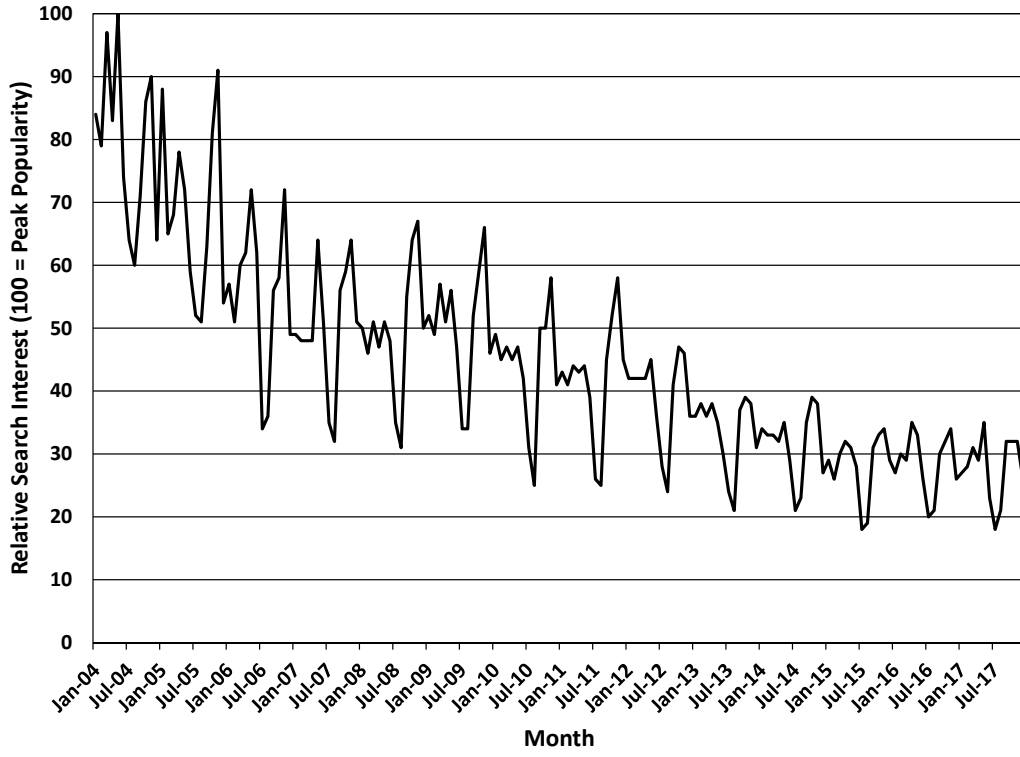


Figure 16: Google Searches for Keynes (Worldwide)

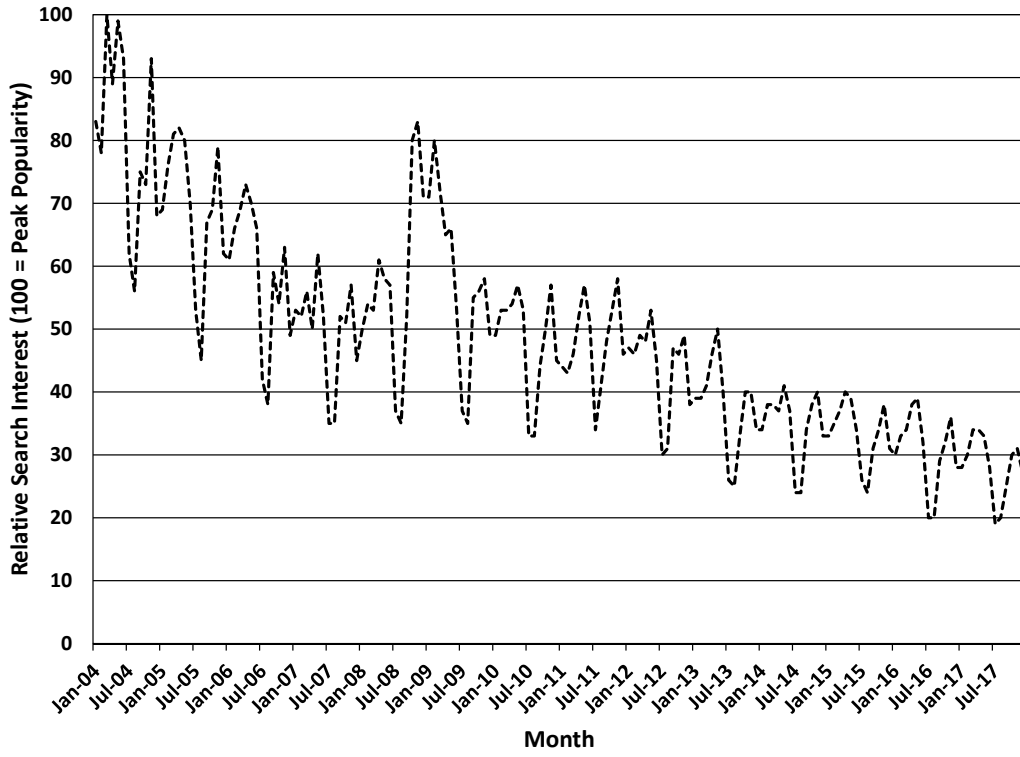


Figure 17: Google Searches for Schumpeter Compared to Keynes (U.S.)

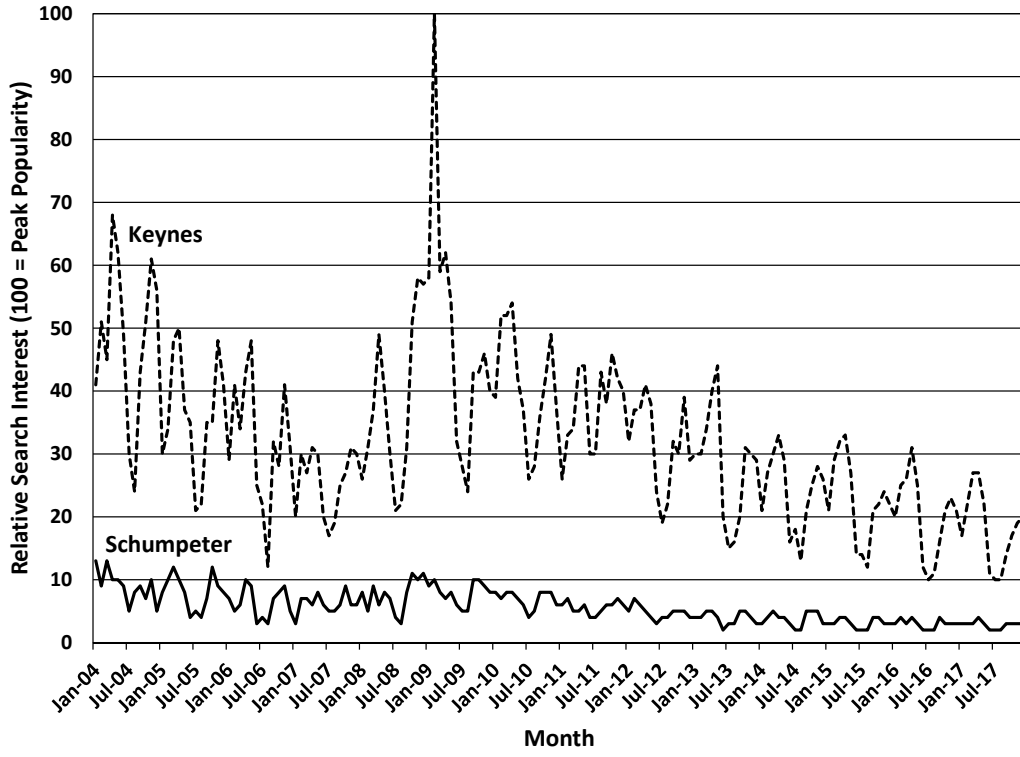
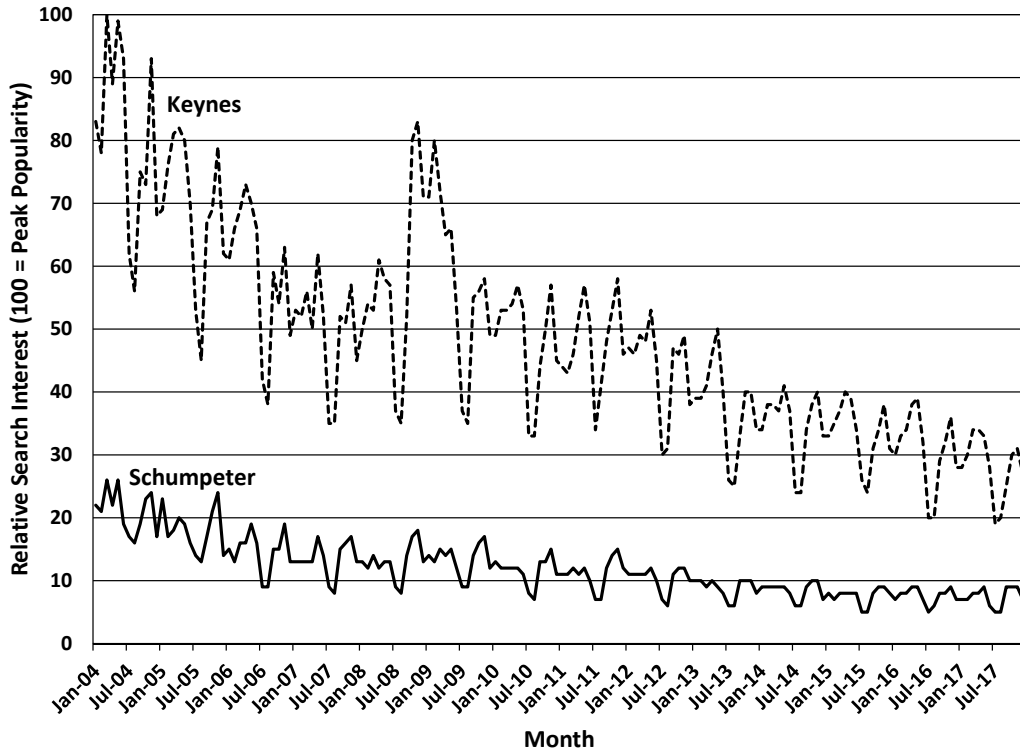


Figure 18: Google Searches for Schumpeter Compared to Keynes (Worldwide)



Google Trend data for both authors differ from the results obtained from the Web of Science citation counts.

Comparing search interest for Schumpeter and Keynes worldwide to that of the previous results for the U.S. shows some important differences. First, Schumpeter's popularity trends downward over time, just like in the U.S., but does not experience a spike during the Great Recession (figure 15). Second, figure 16 shows search interest in Keynes also trends downward but experiences a spike during the Great Recession, as in the U.S. But, the results for Keynes's popularity in the U.S. and worldwide are still markedly different in that the intensity of the search interest during the Great Recession is much higher in the U.S. than worldwide. Whereas figure 14 for the U.S. shows a peak of 100 in February 2009, the data in figure 16 only reach 80 in February 2009. These results suggest Schumpeter and Keynes were more popular in the U.S. during the Great Recession, which may be due to the origins of the financial crisis in the subprime mortgage market based primarily in the U.S.

Our final analysis of the Google Trends data compares the search popularity of Schumpeter and Keynes at the same time. This allows us to see which economist was more popular at a particular time. Figures 17 and 18 present the results for the U.S. and worldwide, respectively. The patterns in both figures are similar. Search interest in Keynes is higher than Schumpeter with significant spikes during the Great Recession.

4 Conclusion

Schumpeter and Keynes are still not dead. Their ideas live on through their many seminal contributions, including those in *CSD* and *GT*. At the time of their deaths, Keynes would have been considered the more influential economist of the two. Yet Diamond (2009a) documents Schumpeter's influence, as measured by citations, steadily increased since the 1950s and eventually surpassed that of Keynes. Since the publication of Diamond (2009a), however, much has happened in the economics profession in the aftermath of the Great Recession, including an ongoing period of soul-searching in macroeconomics. With the availability of another decade's worth of citation data, we revisit Diamond (2009a)'s research question by comparing the time series of total citations for Schumpeter and Keynes.

Our replication shows the results in Diamond (2009a) continue to hold. Extending the data to 2017 shows Schumpeter continues to outpace Keynes in citations, but Keynes has clearly undergone a resurgence, which we argue in part must be due to the interest in his ideas after the Great Recession. Documenting the ratio of citations between Schumpeter and Keynes allows us to more sharply and cleanly compare the two economists, and we find the patterns in the data consistent with major trends in macroeconomic research since the 1950s. Our analysis of the Google Trends data lends additional support to the idea of the Great Recession's impact on reviving Keynes's influence. This idea that world events can affect the influence and citation patterns of particular economists is corroborated by Magness and Makovi (2020) in the case of Karl Marx. Magness and Makovi (2020) show the 1917 Russian Revolution likely greatly increased Marx's intellectual influence, which continues to this day.

Although our contribution to the literature focuses on the comparative influence of Schumpeter and Keynes measured by citations, our results have a wider significance in that they clearly show the relevance of the history of economic thought and the ideas of particular economists to the public at large. The Google Trends data show searches for Schumpeter and Keynes spiking during the Great Recession, as people no doubt wrestled with how to understand the crisis and which policies to support as a response. We also find searches for Marx, Mises, and Hayek increase around the time of the Great Recession. No doubt searches for other economists did as well. This is an area for future research. As the keepers of these particular flames, economists have a responsibility to articulate and pass on the lessons of the past. To that end, Dalton and Logan (2022) provide a description of a newly developed course on Schumpeter.

References

- AGHION, P., U. AKCIGIT, AND P. HOWITT (2014): “What Do We Learn From Schumpeterian Growth Theory?,” in P. Aghion and S. N. Durlauf, editors, *Handbook of Economic Growth*, Volume 2, 515-563.
- BECKER, M. C., T. KNUDSEN, AND R. SWEDBERG (2012): “Schumpeter’s *Theory of Economic Development*: 100 Years of Development,” *Journal of Evolutionary Economics*, 22(5), 917–933.
- CHANG, A. C., AND P. LI (forthcoming): “Is Economics Research Replicable? Sixty Published Papers from Thirteen Journals Say “Often Not”,” *Critical Finance Review*.
- CHRISTENSEN, G., AND E. MIGUEL (2018): “Transparency, Reproducibility, and the Credibility of Economics Research,” *Journal of Economic Literature*, 56(3), 920–980.
- DALTON, J. T., AND A. J. LOGAN (2020a): “*The Man Who Discovered Capitalism*: A Documentary on Schumpeter for Use in the Classroom,” working paper.
- (2020b): “Using the Movie *Joy* to Teach Innovation and Entrepreneurship,” *Journal of Economic Education*, 51(3-4), 287–296.
- (2020c): “A Vision for a Dynamic World: Reading *Capitalism, Socialism and Democracy* for Today,” *The Independent Review*, 24(4), 567–577.
- (2022): “Teaching and Learning Schumpeter: A Dialogue Between Professor and Student,” *Review of Austrian Economics*, 35(2), 235–256.
- DAVIS, W. L., B. FIGGINS, D. HEDENGREN, AND D. B. KLEIN (2011): “Economics Professors’ Favorite Economic Thinkers, Journals, and Blogs (along with Party and Policy Views),” *Econ Journal Watch*, 8(2), 126–146.
- DIAMOND, JR., A. M. (1986): “What is a Citation Worth?,” *The Journal of Human Resources*, 21(2), 200–215.

- (2007): “Thriving at Amazon: How Schumpeter Lives in Books Today,” *Econ Journal Watch*, 4(3), 338–344.
- (2009a): “Schumpeter vs. Keynes: “In the Long Run Not All of Us Are Dead,”” *Journal of the History of Economic Thought*, 31(4), 531–541.
- (2009b): “Using Video Clips to Teach Creative Destruction,” *Journal of Private Enterprise*, 25(1).
- DRUCKER, P. F. (1983): “Schumpeter and Keynes,” *Forbes*, May 23.
- DUVENDACK, M., R. PALMER-JONES, AND W. R. REED (2017): “What is Meant by “Replication” and Why Does It Encounter Resistance in Economics?,” *American Economic Review: Paper & Proceedings*, 107(5), 46–51.
- GIERSCH, H. (1984): “The Age of Schumpeter,” *American Economic Review: Papers & Proceedings*, 74(2), 103–109.
- IOANNIDIS, J. P. A. (2005): “Why Most Published Research Findings Are False,” *PLoS Med*, 2(8), 696–701.
- KEYNES, J. M. (1936): *The General Theory of Employment, Interest, and Money*. New York, NY: Harcourt, Brace and Company.
- LEIGHTON, W. A., AND E. J. LÓPEZ (2013): *Madmen, Intellectuals, and Academic Scribblers: The Economic Engine of Political Change*. Stanford, CA: Stanford University Press.
- LUCAS, JR., R. E. (1988): “On the Mechanics of Economic Development,” *Journal of Monetary Economics*, 22(1), 3–42.
- MAGNESS, P. W., AND M. MAKOVI (2020): “The Mainstreaming of Marx: Measuring the Effect of the Russian Revolution on Karl Marx’s Influence,” working paper.
- MCCLOSKEY, D. N. (2006): *The Bourgeois Virtues: Ethics for an Age of Commerce*. Chicago, IL: University of Chicago Press.

- (2010): *Bourgeois Dignity: Why Economics Can't Explain the Modern World*. Chicago, IL: University of Chicago Press.
- (2016): *Bourgeois Equality: How Ideas, Not Capital or Institutions, Enriched the World*. Chicago, IL: University of Chicago Press.
- MCCRAW, T. K. (2007): *Prophet of Innovation: Joseph Schumpeter and Creative Destruction*. Cambridge, MA: The Belknap Press of Harvard University Press.
- MEDEMA, S. G. (2009): “History By the Numbers: A Comment on Carlson and Diamond,” *Journal of the History of Economic Thought*, 31(4), 543–547.
- MUELLER-LANGER, F., B. FECHER, D. HARHOFF, AND G. G. WAGNER (2019): “Replication Studies in Economics—How Many and Which Papers are Chosen for Replication, and Why?,” *Research Policy*, 48, 62–83.
- NELSON, R. R., AND S. G. WINTER (1982): *An Evolutionary Theory of Economic Change*. Cambridge, MA: Harvard University Press.
- ROMER, P. M. (1986): “Increasing Returns and Long-Run Growth,” *Journal of Political Economy*, 94(5), 1002–1037.
- (1990): “Endogenous Technological Change,” *Journal of Political Economy*, 98(5), S71–S102.
- SAMUELSON, P. A. (2003): “Reflections on the Schumpeter I Knew,” *Journal of Evolutionary Economics*, 13(5), 463–467.
- SCHUMPETER, J. A. (1934): *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*. Cambridge, MA: Harvard University Press.
- SKIDELSKY, R. (2009): *Keynes: The Return of the Master*. New York, NY: PublicAffairs.
- SOLOW, R. (2007): “Heavy Thinker,” *The New Republic*, May 21.

SWEDBERG, R. (1991): *Schumpeter: A Biography*. Princeton, NJ: Princeton University Press.

WARSH, D. (2006): *Knowledge and the Wealth of Nations: A Story of Economic Discovery*. New York, NY: W.W. Norton & Company.