

LOCATING GEOGRAPHIES OF INEQUALITY:

A REVIEW OF PUBLICATION TRENDS ON INCOME INEQUALITY ACROSS OECD COUNTRIES, 1980-2014

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Abstract: This paper examines journal publications and article citations on the subject of the spatial dimensions of income inequality within the social sciences. A systematic literature review methodology is used to develop a dataset containing 2,944 articles published from 1980 to 2014. Analysis reveals that the number of papers soared in the late 1990s with significant differences (i) between papers focusing on the causes vs. consequences of inequality and (ii) in the spatial scales studied. Increases in interdisciplinary and multidimensional approaches to understanding regional inequalities are also key features of the literature. Areas for future work on spatial inequality are outlined.

Keywords: spatial inequality, literature review, publication trends

JEL classification codes: J31, R23, I14, B29

INTRODUCTION

For the past three decades, income inequality has been rising across most OECD countries. In a 2011 study, the OECD reported that the average Gini coefficient for its member countries stood at 0.29 in the mid-1980s. By the late 2000s, that average had increased by almost 10% to 0.316 as 17 of the 22 OECD countries for which long-term data was available experienced rising inequality.

After the Great Compression of the mid-20th century (Goldin and Margo 1992), the first signs of a widening gap between rich and poor were observed in the US and UK in the late 1970s and early 1980s. This was puzzling for social scientists who until then largely accepted Kuznets' (1955) hypothesis of an inverted U-shaped curve describing the relationship between the level of development of a country (or region) and its level of inequality (Harrison and Bluestone 1988). The strain on Kuznets' hypothesis became greater in the 1980s as trends of increasing income inequality spread to several other OECD countries. Today, even what were traditionally considered the bastions of low-inequality countries (e.g., Sweden, Denmark, Canada and Germany) have witnessed significant increases in inequality. And though there are bright spots where the distribution of income has become more equal over time (e.g., Chile, Mexico and Hungary), these represent only a minority of instances where levels of inequality were very high to begin with.

This recent surge in within country levels of inequality is considered to be one of the greatest social challenges of our time (Stiglitz 2012; Dorling 2014; Piketty 2014; Atkinson 2015; Milanovic 2016). Higher levels of inequality threaten economic stability and can foster greater social and political instability (Wilkinson and Pickett 2009; Jacob and Pierson 2010; Galbraith 2012; Partridge and Weinstein 2013), signs of which were evident during the Occupy Movement protests in 2011 and, more recently, with the rise of populist concerns over the loss of upward mobility and declining opportunities for future generations in the US (Sitaraman 2017), UK and elsewhere (Peck 2016).

From a regional perspective, as income inequality within countries has increased over time so too have spatial inequalities. This has led to a resurgence of interest in understanding the underlying spatial dimensions of inequality across a multitude of scales: at the regional

(e.g., Lobao et al. 2008; Chetty et al. 2014; Breau 2015; Rey 2016; Ballas et al. 2017; Moser and Schnetzer 2017), metropolitan (e.g., Essletzbichler 2015; Florida and Mellander 2016) and neighbourhood levels (Walks 2001) of analysis. While the case for paying greater attention to spatial inequality is amplified by recent trends in within-country inequalities, scholars have also argued that a regional approach based on a broader and multi-dimensional framework combining knowledge and insights from a range of different disciplines may provide a more fertile avenue of research which advances the debate beyond the confines of traditional disciplinary silos (Del Casino and Jones 2007; Lobao et al. 2008; Wei 2015; Franklin and van Leeuwen 2016; Savage 2016; Turok et al. 2017).

In this paper, we take stock of the literature on spatial inequality by adopting a systematic review approach to examine publication trends on the subject in journals across the social sciences. More specifically, the goals of this article are fourfold: to (i) identify the main actors and journals involved in the production of scientific content on spatial inequality, (ii) characterize the impact of this research, (iii) summarize the key themes investigated in the literature and (iv) classify the principal spatial scales of analysis studied by inequality researchers.

This assessment of publication trends on inequality is unique in that it is based on a comprehensive dataset of 2,944 articles systematically compiled from the *Web of Science* and *Scopus* over the 1980 to 2014 period. Never before has such a large scale database been assembled to synthesize research on the spatial dimensions of inequality. Such work is important, we argue, as it provides a basis for debates on the status and future of research on spatial inequality, and a platform to think about the importance of scale in the development and implementation of effective policies geared toward promoting more inclusive and equitable economic growth (Lobao et al. 2008; Barca et al. 2012; Lee and Sissons 2016; Shearer et al. 2016). This is where our focus on the regional- (i.e., meso-) level scale of analysis is also most important as it provides a framework for thinking about how social and spatial processes operate at levels that mediate and interconnect national- and urban-level processes (Rey 2004; Del Casino and Jones 2007).

In the next section, we discuss the methodological approach used to assess publication patterns. Section 3 presents the results of general publication trends across journals and examines the contributions of individual authors. In section 4, emphasis is placed on the different spatial scales used in the analysis of the causes of inequality and to the thematic distribution of articles in the field. Section 5 provides a brief conclusion.

METHODOLOGICAL APPROACH

Our analysis of publication trends and citation patterns on income inequality is based on a systematic review of peer reviewed journal articles published over the 1980 to 2014 period. Originally developed and applied in the life sciences field, it is only recently that systematic reviews have made their way within the social sciences (Petticrew and Roberts 2008). The advantage of such a research tool is that it allows us to appraise a large and complex body of literature in a coherent, transparent and unbiased fashion.

Two databases were mined for information: the Institute for Scientific Information's *Web of Science* (WoS) and Elsevier's *Scopus*. Until recently, the WoS's Social Sciences Citation Index was considered the golden standard for conducting extensive citation searches and bibliometric analyses (Meho and Yang 2007). The emergence of *Scopus* over the last decade has challenged the dominance of WoS as it is considered more comprehensive in terms of its coverage of journal titles (*Scopus* \approx 20,000 vs. WoS \approx 13,000). Both were mined in the analysis to ensure a more accurate picture of publishing trends across different disciplines (Mongeon and Paul-Hus 2016).

In each bibliographic database, two sets of search terms were used consistently to ensure uniformity in our approach. First, given that studies of inequality use different income concepts depending on data availability and the research question at hand, our search included the three most commonly applied income measurement concepts: 'income inequality', 'earnings inequality' and 'wage inequality'. Second, these income concepts were searched sequentially in combination with a geographical qualifier (either 'geography', 'spatial', 'national', 'regional', 'metropolitan', 'urban' or 'neighbourhood') in order to identify articles that have a spatial dimension to their analysis. Geographers have long recognized the

importance of asking the ‘who gets what, *where* and how’ question when examining the role played by space in the production and reproduction of distributive processes and outcomes (Coates et al. 1977; Massey 1979; Smith 1979). Since spatial inequality is by definition multi-scalar in nature, we used these seven different markers to cast the net widely when discriminating between studies of inequality that are non-spatial in character and those that include a spatial dimension. If any combination of these search terms appeared in either the title, abstract or keywords of an article referenced in WoS or *Scopus*, then it was considered for inclusion.

The initial search yielded a total of 12,128 journal articles, 6,042 of which were duplicates dropped from our database (see Figure 1). Of the remaining 6,086 non-duplicate articles, 3,036 papers focusing on OECD countries were retained for the analysis¹. In order to provide a broad overview of the main debates explored in the literature on inequality, these 3,036 publications were subsequently categorized into four broad thematic frames: papers that focus primarily on (i) understanding the nature and causes of the problem, (ii) the outcomes of inequality, (iii) the methodological aspects of measures of inequality and (iv) the theoretical and philosophical debates over inequality. This categorization exercise was undertaken independently by the two authors and the results were cross-referenced in order to validate the coding process. Of the 3,036 articles considered at this stage, only 92 (roughly 3% of the sample) were classified as belonging to the latter two frames dealing with measurement and philosophical issues. Even though these documents were captured in our search using geographic markers, as their focus is primarily non-spatial they were excluded from the analysis.

[Figure 1]

Ultimately, 2,944 documents were retained for analysis. It is important to note that while all of these papers on inequality in OECD countries were identified as having a spatial component, there is much heterogeneity in the dataset. For instance, several papers deal with spatial inequality as defined by absolute disparities in average or per capita incomes across

countries and regions (part of the convergence debate of the 1990s). In contrast, others adopt distributional measures of inequality which reflect interpersonal (i.e., individual or household-level) differences in incomes across a given population and how these maybe related to various health and social outcomes. Such diversity, as we will see, is one of the hallmarks of the complex and rapidly evolving literature on the spatial dimensions of inequality.

One last note with regards to methodological concerns. While all of the basic bibliographic information on the title, years of publication, author(s) and journal of publication is drawn directly from the combined WoS and *Scopus* databases, an issue did arise with regards to the reliability of citation counts across both catalogues. Citation numbers from the WoS were typically lower than those reported in *Scopus*, with the discrepancies varying as much as 10% to 20% fewer citations (see also Meho and Yang 2007). To mitigate the effects of such variations and to ensure maximum coverage in locating citations, as well as trace the potential broader impact of articles in other scholarly non-journal forms (e.g., books, conference proceedings, reports) and non-refereed outlets beyond the academic community, Google Scholar was used to supplement citation counts from WoS and *Scopus* (CGC 2011; Kousha et al. 2011).

RESULTS

General publication trends

We begin by assessing publication trends in Figure 2 which shows the number of journal articles published on the subject of inequality, by year, for the period 1980 to 2014. Though the search returned few publications for the 1980s decade, it is clear that interest in the subject started to pick up in the early 1990s – inequality came out of the cold to paraphrase Atkinson (1997) – and that the momentum has continued ever since. By 2014, close to 280 articles on income inequality were published in peer-reviewed journals, more than 15 times the volume of publication in 1990.

[Figure 2]

The rapidly growing interest in the subject is also one that is sustained by a broadening interdisciplinary base: the 2,944 articles published over the 1980-2014 period represent the work of 5,894 different authors appearing in 1,052 different journals. A closer look at the broad thematic distribution of papers also reveals an important shift in the primary focus of inequality studies. Throughout the 1980s and until the late 1990s, the number of articles published on the causes of inequality (predominantly by economists) was essentially the same as that investigating the consequences of inequality. However, this pattern changed significantly at the turn of the millennium as a series of 'high impact' breakthrough papers examining the relationship between income inequality and mortality in the US (see, for instance, Kaplan et al. 1996; Kawachi et al. 1997) set off a flurry of research activity in the epidemiological literature. Since then, the number of publications on the consequences of inequality has continuously outstripped that focusing on the causes such that over the last decade alone (2004-2014), for every paper examining the causes of inequality there are roughly 3 published on the consequences.

To be sure, part of the surge in the volume of academic papers on inequality is related to the overall increase in publication activity across the social sciences writ large (itself a reflection of the establishment of new journals, an increase in the frequency of issues published, etc.). As the bottom line of Figure A1 shows (see Appendix), the 134,040 articles published across the social sciences in 2014 represent a six fold increase from 1990 levels. In comparison, the rate of increase in papers on inequality was more than twice as fast (see top line) and greater than several other major research themes in the social sciences.

Journal specific trends

Tables 1 and 2 provide a snapshot of the distribution of articles for the top 25 journals on both the causes and consequences of inequality. These journals were selected based on the total number of articles published within their pages as well as their citation counts. Following Foster et al. (2007), citation counts are classified into three different 'impact' categories: papers with 10-39 citations, 40-59 citations, and 60 or more². This was done in order to focus the discussion

that follows on papers that can be said to have generated attention within the academic community.

On the causes side (Table 1), the top 25 journals account for just over 35% of all 920 articles published on the subject. About half of these journals are interdisciplinary in that they publish articles from across the social sciences presenting different theoretical perspectives and analytical techniques while maintaining an explicitly spatial focus. In other words, they prioritize papers that highlight how socio-economic processes and outcomes – such as inequality – are contingent on their regional or urban environments. *Regional Studies* leads the pack in terms of journal articles followed by its city-centered counterpart *Urban Studies* and other well-known international journals (the *Journal of Regional Science*, *Annals of Regional Science*, *Environment and Planning: A* and *Papers in Regional Science*). The other half of journals figuring prominently on the list tend to have much stronger disciplinary allegiances, either in sociology (e.g., *Social Forces*, *American Sociological Review*, *European Sociological Review*) or economics (e.g., *Review of Income and Wealth*, *Applied Economics*).

It is interesting to note the contrast in the impact of journals based on their respective citation records. Even though the more interdisciplinary and regional science oriented journals tend to publish a greater number of articles, including several highly-cited papers, well-established disciplinary flagship journals – such as the *American Sociological Review*, the *Review of Economics and Statistics* and the *American Journal of Sociology* – have the greatest numbers of ‘splash-making’ papers (i.e., with more than 60 cites). Foster et al. (2007) find evidence of a similar concentration of highly-cited economic geography papers within broader disciplinary journals in geography.

[Table 1]

The literature on the consequences of inequality typically comes from much different fields (see Table 2). Here, the majority of the top publishing journals are from health and medicine. While mainly interdisciplinary in nature, some of the journals focus on income inequality as a determinant of health, whereas others tend to focus on how health policy and

access to medical services affect well-being. One of these journals – *Health and Place* – explicitly considers how place and local context can affect health outcomes. The *International Journal for Equity in Health*, for its part, is dedicated to publishing research examining distributional differences in the health of different population groups.

In terms of productivity, *Social Science & Medicine* dominates with 239 papers published from 1980 to 2014, almost three times as much as the *Journal of Epidemiology and Community Health* which comes in second place. The distribution of papers by decade also reveals the relative ‘newness’ of the subject as the number of papers published literally explodes in the 2000s (though some journals, like *Plos One* and *BMC Public Health*, were only founded during this time). What is also striking is that despite the fairly recent interest in how inequality influences health outcomes, the impact of these journals is considerable. Of the more than 200 articles on the subject published in *Social Science & Medicine*, 100 were high impact articles cited more than 60 times. The *Journal of Epidemiology and Community Health* and the *International Journal of Public Health* also have a large number of publications that have made an impression on the field suggesting that the theme of the consequences of inequality resonates with a broad audience. On the other hand, while well-established disciplinary journals such as the *British Medical Journal* and *Lancet* do not address the subject as often, when they do, the articles have a large impact suggesting that the audience for articles on the consequences of inequality is wide-ranging.

Only five of the journals in this list publish research dealing with broader social, economic and political concerns (i.e., not only health oriented), three of which also figure on the top 25 lists for studies on the causes of inequality (*American Sociological Review*, *Social Forces*, *Urban Studies*). The spillovers in terms of the work of different research communities, focusing either on the causes or consequences of inequality, thus appear to be rather limited.

[Table 2]

Table A1 (see Appendix) provides an alternate way of looking at the impact of journals. Here, the total citation counts are presented for the top 25 journals. The 920 articles on the

causes of inequality, published in 336 different journals, garnered a total of 45,300+ citations on *Google Scholar* which averages out at roughly 135 citations per journal. 14 of the top 25 journals listed in Table 1 show up in Table A1 though the relationship between number of articles and total citations is not perfect as 9 of the 11 remaining journals published fewer than 5 articles on the topic. Among these are the most prestigious journals in economics (*Quarterly Journal of Economics*, *Journal of Political Economy*, *Journal of Economic Growth* and *Economic Policy*) which together have a dozen 'star' articles on the causes of inequality appearing in their pages that combine for almost 20% of all citations (more on this below). A number of sociology, regional science and geography journals are also making waves here.

Not surprisingly, journals that publish on the consequences have a much larger impact than those on the causes. Overall, the 2,024 articles on consequences yielded 113,170+ citations (or about 158 citations, on average, per journal). Dominating the field again is *Social Science & Medicine* with over 22,000 citations (approximately one-fifth of all citations), more than four times the most cited journal on the causes. The correlation between number of articles published and total citations is higher for the consequences, though there are again a few journals that have published little on the subject that still manage to attract much attention (e.g., *Milbank Quarterly*, *New England Journal of Medicine*, *Journal of the American Medical Association*). Absent from the list is the leading medical geography journal *Health & Place* which comes in 27th position.

Impact of individual articles

The next question we ask is which papers and which subjects have attracted the most attention? The top 20 articles on the causes of inequality are listed in Table A2 (see Appendix) which clearly shows the predominance of economics as 16 of these papers appear in well-established economics journals. The top 4 articles all have more than 1,000 citations each, led by the work of Krugman and Venables (1995) who develop a core-periphery model to examine how globalization and falling transportation costs may affect incomes through agglomeration effects. Acemoglu's (1998) work, in contrast, focuses on the skills biased technological change argument to explain how the rapid increase in the proportion of college graduates in the US

may have been a causal factor behind the rise in inequality in the 1980s. While these first two papers are good examples of the significant impact of new theoretical developments in modeling regional differentiation and understanding the drivers of inequality, other papers are much more empirical in nature. For instance, Feenstra and Hanson (1997) concentrate on the impacts of FDI flows on the wages of skilled workers across Mexican regions. Boldrin and Canova (2001) trace the evolution of income disparities across EU15 regions while Piketty (2003) uses tax data to examine the dynamics of inequality in France. Interestingly, Diego Puga has authored or co-authored three papers which figure prominently in this list, including one highly cited paper in the *Journal of Economic Geography* examining the evolution of income disparities across European regions and the role played by regional policies. This stands out given the relative short history of the journal – founded in 2001 – which serves as a forum bridging the disciplines of geography and economics. In terms of the geographical focus of analysis of these papers, about half examine cross-national or national patterns of inequality with the other half concentrating on regional or metropolitan-level analyses (note that the latter includes neighbourhood-level studies). With a total of 567 citations in all, *Regional Studies* is the most active journal publishing papers that focus on the regional scale of analysis, followed by the *Annals of Regional Science*, the *Review of Regional Studies* and the *Journal of Regional Science* (more on this in the following section).

Kawachi et al. (1997), Starfield et al. (2005) and Krieger et al. (1997) lead the pack for most cited articles on the consequences of inequality (see Table A3 in Appendix). Most other articles on the list also deal with the health-inequality connection. Compared to publication trends on the causes of inequality, it is interesting to note that several of the most cited papers on the consequences of inequality are meta-analyses and literature reviews about how to conceptualize, operationalize and measure ‘place effects’ on health outcomes of various kinds (e.g., Lynch et al. 2000; Macyntire et al. 2002). These papers also tend to have more of a cross-national comparative or multi-scale focus and usually involve more collaborative efforts in the research process as only two papers are single-authored compared to 11 listed in Table A2.

Author contributions

In this section, we turn our attention to the individual author contributions to the literature on income inequality. Table A4 (in Appendix) contains the 40 highest-ranked authors working on the causes of inequality. The ranking is established based on two criteria: (i) the productivity of an author in terms of total publications (see column 4) and (ii) his/her impact as measured by an individual's citation record (see columns 5 through 7). For practical reasons (given the size of our database with $n = 2,944$ articles), in cases of co- or multi-authored papers we simply use total counts for each article-author combination (i.e., we do not apportion or discount co-authored publications based on the number of authors for each paper).

Once again, when it comes to understanding the causes of inequality, the work of economists figures prominently on the list. Roberto Ezcurra, from the University of Navarra in Spain, tops the list with 13 publications, 10 of which are considered to have had a significant impact in the literature. His colleague Pedro Pascual comes in second and Mark Partridge from the Ohio State University rounds-off the top 3. Roughly one quarter of the list consists of sociologists while a number of geographers have also contributed to the debate (e.g., Andrés Rodríguez-Pose, Terje Wessel, Alan Walks, Sanjoy Chakravorty and Danny Dorling).

Comparing the list of top 40 authors with those of the most cited articles in Table A2 shows that there is very little overlap between them which suggests some discrepancy in terms of productivity vs. impact. Only two authors, Timothy Smeeding and Diego Puga, both economists, appear as having a considerable amount of high impact papers.

The correspondence between the authors who have written most on the consequences of inequality (Table A5 in Appendix) and those with the most high impact papers (Table A3 in Appendix) is much higher. Ichiro Kawachi, of Harvard University, is considered to be the most productive scholar on the list with a total of 40 journal articles published. Also in the top five are Subu Subramanian, John Lynch, Sandro Galea and Jamie Pearce. The representation of fields in terms of home departments is heavily skewed towards the public health domain.

The strong culture of collaboration is again notable here with several of the authors on the top 40 list involved in multi-authored papers. For instance, Kawachi has collaborated with a number of colleagues (e.g., Subramanian, Lynch and Blakely) and the trend continues down the line, with some forming groups that have published a number of papers together (e.g.,

Lahelma, Rahkonen and Martikainen; Mackenbach and Kunst; Lynch, Kaplan, Ross, and Smith). Interestingly, only one name appears on both top 40 lists: Danny Dorling. Dorling, a geographer at Oxford University and prolific writer (with over 180 articles inventoried in Scopus and close to 20 books on the subject of inequality) is one of the few to investigate both the drivers of economic inequalities and their relationship to health and social outcomes.

MORE ON THE GEOGRAPHY AND CAUSES OF INEQUALITY

The final section of the paper explores in greater detail the geographical dimensions of the literature on inequality and summarizes the key themes investigated by researchers. For this part of the analysis, articles were first coded based on their primary scale of investigation. Five different scales were identified: cross-national³, national, regional, metropolitan (this includes papers that focus on neighbourhood-level analyses) and multi-scale analyses (for papers that considered two or more scales of analysis concurrently). Once the primary scale of analysis was identified, each article was coded to different 'issues categories' that describe the article's main topic in finer detail than the broad thematic frames identified earlier. Such a coding scheme was developed inductively, using earlier work by Bourne (1993), Chakravorty (1996) and Breau (2015) to provide a framework for classifying explanations of inequality. While many articles touched on different topics simultaneously, each paper was eventually categorized to reflect its core emphasis. Note that given the time and labour required to manually code each article by scale and issues category, we restricted this stage of our analysis to papers dealing only with the causes of inequality ($n = 920$ articles over the 1980 to 2014 period)⁴.

Table 3 displays information on the primary scale of analysis of papers broken down by decade of publication (see left-side panel). Just under half of the articles focus either on the national or cross-national scales. National-level studies have consistently been at the forefront of empirical studies of income inequality. The rapid growth of cross-national comparative type studies certainly reflects on-going changes occurring in the global economy (e.g., NAFTA, EU) and the desire to understand how these may impact the distribution of income across countries (e.g., Alderson and Nielsen 2002).

The regional scale, which interrogates the spatial allocations of inequality and the relationships that produce these distributions across sub-national spaces (i.e., states, provinces, departments, counties), was the most common scale of analysis. Research activity at this scale is inter-disciplinary and reflects a number of recent developments in economics, sociology, geography and policy studies. Advances in the economic growth literature have been particularly influential with regards to the rise of the convergence debate – as to whether or not poorer regions are catching-up to richer regions (more on this below) – which is associated with some of the most highly cited papers in the literature (e.g., Quah 1996, Ezcurra et al. 2005). Also featuring prominently among regional-level analyses are papers related to the development and application of New Economic Geography models (e.g., Puga 1999). One area where we did notice regional scientists have yet to focus much attention is on understanding the changing dynamics of inequality across rural regions. This, despite mounting evidence of growing urban-rural divides across several OECD countries (e.g., Peters 2011; Breau 2015; Rodriguez-Pose and Hardy 2015; Salvati 2016).

The metropolitan scale of analysis has also been a consistent focus of analysis over time, especially in the fields of sociology and geography (Walks 2001; Lobao et al. 2008). That said, we were surprised to find that the volume of publications examining the distribution of income across or within metropolitan areas has not kept pace with on-going work at other scales. As the right-hand panel of Table 3 shows, the number of metropolitan-level papers published remains the same before and after the Great Recession. This, even though the latter event served as a catalyst of interest in the subject (see bottom row increase of 36%) and a number of seminal papers were published highlighting the important role played by cities in the persistent rise of wage inequality (e.g., Baum-Snow and Pavan 2013; Partridge and Weinstein 2013).

The remaining group of papers consists of those that adopt an explicitly multi-scalar approach to examining patterns of inequality. Comparatively, these are few, but more and more attention is being paid to how patterns of inequality vary across different scales (e.g., Yamamoto 2008; Peters 2012). This is another area of research where more work is required in the future as the adoption of different geographic aggregations, depending on the question at hand, can lead to very different outcomes in terms of inequality.

[Table 3]

Finally, a more detailed view of the thematic distribution of articles on the causes of inequality is presented in Table 4. The economic perspective tied to both demand and supply side explanations is, not surprisingly, prevalent here. The most common theme explored in the literature is the skills biased technological change argument which sees the greater use and diffusion of technologies in the workplace increasing the demand for those with higher levels of education or technical expertise compared to less-skilled workers. New technologies are complimentary to skills and those high-skilled individuals will be rewarded accordingly which eventually translates to higher levels of inequality (Acemoglu 1998). At the local level, this body of work also includes recent studies examining the link between innovation and inequality (Lee 2011; Breau et al. 2014).

Several papers focus on the theme of industrial restructuring and how the shift from manufacturing-based to service-sector activities has increased spatial income inequalities as traditional and stable middle-class jobs in manufacturing industries are gradually replaced by more flexible, low-wage and temporary forms of employment (e.g., Peck and Theodore 2001; Ezcurra et al. 2005). The related topic of increased international competition is also important in this literature (e.g., Leichenko and Silva, 2004).

As mentioned earlier, studies of convergence are also a mainstay in the spatial inequality literature. While the initial evidence suggested convergence did take place across regions in several OECD countries (e.g., Ezcurra and Pascual 2005; Rey and Janikas 2005), more recent studies question the consensus arguing that the convergence process tends to be ‘episodic’ rather than smooth with significant fluctuations in patterns of disparities across different time periods and regions (e.g., Rey 2016; Ganong and Shoag 2017).

[Table 4]

Studies focusing on socio-demographic factors and how differences in the population characteristics of regions can explain patterns of inequality also figure prominently in the literature. Chief among these are investigations of the effects of gender, segregation, race,

ethnicity and immigration on wage inequality across local labour markets (e.g., Perrons 1995; McCall 2001; McDowell et al. 2005; Goodwin-White 2009). Cumulative development can stack the deck against those in poorer neighbourhoods as they are more isolated from the benefits of economic activity while those in richer neighbourhoods have better access to the advantages proffered by economic growth (Chen et al. 2012). And while the impacts of changes in various institutional variables, such as minimum wages, welfare and tax policies, are also important themes explored in the literature, it is clear from this literature review that moving forward more work on the geography of intergenerational mobility is required. Why some areas across OECD regions exhibit higher rates of mobility than others remains an open question (Chetty et al. 2014).

CONCLUSION

Interest in the subject of inequality has grown considerably over the last few years. In this paper, a systematic review approach is used to track the evolution of the academic literature on the subject over the 1980 to 2014 period. We do so by paying particular attention to papers that explore the spatial dimensions of inequality.

Our analysis reveals that the number of papers on inequality soared starting in the late 1990s. There is also evidence of an important paradigm shift in terms of the broad thematic focus of these papers. While a substantial amount of work has been done on understanding the causes of inequality, the volume of research on the consequences of inequality has expanded much more rapidly. By 2014, the annual number of papers published on the consequences of inequality is almost 3 times that of papers focusing on the causes.

Interdisciplinarity is a key feature of the literature on inequality as roughly half of the top journals publishing work both on the causes and consequences of inequality cut across traditional disciplinary boundaries. Such evidence supports recent claims that the growing interest in inequality can serve as a catalyst to greater cross-disciplinary collaborations and synergies (Savage 2016). That said, it is worth noting that several of the most impactful papers

(in terms of citation counts) have been published in well-established disciplinary flagship journals (e.g., *Quarterly Journal of Economics*, *American Sociological Review*, *Lancet*).

It is also clear the geographical dimensions of income inequality are increasingly considered central to the problem. Here, the analytical lens of about half of the papers appraised is trained on larger geographic units (i.e., at the national and cross-national levels). The regional scale of analysis has also received growing attention, particularly in light of developments in New Economic Geography and on-going convergence debates within the EU and North America. More recent developments related to the spatial dimensions of intergenerational mobility also hold much promise for future research at the regional level. Finally, our results suggest there is a need for a better understanding of the dynamics of inequality at the metropolitan level. This is indeed one area of research that appears to be particularly fertile ground for further investigation as conventional perspectives on inequality in the city are changing in the wake of growing disparities both between and within neighbourhoods (Andreoli and Peluso 2017).

We do recognize a number of limitations to the analysis carried out. For one, the data obtained is dependent on the quality of the databases and the information on offer. Moreover, even if the aforementioned databases are of high quality, the coverage in terms of yield of articles ultimately depends on the inclusion/exclusion criteria used for the search. Here, we noticed that there is little consistency across the various disciplines in how the information is offered in abstracts and titles which can lead to the identification of false positives or mean that relevant references are omitted from the analysis. Despite these caveats, our review does provide unprecedented insights into the rapidly evolving body of work dealing with the geographical dimensions of income inequality.

ENDNOTES

¹ It is worth noting that for the 3,050 studies dealing primarily with non-OECD countries, the number of publications on inequality has grown fastest in China, followed by India, Pakistan and Indonesia (see Wei 2017 for a recent review of this literature).

² Labelled as 'ripple-making' (10+ cites), 'wave-making' (40+ cites) and 'splash-making' papers (60+ cites).

³ Cross-national studies of inequality included in our analysis are those consisting of a majority of OECD countries.

⁴ A detailed thematic coding of the remaining $n = 2,024$ papers on the consequences of inequality will be part of a follow-up study.

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Table 1: Top 25 journals with most publications on the causes of inequality

Journal	Number of publications	Publications by decade			Impact (times article cited)		
		1980s	1990s	2000s	10+	40+	60+
<i>Regional Studies</i>	27	3	6	18	16	2	1
<i>Urban Studies</i>	22	2	10	12	10	2	5
<i>Social Forces</i>	21	0	7	14	4	7	4
<i>Journal of Regional Science</i>	19	1	4	14	8	1	5
<i>Review of Regional Studies</i>	16	3	11	2	7	0	0
<i>Annals of Regional Science</i>	16	2	2	12	5	3	3
<i>Economic Geography</i>	15	0	4	11	7	2	3
<i>Social Science Research</i>	15	1	2	12	7	2	1
<i>Review of Income and Wealth</i>	14	0	2	12	4	1	6
<i>Environment & Planning A</i>	13	3	0	10	6	2	2
<i>American Sociological Review</i>	12	0	4	8	2	2	8
<i>Papers in Regional Science</i>	12	0	1	11	8	0	1
<i>Regional Science and Urban Economics</i>	12	3	2	7	4	1	4
<i>Review of Economics and Statistics</i>	12	2	3	7	2	1	8
<i>Journal of Economic Geography</i>	11	0	0	11	4	1	6
<i>Applied Economics</i>	10	1	3	6	5	0	0
<i>European Sociological Review</i>	10	1	1	8	7	1	0
<i>Research in Social Stratification and Mobility</i>	10	0	0	10	4	1	0
<i>American Journal of Sociology</i>	9	0	2	7	0	0	8
<i>Review of Black Political Economy</i>	9	0	1	8	0	1	0
<i>Social Problems</i>	9	0	2	7	4	2	1
<i>Social Science Quarterly</i>	9	0	2	7	4	1	1
<i>Demography</i>	8	0	1	7	1	1	5
<i>European Economic Review</i>	8	1	4	3	3	1	4
<i>Urban Geography</i>	8	0	3	5	4	0	1

Table 2: Top 25 journals with most publications on the consequences of inequality

Journal	Number of publications	Publications by decade			Impact (times article cited)		
		1980s	1990s	2000s	10+	40+	60+
<i>Social Science & Medicine</i>	239	1	20	218	58	35	100
<i>Journal of Epidemiology and Community Health</i>	87	1	4	82	15	22	38
<i>Health & Place</i>	38	0	1	37	17	6	5
<i>International Journal of Epidemiology</i>	36	0	4	32	6	7	18
<i>International Journal of Health Services</i>	32	2	8	22	11	4	8
<i>BMC Public Health</i>	30	0	0	30	16	2	2
<i>European Journal of Public Health</i>	29	0	4	25	15	1	5
<i>American Journal of Public Health</i>	28	0	6	24	7	4	13
<i>Health Policy</i>	21	0	0	21	5	4	7
<i>Public Health</i>	19	0	1	18	8	1	2
<i>International Journal for Equity in Health</i>	19	0	0	19	4	0	1
<i>Australian & New Zealand Jour. of Public Health</i>	15	0	3	12	13	1	0
<i>British Medical Journal</i>	14	0	6	8	0	0	13
<i>Criminology</i>	13	0	4	9	5	1	7
<i>Health Economics</i>	13	0	1	12	7	0	5
<i>Plos One</i>	13	0	0	13	1	0	0
<i>Health Services Research</i>	12	0	0	11	4	1	6
<i>European Journal of Cancer</i>	12	0	0	12	8	1	1
<i>Gesundheitswesen</i>	12	0	0	11	1	0	0
<i>Lancet</i>	11	2	2	7	0	1	6
<i>American Journal of Epidemiology</i>	11	0	2	9	2	0	5
<i>American Sociological Review</i>	10	0	2	8	3	2	4
<i>Social Forces</i>	10	0	4	6	4	0	4
<i>Journal of Health Economics</i>	10	0	2	8	0	1	3
<i>Urban Studies</i>	10	0	0	10	3	0	2

Table 3: Top 25 journals with most citations

Causes, patterns of inequality			Consequences of inequality		
Citations	Journal	# of papers	Citations	Journal	# of papers
5151	<i>Quarterly Journal of Economics</i>	5	22362	<i>Social Science & Medicine</i>	239
2368	<i>European Economic Review</i>	8	7708	<i>Journal of Epidemiology and Community Health</i>	87
1596	<i>Journal of Economic Geography</i>	11	5387	<i>American Journal of Public Health</i>	28
1584	<i>American Journal of Sociology</i>	9	4741	<i>British Medical Journal</i>	14
1488	<i>American Sociological Review</i>	12	3697	<i>International Journal of Epidemiology</i>	37
1409	<i>Review of Economics & Statistics</i>	12	3168	<i>Annual Review of Public Health</i>	7
1400	<i>Journal of International Economics</i>	1	2619	<i>Lancet</i>	11
1304	<i>Economic Policy</i>	3	2007	<i>Milbank Quarterly</i>	4
1203	<i>Social Forces</i>	21	1726	<i>New England Journal of Medicine</i>	2
1089	<i>Journal of Political Economy</i>	2	1650	<i>American Sociological Review</i>	10
964	<i>Urban Studies</i>	22	1566	<i>American Journal of Epidemiology</i>	11
869	<i>Regional Science and Urban Economics</i>	12	1503	<i>International Journal of Health Services</i>	33
847	<i>Review of Income and Wealth</i>	14	1469	<i>Journal of Health Economics</i>	10
839	<i>Journal of Economic Growth</i>	2	1443	<i>Health Policy</i>	21
776	<i>Journal of Regional Science</i>	19	1304	<i>Journal of Health and Social Behavior</i>	9
770	<i>Economic Journal</i>	4	1266	<i>Health Services Research</i>	12
735	<i>Demography</i>	8	1249	<i>Journal of the American Medical Association</i>	1
728	<i>Journal of Policy Modeling</i>	4	1122	<i>Health Economics</i>	13
702	<i>Economic Geography</i>	15	1109	<i>European Journal of Public Health</i>	29
587	<i>Annals of Regional Science</i>	13	999	<i>Criminology</i>	13
567	<i>Regional Studies</i>	27	954	<i>Social Forces</i>	10
564	<i>Economica</i>	4	888	<i>CMAJ</i>	3
559	<i>Journal of Public Economics</i>	5	824	<i>Future of Children</i>	7
550	<i>Industrial & Labor Relations Review</i>	6	817	<i>Epidemiologic Reviews</i>	3
516	<i>Journal of Urban Economics</i>	7	798	<i>Annual Review of Sociology</i>	4

Table 4: Most cited articles on the causes of income inequality (top 20)

Author(s)	Year	Title	Journal	Cites	Scale
Krugman and Venables	1995	Globalization and the inequality of nations	<i>Quarterly Journal of Economics</i>	2732	Cross-National
Acemoglu	1998	Why do new technologies complement skills? Directed technical change and wage inequality	<i>Quarterly Journal of Economics</i>	1611	National
Feenstra and Hanson	1997	Foreign direct investment and relative wages: Evidence from Mexico's maquiladoras	<i>Journal of International Economics</i>	1400	Regional
Puga	1999	The rise and fall of regional inequalities	<i>European Economic Review</i>	1105	Regional
Boldrin and Canova	2001	Inequality and convergence in Europe's regions: Reconsidering European regional policies	<i>Economic Policy</i>	928	Cross-National
Quah	1996	Regional convergence clusters across Europe	<i>European Economic Review</i>	856	Regional
Puga	2002	European regional policies in light of recent location theories	<i>Journal of Economic Geography</i>	808	Regional
Durlauf	1996	A theory of persistent income inequality	<i>Journal of Economic Growth</i>	786	Metropolitan
Black and Henderson	1999	A theory of urban growth	<i>Journal of Political Economy</i>	736	Metropolitan
Fields	1981	Poverty, inequality, and development: A distributional approach	<i>Journal of Policy Modeling</i>	681	Cross-National
Atkinson	1997	Bringing income distribution in from the cold	<i>Economic Journal</i>	574	Cross-National
Lee	1999	Wage inequality in the United States during the 1980s: Rising dispersion or falling minimum wage?	<i>Quarterly Journal of Economics</i>	538	National
Alderson and Nielsen	2002	Globalization and the great U-turn: Income inequality trends in 16 OECD countries	<i>American Journal of Sociology</i>	511	Cross-National
Blau and Kahn	1996	Wage structure and gender earnings differentials: An international comparison	<i>Economica</i>	477	Cross-National
Marks	2009	Modernization theory and changes over time in the reproduction of socioeconomic inequalities in australia	<i>Social Forces</i>	456	National
Overman and Puga	2002	Unemployment clusters across Europe's regions and countries	<i>Economic Policy</i>	363	Regional
Martin	1999	Public policies, regional inequalities and growth	<i>Journal of Public Economics</i>	360	Regional
Piketty	2003	Income inequality in France, 1901-1998	<i>Journal of Political Economy</i>	353	National
Smeeding et al.	1993	Poverty, inequality, and family living standards impacts across 7 nations-The effect of noncash subsidies for health, education and housing	<i>Review of Income and Wealth</i>	283	Cross-National
Pager et al.	2009	Discrimination in a low-wage labor market: A field experiment	<i>American Sociological Review</i>	276	Metropolitan

Table 5: Most cited articles on the consequences of income inequality (top 20)

Author	Year	Title	Journal	Cites	Scale
Kawachi et al.	1997	Social capital, income inequality, and mortality	<i>American Journal of Public Health</i>	2585	Regional
Starfield et al.	2005	Contribution of primary care to health systems and health	<i>Milbank Quarterly</i>	1723	Cross-national
Krieger et al.	1997	Measuring social class in us public health research: Concepts, methodologies, and guidelines	<i>Annual Review of Public Health</i>	1695	National
Pappas et al.	1993	The increasing disparity in mortality between socioeconomic groups in the United States, 1960 and 1986	<i>New England Journal of Medicine</i>	1492	National
Pickett and Pearl	2001	Multilevel analyses of neighbourhood socioeconomic context and health outcomes: a critical review	<i>Journal of Epidemiology and Community Health</i>	1376	Metropolitan
Kaplan et al.	1996	Inequality in income and mortality in the United States: Analysis of mortality and potential pathways	<i>British Medical Journal</i>	1259	Regional
Lantz et al.	1998	Socioeconomic factors, health behaviors, and mortality: Results from a nationally representative prospective study of US adults	<i>Journal of the American Medical Association</i>	1249	National
Macintyre et al.	2002	Place effects on health: how can we conceptualise, operationalise and measure them?	<i>Social Science & Medicine</i>	1212	Metropolitan
Lynch et al.	2000	Income inequality and mortality: importance to health of individual income, psychosocial environment, or material conditions	<i>British Medical Journal</i>	1134	Cross-national
Lorant et al.	2003	Socioeconomic inequalities in depression: A meta-analysis	<i>American Journal of Epidemiology</i>	905	Cross-national
Wilkinson and Pickett	2006	Income inequality and population health: A review and explanation of the evidence	<i>Social Science and Medicine</i>	879	Cross-national
Kawachi et al.	2004	Commentary: Reconciling the three accounts of social capital	<i>International Journal of Epidemiology</i>	843	Cross-national
Diez-Roux	2000	Multilevel analysis in public health research	<i>Annual Review of Public Health</i>	766	Multi-scale
Van Doorslaer et al.	1997	Income-related inequalities in health: Some international comparisons	<i>Journal of Health Economics</i>	636	Cross-national
Hawe and Shiell	2000	Social capital and health promotion: a review	<i>Social Science & Medicine</i>	623	Multi-scale
Macinko et al.	2003	The contribution of primary care systems to health outcomes within Organization for Economic Cooperation and Development (OECD) countries, 1970-1998	<i>Health Services Research</i>	618	Cross-national
Marmot and McDowall	1986	Mortality decline and widening social inequalities	<i>Lancet</i>	589	Regional
Muller and Seligson	1994	Civic culture and democracy - The question of causal relationships	<i>American Political Science Review</i>	586	Cross-national
Lynch et al.	1998	Income inequality and mortality in metropolitan areas of the United States	<i>American Journal of Public Health</i>	570	Metropolitan
Robert	1999	Socioeconomic position and health: The independent contribution of community socioeconomic context	<i>Annual Review of Sociology</i>	543	Multi-scale

Table 6: Most publications on income inequality (causes), Top 40

Author	Institution	Department	Papers	10+ cites	40+ cites	60+ cites
Ezcurra, R.	U. Publica de Navarra	Economics	13	5	2	3
Pascual, P.	U. Publica de Navarra	Economics	10	4	2	2
Partridge, M.D.	Ohio State U.	Agricultural Economics	8	1	3	1
Rodríguez-Pose, A.	LSE	Geography	7	3	0	2
Tselios, V.	U. of Thessaly	Planning, Regional Dev't	7	5	0	1
Wheeler, C.H.	Federal Reserve Bank	Economics	7	5	0	1
Smeeding, T.M.	U. Wisconsin-Madison	Economics	6	2	0	4
Rapun, M.	U. Publica de Navarra	Economics	6	2	2	1
Machin, S.	UCL	Economics	5	1	0	2
Levernier, W.	Georgia Southern U.	Economics	5	1	2	1
Wessel T.	U. of Oslo	Geography	5	2	0	1
Kim, E.	Yonsei U.	Urban Planning	5	3	1	0
Carter, G.	U. Southern Mississippi	Economics	5	2	0	0
Nissan, E.	U. Southern Mississippi	Economics	5	2	0	0
England, P.	NYU	Sociology	4	0	1	3
Walks, R.A.	U. of Toronto	Geography	4	0	1	2
Goerlich, F.J.	U. de Valencia	Economics	4	2	0	2
Mas, M.	U. de Valencia	Economics	4	2	0	2
Tomaskovic-Devey, D.	U of Massachusetts	Sociology	4	2	0	2
Lobao, L.	Ohio State U.	Rural Sociology	4	1	0	2
Rickman, D.S.	Oklahoma State U.	Economics	4	0	2	1
Semyonov, M.	U. of Illinois	Sociology	4	2	1	1
Elliott, J.R.	Rice U.	Sociology	4	1	1	1
Kalleberg, A.L.	UNC	Sociology	4	3	0	1
Amos Jr, O.M	Oklahoma State U.	Economics	4	2	0	1
Frick, J.R.	DIW Berlin	Economics	4	1	0	1
Mahler, V.A.	Loyola U.	Political Science	4	1	0	1
Lewin-Epstein, N.	Tel Aviv U.	Sociology	4	2	2	0
Chakravorty, S.	Temple U.	Geography	4	2	1	0
Kristal, T.	U. of Haifa	Sociology	4	2	1	0
Beenstock, M.	Hebrew U.	Economics	4	2	0	0
Breau, S.	McGill U.	Geography	4	2	0	0
Dickey, H.	U. of Aberdeen	Economics	4	2	0	0
Dorling, D.	Oxford U.	Geography	4	2	0	0
Felsenstein, D.	Hebrew U.	Economics	4	2	0	0
Nord, S.	Northern Illinois U.	Economics	4	2	0	0
Pais, J.	U. of Connecticut	Sociology	4	2	0	0
Puga, D.	CEMFI	Economics	3	0	0	3
Dunford, M.	U. of Sussex	Geography	3	1	0	2
Fritzell, J.	Stockholm U.	Sociology	3	2	1	0

Table 7: Most publications on income inequality (consequences), Top 40

Author	Institution	Department	Papers	10+ cites	40+ cites	60+ cites
Kawachi, I.	Harvard U.	Social & Behavioral Sc.	40	7	2	22
Subramanian, S.V.	Harvard U.	Social & Behavioral Sc.	26	3	2	16
Lynch, J.	Adelaide U.	Public Health	23	1	4	13
Galea, S.	Boston U.	Public Health	20	6	5	4
Pearce, J.	U. of Edinburgh	Geography	18	6	3	1
Lahelma, E.	U. of Helsinki	Public Health	16	5	2	6
Kunst, A.E.	Erasmus MC	Public Health	16	7	2	5
Mackenbach, J.P.	Erasmus MC	Public Health	16	2	2	5
Martikainen, P.	U. of Helsinki	Social Research	16	4	3	4
Muntaner, C.	U. of Toronto	Public Health	15	4	1	9
Mielck, A.	IGM	Health Economics	15	3	1	2
Starfield, B.	John Hopkins U.	Public Health	14	3	1	10
Dorling, D.	U. of Oxford	Geography	14	5	4	3
Ross, N.A.	McGill U.	Geography	14	3	4	2
Dunn, J.R.	McMaster U.	Health, Aging & Society	14	6	0	3
Shi, L.Y.	John Hopkins U.	Public Health	13	1	1	10
Borrell, C.	Barcelona	Public Health	13	4	1	3
Smith, G.D.	U. of Bristol	Social Medicine	12	2	0	9
Marmot, M.	UCL	Public Health	12	3	2	7
Turrell, G.	Queensland U.	Public Health	12	2	2	7
Kaplan, G.A.	U. of Michigan	Public Health	11	1	0	8
Blakely, T.	U. of Otago	Public Health	11	3	2	4
Rahkonen, O.	U. of Helsinki	Public Health	11	4	2	3
Fukuda, Y.	Tokyo Medical U.	Public Health	11	3	1	2
Van Doorslaer, E.	Erasmus School of Econ.	Health Economics	11	2	0	7
Veenstra, G.	UBC	Sociology	10	2	0	5
Vlahov, D.	UCSF	Community Health	10	6	2	1
Costa, G.	U. of Torino	Epidemiology	9	5	0	0
Mitchell, R.	U. of Glasgow	Public Health	9	3	0	1
O'Campo, P.	U. of Toronto	Public Health	9	1	0	3
Kennedy, B.P.	Harvard U.	Social & Behavioral Sc.	8	2	0	6
Macinko, J.	UCLA	Community Health	8	2	1	5
Krieger, N.	Harvard U.	Social & Behavioral Sc.	8	2	2	3
Bartley, M.	UCL	Public Health	8	1	1	3
Singh, G.K.	NIH	Population Sciences	8	1	1	4
Laaksonen, M.	U. of Helsinki	Public Health	8	3	0	3
Benach, J.	U. Pompeu Fabra	Public Health	8	7	0	1
Daniel, M.	U. of South Australia	Population Health	8	3	0	1
Stronks, K.	U. of Amsterdam	Public Health	8	1	1	1
Khang, Y.H.	U. of Ulsan College	Preventive Medicine	8	6	1	0

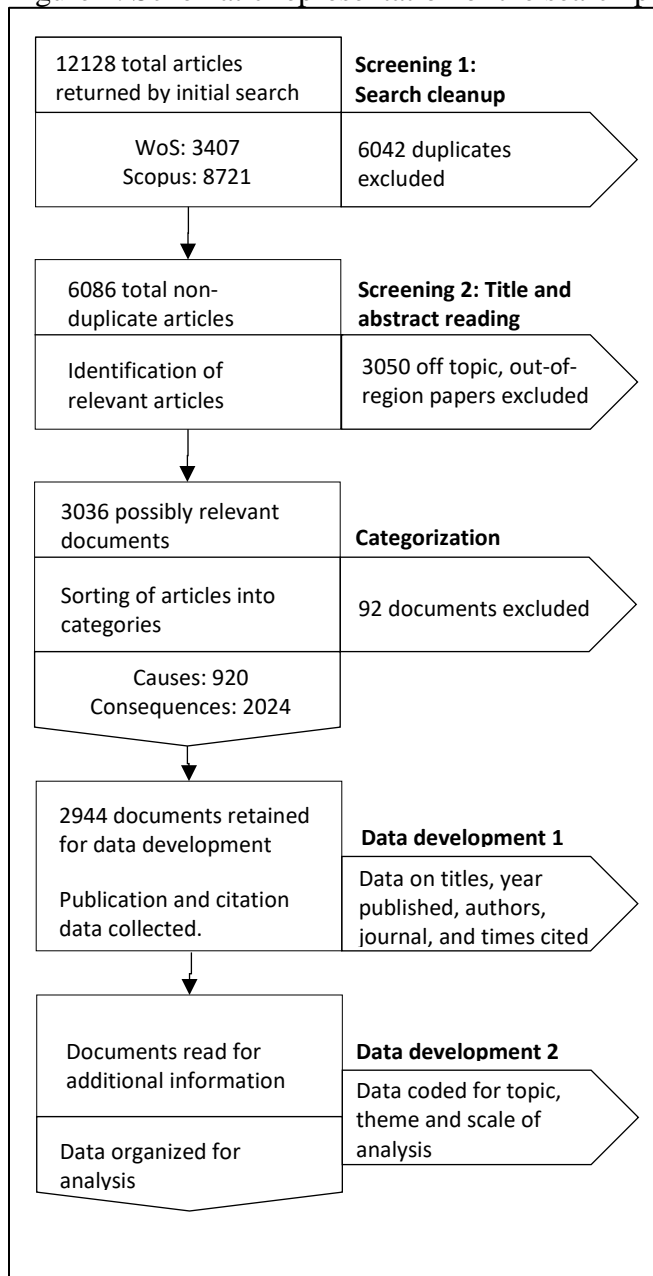
Table 8: The geography of inequality by scale

Scale	Number of publications	Publications by decade		
		1980s	1990s	2000s
Cross-National	136	2	33	101
National	274	10	50	214
Regional	285	24	54	207
Metropolitan	201	10	54	137
Multi-scale	24	0	1	23
Total	920	46	192	682

Table 9: Main topic concentrations for the drivers of inequality

Rank	Topic	# of articles
1	Skills, SBTC and innovation	111
2	Gender inequality	81
3	Industrial composition and restructuring	71
4	Convergence	66
5	Segregation, neighbourhoods	64
6	Race	61
7	International trade and FDI	61
8	Labour markets, wages and unemployment	54
9	Policy	45
10	Welfare	44
11	Immigration	39
12	Wealth, power and class	35
13	Mobility	28
14	Economic growth and business cycles	27
15	Agglomeration, city size	27
16	Consumption	21
17	Uneven development	18
18	Taxation	16
19	Minimum wage	13
20	Inequality and poverty	13
	Other	25
	Total	920

Figure 1. Schematic representation of the search process.



Notes: WoS: Web of Science.

Figure 2: Number of journal publications on income inequality, 1980-2014.

