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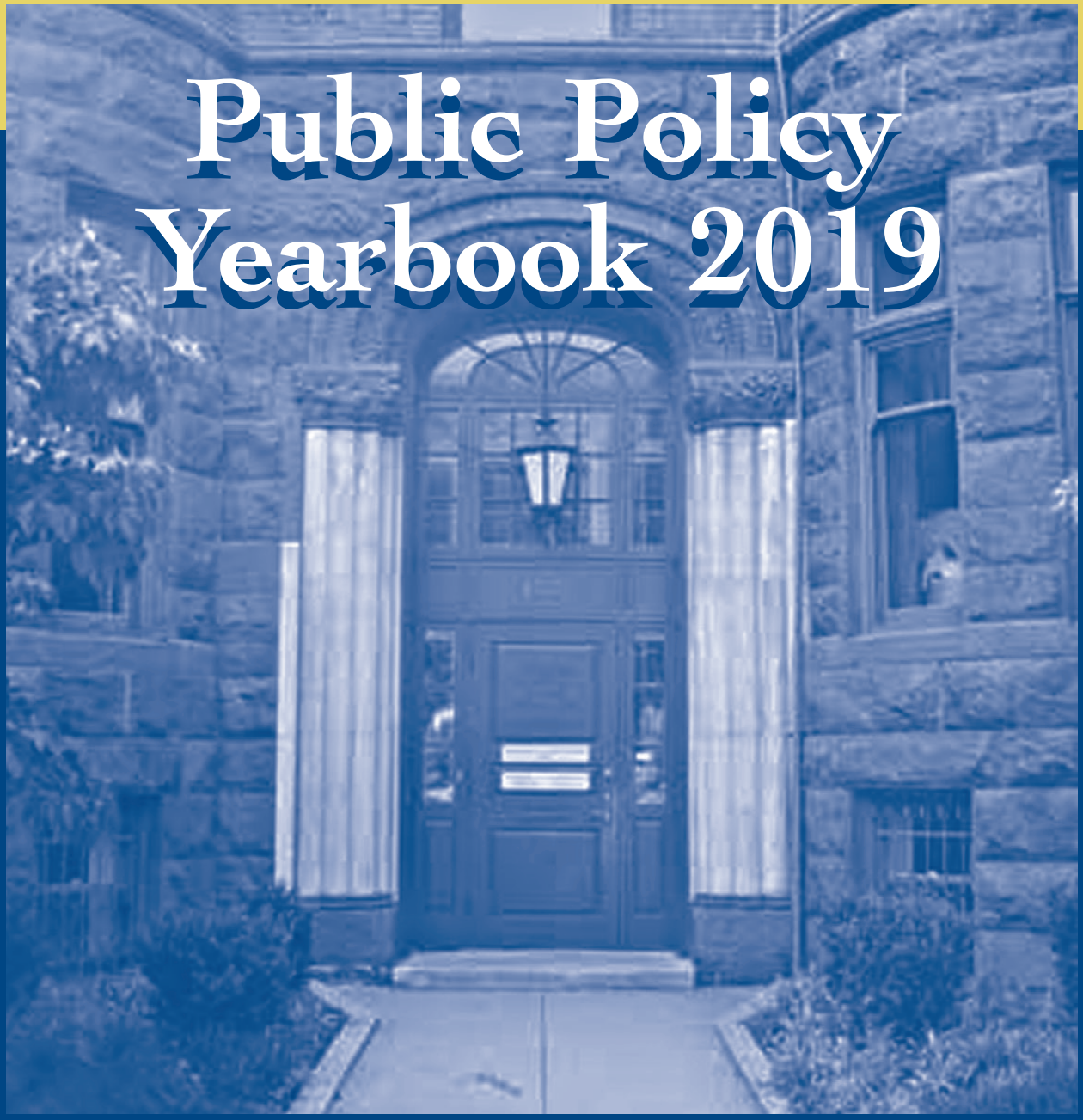

An International Journal of Public Policy

Aims and Scope

The primary focus of the Policy Studies Journal (PSJ) is the study of public policy. Published on behalf of the Policy Studies Organization and the American Political Science Association's Public Policy Section, PSJ publishes individually submitted articles and symposia of exceptional quality by social scientists and other public policy researchers and leaders. The journal addresses a wide range of public policy issues at all levels of government, and welcomes a comparative approach. We accept a variety of manuscript types.

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The Policy Studies Organization (PSO) is a publisher of academic journals and books, sponsor of conferences, and producer of programs. It seeks to disseminate scholarship and information to serve those making and evaluating policy. It was founded to serve those in a variety of fields who were interested in how public policy and organizational policy were being studied and discussed.

The PSO includes senior executives, undergraduate and graduate students, state legislators, architects, judges, military officers, environmentalists who want to "green" decision making, NGO executives who worry about the future of volunteerism, professors who are working on curriculum revision, government officials in numerous agencies — in short, PSO is for intellectually active people of all persuasions.

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PSJ Policy Studies Journal

Policy Studies Journal, Vol. 47, No. S1, 2019

The 2019 *Public Policy Yearbook*: Tracking a Decade of Trends in Public Policy Research

Hank Jenkins-Smith, Julie Krutz, Nina Carlson, and Chris Weible

The articles presented in this supplemental issue mark the eleventh edition of the *Policy Studies Journal's Public Policy Yearbook.* This issue includes six retrospective review articles summarizing recent developments in public policy research concerning social policy, environmental policy, and policy theory. Also included is an empirical study of academic public policy networks, accompanied by an exchange about how to measure and understand such networks. We provide a brief description of these articles below. You can also find the main content of the 2019 *Yearbook* online at: www.psjyearbook.com.

In addition to the annual publication of retrospective review articles in various policy subfields, a significant portion of our efforts with the *PSJ Yearbook* is providing avenues for readers to make connections with public policy scholars from around the world. The *Public Policy Yearbook* is an international listing of experts in various public policy domains, working on public policy problems all over the globe. Over the last decade, we have collected information from public policy scholars about their fields of study, research focus areas, published works, and contact information.[1] This information is then published as part of a directory of individual profiles on the *Yearbook*'s website. The multidisciplinary nature of public policy research can make it challenging to identify the experts studying various policy problems, and the *Yearbook* provides users with an easier way to do so. Our intent is to provide a convenient tool for policy scholars to increase and broaden the visibility of their work, as well as to provide a means to network (and collaborate) with other scholars. By using the website, readers can search for a scholar through a range of search criteria options (a scholar's first or last name, geographic location, institution, or primary research interests). By visiting the *Yearbook*'s website, www.psjyearbook.com, users can utilize a free web-based interface to easily search for various policy scholars' contact information, as well as up-to-date summaries describing the listed scholars' self-reported descriptions of current and future research ideas and projects.

In this introduction, we provide a snapshot of current developments in public policy research. We also briefly introduce the analytical review articles included

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in this supplemental issue. For more detailed information on the *Yearbook* website, which now includes over 30 retrospective review and special topic articles, we welcome readers to visit and explore the site. Each year, we also present information on the demographics and research interests of *Yearbook* members and detailed information on the functionality of the *Yearbook* website. An updated version of those discussions is presented below, but we invite readers to look back at previous articles for more detail at how developments identified within the *Yearbook* have evolved over time.

Characteristics of *Yearbook* Participants and New Developments in Policy Scholarship

As we do each year, in fall 2018, we reached out to the *Yearbook's* current listing of policy scholars, asking each member to update the information published on his or her profile.[2] This annual updating process allows us to verify the accuracy of the listed scholars' contact information and to encourage members to list recently published articles and/or their research in progress. As is evident in Figure 1, our most recent update shows that the *Yearbook* continues to represent a broad cross section of policy scholars from around the world; the 2019 *Yearbook* has 920 members who reside in 52 different countries. Approximately 71 percent of the *Yearbook* members reside in the United States and the remaining 29 percent live in 51 countries around the globe.

The *Yearbook* is inclusive of scholars at a wide variety of institutions globally. Figure 2 shows the distribution of *Yearbook* members working across six continents. While the largest concentrations of *Yearbook* scholars are in North America and Europe, growing numbers are located in Asia, Latin America, Australia and New Zealand, and Africa.

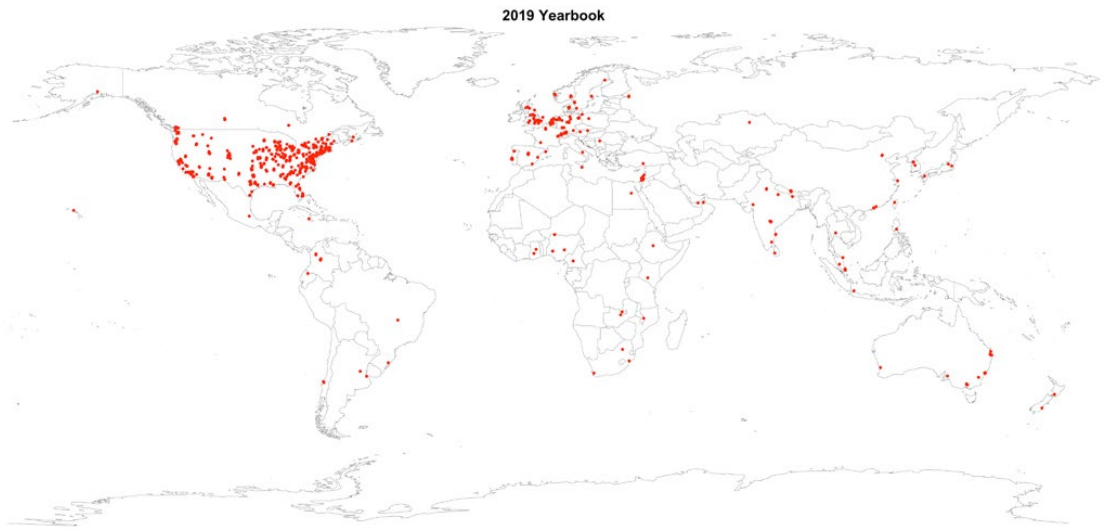

Figure 1. The *Yearbook's* Geographic Representation Spans 52 Different Countries.

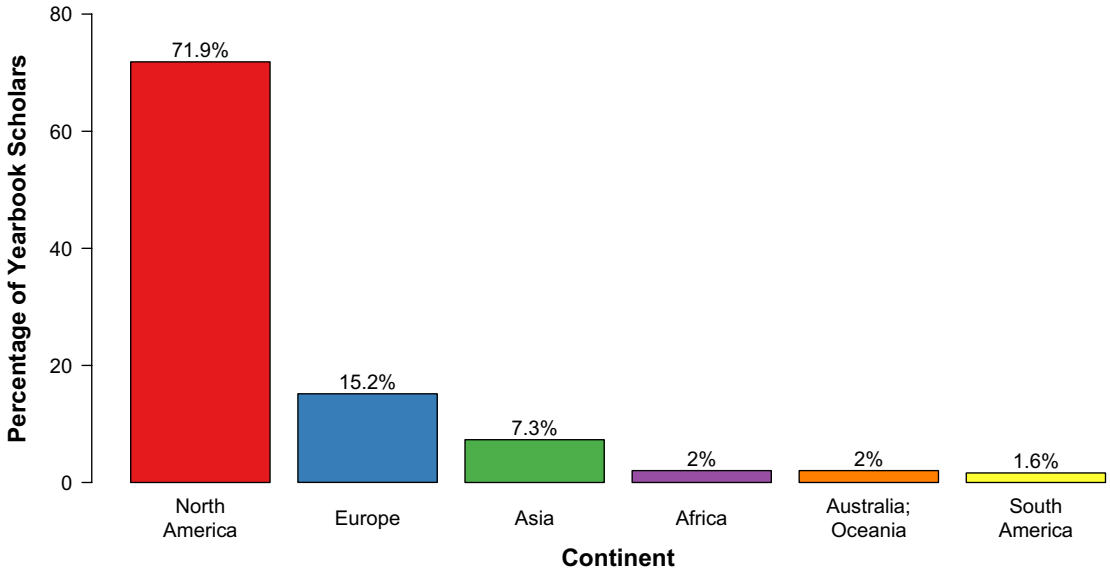

Figure 2. The *Yearbook's* Geographic Representation Spans Six Continents.

For those unfamiliar with the *Yearbook*, each year we use the self-reported content of *Yearbook* scholars' profiles to develop indicators for public policy scholars' evolving research agendas. The following discussion shows recent developments and patterns in the research foci of the 920 scholars included in the 2019 *Yearbook*. We use several descriptive indicators that summarize and characterize scholars' evolving research agendas, including scholars' self-reported descriptions of their "current and future research expectations" and scholars' self-placement within 18 theoretical and substantive focus subfields of public policy.[3]

First, *Yearbook* scholars are asked to provide a paragraph describing their current and ongoing research agendas. When writing this paragraph, scholars may be as brief or as detailed as they choose. By scanning the content in the 2019 current research summary paragraphs, we can illustrate current trends among scholars' work by creating a word cloud populated by frequently used terms (see Figure 3). The word cloud provides a graphical representation of the aggregate foci of scholars' substantive and theoretical work, and provides us with a comparative perspective of the evolution of research agendas. Figure 3 presents the 100 terms that appeared most frequently in the "Current and Future Research Expectations" section of the scholars' profiles and any additional keyword tags that the scholars supplied to describe their research agendas. In 2019, the prominent research interests, characterized by the 10 most frequently appearing terms, include the following: political; environmental; social; governance; management; science; policies; analysis; health; and development. When comparing this word cloud with those from recent years (Jenkins-Smith, Krutz, Carlson, & Weible, 2017, 2018; Jenkins-Smith & Trousset, 2010, 2011; Jenkins-Smith, Trousset, & Weible, 2012, 2013; Trousset, Jenkins-Smith, Carlson, & Weible, 2015, 2016; Trousset, Jenkins-Smith, & Weible, 2014), it appears

Figure 3. The Relative Size of Each Term Denotes the Frequency with which Key Terms Appear in Scholars' Listing of their "Current and Future Research Expectations."

that the proportion of research trends among *Yearbook* members has remained stable over time.

The trends identified within the "Current and Future Research Expectations" section of the scholars' profiles are consistent with *Yearbook* members' self-identifications in the *Yearbook*'s listed public policy focus areas. When scholars are asked to update the information listed on their profiles, they are presented with a list of 18 categories that represent a broad spectrum of subfields in public policy scholarship. They are first asked to check as many of the categories as they choose to describe their research agendas. In addition, since 2014, we have asked scholars to indicate which category best describes their primary theoretical focus area and which best describes their primary substantive focus area. The five theoretical focus areas include: agenda-setting, adoption, and implementation; policy analysis; policy

history; policy process theory; and public opinion. The 13 substantive focus areas include: comparative public policy; defense and security policy; economic policy; education policy; energy and natural resource policy; environmental policy; governance; health policy; international relations and policy; law and policy; science and technology policy; social policy; and urban public policy.

Figures 4 and 5 show the proportion of scholars indicating one of the theoretical and substantive specializations as their *primary* focus area. As shown in Figure 4, the most prominent theoretical focus area for 2019 *Yearbook* members was policy analysis and evaluation. The second and third most common areas were policy process theory and agenda-setting, adoption, and implementation. As shown in Figure 5, across the substantive focus areas, the largest proportions of 2019 *Yearbook* scholars

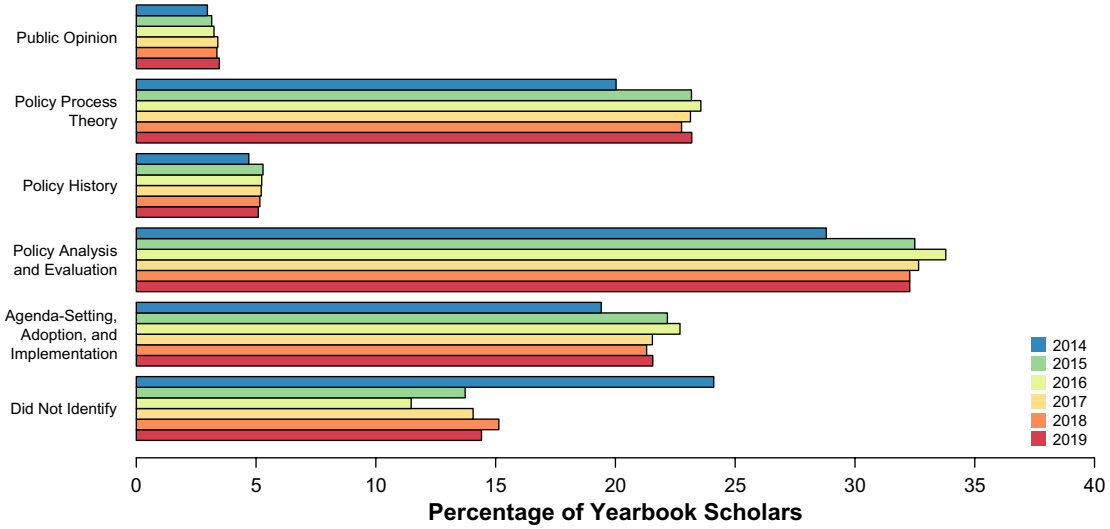

Figure 4. Scholars' Primary Theoretical Focus Area.

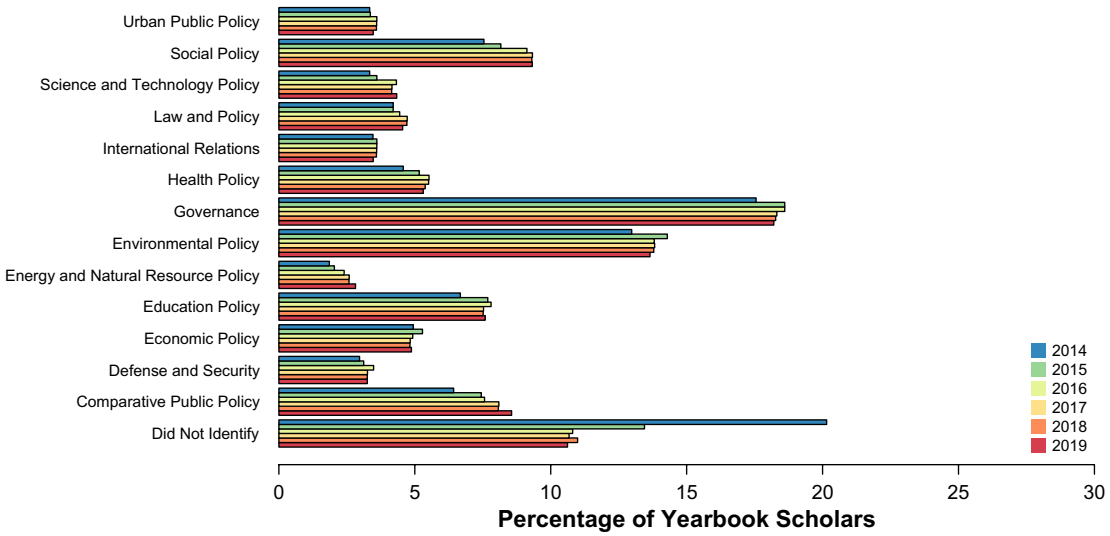

Figure 5. Scholars' Primary Substantive Focus Area.

study issues in governance, environmental policy, and social policy. These have consistently been the most prominent focus areas over the past six years.

Public Policy Research Retrospective Review Articles

In addition to the *Yearbook*'s listing of experts in various public policy domains, each year we also publish a set of peer-reviewed analytical review articles that summarize recent developments in public policy research. We have included six new retrospective review articles in this issue. These review articles offer readers quick access to recent developments in various policy subfields because they can provide both a basic introduction and a coherent current perspective on the field to emerging scholars interested in understanding various policy problems. To write these review articles, each year we solicit recommendations for advanced graduate students working under the guidance of leading public policy scholars. This year, as part of this supplemental issue of the *Policy Studies Journal*, we take a deeper dive into two policy topics. We include three distinctive review articles on central aspects of environmental policy, and two on key themes in social policy. This issue also includes a review of policy subsystems, a central ingredient for several of the leading flavors of public policy theories. To cap the issue off, we included an article—with a rejoinder—that provides an empirical analysis of the nature of the topics and networks that characterize the field of public affairs.

Environmental Policy

Our first environmental policy review article, authored by Michelle Graff, Dr. Sanya Carley, and Dr. Maureen Pirog (2019), documents and analyzes trends within the environmental policy literature published from 2014 to 2017. The topical focus in the literature is shifting from watershed and ecosystem management to climate change and energy, and it has an increasingly interdisciplinary focus. In addition, the methodological approaches used in recent research have become increasingly diverse, with a trend toward greater reliance on statistical and modeling approaches. The authors point to critical gaps in the environmental policy literature and encourage scholars to address them in future work.

The second environmental policy article, by John Armstrong and Dr. Sheldon Kamieniecki (2019), reviews influential journal articles and books on sustainability policy that were published over the last 10 years (2007 through 2017). They focus on three areas regarding sustainability research: climate change, urban development, and agroecology and food systems. The authors summarize how the literature on sustainability has been shaped by evolving theoretical and empirical issues as well as changes in methodological approaches. They conclude by discussing the implications of these trends for future research and for sustainability policies.

Our third environmental policy paper, co-authored by Dr. Tatyana Ruseva, Megan Foster, Dr. Gwen Arnold, Dr. Saba Siddiki, Dr. Abigail York, Riley Pudney, and Ziqiao Chen (2019), provides an analytical review of the ways environmental

policy scholars have sought to leverage policy process models, theories, and frameworks to address important questions regarding agenda-setting, change factors, and institutional design. They provide a summary of applications of these models, theories, and frameworks to environmental policy issues, along with insightful discussion of the kinds of methodological choices policy scholars have made in conducting their research. They conclude by considering implications of these developments for future research within the environmental governance domain.

Social Policy

Our first social policy article, by Leanne Giordano, Dr. Michael Jones, and Dr. David Rothwell (2019), reviews the public policy literature on economic inequality in wealthy countries, focusing on research published from 2008 to 2018. The authors demonstrate that interest in inequality grew over this time frame. They summarize the change in the focus of the literature and describe the variations in research traditions used. They conclude by describing the implications and the opportunities for future researchers who focus on redistributive social policy.

Our second social policy article, by Cory Maks-Solomon and Dr. Robert Stoker (2019), discusseschallenges to the welfare state arising from the recent economic crisis dubbed "the Great Recession." The review takes the perspective that the Recession affords an opportunity to assess how well—or poorly—social welfare policies served to buffer the least well-off from the effects of the economic hardships and improve macroeconomic trends. After a summary of the array of policy responses, the authors assess whether social programs worked. They give the "social safety net" mixed reviews, identifying some programs that were counter-cyclical and effective in providing transfers to vulnerable groups. They also identify state-level policies (fiscal austerity) that were pro-cyclical, prolonging the effects of the recession and increasing policy fragmentation. Also notable was that social programs failed to meet the needs of immigrant households, with repercussions for the meaning of social citizenship.

Both environmental and social policy involve interactions within and between distinctive policy "subsystems." Indeed, the papers noted above make clear the increasingly complex ways in which problems span different subsystems, and actions in one problem area affect those in others. Zachary McGee and Dr. Bryan D. Jones (2019) discussthe concept of the policy subsystem as an essential building block for several leading theories of the policy process. They trace the development of the concept and show how the emergence of the modern conception of policy subsystems has shaped much of the current research focus in policy process theory. McGee and Jones then describe how the policymaking environment of recent decades has involved increasing entanglements within and across subsystems. They argue that, in order to bring subsystem theory up to date with these changes, it must be informed by complexity theory. In doing so, McGee and Jones provide a deeper understanding of the subsystems and point to several promising avenues by which complexity theory can advance subsystem theory specifically and policy research more broadly.

We include a paper on the discipline of public affairs, written by Zhiya Zuo, Haifeng Qian, and Kang Zhao. In keeping with the *Yearbook* tradition of reviews,

Dr. Samuel Workman was invited to reflect on the article, and Zuo, Qian, and Kang to reply to Workman. Zuo, Qian, and Zhao (2019) use a text mining and network modeling approach to identify the clusters of related schools in the public affairs field, using as a basis data from the National Research Council's list of 46 PhD-granting public affairs schools. The data consist of the faculty biographies and publications from each listed school. The results of the analysis are intriguing, suggesting that while the "topics" of public affairs are quite diverse and multidisciplinary, networks of similar schools (in terms of hiring, topics, and citations) can readily be observed in the data. "Public policy" schools and "public administration" schools have distinct networks and hire from other schools in the same network. The authors caution that the tendency toward homogenous networks may conflict with the trend toward increasingly interdisciplinary research.

Samuel Workman (2019) expands upon Zuo, Qian, and Zhao's argument, pointing out that public affairs as a field depends—often critically—on politics. Workman argues that a full empirical characterization of public affairs should include policy-oriented political science departments and research institutes as these are essential contributors to understanding both social problems and the collective choice institutions by which these problems are "managed." Qian, Zhao, and Zuo (2019) reply that similar arguments could be made for other fields (e.g., economics or psychology), and that boundaries around "public affairs" will necessarily be somewhat arbitrary. We expect that these discussions will be ongoing.

We hope that scholars continue to utilize *Yearbook's* review articles as efficient and stimulating resources for updating themselves on the current state of public policy research. We invite you to read previously published review articles, which can be found on the *Yearbook*'s website, or within previous volumes of the *PSJ.* We also encourage you to recommend outstanding graduate students to author future iterations of analytical reviews.

Final Remarks

Our goal is to make the *Yearbook* a convenient and accessible tool for scholars, practitioners, students, or laypersons to find the right policy specialists, articles, and networks addressing the full range of public policy questions. The *Yearbook* is intended to be a continuously updated resource for networking and collaboration among scholars, as well an accessible and open platform for scholars to publicize their research accomplishments and active projects. The *Yearbook* is also a valuable resource for students of public policy and public management who need to dig deeper into policy questions and seek ready access to the current state of research in their policy domain of interest.

If you are interested in updating your existing profile, or if you are not currently listed but are interested in becoming a member of the *Yearbook*, we have made several improvements to our system to ease the process of creating a profile. Scholars can access their profiles at any time and make direct changes to their listings. Users can select from two different updating options by visiting the *Yearbook* website at: http://www.psjyearbook.com/person/update.

The first option is for scholars who already have a listed profile. On the webpage listed above, under the tab "Current Members," scholars can submit the email address they currently have on file with the *Yearbook*. Our system will then immediately send a personalized link via email that the scholar can use to access their current profile information. By visiting that personalized link, scholars can submit changes to their profile listings and these changes will be updated on the *Yearbook* website immediately.

The second option is for policy scholars who do not yet have a listed profile, but who would like to become a member of the *Yearbook*. Scholars can list their profile at no charge. By visiting the webpage listed above, scholars can click the tab labeled "Submit Your Information," or can go directly to our easy-to-use form at: http://psjyearbook.com/entry/addme. Once scholars submit their profile information, our system will await approval by an editor to list that profile on the website.[4] Once that initial profile has been approved, scholars can log in and edit their profiles immediately, as described in the previous paragraph. If you have any questions about this process, we welcome you to contact us at: psjyearbook@gmail.com.

Although scholars are able to access their profiles at any time and make direct changes to their listings, we will continue running an annual fall recruitment and updating campaign. In the annual fall campaign, we send invitations to both current and potential new policy scholars to update their entries in the *Yearbook*. We do this to ensure that the *Yearbook* content stays as up to date as possible. We will continue our efforts to include faculty from public policy and public management schools and departments around the globe, as well as to reach out to graduate students, post docs, and practitioners in public policy that make up the next generation of leaders in public policy research, analysis, and practice. We ask that current members assist in this effort by forwarding our invitations to affiliate policy scholars, practitioners, and graduate students.

Finally, the production and operation of the *Yearbook* could not have been accomplished without the help of many hands. We would like to recognize Matthew Henderson for the design and implementation of the online website, web tools, and data graphics. Additionally, we are thankful for the support and help we receive from the Policy Studies Organization and Wiley-Blackwell. Finally, we would like to thank Dr. Paul Rich, President of the Policy Studies Organization, for his financial support and encouragement for the *Yearbook*.

We hope that you will find the *Yearbook* to be a valuable resource in your work on public policy.

Notes

1. *Yearbook* membership is free of charge and open to all policy scholars and practitioners worldwide. Since the *Yearbook's* inception in 2009, we have sought to broaden the participation of public policy scholars across disciplines, organizations, and nations. The challenge is that, given the nature of public policy research, the domain of public policy scholars and practitioners is highly varied. Public policy research is multidisciplinary in nature, and policy scholars and practitioners inhabit a wide range of institutional settings (universities, governmental agencies, research labs, nonprofit organizations,

think tanks, and many others). Initially, our invitations were sent to the listed members of the Public Policy Section of the American Political Science Association, as well as to the members of the Policy Studies Organization. We worked with editors of public policy journals to reach policy scholars globally. We have also sent electronic and printed invitations to public policy and public administration departments across the United States and Europe, asking each department to forward the invitation to their public policy faculty members, graduate students, and affiliates. Lastly, our online member updating system allows for current and new members to offer contact information for colleagues and graduate students who should be included. We will continue to undertake an active recruitment and update effort in the fall of each year to be sure our content is up to date and as broadly inclusive as possible.

2. Although we undertake a systematic recruitment effort once a year, it is important to note that scholars can update their profiles or join the *Yearbook* at any time. The website allows scholars to easily access their profiles by submitting their email address on the website profile management portal. The *Yearbook's* website also allows for new members to join, at no cost, through the use of a short online form.
3. When updating their profiles, scholars are asked to check off as many categories as are applicable to describe their research agendas.
4. This initial approval is necessary to avoid publishing "spam."

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PSJ Policy Studies Journal

Policy Studies Journal, Vol. 47, No. S1, 2019

A Review of the Environmental Policy Literature from 2014 to 2017 with a Closer Look at the Energy Justice Field

Michelle Graff, Sanya Carley, and Maureen Pirog

This review article documents and analyzes trends within the environmental policy literature published between 2014 and 2017. We find that environmental policy scholarship has recently shifted its focus from more traditional topics, such as watershed and ecosystem management, to other modern issues, such as climate change and energy. The environmental policy literature has increased in complexity and become more interdisciplinary in nature, which we illustrate with a discussion of the energy justice literature. The methodological approaches used by environmental policy scholars have also become increasingly diverse, with a notable uptick in statistical and modeling approaches. We find that some topics, such as policy failure, gender issues, and energy welfare policies are under-explored, and certain regions within the world, such as developing countries, are less frequently studied. We encourage scholars to consider these gaps in the literature when developing future research.

KEY WORDS: environmental policy, energy justice, energy policy, climate change

政策学者已有效利用政策过程模型、理论和框架回应一系列重要环境问题。比如，环境问题如何出现在政策制定者的议程之上？哪些因素促进环境政策变化？制度（例如政策或文化规范）设计有哪些，它对环境治理产生了什么作用？在这篇文章中，作者调查了政策过程学术领域，聚焦于环境治理。作者有三个调查目标。第一个目标是对环境治理研究中最常涉及的政策过程模型、理论和框架进行分类整理。第二个目标是获取在应用这些模型、理论和框架时最常使用的方法选择。第三个目标是识别这些方法如何应对环境治理研究的中心问题，包括时间、空间和政策范围。笔者致力识别出用于将关键考量融入实证政策过程学术的趋势和策略。

关键词: 环境治理, 政策过程理论, 范围

Los expertos en políticas han aprovechado de manera efectiva los modelos, teorías y marcos de procesos de políticas para responder a una variedad de preguntas ambientales importantes. Por ejemplo, ¿cómo llegan los temas ambientales a las agendas de los responsables políticos? ¿Qué factores contribuyen al cambio de la política ambiental? ¿Cuáles son los diseños y efectos de las instituciones (por ejemplo, políticas o normas culturales) en la gobernanza ambiental? En esta revisión, examinamos el campo de la beca de procesos de políticas, centrado en la gobernanza ambiental, con tres objetivos. El primer objetivo es catalogar los modelos de procesos de políticas, las teorías y los marcos que se presentan con mayor frecuencia en los estudios de gobernanza ambiental. El segundo es capturar las

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elecciones metodológicas comúnmente empleadas en la aplicación de estos modelos, teorías y marcos en dominios ambientales. La tercera es identificar cómo estos enfoques abordan los temas centrales para la investigación de la gobernanza ambiental, incluidos el tiempo, el espacio y la escala de políticas. Nuestro objetivo es identificar tendencias y estrategias para integrar consideraciones clave de escala en la investigación empírica del proceso de políticas.

PALABRAS CLAVE: gobernanza ambiental, teoría de procesos políticos, escala

Introduction

The environmental policy landscape is dynamic, shaped by scholars of diverse backgrounds and events that are playing out in real time. In this article, we document and analyze trends in the environmental policy literature published between 2014 and 2017. We define the environmental policy literature as that which focuses on policy mechanisms, such as government laws and regulations, and organizational efforts and commitments that relate to environmental and energy issues. We include energy issues in this definition because the interdisciplinary nature of the environmental policy field requires acceptance of the interconnectedness of all environmental issues, including those related to technology, human behavior, and environmental implications of energy systems. A review of recent scholarship in the environmental policy field is valuable because it provides scholars and practitioners an understanding of the trends within this body of literature and also helps identify gaps that require further evaluation.

To gain insights into the current environmental policy scholarship, we collect 1,972 environmental policy articles. The sample of journals includes 10 public policy, public administration, and management journals—hereafter collectively referred to as public administration, following the classification used by Web of Knowledge—and 6 environmental policy journals. With this sample of articles, we generate corresponding descriptive statistics based on a detailed coding exercise and examine patterns and themes across the articles.

We find that, within the top 10 public administration journals, environmental policy is an important topic of inquiry but studied less frequently than other topics, such as social, health, or education policy. Environmentally oriented articles only constitute between 4 and 15 percent of all of the articles published in the majority of these journals. Journals that publish a greater share of conceptual or qualitative articles using case studies or other methods, such as *Policy Sciences,* publish more environmental policy articles than other journals. Environmental policy scholars evaluate a variety of policies, employ a range of methods, and focus on various geographic locations. The literature has evolved over time from addressing more traditionally mainstream topics, such as ecosystems, natural resources, and land management, to even thornier topics, such as energy and climate change, which involve dynamic relationships among different environmental policy issues, disciplines, and research approaches. Specifically, we find that concerns about equity and

justice are growing, especially as they relate to adaptation and planning. In fact, the number of articles that deal with justice issues more than doubled in 2016 as compared to 2014.

In light of these trends, we focus the second part of our analysis on a specific case, the topic of energy justice, which we argue serves as an example of the increasing complexity and interdisciplinary nature of modern environmental policy scholarship. Like the broader environmental policy field, environmental justice research began in the 1980s with compelling case study ethnographies (Bullard, 1990; Lerner, 2006), and later developed more empirical evaluations of inequities based upon race and economic class (Konisky & Reenock, 2013; Mohai & Saha, 2015). More recently, the environmental justice literature has progressed to include modern branches of justice studies, including energy and climate justice. The energy justice literature not only exemplifies the evolution of the broader environmental policy literature but also offers an analogue for how scholars are embracing more complicated and contemporary environmental policy questions. Here, we trace the origins of the energy justice literature and then discuss how this field has evolved through the years.

The balance of this paper proceeds as follows. First, we describe our methodological approach. Next, we present patterns in the literature based on an inductive quantitative analysis and subsequently an in-depth analysis of the energy justice literature. Last, we provide concluding thoughts about the state of the environmental policy literature and offer opportunities for scholars to consider future empirical research.

Methodological Approach

To find relevant articles, we use the Web of Science's 2017 Journal Citation Report to generate a list of the top 10 journals in the "public administration" and 6 "environmental studies" categories of disciplines. Table 1 displays the list of 16 journals, each journal's impact factor, the number of relevant articles we reviewed from each publication, and the total number of articles in each journal over this timeframe.

Because the environmental studies category is broadly defined in the Journal Citation Report, we only include journals for which publication objectives incorporate conventional environmental *policy* research and analysis. For example, though it was rated in the top five environmental studies journals, we do not include the publication *Tourism Management* in the sample because it focuses primarily on tourism, travel, and planning, and less so on policy. The final sample of journals are in the top 16 environmental studies journals and are those that our research team deems most relevant to environmental policy research. Furthermore, we include *Energy Policy* in the sample but limit our analysis to articles in the publication's *Energy and the Environment* subtopic to ensure that the sample remains focused on environmental policy issues.

Unlike the environmental studies journals, the public administration category has a substantial number of relevant journals with a policy focus. Therefore, we exclusively rely on impact factors as the inclusion criteria. As a result, some journals, such as the *Review of Policy Research*, that do not make the top 10 according to impact

Table 1. List of Journals in Sample

Journal Title	2017 Impact Factor	Articles Collected	Total Articles	% of Total Articles that are Env. Focused
Public Administration & Public Policy				
Public Administration Review	4.591	11	235	5.1
Journal of Public Administration Research and Theory	3.907	13	177	7.9
Governance	3.833	6	94	7.4
Climate Policy	3.832	125	126	100.0
Journal of Policy Analysis and Management	3.444	7	122	6.5
Public Management Review	3.152	13	240	5.8
Policy Sciences	3.023	26	76	35.5
Journal of European Public Policy	2.994	27	317	8.8
Public Administration	2.870	7	178	4.5
Policy Studies Journal	2.830	13	90	15.6
Environmental Policy				
Nature Climate Change	19.181	98	99	100.0
Global Environmental Change—Human and Policy Dimensions	6.371	527	528	100.00
Annual Review of Environment and Resources	6.025	88	89	100.0
Review of Environmental Economics and Policy	4.419	28	29	100.0
Energy Policy	4.039	448	1,979	22.6
Energy Research and Social Science	3.815	535	535	100.0
Total number of articles collected		1,972	4,914	40.1

factor but do extensively cover environmental topics, are not included in our final sample. Though the omission of such journals may lead us to underestimate the focus on environmental policy in public administration journals at large, a thorough scan of issues of *Review of Policy Research* between 2014 and 2017 confirms that their overall topic, methodological, and geographic trends are similar to those that we report in the following section of this paper.

We identify environmental policy articles based primarily on their title. If the title of the article includes mention of an environmental or energy-related topic, we select it into the sample for review. We subsequently code each article based on content in the title, abstract, introduction, and methods sections. We gather information about the articles' year of publication, journal, geographic area of focus, major environmental topic and subtopic, and methodological approach. Each article has an environmental focus; yet, some emphasize policy issues more than others.

Table 1 shows that the final sample of 1,972 articles includes 248 from public administration journals and 1,724 from environmental studies journals. Aside from *Climate Policy, Policy Sciences* published the highest percentage of environmentally focused articles in their journal (27 articles, 35.5 percent) and *Public Administration* published the fewest articles with an environmental focus (7 articles,

4.5 percent). The remaining eight top public administration journals publish articles related to environmental policy approximately 5–15 percent of the time.

Table 2 provides a list of the variables that emerged from the coding exercise along with their description and frequency. As listed in this table, major topics identify the primary policy focus of the article, whereas subtopics are other issues that are featured in the article. For instance, an article's major topic could be energy and its subtopic could be renewable if a portion of the article focused on renewable energy technology, generation, or consumption. Articles can have more than one major topic or subtopic. For example, we code a *Public Administration Review* article, "Water Policy in a Time of Climate Change: Coping with Complexity" (Skinner, 2017) as both "oceans, water, and glaciers" and "climate change."

On this dataset, we conduct a frequency analysis to determine the general trends and themes in the environmental policy literature from 2014 to 2017. In addition to this inspection of the descriptive statistics, which we present in the next section, we find 118 articles that focus specifically on environmental justice and equity issues, which we synthesize and analyze in the second half of this article. To select these articles, we identify those that we originally coded with "justice," "equity," or "welfare" tags. We read these articles, take detailed notes, and perform a qualitative analysis of their themes and trends. Although we acknowledge that the decision to focus heavily on this subsample of articles reflects our scholarly interests, we choose to highlight justice as a subtopic because it illustrates the evolution of the broader environmental policy field quite well. As we discuss below, the environmental justice research sits at the intersection of various disciplines, including environmental policy, public administration, and social policy. In this paper, we narrow our qualitative focus to the most modern sect of this literature, energy justice.

General Patterns and Trends in the Literature

In this section, we present trends in the sample of articles accordingly to four general categories: major topics, subtopics, methodological approaches, and geographic location. For each category, we report results for all 1,972 articles as well as disaggregated by year.

Major Topics

Energy studies dominated the environmental policy literature between 2014 and 2017. Nearly half of the articles in the sample (922 articles, 46.8 percent) include energy as a major theme. Other popular themes include climate change (565 articles, 28.7 percent); ecosystem, natural resource, and land management (288 articles, 14.6 percent); and air pollution and greenhouse gas emissions (228 articles, 11.6 percent). Figure 1 displays the distribution of major topics for each year in the sample. Some topics increased in popularity through the years, such as energy, climate change, air pollution and greenhouse gas emissions, environmental finance, justice, and transportation, infrastructure, and housing. Energy articles increased the most, with 158

Table 2. List of variables with frequency counts

Variable	Description	2014	2015	2016	2017	Aggregate	Percentage (%)
Major Topic							
Energy	Electricity, systems, consumption, generation, conventional, and renewable	158	184	290	290	922	46.8
Transportation, infrastructure, & housing	All forms of transport, engineering, and building codes	25	32	41	58	156	7.9
Air pollution and greenhouse gas emissions	All pollution, including carbon dioxide emissions	40	58	66	64	228	11.6
Oceans, water, & glaciers	Groundwater, drinking water, rivers, and lakes	40	48	36	40	164	8.3
Climate change	All climate related concerns	139	121	139	156	565	28.7
Agriculture & food	Systems, food and crop security	34	27	31	29	121	6.1
Justice	Environmental, energy, and climate	17	28	41	27	118	6.0
Environmental finance	All forms of green finance	28	23	46	30	127	6.4
Ecosystem, natural resource and land management	Forests, species, terrestrial, and aquatic management	76	73	69	70	288	14.6
Subtopic							
Collaboration	Parties working together	5	7	4	7	23	1.2
Extreme weather	Natural disasters and extreme temperatures	17	15	28	19	79	4.0
Urbanization	Movement into the city and urban-centered	14	10	12	10	46	2.3
Renewables	All forms of renewable energy generation and technology	44	54	81	67	246	12.5
Adaptation & planning	Adaptive capacity, preparation for environmental related events	41	51	41	28	161	8.2
Politics	Political ideologies, elections, and activities of the government	14	29	29	28	100	5.1
Gender	Focus on female versus male	3	5	5	4	17	0.9
Demand & behavior	Consumption	31	46	53	51	181	9.2
Public opinion	General public's views	26	28	50	31	135	6.8
Participation	Public and stakeholder participation	20	17	22	29	88	4.5
Emissions trading	Any emissions trading schemes	10	10	23	18	61	3.1
Overlapping	When more than one policy is considered in an analysis	8	3	5	8	24	1.2
International negotiations	Negotiations between countries, treaties, agreements	19	20	30	34	103	5.2
Economic development	Examining improvements of economic well-being or quality of life	14	41	48	47	150	7.6

Table 2. continued

Variable	Description	2014	2015	2016	2017	Aggregate	Percentage (%)
Conservation	Preservation, protection, or restoration	16	24	6	13	59	3.0
Local government	All subnational jurisdictions, including cities and states	33	28	32	37	107	5.4
Media & social media	Reviewing all forms of media or social media accounts	5	11	6	5	27	1.4
Policy fail	When a policy is unsuccessful or is eliminated	1	1	2	1	5	0.3
Sustainability	Avoidance of depletion or maintained at a certain level	28	31	37	29	125	6.3
Methodological Approach							
Qualitative & conceptual	Includes all articles that employ qualitative methods as well as conceptual pieces	115	107	115	119	456	23.1
Policy discussion	General thought piece of the policy of interest	8	5	22	18	53	2.7
Interview	Any article that included an interview(s)	40	52	57	97	246	12.5
Survey	Any article that included a survey(s)	50	62	58	92	261	13.2
Statistical & quantitative	Analysis included statistical and/or quantitative methods	87	64	124	82	357	18.1
Modeling	Includes all forms of modeling tools and techniques	93	73	89	121	376	19.1
Economic analysis	A theoretical economic approach	31	50	36	32	149	7.6
Network analysis	Identifying the connections between parties	4	10	1	11	26	1.3
Literature review	Articles that primarily relied upon literature as their analysis	43	33	58	68	202	10.2
Experiment	Articles that conducted experiments	2	5	7	4	18	0.9
Geographic Location							
North America	All countries in North America	69	73	95	106	343	17.4
South America	All countries in South America	22	23	18	27	90	4.6
Africa	All countries in Africa	19	40	26	28	113	5.7
Europe	All countries in Europe	101	116	174	168	559	28.3
Asia	All countries in Asia	82	82	100	111	375	19.0
Australia & New Zealand	Australia, New Zealand, and other Pacific Ocean islands	18	17	25	14	74	3.8
United States	North American articles that included United States	66	63	95	92	316	16.0
China	Asian articles that included China	39	39	46	53	177	9.0
Arctic	The Arctic	1	2	15	6	24	1.2
Global	International relationships or included five or more countries	125	91	106	127	449	22.8

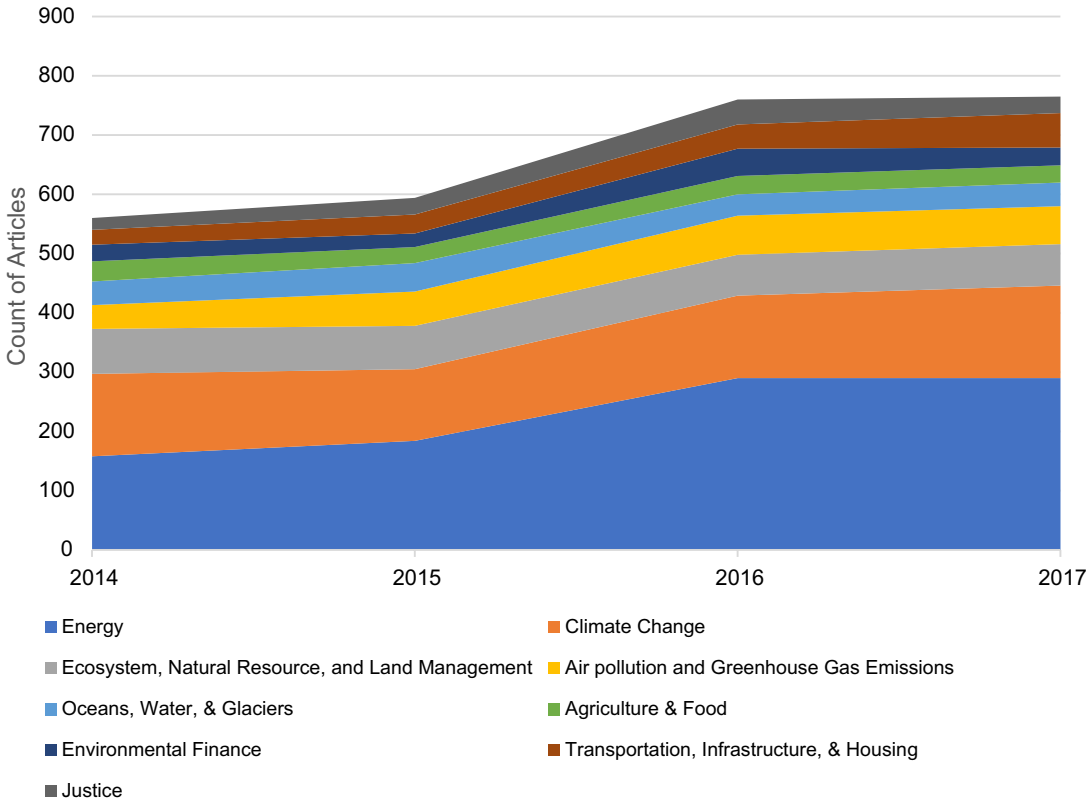

Figure 1. Major Topics, Trends 2014–17.

articles published in 2014 and 290 articles published in both 2016 and 2017. Other topics remained relatively constant over the four-year timespan, such as oceans, water, and glaciers, and agriculture and food. Ecosystems, natural resource, and land management was the only major topic in our sample that declined in frequency.

We also disaggregate the sample by journal to identify trends within and across disciplines. Figures 2 and 3 present these trends. Figure 2 focuses on the environmental studies journals[1] and Figure 3 displays the trends for the remaining public administration journals. As one might expect, the disciplinary journals published more articles on environmental issues than public administration journals. Figure 2 indicates that the topics published most frequently in environmental studies journals are energy and climate change issues, with the fewest focused on agriculture and food; transportation, infrastructure, and housing; oceans, water, and glaciers; and air pollution and greenhouse gas emissions.

Figure 3 shows that in public administration journals the most popular topics include not only energy and climate change but also oceans, water, and glaciers; and transportation, infrastructure, and housing issues. Public administration journals publish articles related to environmental finance and environmental justice less frequently.

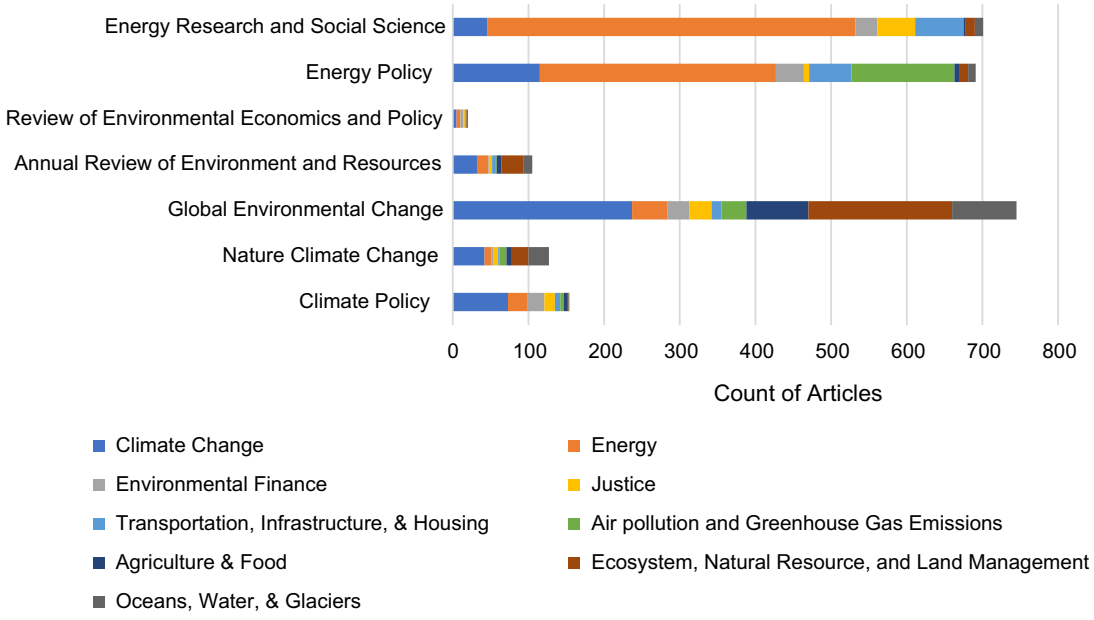

Figure 2. Major Topics, by Disciplinary Journals.

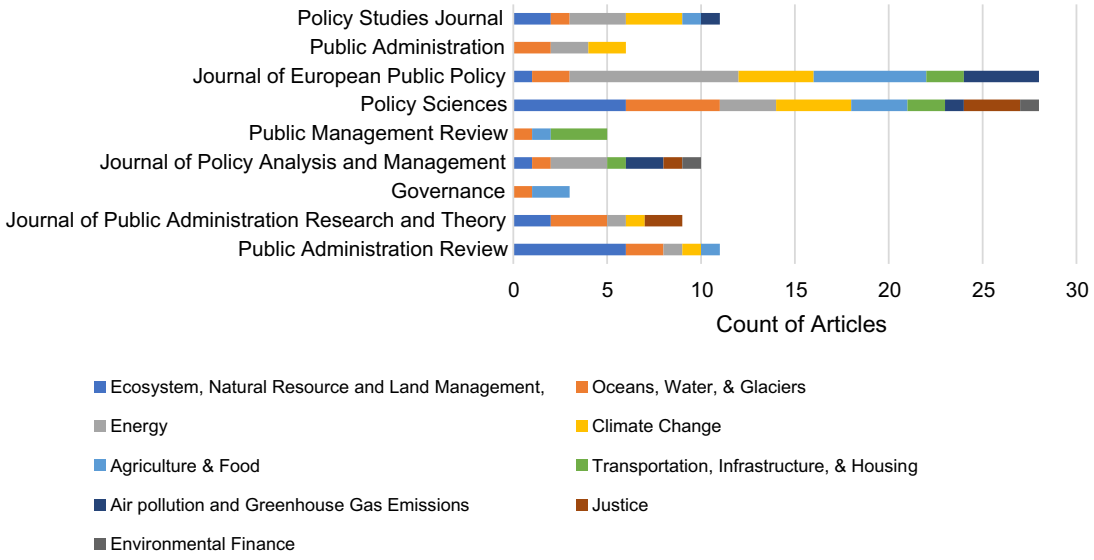

Figure 3. Major Topics, by Public Administration Journals.

Subtopics

Figure 4 displays the distribution of subtopics in the sample by year as well as the total number of articles published in each. The most common subtopics are renewables (246 articles, 12.5 percent), demand and behavior (181 articles, 9.2 percent), and adaptation and planning (161 articles; 7.6 percent). By contrast, the least common subtopics are policy failure (5 articles, 0.003 percent) and gender-related issues (17 articles, 0.009 percent). We also observe in Figure 4 how subtopics change

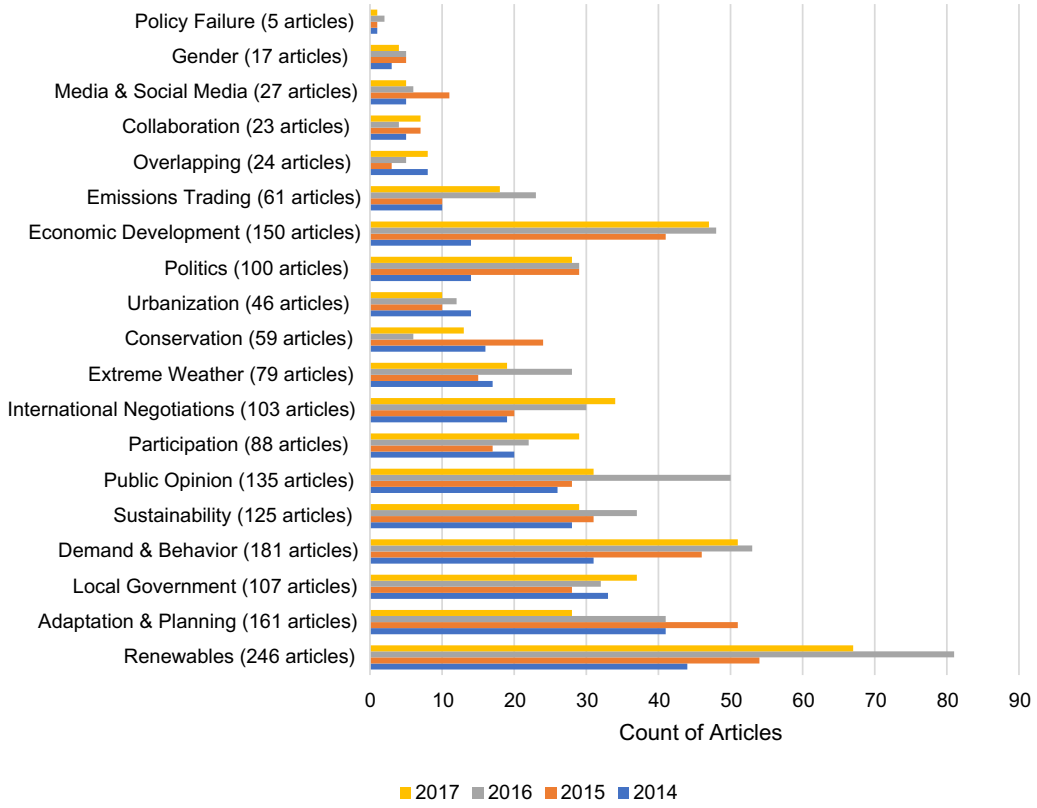

Figure 4. Subtopics, Trends 2014–17 with Aggregate Count of Articles in Parentheses.

over time. Over the past 4 years, several subtopics have increased in popularity (e.g., renewables, demand and behavior, public opinion, participation, and others). Only three subtopics—adaptation and planning, conservation, and urbanization—have decreased in popularity.

Methodological Approaches

Figure 5 presents methodological approaches over time as well as aggregate values. Nearly a quarter of environmental policy scholars employ qualitative or conceptual methods (456 articles, 23.1 percent). Scholars also rely frequently on modeling techniques (376 articles, 19.1 percent) and statistical and quantitative analysis (357 articles, 18.1 percent). On the other end of the spectrum, environmental policy scholars rarely employ experiments (26 articles, 1.3 percent) or perform network analysis (18 articles, 0.009 percent) to address their research questions.

Several methodological approaches have either increased in prevalence or remained roughly the same over time. Qualitative and economic analysis have remained relatively stable over the sample's timeframe, while the number of articles that employed surveys, literature reviews, interviews, policy discussion, and network analysis have all increased. Although we observe a small reduction in statistical and quantitative analysis when comparing the terminal years of our sample

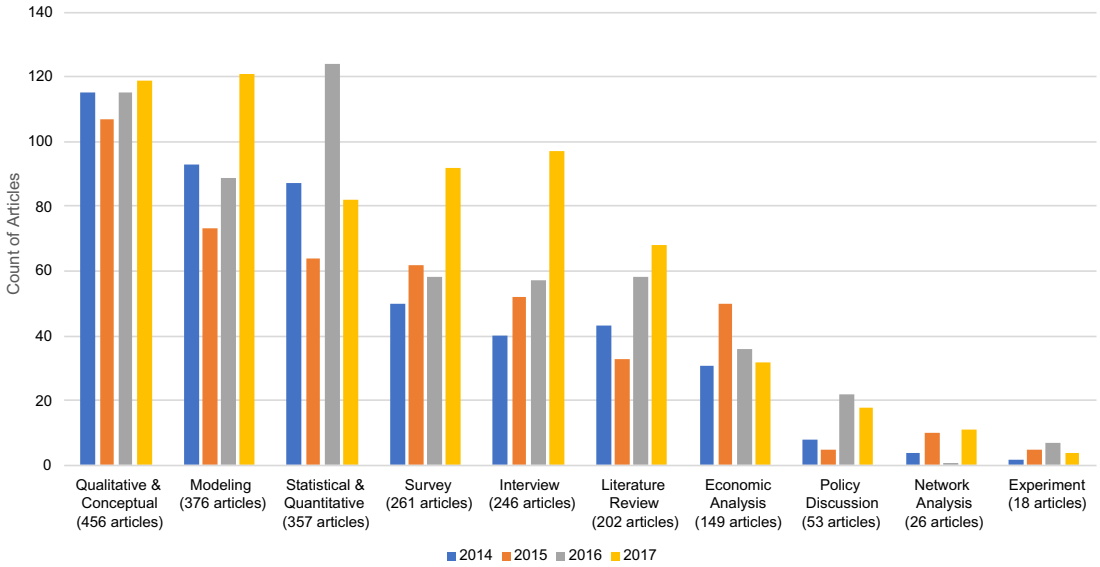

Figure 5. Methods, Trends 2014–17 with Aggregate Count of Articles in Parentheses.

(2014 and 2017), Figure 5 reveals that the number of articles that used statistical and quantitative approaches in 2016 (124 articles) was more than any other methodological approach in any other year. For this reason, statistical and quantitative analysis is the third most used methodological approach in the environmental policy literature.

Geographic Location

Over a quarter of the sample's geographic focus lies in Europe (559 articles, 28.3 percent), and just under a quarter assumes a global focus (449 articles, 22.8 percent), which we define as a study of international relationships or one that includes five or more countries. Studies focused on Asia (375 articles, 19.0 percent) and North America (343 articles, 17.4 percent) are also common. Of the Asian and North American studies, a significant number pertain to China (177 studies, 47.2 percent of Asian studies) and the United States (316 studies, 92.1 percent of North American studies), respectively. There are significantly fewer articles from the African, South American, Australian/New Zealand, or Arctic contexts.

When we disaggregate the geographical locations by year, as shown in Figure 6, we find that the heavy geographic bias toward Europe, Asia, and North America increased between 2014 and 2017. Although we observe small increases in studies with a geographic focus on the Arctic as well as South American and African countries, studies focused on Europe, Asia, and North America grew much faster. Overall, there appears to be a lack of proportionate geographic coverage of the environmental policy studies that examine the southern hemisphere, as compared to the northern hemisphere.[2]

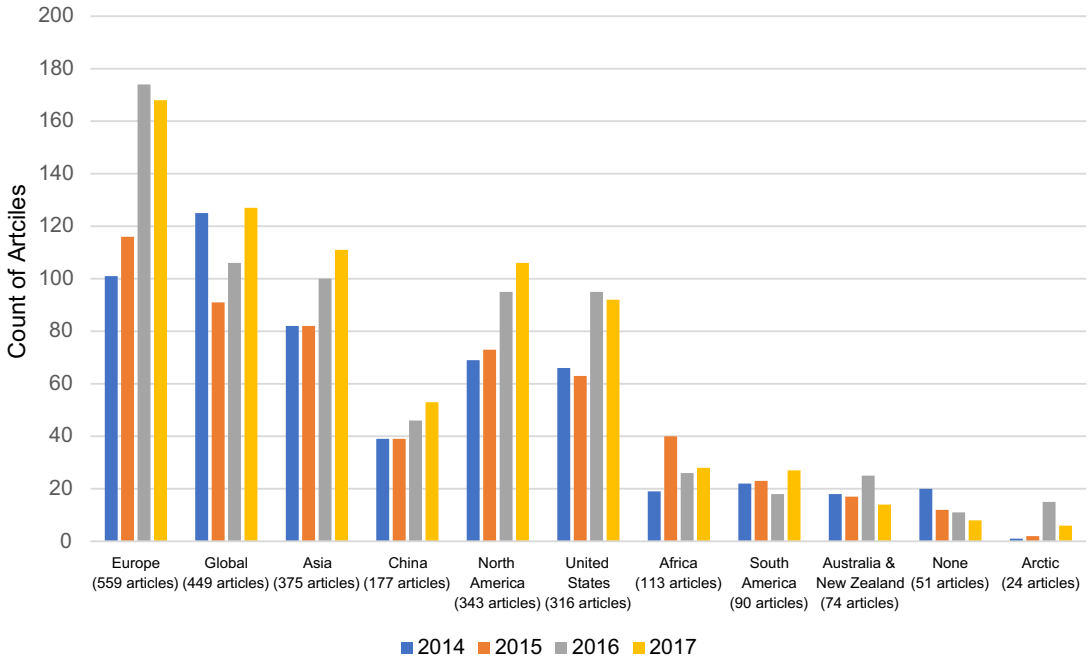

Figure 6. Geographic Location, Trends 2014–17 with Aggregate Count of Articles in Parentheses.

Summary of Trends

In general, we find that much of the environmental policy scholarship published between 2014 and 2017 concentrates on international energy or climate change issues, with a tendency to focus specifically on Europe or the United States. Upon closer review of these patterns, we find that the literature appears to be shifting focus from more traditional topics to more multifaceted, and arguably complex and thornier issues, especially as compared to just a few years ago. In the 2016 *Policy Studies Yearbook*, Fahey and Pralle (2016) reviewed the environmental policy literature between 2012 and 2015 and concluded that climate change, ecosystems, and natural resources were the most popular topics in the scholarship. Though our study reveals that climate change is still a popular topic, by contrast we observe that the number of articles that examine ecosystems, natural resource, and land management are significantly less than both climate change and energy. Furthermore, ecosystems, natural resource, and land management also received less attention in the final year of our sample as compared to the first year; whereas the number of articles that featured energy and climate change both increased over the 4-year timespan. Within the literature on energy policy, there is a growing interest in studies on renewable energy policy and integration. We also find that scholars concentrate significant scholarly attention on international negotiations, economic development, and adaptation and planning.

Other topics that grew in importance between 2014 and 2017 include justice and consumer demand, behavior, and consumption choices. These topics have especially gained traction in the environmental policy journals, but still remain

fairly limited in the public administration journals. Simultaneous with this shift in content, scholars have diversified their methodological approaches through more involved statistical, quantitative, and modeling techniques to match the growing complexity of the research questions and issues they are addressing. Furthermore, we observe a steady increase in reliance on interviews and survey instruments as both public opinion and stakeholder participation articles have increased. The topics that have grown in popularity, such as justice, are focused on problems that are highly complex, involved multiple market failures, and thus required interdisciplinary perspectives to sufficiently analyze the intersecting topics of interest. We feature these conditions in the next section, where we provide an overview of the justice literature and consider modern trends within the justice literature at large, and the energy justice literature more specifically.

Justice Literature

Foundations of Environmental, Energy, and Climate Justice

Environmental justice is based on the notion of the need for equal distribution of and protection from environmental hazards and the risks associated with them. The environmental justice movement garnered national attention in the 1980s (Agyeman, Schlosberg, Craven, & Matthews, 2016). Grassroots activists in Warren County, North Carolina were arrested for protesting the location of a toxic waste facility in a nearby low-income and minority community. Though the protests in Warren County were not the first of this kind, they were the first instance that an environmental protest by a community of color attracted national attention. In 1983, one year after the Warren County protests, the General Accounting Office (GAO) confirmed that hazardous waste sites across three southeastern states were disproportionately located near low-income and minority communities (U.S. GAO, 1983). After the publication of the U.S. GAO report, academics also began to identify that environmental ills, such as pollution and waste facility sites, were disproportionately located near low-income and communities of color in the United States.

Environmental justice research began in the 1980s and was conducted generally through detailed case studies. Most attribute the origin of environmental justice scholarship with Bullard's (1990) *Dumping in Dixie,* which followed five communities as they dealt with the siting of environmental burdens near their communities. Later, environmental justice scholarship evolved to include empirical, often quantitative, evaluations of environmental inequalities. These studies revealed ample evidence of environmental inequities based upon race and economic class in the United States (see e.g., Ringquist, 2005 for a meta-analysis of the empirical literature on this topic). More recently, the environmental justice literature has progressed to include other modern branches of justice studies, including energy and climate justice.

Climate justice evolved in the 1990s as the environmental justice movement merged with climate change activism. While environmental justice primarily concentrates on the disproportionate burdens of traditional environmental hazards,

such as toxic waste, air pollution, and landfill sites, climate justice evolved to focus specifically on assisting those affected disproportionately by climate change due to rising sea levels and increased greenhouse gas emissions. Climate justice research also focuses on the design of climate policies and the need to structure policies and programs so that they help, or at the least do not disproportionately burden, those affected most by climate change. Several recent articles from the literature search focus specifically on the distributional consequences of different climate policy approaches (Mathy & Blanchard, 2016; Ojha et al., 2016; Pattanayak & Kumar, 2015; Persson & Remling, 2014; Sargl, Wolfsteiner, & Wittmann, 2017; Steininger et al., 2014). Most of these studies highlight the importance of recognition in policymaking, i.e., understanding who is already disadvantaged and thinking about how to target them effectively. These studies also emphasize the trade-offs between equity and efficiency in policy design, including the consideration of how to allocate funds or permits through a global climate policy.

Energy justice is another branch that stemmed from environmental justice. Energy justice promotes the concept that all individuals across the globe should have access to safe, affordable, and sustainable energy—also referred to as energy security—and also be involved in decisions about such access. Goldthau and Sovacool (2012) argue that energy, and specifically energy access and security, is one of the core challenges currently facing the globe. This is not surprising given that over one billion individuals across the world live in energy poverty, or do not have access to modern energy sources, and a lack of energy access restricts economic and human development (UNDP, 2018). In the United States, energy poverty is also prevalent, and is often concentrated in low-income communities.[3]

Environmental, climate, and energy justice scholars all rely on a similar analytical framework to evaluate justice issues. The framework identifies three tenets of justice that must be addressed (Finley-Brook & Holloman, 2016): (i) *distributional*—how benefits and burdens are spread across the population; (ii) *recognition*—who has historically been disadvantaged and how to reconcile these inequalities, an aspect of energy justice that is often neglected but of fundamental importance (Bulkeley, Edwards, & Fuller, 2014); and (iii) *procedural*—who is included and listened to in decision-making processes and are these processes fair (Jenkins, McCauley, Heffron, Stephan, & Rehner, 2016; McCauley, Heffron, Stephan, & Jenkins, 2013)? All three related fields—environmental, climate, and energy justice—have shifted away from the Rawlsian notion of distributional justice (Rawls, 2009) to a conception of justice based on the premise that everyone should have access to basic human goods and functionalities (Bulkeley et al., 2014). Within the energy justice domain, energy is considered a basic human good and it is essential to provide access to energy technologies that can provide at least a decent quality of life and personal functionality (Bazilian, Nakhooda, & Van de Graaf, 2014; Middlemiss & Gillard, 2015).

Although stemming from both the environmental and climate justice movements and based in similar frameworks, energy justice is distinct from its predecessors (Jenkins, 2018). Whereas environmental justice and climate justice both document and analyze a vast array of sources of injustices, the field of energy justice is narrower in scope and focuses on the disproportionate impacts that result from

each stage of the energy system (Fuller & McCauley, 2016), from energy production (see e.g., Goedkoop & Devine-Wright, 2016; Heffron & McCauley, 2014; Simpson & Clifton, 2016) through consumption (see e.g., Chatterton, Anable, Barnes, & Yeboah, 2016; Hall, 2013; Simcock, 2016; Walker, Simcock, & Day, 2016). The focus on production and specific demographic populations—including, but not limited to, communities of color, low-income, and elderly populations—tends to align more closely with traditional environmental justice. For example, studies on production inequalities may focus on how externalities from coal mining affect certain populations. Those who focus on consumption issues tend to consider the ways in which certain populations relative to others use energy, or whether certain populations are excluded from efficient or low-carbon technology developments. For example, Reames and colleagues (Reames, Reiner, & Stacey, 2018; Reames, 2016) study disparities in access to energy-efficient light bulbs and energy efficient housing across socioeconomic groups, respectively. Studies that evaluate consumption aspects of energy justice tend to highlight preconditions of inequality among certain populations, are often framed as occurring within a broader low-carbon energy transition (Fuller & McCauley, 2016), and identify risks of leaving certain vulnerable populations behind.

By adopting a full energy cycle perspective, the energy justice literature also tends to require systems thinking and a comprehensive approach to complex problems. It is rare, however, for a single study to evaluate the entire life cycle of a specific energy source—or even both the production and consumption sides at once—and equally as rare for a study to consider energy justice issues across a full range of different energy types in a comparative manner (Jenkins, McCauley, & Forman, 2017). Yet, any author of an energy justice study on production or consumption patterns needs to at least understand how energy systems work and how they interact with social, economic, political, and behavioral systems. Furthermore, these conditions require that energy justice scholars adopt interdisciplinary approaches to their research because the consequences of energy insecurity can exacerbate various other social inequalities. For example, the literature agrees that a high-energy burden is inversely related with well-being. Households with high energy burdens often are forced to make difficult choices and trade-offs with other critical expenditures, such as groceries or health care (Bailey et al., 2011; Bhattacharya, DeLeire, Haider, & Currie, 2003; Frank et al., 2006). For this reason, scholars must tackle energy justice from multiple disciplines—including, but not limited to, public administration, political science, economics, and public health—to understand the full scope and complexity of a problem. Only through such an approach can scholars comprehensively understand the extent and potential ripple effects of energy justice in the United States and internationally, and to provide practical and valuable policy recommendations to decision makers.

Some have argued that energy justice differs from environmental and climate justice because the former was not initially rooted in an activist background, as the latter two were, and yet the concept has since been used to structure and strengthen advocacy efforts (Finley-Brook & Holloman, 2016). The concept of energy justice was first proposed by McCauley et al. (2013) with the intention of generating a new, more

targeted, research tool to consider sources of energy system injustices; however, it has since joined environmental and climate justice as an important component of the social justice movement (see e.g., NAACP's *Lights Out in the Cold* report, 2017) and a decision-making tool for policymakers to consider (Sovacool & Dworkin, 2015).

Energy justice has continued to gain traction in academia, with top interdisciplinary field journals, such as *Energy Policy*, *Energy Research & Social Science,* and *Applied Energy*, devoting special issues to the topic, and *Nature Energy* specifically flagging energy justice as a priority topic area. Increased attention on energy justice is likely a co-benefit from the progress that has already been made in the topics of environmental and climate justice. Because environmental and climate justice scholarship has evolved over the years from philosophical (Shrader-Frechette, 2002) to ethnographic and case studies (Lerner, 2006) to empirical evaluations (Banzhaf, 2012; Saha & Mohai, 2005), energy justice scholars are able to employ the preexisting justice frameworks and principles. As a result, even though it is a young field, energy justice has already incorporated multidisciplinary methodological approaches, including statistical evaluations (see e.g., Hernández, Jiang, Carrión, Phillips, & Aratani, 2016; Reames, 2016); rigorous, qualitative approaches using semi-structured interviews (see e.g., Seefeldt, 2017); as well as mixed methods (see e.g., Hernández, Phillips, & Siegel, 2016).

The sample of articles collected for the present analysis reveal modern trends within the justice literature. Here, we review these trends through descriptive statistics and a summary of overlapping themes and approaches. This discussion highlights new advances in the literature, as well as important gaps in the literature.

Descriptive Trends in the Justice Literature, 2014–17

In the sample of environmental policy articles, we identify all those that focused on justice, either environmental, climate, or energy, or some combination thereof. Of the 1,972 environmental policy articles, 118 (6 percent) involve at least a minimal, if not a full focus, on justice issues. The overlap between the justice articles and all other major topics and subtopics is displayed in Table 3.

Within the subsample of 118 justice articles, 48 (41 percent) focus on energy, which is a sizable percentage, and 28 (24 percent) focus on climate change policy. These statistics reveal that, of the total articles published on justice in the last four years, the majority are either rooted in energy or climate justice. Other traditional environmental justice topics are less common. The energy justice articles tend to focus on renewable energy resources, transportation, housing, sustainability, and consumption and behaviors. The climate justice articles tend to focus on adaptation and planning for climate change, sustainability, local government involvement, politics, and extreme weather events.

Table 4 provides other descriptive statistics about this sample of justice articles. Over time, the number of justice articles has increased significantly, from 20 in 2014 to 43 in 2016. The special issue on energy justice in *Energy Research & Social Science* in 2016 contributed to this relatively large number in 2016. The number declined

Table 3. The Overlap Between Justice Articles and Other Topics

Major Theme	Count	Percentage (%)	Subtheme	Count	Percentage (%)
Energy	48	40.7	Adaptation & planning	15	12.7
Climate change	28	23.7	Renewables	10	8.5
Transportation, infrastructure, & housing	8	6.8	Sustainability	10	8.5
Ecosystem, natural resource and land management	7	5.9	Local government	10	8.5
Green	6	5.1	Demand, consumption, and behavior	9	7.6
Air pollution and greenhouse gas emissions	5	4.2	Politics	8	6.8
Oceans, water, & glaciers	4	3.4	Public opinion	6	5.1
Agriculture & food	4	3.4	Extreme weather	5	4.2
Land	1	0.8	Economic development	5	4.2
			Participation	4	3.4
			Urbanization	4	3.4
			Gender	3	2.5
			Conservation	3	2.5
			International negotiations	3	2.5
			Emissions trading	1	0.8
			Collaboration	0	0.0
			Media & social media	0	0.0
			Policy failure	0	0.0
			Overlapping	0	0.0

Table 4. Count and Percentage of Justice Articles by Year, Location, Methods, and Journal

Year	Count	Percentage (%)	Location	Count	Percentage (%)	Methods	Count	Percentage	Journal	Count	Percentage (%)
2014	20	16.9	Global	33	28.0	Qualitative & conceptual	33	28.0	Energy Research & Social Science	50	42.4
2015	28	23.7	Europe	30	25.4	Statistical & quantitative	23	19.5	Global Environmental Change	29	24.6
2016	43	36.4	North America	22	18.6	Interview	20	16.9	Climate Policy	14	11.9
2017	27	22.9	Asia	21	17.8	Survey	15	12.7	Energy Policy	7	5.9
			Africa	10	8.5	Modeling	11	9.3	Nature Climate Change	6	5.1
			South America	6	5.1	Economic analysis	10	8.5	Annual Review of Environment and Resources	4	3.4
			Arctic	1	0.8	Literature review	9	7.6	Policy Sciences	3	2.5
			None	1	0.8	Policy discussion	5	4.2	Journal of Public Administration Research and Theory	2	1.7
						Network analysis	0	0.0	Journal of Policy Analysis and Management	1	0.8
						Experiment	0	0.0	Public Administration Review	0	0.0
									Governance	0	0.0
									Public Management Review	0	0.0
									Journal of European Public Policy	0	0.0
									Public Administration	0	0.0
									Policy Studies Journal	0	0.0

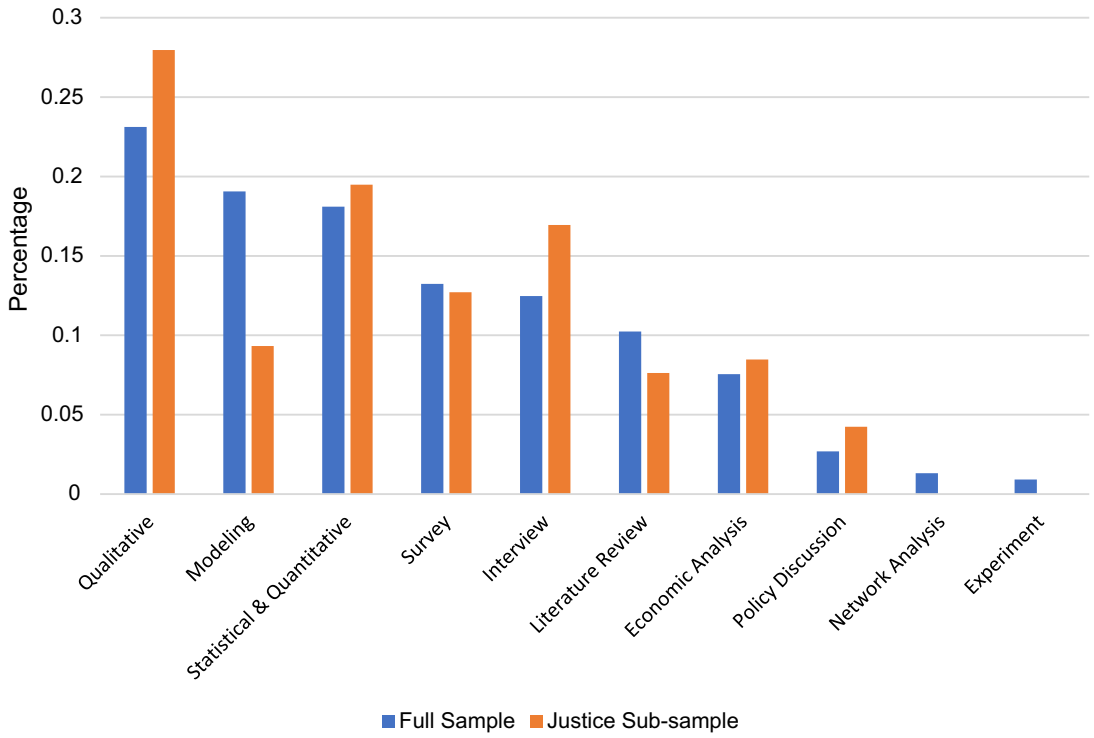

Figure 7. Comparison of Full Sample to Justice Subsample, Methodological Approach.

between 2016 and 2017, however, to 27 articles in 2017 (roughly equivalent to the 2015 value), even despite a special issue in *Energy Policy* on the subject.

The most common methodological approach employed in justice studies between 2014 and 2017 was qualitative, used in nearly 28 percent of the 118 studies. This category includes survey analysis, interview analysis (surveys and interviews are tracked separately), other qualitative methods, and conceptual articles. The next most common approach was statistical evaluation, at approximately 20 percent of the sample. No justice articles have employed experiments or social network analysis. Note that this subsample of justice articles is similar to the full sample of 1,972 environmental policy studies. Figure 7 displays the proportion of each methodological approach employed in the full sample and the justice subsample. It reveals many parallels between the two samples. The two slight outliers are that the full sample employed modeling techniques more often than the justice sample, while the justice sample relied more heavily on interviews than the full sample.

The geographic focus of the justice articles varies as well. Studies most commonly take a global perspective (28 percent), especially those articles focused on climate justice or energy justice as it relates to access to modern energy. Those articles that relate to specific geographic locations most commonly study countries within Europe (25 percent), North America (19 percent), and Asia (18 percent). Similar to Figure 7, Figure 8 reveals that the full sample and the justice subsample are again analogous. Figure 8 shows the proportion of each geographic location in the full

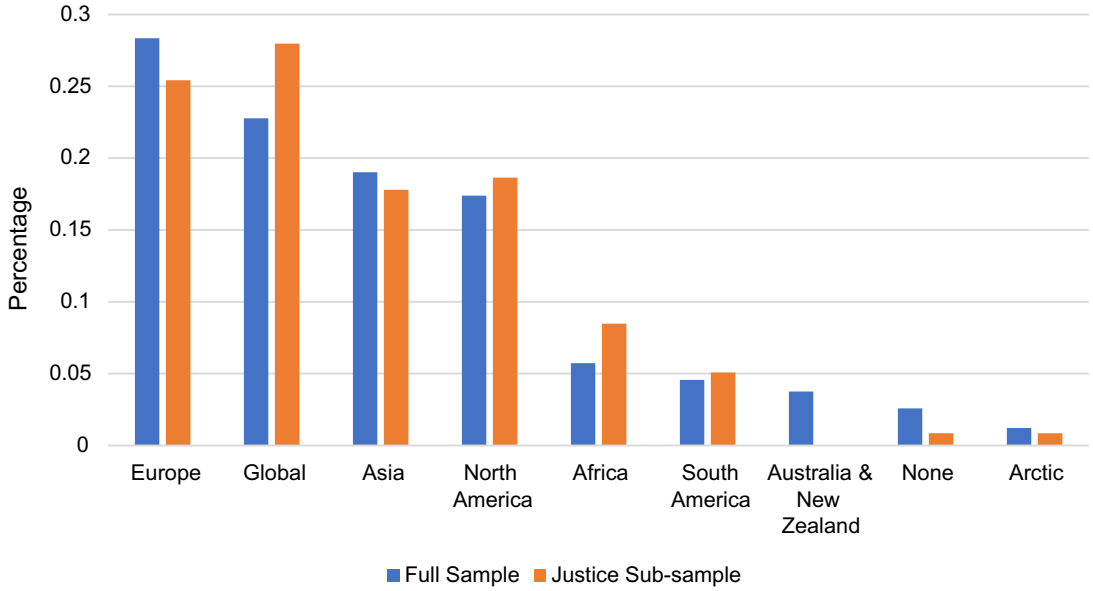

Figure 8. Comparison of Full Sample to Justice Subsample, Geographical Location.

sample and the justice subsample. We not only observe that the justice literature has evolved in a similar manner—from ethnographic and case study research toward empirical evaluations—but also that it has evolved similarly across location.

Table 4 displays the count of justice articles for each journal. The vast majority, at 95 percent, are published in applied environmental journals. Only 6 of the 118 justice articles are published in a more general public administration or policy journal, with three in *Policy Sciences*, a journal that prioritized interdisciplinary perspectives and a consideration of the normative aspects of policy and policy sciences. One may surmise that most justice articles are published in applied journals, rather than more disciplinary journals, because: (i) issues of justice require an interdisciplinary perspective so they may better fit journals that appreciate methods and topics that pull from multiple disciplines; (ii) similarly, justice articles, by their nature, involve complex social, cultural, economic, and political issues, and thus require journal outlets that speak to this range of issues; and (iii) the justice literature does not yet incorporate significant policy analysis (Jenkins et al., 2017), a point that we will return to below. As is also noteworthy, roughly 42 percent of all justice articles are published in *Energy Research & Social Science*. Perhaps this is not surprising given that the journal's editor-in-chief, Benjamin Sovacool, wrote an article in the inaugural issue calling for research on energy studies that break from past trends and more actively rely on human-centered research; are interdisciplinary; and incorporate ethics, philosophy, institutions, culture, or the distribution of externalities (Sovacool, 2014), all of which pertain to issues of justice.

Modern Themes and Approaches in the Energy Justice Literature

In addition to estimating descriptive statistics on this sample of justice articles, we also synthesize a set of trends and common themes across them. While this

discussion is not comprehensive of all articles in the sample, nor does it necessarily reflect energy justice articles published outside the sample of 16 journals, it does shed light on some of the approaches, foci, and methodologies currently employed in the top-ranked public administration and environmental policy journals.

Several energy justice articles that we reviewed performed socially and culturally rich studies on the meaning and use of energy in people's lives to understand both the procedural and recognition aspects of justice. While many of these studies focus on climate justice (see e.g., Groves, Henwood, Shirani, Thomas, & Pidgeon, 2017; Hesed & Paolisso, 2015), a few investigate energy justice. Middlemiss and Gillard (2015), as an example, study the fuel poverty gap, which is the difference between what a fuel-poor household can pay for energy bills and what they need. Their study is based in the United Kingdom, with an expressed objective to reveal what they refer to as "a richer picture of the lived experience" (p. 146) and to "explore the meaning of energy vulnerability from the bottom-up" (p. 147). Their article reveals complex and pervasive challenges that households face in their attempt to secure the energy needed to heat and cool their homes as well as the manner in which the fuel poverty gap contributes to material hardship for these households. As another example, Miller, Altamirano-Allende, Johnson, and Agyemang (2015) argues for the need to consider the social value of energy, including the economic value of energy in one's life as well as other values, such as social and health.

A common approach within the energy justice literature is to focus on vulnerability. Vulnerability is conceived of as the likelihood of exposure (e.g., exposure to fuel poverty), sensitivity to that exposure, and adaptive capacity or ability to cope (Hinkel, 2011; Middlemiss & Gillard, 2015). Some focus on vulnerability—or the closely related concept of a lack of resiliency as it concerns energy justice—in general (Shaw, Scully, & Hart, 2014), while others narrow in on specific vulnerable populations. For example, some scholars study "frontline" communities, or those that are likely experiencing more injustices than others (see e.g., Graff, Carley, & Konisky, 2018; Ottinger, 2017). Snell, Bevan, and Thomson (2015) consider disabled people; Shaw et al. (2014) evaluate elderly communities; and Middlemiss and Gillard (2015), as just discussed, study low-income, energy poor households. Hesed and Paolisso (2015), in an article on climate justice, study African American communities in Maryland. All these scholars evaluate energy justice dimensions, perceptions, and vulnerability within these specific communities.

In addition, several recent articles develop methodologies or indicators that can be used to identify vulnerable populations, including those that face higher rates of energy poverty (Berry, Jouffe, Coulombel, & Guivarch, 2016; Chatterton et al., 2016; Dubois & Meier, 2016; Imbert, Nogues, & Sevenet, 2016; Ochoa & Graizbord, 2016) or that are more likely to be negatively affected by a transition away from fossil fuels toward renewable energy (see Carley, Evans, Graff, & Konisky, 2018, for a more recent example than we were able to capture in our time frame for analysis). Most of these articles study demographic or geographic indicators of vulnerability, typically through a top-down analysis approach, in contrast to the more human-centered, bottom-up approaches of other studies.

As noted above, a branch of the energy justice literature considers consumption of energy and access to specific technologies, such as efficient building materials, light bulbs, or appliances. An article by Oppenheim (2016) takes a slightly different approach than those that study access to modern, efficient technologies and instead considers the effects on the regulatory system of increased access to new technologies. Specifically, Oppenheim studies the expansion of distributed generation and how increased distributed generation deployment could lead to electricity bill changes resulting in regressive pricing. Hernández and Phillips (2015) study whether providing energy efficiency upgrades to a sample of low-income households in New York City changes the economic, energy, and health conditions for these households. They find many positive impacts, particularly on improved thermal comfort and reduced energy bills. In another article, Chen, Xu, and Day (2017) evaluate what factors lead low-income residents in the United States to pursue energy conservation, with a focus in particular on attitudes, norms, and perceived behavioral control.

Few studies in the 2014–17 sample conceptualize or evaluate energy justice from a politics, governance, or policy perspective. One exception is an article by Bazilian and his colleagues (2014) on how issues related to energy poverty are governed across the world. The authors note the general lack of literature on the linkages between energy governance and low-income communities, and they issue a call to scholars and practitioners to include a "poverty dimension into mainstream analyses of energy governance at various levels" (Bazilian et al., 2014, p. 223). Another exception is an article by Jaeger and Michaelowa (2016) that evaluates the political influence of poor communities in India in determining energy subsidies and access to clean energy policy decisions. The authors find that India's politicians accommodate low-income individuals when it could result in an electoral victory; however, they also find that the political power of the poor is limited due to regressive energy subsidies and slow progress of connecting households to the electricity grid (Jaeger & Michaelowa, 2016). Of the articles that consider governance issues, many do so from a national or regional perspective. Examples include studies on the justice impacts of European policies that encourage companies to share ownership of renewable energy projects (Goedkoop & Devine-Wright, 2016), energy and public transportation access in Gambia (Schiffer, 2016), and the participatory siting processes of wind projects in Canadian provinces (Walker & Baxter, 2017).

Similar to the full sample of articles, there are no energy justice articles that consider policy failures or defection. Scholars note other topics that have garnered limited or no attention in the energy justice literature which include: (i) integration of energy production and consumption studies (Fuller & McCauley, 2016); (ii) integration across types of energy resources (Jenkins et al., 2017); and inclusion of gender issues in the analysis (Goldthau & Sovacool, 2012).

Additionally, though scholars argue that energy should be considered a basic human right, there is a dearth of literature on energy-related welfare programs. In the U.S. context, examples of such programs include the Low Income Home Energy Assistance Program (LIHEAP), the largest federal utility assistance program; the Weatherization Assistance Program (WAP), a national energy efficiency program;

and utility disconnection policies, or state-level policies that indicate if and when utilities can disconnect a household's power (see e.g., Hernández & Bird, 2010).[4] These unexplored programs and policies are a significant blind spot in the public administration and environmental policy literatures. With few case studies or empirical evaluations, we know little about how to improve these programs or how best to alleviate or eliminate energy poverty in specific locations, such as the United States. In fact, there is not a single article in our sample that evaluates an energy assistance program and only two that examine municipal-level energy efficiency programs in low-income housing (see e.g., Hernández & Phillips, 2015, with a focus on a U.S. program and Middlemiss & Gillard, 2015, with a focus on a U.K. program), even though we gathered articles from the leading public administration and environmental policy journals over the past four years.

As noted in the first section, the field of energy justice has evolved in ways that are similar to the environmental policy literature at large. We discussed that the full sample of articles and the justice subsample have similar distributions of methodological approaches and geographic locations. We also found that the full sample and justice subsample both tend to focus on similar subtopics, such as renewable energy and climate change; and both are void of other subtopics such as policy failure and gender issues. Moreover, the environmental policy literature and the energy justice literature have both become more interdisciplinary over time, as indicated by the growing number of topics covered in each body of literature through the years.

Conclusion

In this article, we examined patterns in the environmental policy literature published between 2014 and 2017. To extract these trends, we gathered 1,972 environmental policy articles from the top 10 public administration journals (representing 12.5 percent of the total sample of articles) and the top 6 environmental studies journals (representing 87.5 percent). Based on an extensive coding exercise, we generated a descriptive analysis, which revealed patterns of the topics, methodological approaches, and geographic foci employed in the environmental policy literature. We also explored one specific field, energy justice, in greater depth, since this field illustrates some of the trends of the broader environmental policy literature.

We found that environmental policy scholarship focuses most frequently on energy and climate policy, specifically in Europe, the United States, or globally. This scholarship has trended away from more traditionally mainstream topics, such as ecosystem, natural resource, and land management, and devoted increasing attention to topics that require a highly interdisciplinary approach and grapple with complex, or even "wicked," policy problems. For example, the articles that focused on justice issues—of which nearly half concentrate on energy issues—more than doubled between 2014 and 2016. Over the past 4 years, however, environmental policy scholars have left important topics as well as large swaths of the world unexplored. We found that substantial attention is given to developed nations in the northern hemisphere but little attention is paid to developing countries in the

southern hemisphere. Scholars also fail to address policy failures and defections or issues related to gender.

Within the energy justice field, scholars tend to address questions that sit at the intersection of environmental, social, economic, and political development, and that require research approaches that incorporated human dimensions, a range of methodological techniques, and an appreciation of a diversity of disciplinary perspectives. While we found that this body of literature has made significant strides in recent years, we also call attention to how the literature has neglected certain topics, such as the study of energy welfare programs designed to help vulnerable populations. We encourage environmental policy scholars to consider these topics and other shortcomings as they generate future research projects.

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Notes

1. We include *Climate Policy* in the environmental policy journals here because its focus is so strongly related to the disciplinary journals as opposed to the generalized public administration journals.
2. The distribution of major topics, subtopics, methodological approaches, and geographic location of studies published in *Review of Policy Research* between 2014 and 2017 is not identical but matches the trends identified in the top ten public administration journals. Though not in the same order, the top major topics in this journal similarly include energy, climate change, and ecosystem, natural resources, and land management. The journal also employs similar methodological approaches—qualitative analysis, statistical strategies, as well as surveys and interviews—and focuses heavily on the Global North, especially the United States and Europe. The only considerable difference between *Review of Policy Research* and the aggregate public administration sample is the distribution of subtopics. Due to the political science focus of *Review of Policy Research*, the top two subtopics are politics and stakeholder participation, whereas in the aggregated sample these topics were common but not of highest prevalence. However, *Review of Policy Research* articles and the aggregate sample both focus the least on the subtopics of gender and policy failure.
3. Fourteen million U.S. households live with unpaid utility bills and 2.2 million with disconnected utilities (Siebens, 2013). As another indicator of energy poverty, Reames (2016) studies a household's energy burden, or the proportion of household income spent on home energy costs. An energy burden over 2 percent is considered unaffordable (Fischer, Sheehan, & Colton, 2014). On average, low-income households in the United States have a 4.7 percent average heating energy burden, whereas average U.S. households have a 2.3 percent energy burden and high-income households have a 1.1 percent energy burden (U.S. Department of Health and Human Services, 2011).

4. For an overview of national and state energy assistance and efficiency policy options, Thompson (2016) has catalogued federal, state, and utility policies and programs that aid customers in paying their bills.

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Sustainability Policy Research: A Review and Synthesis

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This paper reviews theoretical and empirical approaches drawn from influential journal articles and books on sustainability policy published over the last 10 years (2007 through 2017). Due to the widespread application of sustainability as a concept and space limitations, the paper more narrowly focuses on sustainability research in three critical policy areas: climate change, urban development, and agroecology and food systems. Drawing from information provided primarily by citation indexes, the study identifies and analyzes the research literature related to sustainability in these three fields. Future theoretical and empirical research approaches that can better integrate and connect the current diffuse and incongruent literature on sustainability are discussed in the paper. The findings of the literature review generate a number of possible future research directions that are discussed in the study.

KEY WORDS: sustainability policy, climate change, urban development, agroecology and food systems, environmental policy, environmental politics, multiple methods

本文检验了自*2008–18*年间发表的有关富裕国家中经济不平等的政策文献。本文聚焦于这十年的原因在于它以*2008–09*年经济大衰退为开端，以*2018*年经济复苏结束。在此期间，社会政策学者对不平等的关注大幅增加，笔者认为这反映了学者对不平等趋势和再分配社会政策的关注。笔者在文献中发现，为理解社会政策和经济不平等之间的关系，以及再分配社会政策变化的决定因素，相关努力仍在持续。笔者还注意到，研究传统、和用于应对实际的、方法论和理论空白的途径，这两个方面在文献中存在显著差异。本文总结了文献中提到的方法和结果，并探讨了研究结果对研究公共政策学术领域中经济不平等的意义。

关键词: 不平等, 经济不平等, 社会政策, 政策分析, 福利国家

Este ensayo revisa la literatura orientada a las políticas sobre la desigualdad económica en los países ricos publicada desde 2008–18. Nos centramos en esta década porque es un período que se debe tanto al comienzo de la Gran Recesión de 2008–09 como a la recuperación. Durante este período de tiempo, la atención a la desigualdad por parte de los académicos en política social creció sustancialmente, lo que argumentamos refleja un interés tanto en las tendencias de desigualdad como en la política social redistributiva. Observamos en la literatura los esfuerzos sostenidos para comprender tanto la relación entre la política social y la desigualdad económica, como los determinantes de los cambios en la política social redistributiva. También observamos variaciones sustanciales en las tradiciones de investigación, así como oportunidades para abordar brechas sustanciales, metodológicas y teóricas. Nuestra revisión resume los enfoques y hallazgos de la literatura y discute las

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implicaciones de los hallazgos para el estudio de la desigualdad económica dentro del campo académico de la política pública.

PALABRAS CLAVE: desigualdad, desigualdad económica, política social, análisis de políticas, estados de bienestar

Introduction

Terms such as *sustainability*, *sustainable societies*, and *sustainable development*, among others, dominate the current literature on environmental politics and policy. Unfortunately, little attention is being paid to the precise definition of these terms, and much confusion surrounds their applications (Hempel, 2013; Portney, 2015). One challenge to developing an agreed upon understanding of the meaning of sustainability is whether researchers are focusing (or should focus) their attention on small, clearly defined jurisdictions at the local level (e.g., Mazmanian & Kraft, 2009; Portney, 2013), or whether they should analyze sustainability efforts at either the state, national, or global level (e.g., Mazmanian & Nijaki, 2013; Rabe, 2004, 2018; Sachs, 2015; Zaninetti, 2009). On the one hand, this reflects the healthy diversity of research and the fact that sustainability manifests itself in various ways depending on the analysis. On the other hand, the answer to this question has significant implications for the theories and variables investigators choose to examine and employ, how they structure their analysis and research, and the policy recommendations they generate (Hempel, 2013; Mazmanian & Nijaki, 2013). As this study shows, the literature on sustainability is poorly integrated, largely due to the substantial breadth of the topic, the varied disciplinary applications of the concept, and other factors (Hempel, 2013).

This paper begins by presenting a context for this research and an explanation of the methodology employed in the study. The paper then reviews the theoretical and empirical approaches drawn from the most influential journal articles and books on sustainability policy published over the last 10 years (2007 through 2017). The policy literature on sustainable development and sustainability has grown almost exponentially over the last three decades, producing an extraordinary number of journal articles, books, and other publications. The enormous amount of published work produced on the topic is also characterized by the wide breadth of policy issues that are explicitly and implicitly covered in recent publications. For these reasons, as well as limitations on space, this study more narrowly analyzes the sustainability literature in three critical areas of policy research: climate change, urban development, and agroecology and food systems. The findings of the study are then used to suggest potential future research avenues that can integrate and connect the current diffuse and incongruent literature on sustainability and that, in turn, can lead to fruitful policy recommendations.

In an effort to bridge and synthesize research on sustainability policy, this investigation identifies and reflects on recent trends in research based on citation indexes in each of the three separate but related policy areas. This approach provides insights into the various meanings of sustainability and serves as a foundation

for an assessment of the literature's lacunae, strengths and weaknesses, and possible paths for forthcoming research.

Theoretical and Empirical Issues

Niles and Lubell (2012) conduct an excellent analysis of the integration of environmental policy research concerning how synthetic theoretical perspectives and multidisciplinary strategies are being formulated to understand the connections between the social and ecological systems found in environmental issues. They observe that, "Environmental policy theory is now explicitly integrating a broader range of disciplines to better understand the linkages between human and natural systems" (2012, p. 42). They conclude that future environmental policy research will be driven by the surfacing of new environmental challenges, including the overall need to develop a sustainable society. Sustainability is mentioned as an example of a cross-cutting concept that will need to be increasingly addressed in funded research on global environmental problems.

In an impressive comprehensive study, Fahey and Pralle (2016) critically analyze a large sample of articles and books published between 2012 and 2015 to illuminate recent trends in environmental politics and policy research.[1] They find that the literature has taken on the challenge of investigating the complexity of environmental issues and problems. More specifically, the authors show how scholars have addressed "multilayer and network governance, public participation and mobilization, the role and influence of interest groups and business interests, and policy convergence," along with "climate change and natural resources management" in their publications (Fahey & Pralle, 2016, p. 44). During the period of time examined, researchers also have tackled critical questions concerning how to increase mobilization and participation for various actors, the role local governments play in addressing global issues, and how business interests influence policy.[2]

Methodological Approach

Markard, Raven, and Truffer (2012) have conducted an exhaustive analysis of a new field dealing with "sustainability transitions," which is the study of "how to promote and govern a transition toward sustainability, i.e., a fundamental transformation toward more sustainable modes of production and consumption" (p. 955). Such transitions "are long-term, multi-dimensional, and fundamental transformation processes through which established socio-technical systems shift to more sustainable modes of production and consumption" (p. 956). Their study attempts to identify the intellectual elements of this emerging field by presenting a review of rudimentary conceptual frameworks, along with a bibliographical examination of 540 journal articles in the area. Their review of the literature focuses specifically on "socio-technical transitions," a set of processes that lead to an important shift in socio-technical systems (e.g., energy supply, water supply, and transportation).

Markard et al. (2012) correctly note that the analysis of an emerging strand of inquiry by searching literature databases by key words is subject to interpretation

because results will be influenced by the selection criteria used. According to them, one must therefore be careful to choose key words that reflect the core meaning of the concept and at the same time do not lead to the inclusion of works that are significantly distant from the core meaning, even if this means that fewer publications are included in the analysis. This important challenge was kept in mind for the present analysis. An added difficulty is that the terms *sustainable* and *sustainability* are significantly broad and are open to very different interpretations, often reflecting the specific field of the investigator(s). This was kept in mind as well.

In an effort to address the challenges posed by the many varied approaches to sustainability policy employed in previous research, a decision was made to limit the analysis to three specific policy issue areas that are central components of sustainable/sustainability policy concern: climate change, urban development, and agroecology and food systems. Due to the ubiquitous causes of the problem and its widespread global effects, much of climate change policy research deals directly with questions of sustainability and involves efforts to limit greenhouse gas (GHG) emissions by various levels of government. Urban development policy, including transportation and housing, is critical to studies of sustainability given increased urbanization and population growth in cities in affluent and less affluent countries. Finally, agroecology and food systems are central to research on sustainability due to the inherent resource-use and pollution problems concerning current (e.g., commercial agriculture) and changing agriculture practices (e.g., organic farming) in developed and developing nations and the projected growth of the Earth's population by 2050 to about 9.9 billion people (Population Reference Bureau, 2018). This study synthesizes the research and policy developments in these three selected issue areas related to sustainability.

In terms of selecting the best citation indexes for this research, the study first experimented with using Google Scholar, JSTOR, Nexus Uni, Science Direct, Web of Science, and SCOPUS. After an exhaustive analysis of results using different publication databases and key word combinations, it was clear that employing the terms "sustainable" and "sustainability" with "climate change," "urban development," and "agroecology" and "agriculture" generated citation outcomes that were sufficiently large in number and that tended to identify publications (journals and books) that proved to be most topically related within each of the three fields. Google Scholar and Nexus Uni were unable to sort results for the purpose of the analysis and were excluded from the inquiry. Citations generated by JSTOR and Science Direct were extremely varied and often too limited, and these two citation indexes also were eliminated from the investigation. In contrast, Web of Science and SCOPUS produced a great deal of meaningful results and were used to identify citations concerning sustainability.

To account for variation in article titles and research trends over the selected 10-year period of 2007–17, "sustainable" and "sustainability" were also paired with the terms "global warming," "climate policy," "urban," and "food systems." It is noteworthy that while the term s*ustainable agriculture* tended to flag an acceptable large number of highly cited publications, many of them dealt with narrow, technical issues involving such things as specific agricultural intensification processes rather

than issues directly related to sustainability policy more generally. The key word *agroecology* was important in identifying publications directly connected to sustainability, but most of those articles did not include either "sustainable" or "sustainability" in the title. Along with the substance of their works, this suggests that agroecology researchers think of sustainability as being inherent in the concept "agroecology," and they therefore hardly ever include either term in the titles of their publications. *Agroecology* was therefore included as a key term in the search and analysis by itself.

To identify and analyze recent patterns in research on sustainability in climate change, urban development, and agroecology and food systems, a total of 45 publications were selected through a systematic search of citation indexes for articles, books, and sections of books. The authors read the abstracts of the 25 most frequently cited publications in each field. Then 12 journal articles and 3 books and/or book chapters from each field were selected based on their high citation count, broad scope, and geographic focus. This allowed exclusion of several highly technical studies that turned up in the database search but did not address sustainability more broadly. It is noteworthy that the database search yielded publications from a broad spectrum of journals and fields, including several that may not be considered commonly by scholars focused on sustainability policy. This is a strength of the cross-disciplinary approach given the increasing importance of moving beyond disciplinary boundaries and addressing sustainability challenges in a multidisciplinary manner in politics and public policy.

The first authors of these publications were included in a survey of 15 distinguished scholars in each of the three selected issue areas (for a total of 45 respondents). This generated valuable information about the literature's lacunae, strengths and weaknesses, geographical and disciplinary focus, methodological orientation, and areas of improvement, as well as the overall research trajectory of the three fields and potential topics for future inquiry. In addition to the 45 highly cited publications identified through the database search, another 19 works were classified by respondents as most important between 2007 and 2017 in the three policy areas, for a total of 64 publications.[3] All of these publications were carefully read. There was a small amount of overlap in results across climate change, urban development, and agroecology and food systems. However, no single publication was included in more than one issue area.

General Overview of the Sustainability Literature

By combining the publications identified in the analysis of the citation counts with the publications identified as most important over the last 10 years (2007–17) by respondents (how respondents were chosen is explained in endnote 3), it was possible to compile a deep and broad reservoir of prominent research on sustainability in the fields of climate change, urban development, and agroecology and food systems. In the end a total of 64 writings were closely analyzed in order to obtain information about research foci within and between the three policy areas. Before reviewing the findings of this analysis, it is useful to present a general overview of the selected publications examined in this study.

Table 1 shows the particular level of geographic focus of sustainability research by continent focus of the 64 selected prominent contributions to the literature on climate change, urban development, and agroecology and food systems between 2007 and 2017. Applying Fahey and Pralle's (2016) categories, global under continent focus and geographic (scale) focus means that the publications examine either international relationships or include three or more continents in their study. Analyses that have a truly global focus, such as those examining United Nations meetings, are coded as globally centered as well. International under geographic focus represents research that addresses issues that are more than regional but do not involve the entire planet. Articles that explore multiple nations without a regional approach are coded as multiple nations. As readers can see, scholars who write about agroecology and food systems tend to vary more in the geographic focus and continent focus of their work compared to those who study climate change and, even more so, urban development. Those who conduct research on urban development and sustainability appear to concentrate their efforts at the subnational level in North America more than contributors on the subjects of climate change and agroecology and food systems. Overall, sustainability scholars pay less attention to Africa and South America than other continents.

Table 2 reports the different primary methodological approaches used by sustainability researchers in climate change, urban development, and agroecology and food systems. In general, those who study sustainability issues in the three policy areas tend to vary in the methodologies employed in their research. While those who analyze urban development demonstrate a preference for writing literature reviews, those who conduct research on agroecology and food systems are likely to pursue quantitative approaches in their work. The high number of literature reviews in urban development are found in widely cited books and book chapters as well as in journal articles and reflects the nature of the field.

Table 3 reveals the primary academic discipline orientation by those who conduct research on sustainability in the three policy fields. Researchers who focus on climate change and agroecology and food systems are more varied in the discipline orientation of their work than those who focus on urban development. Clearly, those in the area of urban development tend to adopt a social science perspective in their research more than those who study climate change or agroecology and food systems. Based on the literature review conducted for this paper, studies that equally integrate social science and natural science approaches are most likely to involve multidisciplinary teams of scholars.

In-Depth Analysis of the Literature

Climate Change

Research on climate change and sustainability policy over the last 10 years reflects the sweeping nature of the problem, with some of the greatest variation in methodological focus, discipline orientation, and issues studied. Topics range from the science and modeling of effects, to questions of adaptation versus mitigation, to social and cultural implications, to issues of fairness and equality, and to the myriad policy dilemmas climate change poses. Not surprisingly, the literature on climate

Table 1. Geographic Focus and Continent Focus of Selected Sustainability Research, 2007–17

	Continent Focus						
Geographic Focus	Global	North America	South America	Europe	Asia	Australia-Oceania	Africa
Climate Change:							
Subnational				1			
National		1		1	1	1	
Multiple nations	1			4		1	1
Regional		1				1	
International	1						
Global	2						
Urban Development:							
Subnational	5	8		2	3		
National				1			
Multiple nations							
Regional	1						
International	1						
Global	2						
Agroecology and Food Systems:							
Subnational	1			1	1	1	1
National							
Multiple nations	3	2	1	2	2		1
Regional				1			
International	3			1			
Global	3						

Note: Numbers in the table represent how many publications fall into each geographic focus and continent focus category. Total *N*: 64. Climate change *N*: 17. Urban development *N*: 23. Agroecology and food systems *N*: 24.

Table 2. Sustainability Issue Focus by Primary Methodology Employed, 2007–17

Sustainability Issue Focus	Primary Methodology Employed			
	Literature	Mixed Methods	Qualitative	Quantitative
Climate change	1	6	5	5
Urban development	10	5	4	4
Agroecology and food systems	2	7	5	10

Note: Numbers in the table represent how many publications fall into each geographic focus and continent focus category. Total *N*: 64. Climate change *N*: 17. Urban development *N*: 23. Agroecology and food systems *N*: 24.

change and sustainability contains a fair amount of overlap with urban development, agroecology and food systems, and other related policies (e.g., energy production and use). Climate change effects tend to exacerbate other challenges to sustainability such as feeding a growing global population without increasing GHG-intensive inputs (Khan, Zaidi, & Wani, 2007; Pretty, 2008) and rapid urbanization without additional carbon-intensive practices (Zeng, Ding, Pan, Wang, & Gregg, 2017).

Of the three topics examined in this paper, climate researchers tend to take the most encompassing view of sustainability, although they rarely define it. Applications of the concept of sustainability are on a gradient ranging from reduction of emissions associated with one process to addressing effects on all facets of society. While most of the studies focus on one issue area, many researchers note broader social, economic, environmental, and cultural implications, part of a growing recognition that the field needs to address sustainability in a more coherent and comprehensive manner.

In a positive direction worthy of significantly more research, some scholars are approaching the challenge by identifying opportunities to create win–win solutions that mitigate GHG emissions and yield social and economic benefits at the same time. Mbow, Smith, Skole, Duguma, and Bustamante (2014), for instance, examine how sustainable agroforestry practices in Africa could be developed to achieve climate mitigation and adaptation goals and simultaneously enhance food security and the livelihood of smallholder farmers. At a broader level, von Stechow

Table 3. Sustainability Issue Focus by Primary Academic Discipline Orientation, 2007–17

Sustainability Issue Focus	Primary Academic Discipline Orientation		
	Social Science	Natural Science	Both Equally
Climate change	8	6	3
Urban development	17	0	6
Agroecology and food systems	8	11	5

Note: Numbers in the table represent how many publications fall into each geographic focus and continent focus category. Total *N*: 64. Climate change *N*: 17. Urban development *N*: 23. Agroecology and food systems *N*: 24.

et al. (2015) provide a synthesis of disparate literatures (drawing in part from the Intergovernmental Panel on Climate Change's *Fifth Assessment Report* 2014) to show the potential for significant co-benefits of climate mitigation efforts with other sustainability objectives, such as human health and energy security. Hatfield-Dodds et al. (2015) examine future economic and environmental scenarios for Australia and find that "sustainable prosperity" is possible, with significant reductions in GHG emissions and other environmental impacts, in conjunction with economic growth and increased living standards.

An important part of the literature addresses the challenges of climate vulnerability and adaptation. Even if the nations of the world take major action to reduce GHG emissions, there will be significant impacts this century and beyond that require a great deal of research and policy changes to address new and ever more challenging environmental, social, economic, and equity issues (Sachs, 2015). In an insightful study, Eriksen et al. (2011) point out that adaptation efforts themselves can exacerbate vulnerability and increase GHG emissions, calling for "sustainable adaptation" that "contributes to socially and environmentally sustainable development pathways, including both social justice and environmental integrity" (p. 8).

Climate vulnerability and sustainable adaptation are dependent on specific conditions and capacities given local contexts and development processes (Eakin, Lemos, & Nelson, 2014). Additionally, tensions can arise between climate mitigation and adaptation, especially if citizen participation is not prioritized in determining sustainable futures (Larsen & Gunnarsson-Östling, 2009). Given the immediate implications of climate change for many people's lives, greater research efforts should be directed toward adaptation effects and strategies.

Questions about social organization and responsibility permeate parts of the literature. Should growth be limited, and by how much (Rockström et al., 2009)? What are effective systems of governance to achieve sustainable social-ecological systems (Ostrom, 2009)? What are the effects of household dynamics in consumption and production, and how can they become sustainable (Gibson, Head, Gill, & Waitt, 2011)? Similarly, there are long-standing questions about corporate responsibility and how to make corporations truly sustainable (Kolk & Pinkse, 2007), and to ensure they do not greenwash the term at the cost of achieving actual sustainability (Greenberg, 2015).

The Paris Climate Agreement of 2015, of course, is the most significant global climate policy framework. It is spawning research regarding its effectiveness, implementation, governance, and how to build on it to achieve the greatest gains. While the Agreement is an important breakthrough in beginning to set up a global framework to reduce GHG emissions and climate impacts, it also lacks a blueprint for its objectives (Clémençon, 2016). This is a familiar problem to many national, state, and local climate policies and goals (Betsill & Rabe, 2009; Charbit & Michalun, 2009), underscoring how important it is that future research and policy frameworks seek to construct clear and detailed plans with specific policy and governance systems (in spite of President Donald Trump's decision to pull out of the Agreement). Further research should also examine how to foster effective coordination among levels of government.

Addressing the scope of environmental, social, economic, and other effects stemming from any one major climate policy (e.g., energy system changes) is a daunting task, no less from multiple policies and issue areas. This is reflected in the general dearth of comprehensive policy assessments, frameworks, and recommendations accompanying most studies. The complicated and far-reaching challenges of climate change will require scholars and policymakers to address many issue areas (e.g., energy and food demands) in a new, holistic fashion rather than if they were technical problems isolated from climate impacts. Political institutions and economic and cultural systems lend themselves to incremental changes, but achieving broader sustainability goals, especially in light of climate change, will likely require abandoning the status quo in favor of transformational change. Researchers are making some strides in these directions, but there is a pressing need for truly comprehensive approaches.

Urban Development

Cities, the heart of the world's rapid urbanization shift, are simultaneously examples of intense resource use, pollution, and hubs of sustainability initiatives, climate action, and innovative solutions. As Ahern (2011) astutely notes, how sustainable the twenty-first century world will be depends in large part on the sustainability of cities. Some of the most important questions are: How effective are the sustainability policies of cities, what do they leave out, how do they affect different people, and what else can be done and how? These are difficult and complicated questions, with tremendous variation in different parts of the world given the effects of diverse social, economic, political, and environmental factors and their interactions, not to mention in which nations they reside (Li et al., 2009).

The literature struggles with a lack of clarity in defining urban development sustainability, and there is a spectrum of what is included and what characterizes successful practices and outcomes. While some scholars point to widespread acknowledgement of social and economic dimensions within urban sustainability, there exists significant ambiguity. Seto et al. (2012) point out that it is not even clear where to draw the lines of urban sustainability. Should analysts concentrate their efforts within a city's boundaries, or should they include the land changes wrought by urbanization and the extraction of resources from surrounding locations? They suggest that the concept of urban land teleconnection offers an effective framework to examine such impacts (Seto et al., 2012). Given the far reach of urban centers for resources, ignoring those effects would likely lead to an underidentified explanatory model.

One of the most important directions for urban development work is for researchers, policymakers, and managers to develop and agree on a consistent set of concrete sustainability indicators (Li et al., 2009; Shen, Ochoa, Shah, & Zhang, 2011). As part of their environmental and sustainability plans, many cities have developed indicators, but they are inconsistent and vary in effectiveness and methodology, making comparisons—and thus research, refinement, and improvement—difficult (Li

et al., 2009; Shen et al., 2011). There is also a need for more quantitative studies (see Table 2), which would complement explicit indicators and associated methodological assessments. Drawing from the natural sciences (see Table 3) would strengthen the field, especially in integrating environmental and ecological issues with social and economic effects.

A strength of the literature is a focus on the social sustainability aspects of urban development, which entails social equity issues and sustainability of community. This includes elements, such as social justice and networks, community stability, engaged governance, and safety and security (Bramley & Power, 2009; Cuthill, 2010; Dempsey, Bramley, Power, & Brown, 2011). This area of inquiry takes urban development sustainability into important new directions that directly address people's lived experiences. At the same time, Dempsey et al. (2011) caution that a balance between dimensions of sustainability may be necessary to ensure social sustainability does not come at the expense of other sustainability components. Future research should seek to maintain this balance and to develop innovative systems to achieve many aspects of urban development sustainability together. Doing so will require policy frameworks that tackle sustainability comprehensively rather than a piecemeal approach that isolates environmental, social, and economic issues.

The question of sustainability policy effectiveness must be at the forefront of research and government management. If goals are not defined and assessed clearly, urban development sustainability risks becoming more rhetoric than being at the leading edge of sustainability as one might hope. In an important critique of the field, Greenberg (2015) documents an exponential increase in use of the term *sustainability*, first by corporations but more recently by cities and their policymakers. Moreover, she notes how sustainability is used in entrepreneurial branding without altering unsustainable models of urbanization and growth. Instead of acting as a challenge to the growth-oriented global economy, Greenberg (2015) sees sustainability being seized upon as a marketing tool— much as "nature" has been—to instead become a "powerful engine of economic growth" (p. 107). Indeed, several distinct discourses exist around sustainability that put it at risk of co-option and also losing sight of the fact that sustainability needs vary by location, class, and culture (Redclift, 2005). For example, Checker (2011) has found that environmental justice issues can be contradicted by market-based approaches to sustainability.

Despite challenges, there is a proliferation of good urbanization practices around the world and sincere efforts to make meaningful and significant progress (Shen, Ochoa, Zhang, & Yi, 2013). Urban development (and, similarly, climate policies) can benefit from using cities as affordable and valuable laboratories to innovate and test new approaches (Ahern, 2013; Wu, 2014). Yet this should not be taken for granted; cities may not organically look to or share best practices, particularly across nations and continents. Furthermore, whether and, if so, to what extent results from such research can be scaled up to the global level is uncertain. At the same time, the investigation of remote, critical areas of biodiversity on the planet (such as deserts, rain forests, and ice caps) will still need to take place.

Recognizing this dilemma, Shen et al. (2013) and Shen, Shuai, Jiao, Tan, and Song (2016) have developed a system for extracting, databasing, and sharing urban

development and sustainability practices. Specifically, Shen and his colleagues produce and analyze a sophisticated measure of sustainable performance of urbanization across 111 nations. Adopting an ambitious global perspective, they find that the best performers in terms of overall sustainable urbanization are Sweden, Norway, Germany, the Netherlands, and Denmark (mainly developed nations in Europe). Poor performers are primarily located in Africa and Asia. Future scholarship should build on this excellent work—and draw from political science and public policy theoretical and empirical work—to determine how to best facilitate policy learning, sharing, and collaboration, including accounting for local differences when considering the adoption of competing policies (Shen, Yan, Zhang, & Shuai, 2017).

Agroecology and Food Systems

The Food and Agricultural Organization (FAO) of the United Nations has articulated the need for agriculture to be both highly productive and environmentally sustainable (Collette, Hodgkin, & Kassam, 2011). With language vague enough to allow for some interpretation, the FAO has called for "greening" the Green Revolution through an ecosystem approach, utilizing a relatively broad understanding of sustainability that incorporates social, economic, and other environmental effects, including climate change (Collette, Hodgkin, & Kassam, 2011). The literature on agriculture, agroecology, food systems, and sustainability tends to describe the challenges and goals in some variation of this theme. Consistent with the climate change and urban development literatures, however, there is fairly wide variation in use of sustainability (Binder, Feola, & Steinberger, 2010), and many scholars fail to provide a definition. One noteworthy strength of the literature is an increasing focus on the developing world. Also, more researchers are accounting for local conditions and economic needs and they are employing varied methodologies in their studies.

Three subtopics stand out in the food systems and sustainability literature: conservation agriculture, sustainable intensification, and agroecology. Although there is substantial overlap among them, it is worth expanding on the research and policy trends of each. Conservation agriculture, defined as an agricultural management system that is characterized by "minimal soil disturbance (no-till) and permanent soil cover (mulch) combined with rotations" (Hobbs, Sayre, & Gupta, 2008, p. 543), promises to enhance water and nutrient use efficiency, benefit biodiversity, reduce GHG emissions, and improve local environmental conditions (Collette et al., 2011; Kassam, Friedrich, Shaxson, & Pretty, 2009). Scholars point to how conservation agriculture marks a change in production system thinking—practiced on about 11 percent of total crop land worldwide as of 2013 (Kassam, Friedrich, Derpsch, & Kienzle, 2015)—requiring knowledge-intensive practices that are harder to implement than a simple technology (Kassam et al., 2009). As a result, scaling up conservation agriculture will require more research along with new policy frameworks and institutional support (Hobbs et al., 2008; Kassam et al., 2009, 2015).

Sustainable intensification, which can also be an outcome of conservation agriculture, refers to "increasing food production on existing farmland in ways that place far less pressure on the environment and do not undermine our capacity to continue producing food in the future" (Garnett et al., 2013, p. 33). Its goals include minimizing land use, reducing GHG emissions, and achieving greater food security (Garnett et al., 2013; Khan et al., 2007; Tilman, Balzer, Hill, & Befort, 2011). Researchers point to the dilemma of closing the "yield gap"—the difference between realized and maximum productivity—in a sustainable fashion (Godfray et al., 2016). A growing research focus is how to achieve sustainable intensification in a manner that also fosters economic benefits, which is especially important in developing nations but is dependent on supportive policy frameworks (Khan, Zaidi, & Wani, 2007; Pretty, Toulmin, & Williams, 2011). For example, Pretty et al. (2011) examine projects in 20 African countries and find that sustainable intensification practices could provide significant production, environmental, and economic benefits but instead have been hampered by largely unhelpful domestic and international policy.

Agroecology is receiving greater attention throughout the world as a scientific discipline, movement, and practice (Wezel et al., 2009). In its broader uses related to sustainability, agroecology applies knowledge-intensive, ecological principles to increase agrobiodiversity (Altieri, 2009; Tomich et al., 2011; Wezel et al., 2009). It is on the other end of the spectrum from a push toward globalization and industrial agriculture that is reliant on high input, chemical-intensive practices (Altieri, 2009; Gliessman, 2006). Agroecology emphasizes the benefits of smaller family farms and blending agroecological science with indigenous knowledge systems to achieve a broad variety of sustainability objectives including food security and better social and economic conditions (Gliessman 2006; Ostrom, 2009; Tomich et al., 2011; Wezel et al., 2009). Future research should expand on inquiries about larger-scale transitions from industrial practices to agroecological systems as well as developing common indicators and methodologies to facilitate sharing of data, assessments, and the level of success of varying policy approaches.

Research on conservation agriculture, sustainable intensification, and agroecology offer hopeful solutions to the grave challenges of increasing production and making food systems sustainable. While there are significant differences, a full discussion of which are beyond the space limitations of this paper, there are also many similarities. One common call among several of the agroecology studies reviewed is for more interdisciplinary and transdisciplinary research. This applies both within the realm of food systems approaches as well as with broader issues of social effects, economic implications, and policy and global change. Binder et al. (2010), for instance, point to how traditional agricultural sustainability assessments focus on environmental and technical issues while neglecting social and economic aspects of sustainability. Reynolds et al. (2017) raise the inadequacy of research and data sharing, and discuss a system and potential benefits of a successful Global Crop Improvement Network.

Many scholars have recognized that major changes to global food systems are needed and that they will have far-reaching effects. While some scholars point to the need for different policy approaches, most of the literature spends little time addressing what policy frameworks would facilitate the greatest sustainability gains. Policy research will need to accompany future sustainable food systems studies, especially given the wide variety of policy changes that will be necessary in different regions of the world and at different levels of government. The confluence of challenges to food systems from rapid population growth, resource use, climate change, and related social and economic conditions guarantee that incremental progress will be inadequate; transformational change will be paramount to achieve sustainability objectives. To address adequately those implications, researchers, funding entities, and governments should aim to create ambitious transdisciplinary research teams and science-policy frameworks.

Overarching Themes

In addition to those already noted, several common themes emerge across the three areas of literature reviewed in this study. The publications reviewed illustrate that researchers are studying many facets of sustainability, from overarching to specific issues. Even within the three fields and the selection of works reviewed, there is a great deal of variety. The range of topics within climate change, not surprisingly, is most substantial, including everything from water availability; to technical solutions; to stakeholder engagement; to the role of households; to questions about broader goals, indicators, and policy strategies. The variation within urban development and agriculture is less but still considerable. Within urban development, along with broad policy approaches and sustainability indicators, areas of focus include urban ecology, resilience, density and housing types, cultural heritage, economics, and several social dimensions. In addition to the three subtopics of agroecology and food systems discussed previously, publications deal with issues varying from food demand, to food sovereignty, to nitrogen issues, to groundwater contamination, and soil organic matter. These and other topics reflect how broad the scope of work addressing sustainability is throughout the world. As several authors point out, research in these areas has important implications for regulation and policymaking.

Beyond the research included in this review, it is important to recognize that the public policy literature relating to sustainability is even broader. It includes work focusing on governance (e.g., Durant, Fiorino, & O'Leary, 2017), institutions (e.g., Beddoe et al., 2009), comparative and international development (e.g., Siche, Agostinho, Ortega, & Romeiro, 2008), behavior (e.g., Osbaldiston & Schott, 2012), economics (e.g., Pezzey & Toman, 2017), and inquiries specific to all manner of topics (e.g., Vig & Kraft, 2018). The fact that sustainability has become a pervasive topic across such a breadth of inquiry is encouraging.

With a few exceptions, most researchers view sustainability in a positive light with the core meaning being to preserve and manage resources in a way that will allow society to exist indefinitely. Uncertainties abound, however, about how specifically to use and understand the terms *sustainable* and *sustainability*. They invoke

an inherent sense of intuitive comprehension, but that breaks down in goal setting, theory development, and methodological assessments. This presents a challenge to policymakers who are tasked with implementing sustainability objectives. Beyond those for individual issues and practices, broader, advanced policy frameworks for sustainability are still in their infancy, partially due to the difficulty of addressing the issues in a comprehensive manner.

While many sustainability issues are large in scale, they are also inherently local. Small population centers and geographic scales, as well as cities and states in more ambitious cases, may present a wise starting place to develop and test comprehensive policy frameworks. Finally, throughout each area of the policy literature reviewed, the incredible passion of the researchers was particularly evident. This was readily apparent from the quality, vision, and often ambitious nature of their research along with their enthusiasm for developing solutions to some of the world's most important and pressing policy problems in the new century.

Conclusion

This paper examined the theoretical and empirical approaches drawn from influential journal articles and books on sustainability policy published over the last 10 years (2007 through 2017). Specifically, this investigation focused on sustainability policy research in three critical issue areas: climate change, urban development, and agroecology and food systems. Drawing from information provided by citation indexes and interviews of a small group of selected prominent scholars (see endnote 3), the study identified and synthesized the research literature related to sustainability in these three separate but related policy fields. A review of the theoretical and empirical literature led to important observations and insights as well as the identification of gaps in research on sustainability during the last 10 years. Potential fruitful avenues of future research were noted at appropriate points in the examination of the literature within each policy field. Based on the overall findings of this analysis, it is clear that most scholars tend to work within relatively limited geographical, theoretical, empirical, and disciplinary bands and only occasionally attempt to collaborate with those in other policy fields and incorporate that knowledge into their own work.

Given the complexity, breadth, and depth of sustainability as a concept, there is good reason and significant potential to study policy-related issues and government actions in multidisciplinary teams. Knowledge and awareness of scholarship in other disciplinary fields can lead to new understandings and findings that researchers would never have obtained had they operated only within their own specific analytic area. Working in strategically organized multidisciplinary groups can lead to more accurate and comprehensive definitions and conceptions of sustainability. Niles and Lubell (2012) are correct in suggesting that future scholars should make a stronger effort to conduct research on critical policy topics with those working in other complementary fields of inquiry.

The findings of this study point to a number of additional possible future lines of inquiry across all three issue areas. In reviewing the context of the research

conducted by sustainability researchers concerning climate change, urban development, and agroecology and food systems, it is apparent that too few scholars are investigating policy issues in developing countries. As noted, despite the serious sustainability challenges that Africa and South America face, a relatively small number of policy analysts are pursuing research involving these continents. Similarly, Fahey and Pralle's (2016) excellent, in-depth review of the environmental politics and policy literature yields a lack of research on developing nations, leading them to call for more analysis of less affluent countries. This study also calls for more analysis of sustainability issues in African, South American, and other developing nations around the world.

Given the complexity and already serious nature of many of the environmental and natural resource problems the planet is facing today (e.g., climate change, expanding urban populations, and the need to grow more food to feed a larger global population), it is becoming increasingly necessary for government at all levels to move from incremental change to transformative change. It will take too long to achieve a sustainable society if government leaders continue to follow the current meandering, incremental approach to solving complex and difficult environmental and natural resource problems. Instead, leaders will need to adopt bold, innovative, and ambitious approaches to addressing this new century's multifaceted and most serious problems if they hope to achieve a desired level of sustainability. Theoretical and empirical policy frameworks must both be developed to provide roadmaps for leaders to bring about meaningful transformative change within the context of present democratic and global economic systems. This study found little evidence that such efforts are being pursued in the three policy fields examined. The next generation of policy scholars should be encouraged to investigate theoretically and empirically various alternative approaches to transformative change.

How government currently pursues policy change through the legislative process, for example, deserves serious reconsideration. Reflecting the conditions and constraints of different political contexts, nearly all governments at different levels tend to solve problems in isolation of one another despite the fact that most environmental and natural resource issues are multifaceted, interwoven, and require action on multiple fronts at the same time. The literature reviewed across the three policy areas did not contain a discussion of how future leaders, legislators, and policymakers working together could establish a process that will allow them to develop laws, policies, and programs in bundles with the goal of attacking the most difficult obstacles simultaneously. Needless to say, citizens will also need to be actively involved in these efforts. Such an overall approach will be necessary to form a sustainable society.

Among other things, this will require researchers and policymakers to agree upon and create a list of common indicators of sustainability, something that is currently lacking. A set of common indicators will permit us to measure where we are now and how far away we are from forming a sustainable society. (Of course, this assumes that we can agree on what is a sustainable society.) A combined set of measures will help reveal where exactly the most serious difficulties lie and allow policymakers to track progress to ameliorating those difficulties. Moreover, a set of

common indicators will permit researchers to make comparisons of conditions in different parts of the world and inform leaders how to maintain a sustainable society once that is achieved. Clearly, inquiry along all these lines is sorely needed.

The existing environmental policy literature offers ideas for future research on sustainability from a variety of angles more generally. Kraft and Mazmanian (2009), for instance, provide several possible avenues for future research that focus on sustainable communities (e.g., exploring the extent to which findings at the subnational level can be scaled up to state, national, and international levels). Kraft and Kamieniecki (2013) argue that more work also needs to be done on theory development, especially in the areas of issue definition, framing, and agenda building, as well as on the politics of policymaking and policy change. In yet another work, Meadowcroft and Fiorino (2017) discuss the need for future researchers to reconceptualize established environmental policy ideas (e.g., environmental risk, environmental security, and environmental assessment) in their attempts to design effective government policies that substantially advance efforts to create a sustainable society.

Another vital area of research should address exactly what future sustainable societies will look like and determine how they will be maintained. Will it be possible to develop and maintain future sustainable societies under existing political and economic systems, or will new political and economic systems be required for various nations around the world? More generally, as Milbrath (1989) examines, will our current understanding, values, and practice of democracy in the United States and around the world be able to exist, or will democracy and public participation and representation have to be rethought and new governing frameworks be developed? In order to smooth the way to the establishment of a truly sustainable society, it would be fruitful for scholars to address these and other similar theoretical and policy-related questions in their studies.

Finally, given the complex interconnections and interrelationships between the social, economic, political, environmental, and natural resource impediments that must be effectively addressed if a sustainable society is to be established and maintained, future investigators will need to explore and determine globally the set of variables that affect sustainability the most. However, conducting research on a truly global scale is very complicated, time consuming, labor intensive, and extremely costly. This is quite evident in the area of climate science and policy where sophisticated and advanced computer hardware and software are being developed and constantly improved upon over time as suggested in the literature examined for this study.

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Notes

We thank the scholars who responded to our survey for their time and for their insightful perspectives. Thanks also to the anonymous reviewers for their thoughtful input and recommendations.

1. The authors likely chose a narrow band of time in which to conduct their research because of the impressive broad nature of the many topical categories they chose to include in their study. Also see Kamieniecki and Kraft (2013) for an extensive analysis of the evolution of the environmental policy literature over time.
2. Researchers interested in the influence of business over environmental policy should consult: Kamieniecki (2006) and Kraft and Kamieniecki (2007).
3. During spring 2018, the 15 first authors of the highest cited works in each of the issue areas were contacted and interviewed through email and Skype and on the telephone. They were asked four specific questions about the sustainability literature. The first question requested respondents to provide a definition of sustainability. They were then asked to identify the three most important journal articles and then similarly the three most important books published on sustainability within the last 10 years (beginning January 1, 2007). Finally, they were asked to characterize specific gaps in the sustainability literature and explain what are the most important questions that future scholars should explore and why. In total, nine completed questionnaires (five in climate change, three in urban development, and one in agroecology) and nine refusals were received. Unfortunately, 27 people did not respond after they were contacted three times between May 24 and June 18, 2018. The fact that many colleges and universities had completed their academic year (or were close to completing their academic year) during this time probably explains the lower than expected response rate. While such a low response rate prevents us from drawing any definitive conclusions about the views of researchers concerning sustainability scholarship, there is enough feedback to permit us to use the input received as a valuable secondary source of background information. The contents of the works cited most frequently and the survey responses of the authors of those works together generated important insights into research on the three policy areas examined in this study.

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Applying Policy Process Theories to Environmental Governance Research: Themes and New Directions

Tatyana Ruseva, Megan Foster, Gwen Arnold, Saba Siddiki, Abigail York, Riley Pudney and Ziqiao Chen

Policy scholars have effectively leveraged policy process models, theories, and frameworks to respond to a variety of important environmental questions. For example, how do environmental issues arrive on the agendas of policymakers? What factors contribute to environmental policy change? What are the designs and effects of institutions (e.g., policies or cultural norms) on environmental governance? In this review, we survey the field of policy process scholarship, focusing on environmental governance, with three objectives. The first objective is to catalog the policy process models, theories, and frameworks most often featured in studies of environmental governance. The second is to capture the methodological choices commonly employed in the application of these models, theories, and frameworks in environmental domains. The third is to identify how these approaches deal with issues central to environmental governance research, including time, space, and policy scale. We aim to identify trends and strategies for integrating key considerations of scale into empirical policy process scholarship.

KEY WORDS: environmental governance, policy process theory, scale

政策学者已有效利用政策过程模型、理论和框架回应一系列重要环境问题。比如，环境问题如何出现在政策制定者的议程之上？哪些因素促进环境政策变化？制度（例如政策或文化规范）设计有哪些，它对环境治理产生了什么作用？在这篇文章中，作者调查了政策过程学术领域，聚焦于环境治理。作者有三个调查目标。第一个目标是对环境治理研究中最常涉及的政策过程模型、理论和框架进行分类整理。第二个目标是获取在应用这些模型、理论和框架时最常使用的方法选择。第三个目标是识别这些方法如何应对环境治理研究的中心问题，包括时间、空间和政策范围。笔者致力识别出用于将关键考量融入实证政策过程学术的趋势和策略。

关键词：环境治理，政策过程理论，范围

Los expertos en políticas han aprovechado de manera efectiva los modelos, teorías y marcos de procesos de políticas para responder a una variedad de preguntas ambientales importantes. Por ejemplo, ¿cómo llegan los temas ambientales a las agendas de los responsables políticos? ¿Qué factores contribuyen al cambio de la política ambiental? ¿Cuáles son los diseños y efectos de las instituciones (por ejemplo, políticas o normas culturales) en la gobernanza ambiental? En esta revisión, examinamos el campo de la beca de procesos de políticas, centrado en la gobernanza ambiental, con tres objetivos. El primer objetivo es catalogar los modelos de procesos de políticas, las teorías y los marcos que se presentan con

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mayor frecuencia en los estudios de gobernanza ambiental. El segundo es capturar las elecciones metodológicas comúnmente empleadas en la aplicación de estos modelos, teorías y marcos en dominios ambientales. La tercera es identificar cómo estos enfoques abordan los temas centrales para la investigación de la gobernanza ambiental, incluidos el tiempo, el espacio y la escala de políticas. Nuestro objetivo es identificar tendencias y estrategias para integrar consideraciones clave de escala en la investigación empírica del proceso de políticas.

PALABRAS CLAVE: gobernanza ambiental, teoría de procesos políticos, escala

Introduction

Environmental governance research has proliferated over the past four decades. Governance denotes efforts by government, private, and civil society actors to guide society toward desirable social and environmental outcomes using diverse strategies (e.g., regulation, competition, collaboration) (Baker, 2014). Scholars interested in environmental governance have typically focused on the diversity of actors and institutions that shape environmental outcomes at multiple scales (Fahey & Pralle, 2016; Lemos & Agrawal, 2006). Governance research has emphasized questions pertaining to decentralization, globalization, market-based instruments, and cross-scale governance (Lemos & Agrawal, 2006). In a review of the environmental policy research from 2012 to 2015, "governance" was the most common theme (Fahey & Pralle, 2016).

In this study, we approach environmental governance from the standpoint of policy process theory, as central to understanding governance dynamics. Weible and Sabatier (2017, p. 2) define the policy process as a series of system-bound interactions that "occur over time between public policies and surrounding actors, events, contexts, and outcomes." Efforts to understand these interactions have produced several well-established policy process models, theories, and frameworks. We are interested in the application of these theories[1] for the purpose of diagnosing, and ideally rectifying, complex and multidimensional social and environmental ills. To that end, we ask: *How have scholars studying environmental governance through the lens of policy process theories addressed issues of spatial, temporal, and policy scales?*

Scale is of special attention to environmental governance researchers since environmental dilemmas and attempts to address them occur on multiple levels across space (e.g., local to global, different types of political jurisdictions) and time (past, present, future) (Ostrom, 2005; Ostrom & Cox, 2010). Policy interactions are often conceptualized as dynamics at the micro- (individual), meso- (group, community, networks), and macro- (system) policy scales. Policy scale is a core construct undergirding policy process theories investigating policy formulation and change. Here, we aim to document the diversity in policy, spatial, and temporal scales in environmental governance policy process studies, motivated by the lack of systematic investigation of the extent and methods through which environmental governance scholars are addressing scale. Inconsistent or interchangeable use of the terms

"scale" and "level," and lack of uniform conceptual definitions of scale, obscure comparability and knowledge accumulation (Young, 2002). If we ignore or poorly define scale dimensions of governance dilemmas, we create blind spots that prevent us from understanding and appropriately diagnosing solutions.

Policy Process Theories

Next, we briefly describe the policy theories on which we focus. They are based on well-established theories discussed in the third and fourth editions of Weible and Sabatier's *Theories of the Policy Process* (Sabatier & Weible, 2014; Weible & Sabatier, 2017). This text constitutes the most comprehensive and regularly updated reference on policy process theory and research. We additionally consider two recent frameworks that have received empirical applications, but are not yet part of this text, the Institutional Collective Action and Ecology of Games Frameworks.

The Advocacy Coalition Framework (ACF) theorizes about groups of policy stakeholders who have common policy beliefs and engage in nontrivial coordination to influence policy change (Sabatier, 2011). According to the ACF, these advocacy coalitions expend resources to encourage policy change or stability that aligns with their interests. The Multiple Streams Framework (MSF) aims to explain policy agenda setting, viewing it as primarily influenced by the confluence of factors affiliated with three streams: the politics stream, policy stream, and problem stream (Zahariadis, 2007). Policy entrepreneurs are vested stakeholders who strategically engage with the streams to open or seize windows of opportunities to advance their favored solutions.

The Punctuated Equilibrium Theory (PET) explains a commonly observed trend in the policy process: once policies are adopted, they typically experience long periods of minor change and only periodically undergo major revisions. Factors theorized to contribute to policy stasis include information processing constraints, incremental decision making, and policy monopolies (Jones & Baumgartner, 2005). Innovation and Diffusion Models (IDM) seek to explain jurisdictions' adoption of new policies and programs. Innovation models focus on factors internal to an adopting jurisdiction, while diffusion models investigate the order and pace by which new policies and programs spread across jurisdictions (Berry & Berry, 2017).

The Social Construction and Policy Design Theory (SCT) focuses on how groups in society that vary in levels of power and societal approbation are treated through policy design and related implications for citizen participation. A key tenet of SCT is that policymakers strategically leverage policy design to assign benefits to groups that are positively constructed (i.e., possess high power and societal approval), and burdens to negatively constructed groups (Ingram, Schneider, & DeLeon, 2007). The Policy Feedback Theory (PFT) examines how policies influence the attitudes and behaviors of policy stakeholders and the public, and thereby subsequently affect policymaking and political processes (Mettler & Sorelle, 2017). The Narrative Policy Framework (NPF) investigates the role of narratives in the policy process by identifying structural features common to most narratives in policymaking, and

theorizing about when narratives are likely to occur and how they map to policy outcomes (McBeth, Jones, & Shanahan, 2014).

Several additional theories emphasize collective action dilemmas and the institutions used to govern them. The Institutional Analysis and Development (IAD) framework offers guidance on deciphering the design and evaluating the effects of institutions that govern decision making and behavior in collective action situations (Ostrom, 2005). The IAD was developed as part of an effort to understand the management of common-pool resources. As an extension of the IAD, the Social-Ecological Systems (SES) framework provides an elaborate description of variables relating to the governance and biophysical dimensions of collective action settings, and how they can interact to shape decision making, behavior, and outcomes therein (Ostrom, 2009). The Institutional Collective Action (ICA) framework offers an approach for identifying potential solutions to collective action dilemmas (e.g., externalities, diseconomies of scale) arising from fragmentation in decision-making authority among governmental units at the same or different levels (Feiock, 2013). In our analysis, articles using the IAD, SES, and ICA are classified under the IAD umbrella, encompassing theories of institutional rational choice more generally. Finally, the Ecology of Games (EOG) framework builds upon a sociological view of the policy process to examine how policy actors' relationships shape the strategies they employ (Lubell, 2013). It offers an approach for studying the design, outputs, and outcomes of collaborative policymaking venues with overlapping participants and issues.

Identifying and Coding Relevant Publications

This review entailed an analysis of peer-reviewed journal articles published 2015–18 that used at least one of the prominent policy process theories to study environmental governance. Words and phrases relating to each of the above-noted policy process theories were generated and served as keywords in Web of Science and Google Scholar searches. We focused on articles published between January 2015 and May 2018 to build on an earlier review of the literature (2012–15) by Fahey and Pralle (2016). This produced a total of 375 articles. Additionally, we conducted keyword searches in 29 political science, public administration, public policy, and environmental policy journals identified by Fahey and Pralle (2016) using the Web of Science's Journal Citation Report rankings. This yielded 139 publications (Table A1, Appendix A). After removing duplicates, doctoral theses, book chapters, books,[2] and conference papers, there were 280 codable articles.

From these, we identified as relevant articles that were: (i) empirical; (ii) peer-reviewed; (iii) about environmental or natural resource governance; (iv) preceded by an abstract or title containing one or more search terms; and (v) applying or developing at least one of the policy process theories, or including a key author citation associated with a theory (see Codebook, Appendix A). Articles that did not satisfy these conditions or did not have accessible English full texts were excluded. This left us with 185 articles to code and analyze.

Heeding Niles and Lubell's (2012) call for a "dialogue between theory and empirics," our codebook allowed us to identify key conceptual and methodological

dimensions of studies, including: theory, study design, hypotheses, type of data, environmental issue, unit of analysis, time dimension, geographic location, and jurisdiction. The last four categories operationalize key dimensions of scale in environmental governance research. Coding was conducted by three coders, trained in an iterated process that involved rounds of coding articles, comparing ratings, and discussing and revising the detailed codebook as necessary.[3] Two coders independently coded each article and the third coder served as an arbiter, making a final decision on any disagreements.

Results

Relevant articles were published in 85 different peer-reviewed journals (Appendix B), with the majority in policy- and environmental policy-focused outlets. The most well-established theories—IAD, ACF, MSF, and IDM—are also the most frequently used. Collectively, these approaches were employed in 76 percent of the articles we reviewed (141 of the 185). About 37 percent (69 of the 185) drew on the IAD, SES, or ICA, denoted in our results as IAD. This suggests a diverse research tradition that pays particular attention to the social rules and biophysical factors parameterizing the policy process.

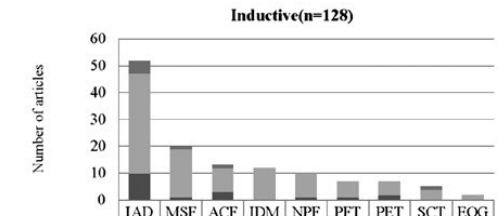
Methodological Choices and Environmental Issues

The largest proportion of articles examined natural resource issues, defined as water, forests, fisheries, and wildlife (62 articles, 34 percent). Climate change concerns ranked second with 40 articles (22 percent), and sustainability-focused studies (e.g., recycling, green building, ride sharing) were third (29 articles, 16 percent). Energy was the topic of 21 articles (11 percent) followed by land use and ecosystem management (18 articles, 10 percent). The smallest proportion of articles explored environmental justice and/or pollution concerns (15 articles, 8 percent).

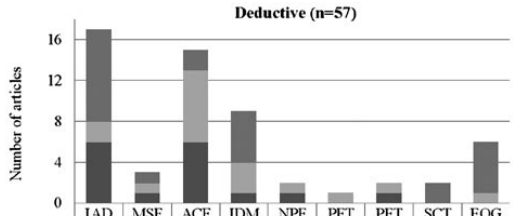
The trend of using qualitative over quantitative methods in environmental governance scholarship continues (see Fahey & Pralle, 2016), with roughly two-thirds of articles (119 of the 185) opting for qualitative approaches regardless of the type of the policy theory. An exception is the EOG framework: five of the eight EOG studies used quantitative methods. Mixed-methods (both quantitative and qualitative techniques) were most prevalent among studies using the IAD and ACF (Figure 1).

Single case studies were the most common study design regardless of the type of the environmental issue examined (117 articles, 63 percent) (Figure 2). Comparative case studies and mixed research designs were the next most popular study approaches (23 articles each), commonly used in conjunction with the IAD, ACF, IDM, and EOG frameworks. Rarer analytical approaches include large-N designs, social network studies, and experimental designs.

The largely qualitative investigations we observe are often associated with developing theory. Sixty-nine percent of the articles (128 of the 185) were coded as inductive, based on the absence of one or more explicit hypotheses; presence of explicit

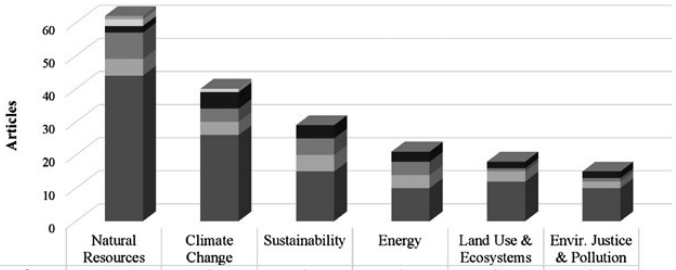


	IAD	MSF	ACF	IDM	NPF	PFT	PET	SCT	EOG
Quantitative	5	1	1	0	0	0	0	1	0
Qualitative	37	18	9	12	9	6	5	4	2
Mixed methods	10	1	3	0	1	1	2	0	0



	IAD	MSF	ACF	IDM	NPF	PFT	PET	SCT	EOG
Quantitative	9	1	2	5	0	0	0	2	5
Qualitative	2	1	7	3	1	1	1	0	1
Mixed methods	6	1	6	1	1	0	1	0	0

Figure 1. Theory by Type of Methods and Approach.
Note: Presence of explicitly identified hypotheses denotes a deductive approach and the absence, an inductive approach.



	Natural Resources	Climate Change	Sustainability	Energy	Land Use & Ecosystems	Envir. Justice & Pollution
Experimental study	1	0	0	0	0	0
Social network study	2	1	0	0	0	0
Large N study	2	5	4	3	2	2
Comparative case study	8	4	5	4	1	1
Mixed design	5	4	5	4	3	2
Case study	44	26	15	10	12	10

Figure 2. Environmental Issue by Type of Study Design (n = 185).
Notes: Number of articles displayed in the table. Land Use (10 articles) and Ecosystems (8 articles) were combined for this summary due to low counts. See Codebook in Appendix A for examples of each environmental issue area.

hypotheses was taken as indicative of a deductive approach (Figure 1). Together, these results suggest that most scholars have not yet heeded calls for greater use of quantitative techniques to systematically test hypotheses across cases and contexts (e.g., Folmer & Johansson-Stenman, 2011; Lubell, Scholz, Berardo, & Robins, 2012). We caution that this result may instead indicate that some environmental governance questions are better answered by qualitative, case study-based research, and that scholars in this domain are focused on building context-sensitive theory.

Issues of Scale: Jurisdiction, Time, Geography, and Empirical Scope

We next explore how spatial scale (jurisdictional level, geographic location), temporal scale (time dimension of data), and policy scale (a study's unit of analysis) vary within each theoretical vein. We view scale considerations normatively in the sense that, all things equal, scholarship that investigates environmental issues across a range of scales is more desirable than a narrower literature. The ability of humans to devise solutions to novel dilemmas is in part a function of the range of institutional arrangements and policy solutions they can survey across and within

scales. With a richer knowledge base, scholars and stakeholders have a greater potential to combine and recombine insights in order to tackle new challenges and design solutions.

In the articles we examined, scholars explore environmental governance dilemmas at a diverse range of jurisdictional levels. Many studies focus on the national (47 articles) and local levels (39 articles) (Fig. A1, Appendix A). However, investigation of environmental concerns across time is more limited; only 48 of the 185 articles used over-time data. IAD and IDM studies used longitudinal data more often than ACF and MSF studies (Table 1). Some of these differences may be rooted in the nature of theories and proclivity to capitalize on existing data. The emphasis on over-time data is sensible for IAD studies because many investigate factors influencing the management of common-pool resources over time, using multiple methods (Blythe et al., 2017; Foster & Hope, 2016). Similarly, time plays an inherently central role in IDM studies (Arnold, Anh, & Long, 2018, Bromley-Trujillo, Butler, Poe, & Davis, 2016). It is more surprising that longitudinal data are less common in ACF studies because a central proposition of ACF is that policy change typically occurs over a decade or longer (Sabatier, 2011). The ACF and MSF articles reviewed tended to focus on a component of the theory in a snapshot in time, rather than investigating change over a period of time (Frisch-Aviram, Cohen, & Beeri, 2018; Palmer, 2015). Additionally, MSF and ACF studies employed more qualitative methods, while IAD and IDM studies relied on multiple methods and existing data. Notably, half of the longitudinal studies utilized existing data (24 of 48 articles), compared to a quarter of cross-sectional articles (34 of 137).

The majority of studies (152 articles) used existing data, such as public records, databases, and meeting minutes, alone or in combination with other sources. Most often these records came from local and national governments or sources at multiple jurisdictional levels. Environmental governance questions looking at more than one time period relied most often on national-level data (18 of 48 over-time articles). Over half of the articles (104) utilized multiple data sources. When articles used only one data collection method, interviews were the most common (used in 94 articles), followed by surveys (47), participant observation (18), and simulation/modeling (8 articles) (Fig. A2, Appendix A).

We examined the articles' primary unit of analysis to assess the diversity of foci. The entity to which the outcome of interest belonged was identified as that unit. For example, if a study examined the percent of a state's budget spent on environmental protection, the unit was the state. Units were classified as person, group, government entity; social artifact (e.g., policy, program, report, policy stasis); or multiple units (Figure 3). Social artifacts were the most commonly identified units of analysis (83 articles, nearly 45 percent), followed by government actors (38, 20 percent), groups (28, 15 percent), and people (20, 11 percent); 16 articles used more than one type of unit.

Consistent with the results of Fahey and Pralle (2016), we find that more than two-thirds of the articles focus on North American (76, 41 percent) and European concerns (39, 21 percent) (Figure 3). Asian environmental governance issues rank third in prevalence, addressed in 25 articles (13 percent). IAD articles have the

Table 1. Number of Articles by Time Scale and Jurisdictional Level for the Four Most Commonly Used Theories (n = 141)

	IAD		ACF		MSF		IDM	
	Cross-sectional	Over-time	Cross-sectional	Over-time	Cross-sectional	Over-time	Cross-sectional	Over-time
Local	19	5	4	0	2	0	1	1
State	3	0	5	1	3	2	1	4
National	6	3	6	3	2	4	5	3
Regional	7	3	1	0	0	1	2	0
International	3	1	4	1	5	0	1	1
Multiple	14	5	3	0	4	0	1	1
Total	52	17	23	5	16	7	11	10

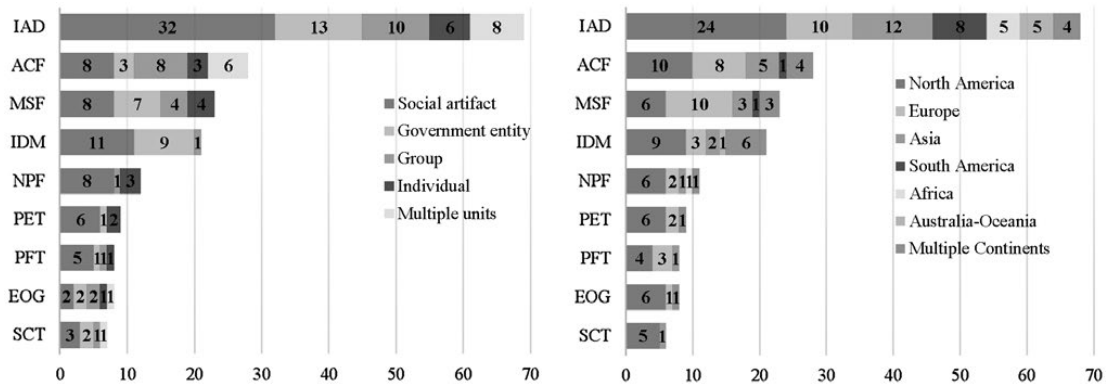


Figure 3. Number of Articles for Each Theory by Type of Unit of Analysis and Geographic Location.

most diverse geographic representation, possibly because of the prevalence of common-pool resource management challenges in the developing world and the concerted effort of the IAD's authors, Elinor and Vincent Ostrom, to engage scholars worldwide (Herzberg, 2015).

Finally, we summarize the diversity in *spatial, temporal, and policy scales* for each of the nine policy theories using an index of qualitative variation (IQV) (Table 2).[4] IQV ranges from zero to one, with higher scores indicating greater variation in the types of jurisdictions, geographic locations, time spans, and units of analysis among studies. IQV scores help us compare the degree to which studies using a specific policy theory examine environmental issues at diverse spatial, temporal, and policy scales.

MSF studies have the highest diversity (variation) in jurisdictional level: 96 percent of the maximum possible differences that can exist across the six jurisdictional levels (local, state, national, regional, international, multiple) are present in our sample of articles. ACF, IAD, and IDM studies have also examined governance questions at a diversity of jurisdictional levels. On the other hand, IAD studies have the greatest geographic variation, meaning that they have focused on governance dilemmas occurring in nearly all geographic areas for which we coded. This result is not particularly surprising given the international visibility of the IAD. ACF studies also

Table 2. Diversity in Spatial, Temporal, and Policy Scale Across Theories (N = 185)

	Jurisdictional Level	Geographic Scope	Time Dimension	Unit of Analysis	
Theory	IQV	IQV	IQV	IQV	*N*
IAD	0.91	0.93	0.74	0.57	69
ACF	0.94	0.86	0.59	0.61	28
MSF	0.96	0.82	0.85	0.58	23
IDM	0.91	0.82	1.00	0.43	21
NPF	0.85	0.82	0.75	0.39	12
PET	0.77	0.58	0.99	0.40	9
EOG	0.64	0.47	0.00	0.63	8
PFT	0.90	0.69	0.75	0.45	8
SCT	0.88	0.55	0.00	0.56	7

demonstrate substantial geographic diversity, due perhaps in part to the increasing uptake of ACF by European scholars (Jenkins-Smith, Nohrstedt, Weible, & Ingold, 2017). EOG and SCT studies demonstrate the least geographic diversity. This result for EOG may reflect the newness of the theory, and for SCT, its primary application in U.S. contexts (see Schneider, Ingram, & deLeon, 2014).

In our sample, the greatest diversity in temporal scale is for IDM and PET articles, and the lowest for EOG and SCT.[5] Since IDM diffusion studies examine the timing of policy movement, and PET explicitly focuses on the factors giving rise to policy stasis versus change over time, high IQV values for these theories are sensible. By contrast, EOG's focus on explaining the antecedents and consequences of policy actors' relationships has thus far been relatively time-agnostic. The low temporal diversity for SCT studies is somewhat surprising because feed-forward dynamics, whereby policy designs convey to stakeholders messages about their societal value and thereby shape the nature and likelihood of their subsequent political engagement, are a central component of SCT (Schneider et al., 2014). But this result may too be sensible given that a recent review found that the feed-forward dimension of SCT is understudied (Pierce et al., 2014).

To understand the policy scale at which recent scholarship has focused, we estimate it by the scale of an article's primary unit of analysis (individual, group, government entity, social artifact, or multiple units).[6] Notably, variations in policy scale in our data appear relatively low. The EOG and ACF, followed by the IAD, have the highest diversity in policy scale (Table 2). Studies utilizing these frameworks used all five categories of units of analysis. These results are explicable: the EOG theorizes about how policy actors engage across and within forums, such as stakeholder meetings, and the ACF theorizes about how individuals' beliefs affect their participation in advocacy coalitions and how those coalitions engage with government entities and other features of the policy process. The IAD is accommodating of and engages with a range of actor types. Studies utilizing the NPF and PET have the lowest diversity in policy scale, using only three types of units of analysis (with low counts); this may be because NPF studies have focused primarily on narratives deployed by coalitions and PET studies have traditionally focused on system-level dynamics.

Theoretical and Methodological Innovations

Next, we review several articles published in the last three years which integrate multiple theoretical approaches in their study of environmental governance, use innovative empirical or theoretical approaches, and reflect emerging trends in policy process or governance research.

Theoretical Integration and Innovation

Scholarship that integrates multiple theoretical perspectives is both advantageous and desirable for theory development and research. By identifying the commonalities and the complementarities across theories, scholars can "open windows of opportunity" to better understand and empirically investigate emerging

phenomena (e.g., networks, narratives, conflict). In fact, some of the most commonly used policy frameworks (ACF, IAD, MSF) effectively integrate models, constructs, or assumptions from other theoretical and disciplinary traditions (e.g., economics, psychology).

Boscarino (2016) draws on the ACF, NPF, and MSF to investigate what interest groups do when engaging in wars of words in the public arena. Although various policy theories are concerned with intergroup conflict over policy outcomes, when and how groups engage in frame contestation has been minimally empirically examined. Boscarino develops and tests a typology of frame contestation, examining energy advocacy by U.S. environmental nonprofits over three decades. Similarly, using over-time data, Aamodt and Stensdal (2017) bring together ACF and comparative politics approaches to understand climate change policy adoption in three developing nations. Climate coalitions advanced a climate policy agenda through confrontation in Brazil, cooperation in China, and complementary strategies in India (Aamodt & Stensdal, 2017).

Berardo, Olivier, and Lavers (2015) advance Ecology of Games (EOG) scholarship by examining how exogenous events can structure a complex governance system. They infuse the EOG framework with theorizing about focusing events and adaptive governance, and use this perspective to help explain the emergence and behavior of a new policy institution to guide fire response in Argentina. In a similar vein, Scott (2016) integrates theorizing on policy networks, collaborative governance, and EOG to examine how participation in government-sponsored collaborative management groups shapes inter-organizational ties. This paper also makes methodological contributions by using valued exponential random graph models (ERGM) to analyze tie intensity. Similarly, Jasny and Lubell (2015) use ERGM and related simulations to test Ecology of Games-founded, brokerage-related hypotheses about a two-mode water policy network, wherein organizations interact within and across policy venues.

Applying the ICA and policy diffusion theory (IDM), Yi, Feiock, and Berry (2017) examine the determinants of energy and climate change policy adoption. They find that economic development is linked to climate initiatives and that larger cities are more likely to adopt climate agreements. This work extends the ICA to account for economic and environmental policy co-benefits. Another contribution to innovation-diffusion research is Arnold et al.'s (2018) analysis of "policy expansion," an understudied phenomenon wherein jurisdictions rapidly adopt multiple measures tackling the same issue. In the context of municipal anti-fracking policy, they find that policy expansion is more likely when pressures for policymaking are not satisfied by an initial policy innovation and the innovation itself encourages lawmakers and stakeholders to revisit the issue.

Lastly, Barton and coauthors (2017) offer an interesting use of the IAD framework as an organizing schema for the functional attributes of policy designs in Costa Rica's Payment for Ecosystem Services initiative. The authors argue that the IAD framework's enumeration of types of "rules in use" offers a comprehensive language for identifying the interactions among economic, regulatory, and informational policy tools, thereby advancing "policy mix" research.

Innovative Empirical Approaches

In their study of nuclear power policy, Hegelich, Fraune, and Knollmann (2015) address two major challenges in empirically testing PET: statistically modeling punctuations and measuring attention. The authors utilize machine learning to identify policy attention-related variables, estimate the underlying distribution, and develop a statistical model of the U.S. federal research and development budget for nuclear power. Similarly, Hughes (2018) uses machine learning to code speeches in Congress to measure the political issue attention that could, per PET, lead to policy punctuations.

Al-Kohlani and Campbell (2016) empirically test the SCT's theoretical claims about the rank ordering of policy outcomes received by socially constructed target populations. They use socioeconomic, business, and crime data to examine air pollution exposure of societally favored but low-power Dependents (mothers, children); societally disfavored and low-power Deviants (criminals); societally disfavored but powerful Contenders (banks); and societally favored, high-power Advantaged (educated citizens, small businesses) groups. The results support some of SCT's theoretical claims.

Kammerman's (2018) research on local Swiss hydroelectric policy advances MSF research by using Qualitative Comparative Analysis to test MSF-derived propositions about policy stringency. Most studies using MSF do so qualitatively, while this methodology bridges the quantitative–qualitative gap. The author also models the levels of policy stringency, offering an improvement over MSF studies that typically attempt to explain only a binary adoption outcome.

Dressel, Ericsson, and Sandström (2018) apply Ostrom's SES framework in an innovative manner to understand the challenges to and solutions for moose management in Sweden. Their use of the framework is regional, quantitative, and spatially explicit, focusing on system dynamics, whereas most SES studies are case-comparative, qualitative, local, and/or focused on a specific action situation. Their principal component analysis reveals distinct subregions characterized by different combinations of the SES tier variables, and highlights the importance of geographically and spatially sensitive analytical strategies. Foster and Hope (2016) use the SES framework to understand payment dynamics surrounding community-financed rural water supply operations in Kenya. Their study is notable for its use of extensive quantitative data, leveraging decades of water committee records documenting more than 53,000 household payments for water from 571 hand pump locations, in addition to data from more than 3,000 household surveys.

Other exemplary empirical approaches included the use of hyperlink relationships and data from social media platforms. Elgin's (2015) study is part of a growing effort to use hyperlink relationships to represent real-world governance connections, leveraging the availability of large quantities of data on the web and the capacity of web-crawling technologies to mine them. Elgin (2015) tests and finds partial support for the ACF-rooted hypothesis that policy actors are more likely to form networks with actors that share their policy beliefs than with actors who do not. Using the NPF, Gupta, Ripberger, and Wehde (2018) conduct a large coding exercise of nuclear

energy stories that advocacy groups deploy via Twitter. They find support for framing techniques posited by NPF: winners constrain the policy debate by focusing on benefits and losers expand it by focusing on costs.

Emerging Trends

The last three years of environmental governance research illustrates a diversity of theoretical and empirical strategies, enriched by innovation and some emerging trends. Elgin (2015) tests a less widely used theory, the Political Analytical Capacity Framework, to explain how and under what conditions policy actors acquire and utilize information. Ingram, Ingram, and Lejano (2015) introduce a "narrative network approach" for understanding environmental governance that bridges the gap between network analysis and discursive policy scholarship. Similarly, scholars have offered the Discursive Agency Approach as an analytical heuristic to study agency from a discourse perspective (Leipold & Winkel, 2017), the Adaptive Venue Shopping Framework to examine how groups navigate multiple venues in pursuit of policy change (Ley & Weber, 2015), and the Policy Conflict Framework to guide empirical research on episodes of policy conflict (Weible & Heikkila, 2017).

There are also notable efforts to synthesize the contributions of policy process theories, including the edited book by Zohlnhöfer and Rüb (2016), which offers an empirical assessment of the strengths and weaknesses of MSF across national contexts and policy areas. A series of edited volumes by Cole and McGinnis (2015, 2017, 2015) summarize the contributions of Elinor Ostrom (architect of the IAD) and the Bloomington School of Political Economy in areas of resource governance, policy analysis, and policy application. Another trend is the appearance of policy-relevant scholarship in non-policy journals, such as works published in the *Journal of Cleaner Production* (Chandran, Hoppe, De Vries, & Georgiadou, 2015), *Scandinavian Journal of Forest Research* (Harrinkari, Katila, & Karppinen, 2017), *Journal of Risk Research* (Hunka, Meli, Palmqvist, Thorbek, & Forbes, 2015), *Voluntas* (Wong, 2016), and *BioScienc*e (Blair et al., 2017), among others.

We also see attempts to integrate multiple forms of scale. Angst and Hirschi (2017) use network analysis at multiple policy scales to understand how natural resource governance networks change over time in the case of Swiss landscape management. Kukkonen, Ylä-Anttila, and Broadbent (2017) apply Discourse Network Analysis to top U.S. newspaper stories to examine coalition policy beliefs and preferences in regard to climate change, both over time and across jurisdictional levels. Combing temporal, policy, and spatial scales, Wright, Andersson, Gibson, and Evans (2016) apply the IAD framework to analyze the ability of decentralization strategies to reduce deforestation.

Finally, there are increasing efforts to empirically explore environmental issues in China using policy process constructs. Drawing on the ICA, Yi and coauthors (2018) examine factors explaining the types of interjurisdictional agreements Chinese municipalities adopt to address transboundary environmental challenges. An unpublished study of sustainability in China uses panel data on 31 provincial

units (2003–12) to understand the public's role in bringing about regulatory change and greater environmental investment (Karuppusamy & Yuan, 2018).

Conclusion

Our review of environmental governance policy process studies published over the last three years finds that that the majority of research is case based, qualitative, and focused on North American and European environmental issues. Most studies are concerned with theory building rather than with testing explicit hypotheses. Natural resource management and climate change are the most common foci. Nearly all studies use existing data sources, though they may pair these with original data; more than half use multiple data sources. Most take as their primary unit of analysis social artifacts such as policies, programs, and rules.

Several lessons emerge from these findings. Environmental governance scholars today integrate diverse data sources, but these efforts remain limited to specific geographic contexts, issue areas, methodologies, and policy traditions. The trends identified in our review may reflect the prevalence of specific policy theoretic approaches across leading policy schools in the United States, resulting from either dominant policy process perspectives or the heritage of specific scholars. Our results indirectly reveal the distribution and dominance of policy theoretic approaches over the recent past, as well as the inherent emphases and choices by specific policy frameworks. Key drivers of environmental governance outcomes, such as social inequities, environmental justice, poverty, and economic structures, remain largely unaddressed on the periphery of empirical policy process scholarship. Other deficiencies in the current state of the literature relate to scale sensitivity and methodological innovations.

Our review particularly investigated the extent to which recent research spanned a range of spatial, temporal, and policy scales. Academic and policy communities are best served when researchers build and test theory within and across a range of political jurisdictions, geographic locales, time spans, and policy scales. Such comparative research, while challenging, can contribute to advances in environmental governance and policy scholarship, increasing the likelihood that scholars and practitioners are better equipped to tackle new concerns. Systematically testing hypotheses across cases and contexts requires a battery of strategies, including: replication, triangulation (use of multiple indicators and methods), consistent conceptualization and operationalization of policy constructs, and cross-cultural work by researchers from diverse backgrounds. Rigorous comparative work and theory advancement can also be aided by data sharing, pre-registration of hypotheses prior to empirical data collection, as well as interdisciplinary research teams that leverage experimental designs, over-time data, and novel methods.

Recent policy process research on environmental governance spans a range of jurisdictions, but there is a relative lack of longitudinal research, which is striking given that many theories purport to examine temporal dynamics. This is an important area for future study, particularly because understanding over-time dynamics allows more robust descriptions and explanations. Recent scholarship associated with many policy theories also lacks diversity in units of analysis (policy scale),

which could be a reflection of different research traditions or theoretical assumptions. We hope that by pointing out areas where policy process theories have been less broadly applied, environmental governance scholars will embrace the opportunity to move conceptually and empirically into new, more diverse domains.

Future environmental governance research can capitalize on efforts to integrate multiple theoretical and methodological approaches across scales. Novel methods (e.g., machine learning, web-crawling technologies) and increased access to large-N data sets, high-resolution imagery, and improved digital public records provide opportunities to expand our understanding of the actors and institutions shaping environmental outcomes. Geographically and spatially sensitive research can benefit from the application of remotely sensed data and spatial analysis. Adopting diverse approaches and advancing scholarship are the keys to building a robust literature, and perhaps more importantly, tackling the pressing environmental governance challenges of today and tomorrow.

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Notes

1. We use the term "theory" to refer to conceptual approaches for understanding the policy process; these approaches may be conventionally termed frameworks, theories, or models (Ostrom, 2005).

2. We were unable to review the books and book chapters within the time frame given for this review. There were fewer than 10 books; the most notable are mentioned in our discussion.
3. For instance, having identified only two articles applying the ICA, we integrated ICA with the other institutional theories under the IAD category.
4. $IQV_i = [1 - \Sigma p^2]^*[(k/(k-1)]$, where i is the theory ($i = 1, \ldots, 9$), p is the proportion of articles in each category, and k is the number of categories; for jurisdictional level $k = 6$ (see Table 1), for geographic scale $k = 7$ (Figure 3), for time $k = 2$ (Table 1), and for unit of analysis $k = 5$ (Figure 3).
5. The IQV values for time should be interpreted with caution as they are calculated using only two categories.
6. While the scale of a policy theory does not always align with the empirical units of analysis on which scholars focus, we expect a rough correspondence given the theoretical grounding of the articles.

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Appendix A

Table A1. List of Journals Used in the Process of Identifying Relevant Articles (adapted from Fahey & Pralle, 2016; impact factor and number of identified articles in parentheses)

Public Administration	Political Science	Public Policy	Environmental Policy
Journal of Public Administration Research and Theory (3.907, 11 articles)	*American Political Science Review* (3.316, 0 articles)	*Policy Sciences* (3.023, 22 articles)	*Environmental Politics* (2.695, 18 articles)
Governance (3.833, 1 article)	*American Journal of Political Science* (5.22, 1 article)	*Journal of Policy Analysis and Management* (3.444, 1 article)	*Global Environmental Politics* (3.237, 13 articles)
Public Administration Review (4.591, 0 articles)	*Annual Review of Political Science* (3.457, 0 articles)	*Policy Studies Journal* (2.83, 20 articles)	*Climate Policy* (3.832, 8 articles)
Regulation & Governance (2.735, 0 articles)	*Political Geography* (3.495, 0 articles)	*Journal of European Public Policy* (2.994, 4 articles)	*Environmental Policy and Governance* (1.268, 9 articles)
Public Administration (2.870, 1 article)	*European Journal of Political Research* (3.576, 0 articles)	*Review of Policy Research* (1.25, 18 articles)	*Environment & Planning C-Government and Policy* (1.864, 6 articles)
American Review of Public Administration (2.466, 0 articles)	*Journal of Politics* (2.255, 0 articles)	*Science and Public Policy* (1.368, 0 articles)	*Journal of Environmental Policy and Planning* (2.739, 3 articles)
Public Management Review (2.293, 0 articles)	*Comparative Political Studies* (2.919 , 1 article)	*Journal of Public Policy* (0.920, 1 article)	
	British Journal of Political Science (3.326, 0 articles)		
	Political Behavior (1.877, 0 articles)		

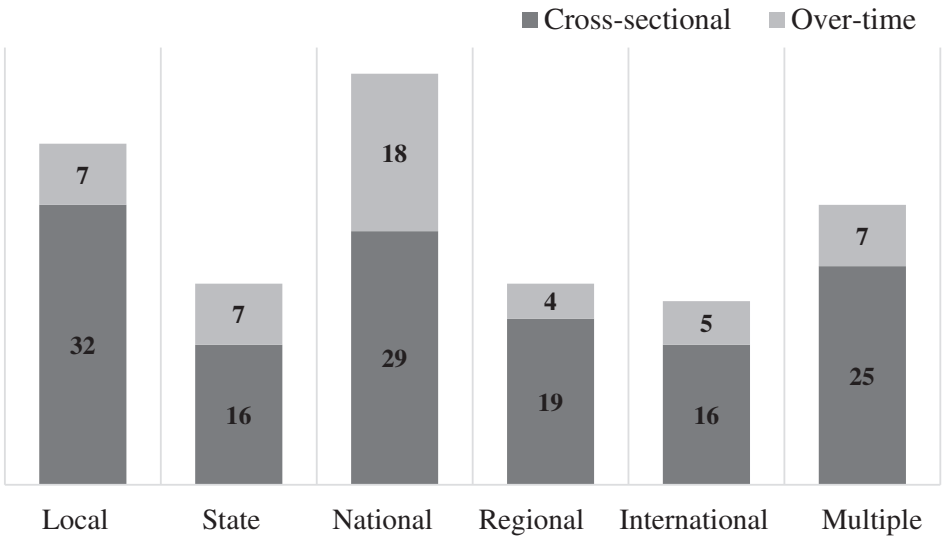
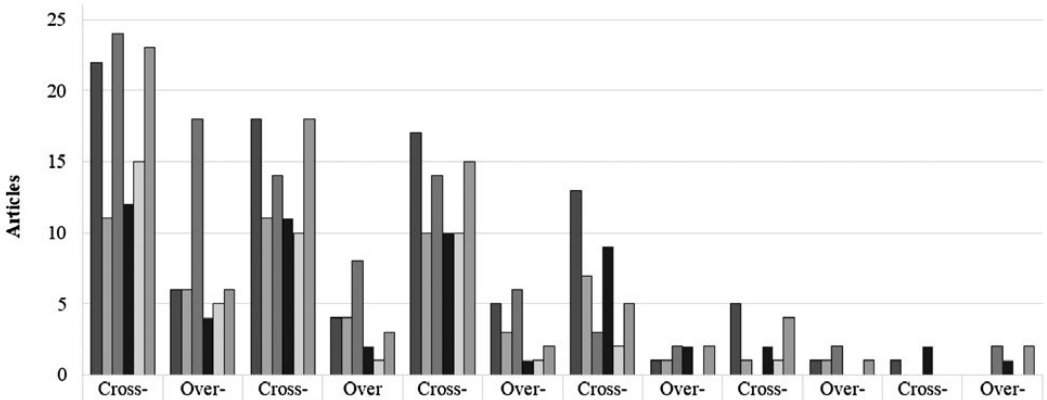


Fig. A1. Number of Articles by Jurisdictional Level and Time.



	EXISTING DATA		MULTIPLE SOURCES		INTERVIEWS		SURVEYS		PARTICIPANT OBSERVATIONS		SIMULATION	
	Cross-sectional	Over-time	Cross-sectional	Over time	Cross-sectional	Over-time	Cross-sectional	Over-time	Cross-sectional	Over-time	Cross-sectional	Over-time
Local	22	6	18	4	17	5	13	1	5	1	1	0
State	11	6	11	4	10	3	7	1	1	1	0	0
National	24	18	14	8	14	6	3	2	0	2	0	2
Regional	12	4	11	2	10	1	9	2	2	0	2	1
International	15	5	10	1	10	1	2	0	1	0	0	0
Multiple	23	6	18	3	15	2	5	2	4	1	0	2

Fig. A2. Type of Data Sources by Jurisdictional Level and Time (total exceeds 185 because an article could be coded both under existing data and multiple sources).

Codebook for 2019 PSJ Review

Rules for Article Searches and Inclusion (May–June 2018)

A keyword search was carried out over two months using Web of Science; Google Scholar; and in a targeted list of PS, PA, and PP journals. We used 10 policy process theories to develop a list of keyword phrases/words used in the searches. The majority theoretical approaches were based on Weible and Sabatier's *Theories of the Policy Process* (4th ed.). We added two additional, the Institutional Collective Action Framework and Ecology of Games Framework. The complete list is below:

1. Multiple Streams Framework (MSF)
2. Social Construction/Democratic Policy Design (SCT)
3. Policy Feedback Theory (PFT)
4. Advocacy Coalition Framework (ACF)
5. Narrative Policy Framework (NPF)
6. Punctuated Equilibrium Theory (PET)
7. Institutional Analysis and Development Framework (IAD)
8. Innovation and Diffusion Models in Policy Research (IDM)
9. Ecology of Games Framework (EOG)
10. Institutional Collective Action Framework (ICA)

Relevance: A document was identified as "relevant for inclusion and coding" if:
a) The abstract or title contained one of the keywords,

AND
b) The document was an **empirical, peer-reviewed article** (defined as data-driven article published in a peer-review journal; lit reviews are excluded),

AND
c) The issue area involved an environmental or natural resource governance issue,

AND
d) The article operationalized, tested, developed, and/or utilized *at least one of the policy process theories* listed above, **OR** the article *included a key author citation* as per the list below:

- ○ **MSF:** Kingdon, Zahariadis
- ○ **SCT:** Schneider, Ingram, DeLeon, Stone
- ○ **PFT:** Mettler, Pierson, Soss, SoRelle, Stone
- ○ **ACF:** Sabatier, Weible, Jenkins-Smith
- ○ **NPF:** Jones, McBeth, Shanahan
- ○ **PET:** Baumgartner, Jones, True
- ○ **IAD and SES:** Ostrom, Schlager, Cox, McGinnis
- ○ **IDM:** Berry and Berry, Mohr
- ○ **EOG:** Lubell
- ○ **ICA:** Feiock, Krause, Hawkins

2019 PSJ Review Codebook Guidelines
Please include the information asked for in each column. **Do not leave cells blank.** Notes are useful, particularly for articles we want to highlight in the body of the paper. Note articles that make a unique or especially interesting contribution to the literature (e.g., modifications or extensions of the framework/theory, unique methodological approach, or application) in the last columns (entries) of the codebook. The objective of this paper and coding activity is to understand how scholars applying policy process theories have, explicitly or implicitly, dealt with issues of time, space, and policy scale.

A. Identifiers. These guidelines provide instructions for coding the list of journal articles. Please enter your responses (codes) using this Google Form: https://goo.gl/

forms/RgTpkHHUSqfoxwQ73

When data are missing, code NA. *Please carefully read and follow the instructions.*
Document ID: ID number for each article (e.g., 1, 2, 3, ... N)
Name of Coder: Enter first name of coder.
Authors: Enter list of authors starting with **LAST NAME** of the first author on the list.
Title: Enter full title of article (if it is missing)
Year: Year published
Journal: Full name of journal

B. Policy process theory. **Keywords:** Enter the keyword under which the article was searched and selected for inclusion. This is the last column in the Excel file (Column J). Code under one of 10 theories: **MSF, SCT, PFT, ACF, NPF, PET, IAD, IDM, EOG**. For each abbreviation see list below:

1. Multiple Streams Framework (MSF)
2. Social Construction/Democratic Policy Design (SCT)
3. Policy Feedback Theory (PFT)
4. Advocacy Coalition Framework (ACF)
5. Narrative Policy Framework (NPF)
6. Punctuated Equilibrium Theory (PET)
7. Institutional Analysis and Development Framework (IAD) + Social-Ecological Systems (SES) + Institutional Collective Action (ICA)
8. Innovation and Diffusion Models in Policy Research (IDM)
9. Ecology of Games Framework (EOG)

MSF: Article applies or develops the Multiple Streams Framework. Code 1 for Yes, 0 for No. Title and/or abstract must include "multiple streams framework/theory/model" or a reference to one of the key authors. See part A.2.e for a list of authors associated with each theory. (**1 = yes**, **0 = no**).

SCT: Article applies or develops SCT. Code 1 for Yes, 0 for No. Title and/or abstract must include "social construction" framework/theory/model or "democratic policy design." See also list of authors in part A.2.e. (**1 = yes**, **0 = no**).

PFT: Article applies or develops the PFT. Code 1 for Yes, 0 for No. Title or abstract must include "*policy feedback framework/theory/model*." See also list of authors in part A.2.e. (**1 = yes**, **0 = no**).

ACF: Article applies or develops the Advocacy Coalition Framework. Code 1 for Yes, 0 for No. Title or abstract must include "advocacy coalition framework/theory/model" or "democratic policy design." See also list of authors in part A.2.e. (**1 = yes**, **0 = no**).

NPF: Article applies or develops the Narrative Policy Framework. Code 1 for Yes, 0 for No. Title or abstract must include "narrative" but the keyword narrative **MUST** be connected also to the *Narrative Policy Framework*. See also list of authors in part A.2.e. (**1 = yes**, **0 = no**).

PET: Article applies or develops the Punctuated Equilibrium Framework. Code 1 for Yes, 0 for No. Title or abstract must include "punctuated equilibrium" framework/theory/model. See also list of authors in part A.2.e. (**1 = yes**, **0 = no**).

IAD: Article applies or develops the IAD, SES, or ICA Framework. Code 1 for Yes, 0 for No. Title or abstract must include "institutional analysis and development" or "institutional analysis and design," "framework/theory/model," and/or

"institutional grammar tool," and/or "social ecological systems" or SES. See also list of authors in part A.2.e. (**1 = yes**, **0 = no**).

IDM: Article applies or develops the Innovation and Diffusion Model for policy design. Code 1 for Yes, 0 for No. Title or abstract must include "policy innovation" or "policy diffusion" or "policy adoption" framework/theory/model. See also list of authors in part A.2.e. (**1 = yes**, **0 = no**).

EOG: Article applies or develops the Ecology of Games Framework. Code 1 for Yes, 0 for No. Title or abstract must include "Ecology of Games" framework/theory/model. See also list of authors in part A.2.e. (**1 = yes**, **0 = no**).

Multiple Frameworks—Does the study use more than one theory/framework? If you checked more than one of the preceding boxes, code 1 = Yes; 0 = No

No Framework—Is there no explicit use of any of the frameworks in the TITLE, ABSTRACT, or BODY of the article? If yes, code 1; if no=0. If you did not check any of the preceding theory boxes, then note this here. NO EXPLICIT USE OF A THEORY/FRAMEWORK=1; Otherwise=0 (1 = yes, 0 = no)

Ideas from policy theory [*Code this question ONLY if you selected 1 for No Framework* **]** Does the article use ideas or concepts from policy theory? Consult Table 1 in the codebook for concepts associated with each theory. If YES=1; if NO=0.

Notes—Enter any notes or comments you have about this article so far.

Relevance: (1 = yes, 0 = no). Does the article meet all of the conditions below:

a. The abstract or title contained one of the keywords used in our search (see category Keyword coded earlier) **AND**

b. The document was an empirical, peer-reviewed article **AND**

c. The issue area involved an environmental or natural resource governance issue AND

d. The article operationalizes, tests, develops, and/or utilizes at least one of the policy process theories, **OR** includes a key author citation as per the list provided on page 1 of the codebook.

If yes to all subparts above, please code 1; otherwise code 0 (1 = yes, 0 = no).

IF YOU CODE 0, STOP CODING; THE FORM WILL SEND YOU TO THE SUBMIT PAGE. If you code 1, please continue coding

C. Issue Area and Scale. **Question:** Quote the author's stated research question. Code if the author explicitly identifies one or more research questions (e.g., our research question asks; we aim to; our objective is; we seek to...). If there is not an explicitly identified research question, please code NA.

Hypotheses: If the authors explicitly identify one or more hypotheses (e.g., we hypothesize/expect, test), please code 1. The hypothesis **does not** have to be related to the policy process theories. Typically, hypothesis are located at the end of the Literature review, and prior to the Methods section. Code 1 if there is an explicitly identified hypothesis, 0 otherwise. **(1 = yes; 0 = no)**

ENVIRONMENTAL ISSUE: Identify the primary environmental issue under investigation. Choose ONLY 1 category from the list below. For instance, if the study is about a cap-and-trade system for GHGs, select Climate Change; if it is about payments for ecosystem services in a forest community, select Ecosystems; if it is about hydraulic fracturing, select Energy. If there are potentially more than one issues, the rule of thumb is to identify the primary environmental medium or problem under study. Select from these categories:

1 = Natural Resources—including *WATER* **(**water use, allocation, irrigation,

rivers, lakes,wetlands, underground water, the oceans and seas, deltas and estuaries; water conservation; watershed; collaborative watershed groups; dams) *FORESTS* (use of forest resources, forest management, conservation, other); *FISHERIES & WILDLIFE* (including use and conservation of fisheries and wildlife, wildlife habitat conservation, biodiversity conservation).

2 = Land Use—including land conservation, agricultural land use, agricultural production/resources, rural landscapes; drylands, deserts; urban development; parks and recreation; national parks (if no specific resource uses are mentioned).

3 = Climate Change—including GHGs, climate adaptation, mitigation, cap-and-trade programs for carbon dioxide, carbon taxes, or other approaches for mitigating or adapting to the effects of climate change

4 = Energy—including clean or renewable energy; energy efficiency; energy sources; energy production, distribution, consumption; electricity grid; wind, solar, PV, hydro sources of energy generation; fracking or hydraulic fracturing; nuclear energy

5 = Ecosystems—including payments for ecosystem services (PES), ecosystem functions, ecosystem goods and services, ecosystem restoration; urban ecosystems. **NOTE**: If the study applies the SES framework, this DOES NOT necessarily suggest the environmental issue is Ecosystems. The framework could be applied to study fisheries, climate change, water, or forest management.

6 = Environmental Justice & Pollution—e.g., distributional issues related to the location of industrial facilities, power plants or other sources of air or water pollution, hazardous waste sites, landfills, nuclear facilities, and other air, water, or soil pollution. Examples also may include water contamination in Flint, Michigan; coal ash or chemical spills into rivers; pollution of underground water; exposure to hazardous substances; environmental risk, environmental racism, equity, or other distributional issues that may or may not be linked to pollution. This category also includes regulation of toxic substances and chemicals, such as lead, mercury, and DDTs.

7 = Sustainability—examples include educational programs for sustainable use of resources, recycling, reuse of materials, cradle-to-cradle management of waste; green buildings; LEED certification for green buildings/infrastructure; sustainable land use and management; waste and landfill management; population growth; sustainable communities via bike lanes, share rides, shared bicycle programs; electric cars, sustainable farming or agriculture, resilience, and vulnerability; natural disaster relief and recovery, flood management, risk management, or other sustainability practice).

8 = Other—If you select other, provide the type of resource or environmental issue in the text box.

Other (open-ended text box) Enter type of resource or environmental issue if you selected 8 above.

JURISDICTIONAL LEVEL—Identify the geographical bounds of the empirical analysis as it relates to the level of governance/government. For instance, if the study explores the implementation of a national policy at the state and local levels, but empirically the analysis examines implementation at the state level only, code 2 = State. If the data analysis includes *both* state-level and local-level data, then code 6 = Multiple and identify the two levels using the binary variables that follow. Code *International* if the study empirically investigates international organizations

or global-level governance. If there is a discussion of regional programs (i.e., collaborations among states or cities/local governments), code REGIONAL. If the focus is on regional cooperation among nation states (e.g, NAFTA, the EU, multilateral environmental agreements), then code INTERNATIONAL.

1 = Local
2 = State
3 = Regional
4 = National
5 = International/Transnational
6 = Multiple
7 = NA/ Not identified

Level: LOCAL (1 = yes; 0 = no) Includes local government (town and county)

Level: STATE (1 = yes; 0 = no) Includes state-level government issues

Level: REGIONAL (1 = yes; 0 = no) Regional cooperation among cities, municipalities, or states.

Level: NATIONAL (1 = yes; 0 = no) Includes nation state or national/federal level issues

Level: INTERNATIONAL/TRANSNATIONAL (1 = yes; 0 = no) (international/transnational issues, such as EU and NAFTA, multilateral environmental agreements)

Level: MULTIPLE (1 = yes, 0 = no)

D. Methods. **METHOD:** Identify the type of methods employed (quantitative, qualitative, or mixed methods). For an article to be quantitative, it must use numbers beyond description in the analysis. Qualitative work is empirical and does not rely on numbers. Mixed-methods combine elements of quantitative and qualitative methods. Where possible use the author's categorization of the analysis. Code only **1** = **Quantitative, 2 = Qualitative, 3 = Mixed, or 4 = NA**. Do not leave blank; if not known, code NA.

STUDY DESIGN: If the article presents a case study, a comparative case study, a large N

Study, or a social network study. Coding categories: Case study; Comparative case study; Large N; Social networks; Experimental, Literature Review, Multiple, or Other. *IF you select MULTIPLE,* then identify the types of design in the binary questions below.

1 = Case study
2 = Comparative case study
3 = Large N study
4 = Social networks/network analysis
5 = Experimental study (including survey experiments)
6 = Mixed design
7 = Other

Case study (1 = yes; 0 = no) A focus on a specific case that is representative of a particular category of phenomena (e.g., the case of water pollution in Flint, Michigan).

Comparative case study or comparative analysis (typically small-n studies) (1 = yes; 0 = no)

Large N study (typically involves quantitative analysis) (1 = yes; 0 = no)

Social networks or network analysis (1 = yes; 0 = no) Must specifically mention networks, social networks, or network analysis.

Experiment (1 = yes; 0 = no) Must explicitly state that the study used an experimental design (e.g., an experimental survey, a lab or field experiment). Note that natural experiments are actually observational studies.

Other Enter a brief description of the study type in the notes section (e.g., meta-analysis)

DATA TYPE: Code the type of data collection mode used by the authors, as follows:

Survey, Interviews, Participant observation, Documents, Simulation, or Multiple. **See definitions and examples for each on the next page, before making your selection.** If you select MULTIPLE, then for the binary questions below, please select all types of data used by the authors.

1 = Survey
2 = Interviews
3 = Participant Observation
4 = Documents/Datasets
5 = Simulation
6 = Other
7 = Multiple

Survey: Code this on a binary scale, if the authors utilize survey data. **(1 = yes; 0 = no)**

Interviews: Code this on a binary scale, if the authors utilize *interviews or focus groups*.

(1 = yes; 0 = no)

Participant Observation: Participant observation is a data collection method typically used in qualitative research. Participant observation is the process enabling researchers to learn about the activities of the people under study in the natural setting through observing and/or participating in those activities (i.e., attending committee meetings, going out with fishermen while they fish, spending a day with a forest ranger to observe his duties/activities). Code 1 if the authors collected observational data by either directly or indirectly observing the study participants. Review the Methods section of the article if in doubt. It must explicitly state participant observation. **(1 = yes; 0 = no)**

Documents/Existing Data: Code this on a binary scale if the authors use public records, meeting minutes, archives, publicly available data or data sets (e.g., American Community Survey, EPA data, FAO data), or other publicly available documents. **(1 = yes; 0 = no)**

Simulation/Modeling: Code this on a binary scale if the authors utilize nonempirical data derived from a computer simulation or computer modeling. These approaches generate data based on a mathematical code or model and do not rely on real-world data. Again, review the Methods section if uncertain. Examples: agent-based modeling, Markov chain, population models, etc. This excludes regression models or quantitative/statistical analysis of survey data. Recall this is the type of DATA, not the type of ANALYSIS we are coding for **(1 = yes; 0 = no)**

UNIT OF ANALYSIS: Identify the study's primary unit of analysis. To identify the unit of analysis, first identify the outcome of interest or the dependent variable.

The entity to which the outcome belongs is the unit of analysis. For instance, if a study examines the decisions of municipal officials, the unit is an individual (municipal officials); if the study analyzes the reports of an environmental interest group, then the unit is a group (e.g., Sierra Club). If the study examines the percent of a state's budget spent on environmental protection, then the unit is the state (i.e., the budget belongs to the state). Consider also the option of multiple units of analysis, particularly if you coded earlier for the presence of multiple jurisdictional levels. Choose from these categories.

1 = Person

2 = Group (e.g., an interest group, a community, a coalition, a private firm)

3 = Government Entity (e.g., a state, a government agency, a nation state, a resource management agency)

4 = Social Artifact (e.g., a policy, a program, a rule, a report, demonstration, articles)

5 = Multiple units

6 = Other/NA (if other, please explain the notes section at the end of the form)

TIME: If the design is **Cross-sectional=0**; If **Longitudinal or Over-time =1**. If data were collected at only one time period, then it is a cross-sectional study. If data were collected at two or more points in time (e.g., in 2012 and 2014), or regularly over a period of time (e.g., every 5 years over a 25-year period), then this is a longitudinal study. If it is a literature review or conceptual paper (not an empirical paper), then you should not be coding it; it's not relevant.

CONTINENT: Identify and code the continent where the study site(s) is located. Use:

North America =1

Europe=2

Asia=3

Africa=4

South America=5

Australia-Oceania=6

Multiple=7 (if more than one continent is involved).

NA=8 (Code NA if there is no specific study site as in a simulation/modeling paper).

EXCEPTIONAL (yes/no): For the category "Exceptional," indicate whether you think the article should be highlighted in the body of the paper. Is this an article you really liked? (e.g., it had a unique take on either theory or methods). Please include articles that you believe make a unique or especially interesting contribution to the literature on environmental governance. This may include major modifications to a theory or exceptional methodologies or applications. **Code 1 = yes; 0 = no.**

Exceptional (why): For this category, indicate *why you feel this article should be highlighted* or makes a unique contribution. Explain in a sentence or two why this article is exceptional.

Notes: Use this "Notes" category for any additional thoughts or considerations you wish to include. Notes are encouraged.

Appendix B

List of Journals for the 185 Relevant Articles

American Review of Canadian Studies
Applied Geography
Biodiversity and Conservation
BioScience
China Information
Climate Policy
Climate Risk Management
Conservation and Society
Ecological Applications
Ecological Economics
Ecological Indicators
Ecology and Society
Ecosystem services
Energy for Sustainable Development,
Energy Research & Social Science
Environment and Planning C: Government and Policy
Environment and Planning C: Politics and Space
Environmental and Planning Law Journal
Environmental Justice
Environmental Management
Environmental Modelling & Software
Environmental Policy and Governance
Environmental Politics
Environmental Science & Policy
European Policy Analysis
Food Policy
Forest policy and economics
Frontiers in Ecology and the Environment
Futures
GeoScape
Global Environmental Change
Global Environmental Politics
Governance
International Journal of the Commons
International Journal of Water Resources Development
Journal of Cleaner Production
Journal of Environmental Management
Journal of Environmental Planning and Management
Journal of Environmental Policy & Planning
Journal of European Public Policy
Journal of Flood Risk Management
Journal of Public Administration Research and Theory
Journal of Public Policy
Journal of Risk Research
Journal of Rural Studies

Journal of Sustainable Forestry 35(1)
Journal of the American Water Resources Association
Journal of the Southwest
Land Use Policy
Latin American Research Review
Marine Policy
Marine Resource Economics
Nonprofit and Voluntary Sector Quarterly
Philosophical Transactions of the Royal Society of London B: Biological Sciences
Policy Sciences
Policy Studies Journal
Proceedings of the National Academy of Sciences
Public Administration
Public Administration Quarterly
Public Administration Review
Public Management Review
Public Policy and Administration
Publius: The Journal of Federalism
Regional Environmental Change
Renewable and Sustainable Energy Reviews
Review of Policy Research
Scandinavian Journal of Forest Research
Science of The Total Environment
Social Networks
Society & Natural Resources
Sustainability
Systems Research and Behavioral Science
The American Review of Public Administration
Tourism Management
VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations
Water Alternatives
West European Politics

Table C1. Key Concepts and Ideas by Theory (Source: Weible & Sabatier, 2017)—Use table below for coding category "IDEAS FROM POLICY THEORY"

Framework	*Key Concepts*
IDM	Policy innovation Policy diffusion
	Policy adoption
SCT	Policy design Social construction
PFT	Policy feedback Interest groups
PET	Incremental Policy change
	Policy monopoly
ACF	Coalitions Policy network
	Learning
	Conflict
	Values/beliefs
NPF	Narratives Frames/framing
IAD & SES & ICA	Institutions Collective action
	Social-ecological system
MSF	Agenda-setting Policy entrepreneurs
	Policy window
	Stream/ policy stream
EOG	Transaction costs

PSJ Policy Studies Journal

Policy Studies Journal, Vol. 47, No. S1, 2019

Social Policy Perspectives on Economic Inequality in Wealthy Countries

Leanne S. Giordono, Michael D. Jones, and David W. Rothwell

This essay reviews the policy-oriented literature on economic inequality in wealthy countries published from 2008 to 2018. We focus on this decade because it is a period bookended by both the beginnings of the Great Recession of 2008–2009 as well as the recovery. During this timeframe, attention to inequality by social policy scholars grew substantially, which we argue reflects an interest in both inequality trends as well as redistributive social policy. We observe in the literature sustained efforts to understand both the relationship between social policy and economic inequality, as well as determinants of changes to redistributive social policy. We also note substantial variation in research traditions, as well as opportunities to address substantive, methodological, and theoretical gaps. Our review summarizes the approaches and findings from the literature and discusses the implications of the findings for the study of economic inequality within the academic field of public policy.

KEY WORDS: inequality, economic inequality, social policy, policy analysis, welfare states

本文检验了自*2008-2018*年间发表的有关富裕国家中经济不平等的政策文献。本文聚焦于这十年的原因在于它以*2008-2009*年经济大衰退为开端，以*2018*年经济复苏结束。在此期间，社会政策学者对不平等的关注大幅增加，笔者认为这反映了学者对不平等趋势和再分配社会政策的关注。笔者在文献中发现，为理解社会政策和经济不平等之间的关系，以及再分配社会政策变化的决定因素，相关努力仍在持续。笔者还注意到，研究传统、和用于应对实际的、方法论和理论空白的途径，这两个方面在文献中存在显著差异。本文总结了文献中提到的方法和结果，并探讨了研究结果对研究公共政策学术领域中经济不平等的意义。

关键词**:** 不平等, 经济不平等, 社会政策, 政策分析, 福利国家

Este ensayo revisa la literatura orientada a las políticas sobre la desigualdad económica en los países ricos publicada desde 2008-2018. Nos centramos en esta década porque es un período que se debe tanto al comienzo de la Gran Recesión de 2008-2009 como a la recuperación. Durante este período de tiempo, la atención a la desigualdad por parte de los académicos en política social creció sustancialmente, lo que argumentamos refleja un interés tanto en las tendencias de desigualdad como en la política social redistributiva. Observamos en la literatura los esfuerzos sostenidos para comprender tanto la relación entre la política social y la desigualdad económica, como los determinantes de los cambios en la política social redistributiva. También observamos variaciones sustanciales en las tradiciones de investigación, así como oportunidades para abordar brechas sustanciales, metodológicas y teóricas. Nuestra revisión resume los enfoques y hallazgos de la literatura y discute las

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implicaciones de los hallazgos para el estudio de la desigualdad económica dentro del campo académico de la política pública.

PALABRAS CLAVE: Desigualdad, desigualdad económica, política social, análisis de políticas, estados de bienestar

Introduction

Attention to economic inequality in wealthy countries has grown steadily during the last two decades among scholars in multiple disciplines.[1] An uptick in events during the last decade has underscored the relevance of both documented and perceived inequalities, such as the Great Recession of 2008–2009 and its aftermath, attention to redistributive policies (e.g., Tax Cuts and Jobs Act of 2017; Affordable Care Act), and most recently, a rise in populism and related policy changes (e.g., Brexit). Such events, in combination with evidence about within-country inequality trends, suggest that economic inequality is an important topic for social policy. Indeed, Amenta (2003) suggests that the broad purpose of social policy is to ensure minimum standards of living, reduce income insecurity, and reduce inequalities.

Since the 1970s, economists have noted trends resulting in higher wages and better job opportunities for highly skilled and educated workers (e.g., Acemoglu, 2002; Atkinson, 1975; Autor, Katz, & Kearney, 2008; Autor & Dorn, 2013). Economists have also been at the forefront of producing evidence about the trend of high and rising income inequality and related disparities (e.g., Atkinson, 1975, 2015; Autor et al., 2008; Case, Lubotsky, & Paxson, 2002; Chetty, Hendren, Kline, & Saez, 2014; Piketty & Saez, 2014; Piketty, 2014b). Sociologists' interest in inequality has been more expansive, focusing on health, technology, education, and various other inequities (e.g., Phelan, Link, & Tehranifar, 2010; Robinson et al., 2015; Yang, 2008) and attending to social stratification according to gender, age, class, and race, as well as the intersectionality of those phenomena (e.g., Cohen, 2015; Collins, 2015; Grusky & Hill, 2018; Hwang & Sampson, 2014; Kenworthy & Smeeding, 2014; Phelan & Link, 2015; Saperstein & Penner, 2012; Savage et al., 2013). Political scientists' contributions, in turn, have focused most heavily on the associations between economic inequality, political institutions, and political behavior (e.g., Boix, 2010; Hacker & Pierson, 2011; Jacobs & Soss, 2010; Putnam, 2016; Solt, 2008).

Not surprisingly, considering the increased public and scholarly attention, policy-oriented scholars have increasingly turned their attention to economic inequality, as well as inequality writ broadly.[2] While many of the discipline-specific contributions are highly relevant for policy scholarship, we have not identified any resources that explicitly organize the policy-oriented literature. This essay highlights recent contributions to the topic from the policy-oriented literature, in the context of the broader multi-disciplinary literature on economic inequality. We draw on a targeted search and review of peer-reviewed articles from 26 leading policy-oriented journals and 9 discipline-specific journals during the timeframe of 2008–18 to identify key trends, raise questions about remaining gaps and inconsistencies, and chart direction

for future work. Where relevant, we also reference key theoretical or empirical contributions from the broader discipline-specific literatures, including seminal works, and discipline-specific reviews.[3] See Appendices A and B in supporting information for a description of our methods and list of articles, respectively.

Our review focuses on four questions commonly posed by policy-oriented scholars, including: (i) what is economic inequality and how do we measure it? (ii) What are the major economic inequality and related social policy trends? (iii) What is the association between social policy and economic inequality? and (iv) What factors influence social policy decisions?[4] Our review of this literature within the context of our four questions reveals a rich body of research characterized broadly by diverse methodologies and research questions, yet anchored for the most part to established theoretical approaches. Where relevant, we organize the literature based on the identified approaches to addressing the aforementioned four questions. Our discussion of our findings focuses on developing trends within and across these traditions as well as emergent points of convergence and divergence between them. We also illuminate potential gaps in the literature that present both need and opportunity for future research. In addition to integrating and organizing contributions from disparate and multi-disciplinary approaches, our review complements previous PSJ Yearbook reviews on United States social policy (Guzman, Pirog, & Seefeldt, 2013) and economic policy (Pump, 2012).

What Is Economic Inequality and How Do We Measure It?

This review focuses on a relatively narrow definition of economic inequality, namely the distribution of resources among individuals and/or households, including income and/or wealth.[5,6] Despite a common broad understanding of economic inequality among social policy scholars, geographic, temporal, and conceptual measurement differences can complicate analysis and comparison of research findings. Furthermore, the literature on economic inequality encompasses a broad portfolio of social policy areas, including redistributive policy and social insurance, and spheres of influence, including markets and political institutions.[7]

Several standard measures of economic inequality, such as household share of total income or wealth,[8] the Gini coefficient,[9] and ratio measures[10] are widely used among social policy scholars.[11] For example, Hatch and Rigby (2015) use the first two measures to explore policy-related variation in income inequality in the United States. Social policy scholars also use poverty measures to describe economic inequality.[12,13] Indeed, Besharov and Call (2009) argue that in most Western societies "what is now called poverty is really 'income inequality'" (p. 600). However, data collection and measurement approaches vary geographically and temporally, posing challenges to the analysis and comparison of results. Haveman, Blank, Moffitt, Smeeding, and Wallace (2015), for example, offer a discussion of differences between the Official Poverty Measure and the recently developed Supplemental Poverty Measure in the United States. Furthermore, varying measurement approaches can yield disparate results even within a single data set. Armour, Burkhauser, and Larrimore (2013) describe the sensitivity of income inequality trends to income

measurement approaches. Scholars also develop alternative measures to conduct their research (Gornick & Jäntii, 2013), which may enhance our understanding of the phenomenon, but can also complicate synthesis of disparate findings. Pontusson and Weisstaner (2018), for example, introduce a measure of economic inequality that systematically incorporates the distribution of unemployment and poverty risk, building on Lupu and Pontusson (2011).

Most social policy scholars in our sample focus on inequality of incomes, often distinguishing between "pre-fiscal" and "post-fiscal" income. In operation, pre-fiscal income refers to earnings from labor plus other sources of income from investments, dividends, and rents. Such pre-fiscal approaches are better suited to understand inequality in labor markets. Analyses of post-fiscal income additionally accounts for government transfers and tax credit/liabilities (Gornick & Smeeding, 2018), and are better suited for studying the impacts of redistributive policies. Skilling and McLay (2015) note that public and policy attention is less focused on wealth (and the wealthy) than on income (and the poor). Indeed, only a handful of scholars in our sample of policy-oriented literature focus on changes to wealth inequality.[14]

What Are the Major Economic Inequality and Related Social Policy Trends?

Researchers agree that economic inequality in industrialized countries has increased substantially during the last three decades along multiple measures, including income and wealth inequality, although different measures exhibit differing patterns, including some periods of relative stagnation. Furthermore, inequality and poverty levels, as well as changes over time, vary substantially, even among European Union member states (OECD, 2016).[15] Policy scholars leverage this variation to understand the relationship(s) between economic inequality and social policy decisions.

After a long post-war period of decline in inequality, pre-tax economic inequality began to rise. The changes were initially observed in the United States in the 1970s, followed by similar but less dramatic trends in Europe during the 1980s (OECD, 2011). Throughout the period of rising inequality, income inequality has consistently remained higher and has risen faster in the United States than in Europe (OECD, 2011).[16] Wealth inequality, as measured by the top 10 percent share, has risen in both regions since the 1970s, with the United States exceeding wealth inequality levels in Europe throughout the period (Piketty & Saez, 2014). Figures 1 and 2 present broad trends in income and wealth inequality from 1910 to 2010, respectively.

Researchers have placed a considerable emphasis on documenting trends in inequality in the context of redistributive policy, namely by examining trends in pre- and post-fiscal inequality. Post-fiscal income inequality also rose among OECD countries during the early 1990s, followed by a period of relative stabilization or even declines from the mid-1990s until 2007 (Pontusson & Weisstaner, 2018). During and after the Great Recession, the gap between the middle and top quintiles increased substantially (Dallinger, 2013) and unemployment and poverty became increasingly concentrated among low education workers (Pontusson & Weisstaner, 2018). As of 2014, post-fiscal Gini coefficient across OECD countries reached 0.318, the highest

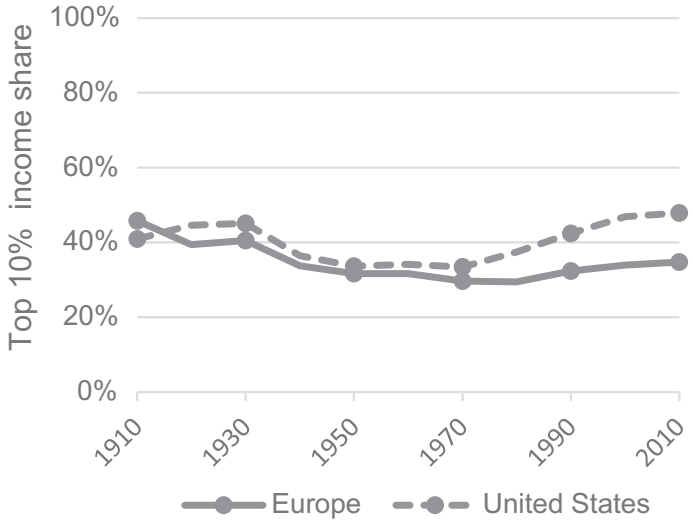

Figure 1. Pre-Fiscal Income in Europe and the United States, 1910–2010.
Source: Adapted from Piketty and Saez (2014).

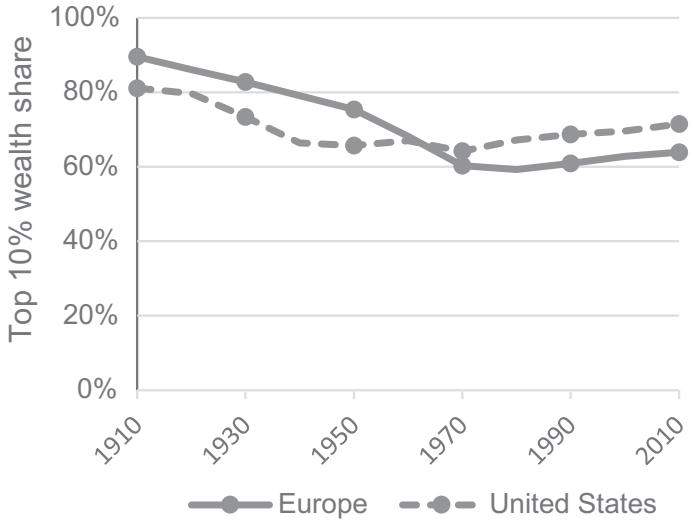

Figure 2. Wealth Inequality in Europe and the United States, 1910–2010.
Source: Adapted from Piketty and Saez (2014).

level on record (OECD, 2018). However, there is also evidence of substantial variation among OECD countries, with post-fiscal income inequality ranging from 0.246 in Iceland to 0.459 in Mexico. In the United States, inequality has been driven by stagnation in the pre-fiscal income of the bottom 50 percent since the 1980s, compared to moderate growth of the middle class and extraordinary growth of the top 10 percent (Piketty, Saez, & Zucman, 2018).[17] As shown in Figure 3, the United States has the dubious distinction of being in the top 5 among OECD countries with respect to post-fiscal income inequality (OECD, 2018).

Among working-age households, welfare redistribution declined during the late 1990s, and then declined even further in the early 2000s (Pontusson & Weisstaner, 2018).[18] Since the Great Recession of 2008–2009, overall redistribution has declined

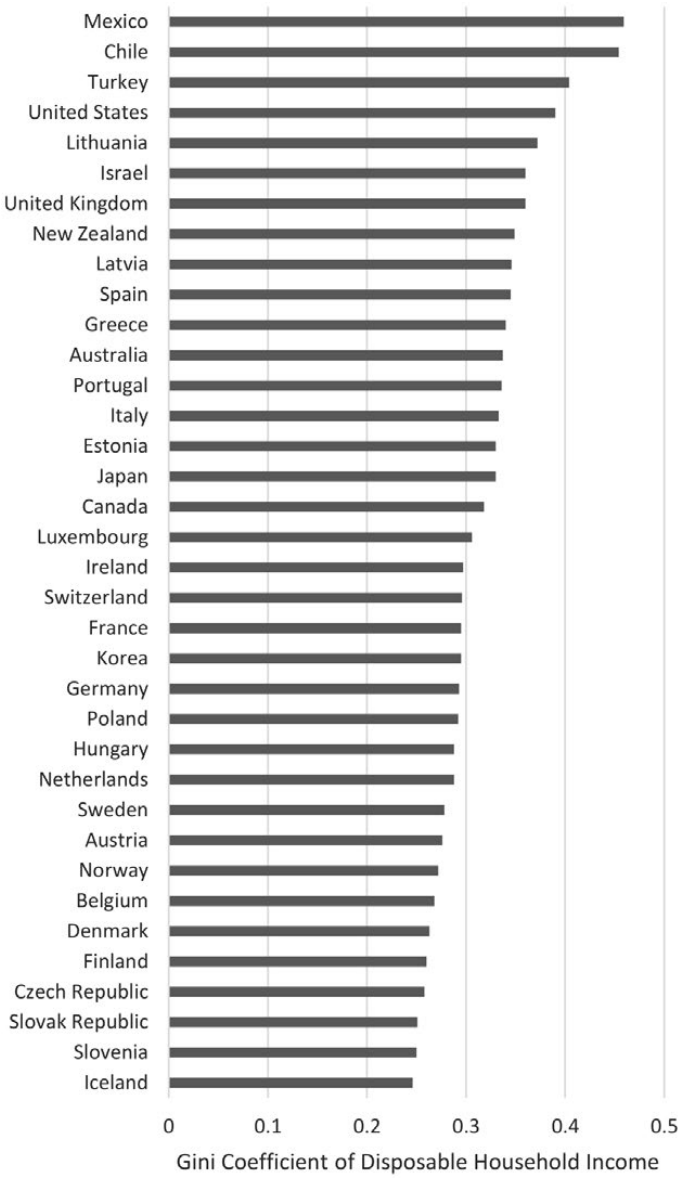

Figure 3. Post-Fiscal Income Inequality in OECD Countries (Gini Coefficient of Disposable Household Income), 2015 or Most Recent.
Source: Adapted from OECD (2018).

or stagnated in most countries after a brief uptick in response to the Great Recession (OECD, 2016), while redistribution among the working-age population has remained weak (Pontusson & Weisstaner, 2018). In contrast to many European countries, government redistribution in the United States has not offset growing income inequality (Piketty et al., 2018).

In addition to these aggregate changes in redistribution, researchers describe a qualitative shift in many European countries in the 2000s and 2010s, from a traditional risk-protection approach (e.g., unemployment protections) toward a human capital development approach (e.g., job training, child-care support) (Busemeyer, de la Porte, Garritzmann, & Pavolini, 2018; Cantillon, 2011; Pintelon,

Cantillon, Van den Bosch, & Whelan, 2013). These changes were accompanied by changes in family-work arrangements (e.g., Hook, 2015; Saxonberg, 2013), market-based social protection (e.g., Greve, 2018; Natali, Keune, Pavolini, & Seeleib-Kaiser, 2018), and shifts in budgetary resources (e.g., Van Vliet & Wang, 2015). During the same period, the United States decentralized selected redistributive social programs and reformed social programs with the purpose of incentivizing work participation (Bruch, Meyers, & Gornick, 2018).[19] Another measure of interest is overall government size. Government spending as a percent of GDP (i.e., a measure of government size) expanded during the 1970s and 1980s, then significantly retrenched in the 1990s and early 2000s (Brady & Lee, 2014).

What Is the Relationship between Social Policy and Economic Inequality?

Researchers broadly agree that there is a strong association between social policy and economic inequality. However, they tend to approach this question from two distinct research traditions. Following seminal work by Esping-Andersen (1990), scholars in the "welfare states" tradition posit that institutional characteristics and related redistributive efforts shape the economic landscape of societies, including poverty and inequality outcomes. In contrast, researchers in the "market forces" tradition tend to describe changes in technology as the driving force behind skill-biased wage changes and related inequalities, leveraging earlier work by economist Acemoglu (2002) and others (e.g., Autor et al., 2008; Goldin & Katz, 2008). While the theoretical basis and approaches are distinct, the research questions and findings are complementary, and jointly contribute to our understanding of the relationship between social policy and economic inequality.[20,21]

Welfare State Approach

The welfare state tradition has historically been interested in explaining cross-country variation in social policy and related outcomes such as poverty. However, as Pontusson and Weisstaner (2018) note, "…the question of how inequality and redistribution are related to each other has moved to the centre stage of comparative political economy in recent years" (pp. 32–33). Following Esping-Andersen (1990), scholars in this tradition posit that economic inequality stems from a variety of structural forces, including labor-market developments (e.g., employment), labor-market institutions (e.g., unions and minimum wage laws), demographic trends, and redistributive policy (Van Vliet & Wang, 2015). Welfare state scholars also tend to rely on Korpi and Palme's (1998) influential categorization of welfare states, wherein "social democratic" states (emphasizing universal benefits) achieve the lowest levels of inequality, followed by "conservative democratic" states, and lastly, "liberal democratic" countries.

Recent research in this tradition tends to focus on five lines of inquiry: (i) explaining retrenchment from traditional social insurance protections and concurrent shifts to a "social investment approach," (ii) addressing ongoing debates about targeted vs universal policy approaches, (iii) targeting applications to specific types

of redistributive policy, (iv) incorporating work-family and other gender-oriented concepts into traditional theoretical frameworks, and (v) exploring the influence of other trends. Applications tend to rely on comparative methods and case studies, with a heavy focus on OECD countries, including the United States and European states.

The first line of inquiry examines the transition from a traditional social protection approach to a social investment approach, observed since the late 1990s, referring to a replacement of passive transfers (e.g., traditional cash transfers) by social policies aimed at building human capital (e.g., active labor-market and child-care policies) (Busemeyer et al., 2018; Pintelon et al., 2013). Researchers are particularly interested in the possibility of higher utilization of social investment among the middle and upper classes than the poor, commonly known as the "Matthew effect," and potential related impacts on economic inequality (Busemeyer et al., 2018). For example, Pavolini and Van Lancker (2018) find evidence of a "Matthew effect" in European use of child care, related primarily to policy design decisions rather than child-care demand. Van Lancker (2018) finds that while more government spending on child-care services in European countries increases child-care participation rates for all groups, it does not decrease inequality of use between groups. Relatedly, Borgna (2017) finds that skills stratification occurs in a variety of educational systems, and further notes that "individual chances of skill development are deeply affected by social background, and educational institutions and policies are not neutral in this respect" (p. 333). Borgna (2017) further suggests that a social investment approach may not yield anticipated reductions to economic inequality. Other scholars find that macro-level contextual conditions matter for social investment policy implementation. Kazepov and Ranci (2017), in a single case study of Italian social investment policy, identify three socio-economic factors necessary for effective social investment policy, including: (i) an orientation of education and labor-market systems toward high-skilled employment; (ii) gender parity in households and the labor market; and (iii) labor-market inclusiveness, especially of young people. They caution that social investment policy is unlikely to lead to economic growth and decreasing inequality in countries that do not meet these "contextual pre-conditions" (Kazepov & Ranci, 2017, p. 101).

A second line of inquiry explores the balance of benefits provision between the state and labor market. For example, Greve (2018) and Natali et al. (2018) examine the impacts of labor-market "dualization," which refers to the shift of social protections to "occupational welfare," typically associated with employment-related benefits, which was originally described by Titmuss (1956). Scholars have posited that the more recent shifts to occupational welfare, including employer-sponsored pensions and health benefits, could crowd out traditional government-provided social protections, contributing further to economic inequalities. While Natali et al. (2018) do not find widespread evidence that occupational welfare is crowding out traditional government social welfare, "access to occupational benefits is not evenly distributed across all socio-demographic groups" (p. 444), reiterating the potential impacts of continued shift toward occupational welfare in states like the United Kingdom, where there is positive evidence of crowding out effects. Greve (2018) concludes that

in the Nordic states of Sweden and Denmark, there is evidence that occupational welfare is associated with reduced pressure on welfare state expenditures. Relatedly, Wilson (2017) focuses on the politics of "predistributional" minimum wage legislation in five OECD countries, finding that such policies allow governments to shift the burden of inequality reduction from fiscally strained governments to employers.[22] While these studies do not explicitly use traditional measures of inequality (e.g., income and wealth inequality), they are indirectly linked to economic inequality via implicit assumptions about the effects of labor market attachment.

Welfare state scholars remain interested in Korpi and Palme's (1998) well-known "paradox of redistribution," which suggests that targeting benefits primarily at the poor is less likely to yield increased equality than universal benefits. That hypothesis has been the subject of debate in recent years after empirical evidence failed to yield support for the hypothesized paradox.[23] More recently, however, Jacques and Noël (2018) return to the underlying hypothesis, using institutional design indicators rather than outcomes to measure redistribution. Using a "universalism" index for OECD countries from 2000 to 2011, they find renewed evidence for the paradox, and suggest that universal welfare states more effectively redistribute income and alleviate poverty.

Scholars continue to test and refine Esping-Andersen's (1999) "de-familialization" concept, which hypothesizes that higher wage inequality is associated with the de-familialization of care, because the lower relative cost of care enables women to outsource their family care labor and engage in the labor market. Several recent contributions highlight efforts to advance the concept, stemming from empirical evidence that challenges the original typology. For example, Cho (2014) develops a refined typology and operationalization of the concept, while Hook (2015) tests the combined influence of familialism and income inequality on work-family arrangements. Hook (2015) finds aggregate support for the model, but also identifies important class polarizations based on mother' educational attainment, wherein the one-and-a-half-earner model of the family splits into two groups, including dual full-time among families with high maternal educational attainment, and male sole earner model among families with low maternal educational attainment. Saraceno (2016) uses a multiple-category typology, which distinguishes between various mechanisms by which familialism can occur, to profile OECD countries in Europe and Asia that have previously been described as simply "familialistic" using the more dichotomous approach. In contrast, Saxonberg (2013) challenges the de-familialization typology altogether by proposing an alternative "de-genderization" typology based on policy choices (e.g., parental leave, access to child care), and argues that such a typology will make it easier to evaluate policy influence under a variety of conditions.

Finally, economic inequality has been linked to two other key trends, including deunionization (e.g., Brady, Baker, & Finnegan, 2013; Jacobs & Dirlam, 2016; Jacobs & Myers, 2014; Volscho & Kelly, 2012) and financialization (e.g., Lin & Tomaskovic-Devey, 2013; Tomaskovic-Devey & Lin, 2011).[24,25] Deunionization refers to declining levels of union membership and related activities in wealthy countries (Ahlquist, 2017). Financialization refers to the growing role of financial markets and institutions

in the economies of wealthy countries (Davis & Kim, 2015). While these forces are not social policy instruments, per se, research suggests that they play a role in decompressing income and wealth distributions. Furthermore, both unions and financial institutions play an active role in influencing policy decisions, even while public policy regulates membership and activities. The causal relationship and direction of influence is challenging to unravel, and thus remains an area of interest among policy scholars.

Market Forces Approach

The prevailing market forces explanation for economic inequality posits that technological changes led to an increasing demand for high-skill workers and decreasing demand for low-skill workers, yielding downward and upward wage and earnings pressures for those groups, respectively, resulting in changes to the income distribution (Acemoglu, 2002; Autor et al., 2008; Goldin & Katz, 2008).[26] Redistributive policies and programs (e.g., social assistance programs, tax rates, and labor-market policies) serve as after-market corrections to the economic inequalities that arise from these forces. Applications frequently focus on U.S. social policy, although not exclusively and use policy analysis methods to examine the impacts of specific policies and programs on economic inequality.[27]

Recent policy-oriented research in this tradition has highlighted the relationship between poverty and economic inequality, and has generated calls for a heavier emphasis on human capital development. Besharov and Call (2009), for example, show that income transfers associated with U.S. social assistance programs have generated declines in material poverty, but argue that a reduction in economic inequality will require a shift toward human capital development. Haveman et al. (2015) find that the growth of antipoverty policies, including a shift from cash transfers to tax credits, work support, and other human capital development programs, is associated with a marked decrease in poverty since the 1965 War on Poverty legislation in the United States. However, they also describe the trend toward increasing economic inequality as a "headwind" that has dampened the impacts of traditional poverty alleviation programs (Haveman et al., 2015).

Other contributions in this tradition focus a lens on tax policy.[28] For example, Iyer, Jimenez, and Reckers (2012) consider the relative contributions of the federal payroll and income taxes in the United States, finding that the progressivity of federal income taxes is significantly offset by the more regressive payroll taxes, yielding an only modestly progressive overall tax structure. More pointedly, Iyer and Reckers (2012) find that the decrease in income inequality associated with taxes on salaries and wages in the United States is negated by the structure of taxes on net capital gains. Relatedly, Iosifidi and Mylonidis (2017), in a comparative examination of tax policy of OECD countries, find that the relative tax burden (on labor, capital, and consumption) has more impact on inequality than single tax rates on any of those categories in isolation. Specifically, a higher ratio of labor to capital taxes or consumption to capital taxes is associated with more economic inequality, while

inequality decreases when the ratio of labor to consumption taxes increases (Iosifidi & Mylonidis, 2017). Finally, Hatch and Rigby (2015) take a broader perspective on U.S. social policy, examining the relationship between four redistributive policy approaches and economic inequality in U.S. states. They find that decreased income inequality is associated with three approaches, including: (i) tax increases for the wealthy (i.e., capital gains, marginal, and corporate tax rates), (ii) tax decreases for the poor (tax liability for those in poverty, state sales tax rate), and (iii) labor-market policies (right-to-work laws, state minimum wage laws). In contrast, they find that more spending on the poor (spending on education, welfare, and health) is associated with greater income inequality in U.S. states, and conclude that policymakers should consider the effects of the redistributive policy "basket," rather than considering the effects of one policy at a time (Hatch & Rigby, 2015).

What Factors Influence Redistributive Social Policy Decisions?

The influence of political factors on redistributive social policy is a second major line of inquiry pursued by social policy scholars during the last decade. There are four distinct approaches to understanding determinants of redistributive social policy, especially as it relates to economic inequality, which we call "macro," "attitudinal," "policy process," and "governance" approaches, borrowing from Pontusson and Weisstaner (2018).[29] The macro approach typically examines the influence of broad, country-level conditions on redistributive policy decisions.[30] The attitudinal approach explores the aggregation of individual preferences and attitudes toward redistribution (i.e., public opinion). Both the macro and attitudinal approaches stem from political economy traditions, especially the influential Meltzer-Richard (M-R) model's median voter hypothesis, which posits that higher income inequality is likely to yield more progressive redistribution as politicians respond to the median voter's preferences (Meltzer & Richard, 1981). The policy process approach uses meso-level theories of the policy process to explain how interactions between policy actors, events, and context influence policy outcomes (Weible, 2018). The governance approach, which tends to be associated with theories of public administration, posits an association between governance attributes and the interjurisdictional distribution of resources.

Macro Approach

The macro approach, often associated with welfare state and political economy traditions, tends to attribute changes in redistributive outcomes to broad, macro-level economic, political and institutional forces, including economic inequality itself. Scholars tend to focus on explaining cross-country and temporal variations in spending on the basis of macro-level conditions, including economic, social, political, and labor market conditions. Ongoing debates about the reliability of the M-R model's median voter hypothesis have stimulated considerable social policy research.[31] Dallinger (2010), for example, develops a model of "contingent support"

that combines the traditional welfare state typology with a variety of country-level features and finds evidence that inequality has an effect on support for redistribution in Western nations, even after controlling for economic conditions and social expenditures, supporting the M-R model. Jensen (2012) introduces a distinction between labor-market risks (e.g., unemployment) and life-course risks (e.g., maternity, old age), suggesting that labor-market risks are more likely to be experienced by low-income voters than life-course risks, which are experienced across the income distribution. Testing a series of related hypotheses, Jensen (2012) finds that right-wing governments reduce spending on unemployment protections, but not when macroeconomic shocks increase the likelihood of labor-market risks for the median voter, and that they do not have a similar effect on health-care spending. Jaeger (2013) also tests the effect of macroeconomic and social conditions on the demand for redistribution in European countries, finding that economic inequality and economic growth are associated with negative and positive preferences, respectively, which is consistent with M-R model expectations. Most recently, Moldogaziev, Monogan, and Witko (2018) finds evidence of a positive relationship between economic inequality in the United States and state-level redistributive spending, noting that the results are robust to a variety of inequality and redistribution measures.

Not all of the studies in our sample rely on the M-R model to explain redistributive policy decisions. Pontusson and Weisstaner (2018) posit that the structure of inequality matters more than the level. Specifically, they attribute redistributive retrenchment to "inequality shocks" during economic downturns, which concentrate unemployment and poverty risk among low-education groups, causing public opinion to become more "permissive" (Pontusson & Weisstaner, 2018, p. 51) of cuts to social assistance, and making government retreat more politically viable. Brady and Lee (2014) turn to power resources theory, using cross-country evidence to demonstrate that government expansion during the 1970s and 1980s was influenced by unionization, but that the subsequent retrenchment starting in the late 1980s was a result of structural pressures, including unemployment and trade.

Attitudinal Approach

Research about attitudes toward redistributive social policy is also typically predicated on the concept that the median voter, and therefore public opinion, matters. They tend to focus on testing competing hypotheses about the impacts of self-interest, social values and/or institutional contexts on public attitudes toward redistribution, but the results are mixed and scholars continue to debate which factors have the most influence on public opinion.[32] Finseraas (2012), for example, finds that support for redistribution among the rich is lower in European countries with a high proportion of ethnic minorities among the poor. Gallego and Marx (2017), however, find that support for Spanish labor-market programs is associated with both program-level funding mechanisms and left-right ideology. Wu and Chou (2017) find public support among Hong Kong citizens for government efforts to reduce income inequality, especially among individuals who perceive themselves as being

vulnerable or in a lower social class.[33] Furthermore, there is some evidence that people are less approving of redistribution in the presence of constraints. Ng (2015), for example, finds that in spite of broadly sympathetic attitudes among Singaporeans toward welfare and welfare recipients, there is a marked unwillingness to pay higher taxes to increase welfare protections. These two studies are among the few examples of studies focused on countries outside Europe and the United States.

Even though education policy has not traditionally been treated as a form of redistributive policy, social policy researchers have noted affinities between the two policy areas, especially given the recent emphasis on human capital development/social investment in the social policy realm. Furthermore, researchers find similar results related to support for education policy. [34] Busemeyer and Garritzman (2017), for example, find that in Western European countries, despite a high overall level of support for education spending among multiple income groups, preferences vary by education level and income position when their options are constrained, with high income and educated individuals preferring education-focused policy over traditional welfare policies. Similarly, Di Stasio (2017) finds that individual preferences for education design in Europe are influenced by their own education status and preferences for their children.

While fewer studies directly examine attitudes toward wealth and wealth-related redistribution, Rowlingson and Connor (2011) introduce potential criteria by which the rich might be considered to be deserving of their wealth, including the appropriateness of rewarding hard work/merit, incentives for further wealth creation, and character or behavior. They suggest that these criteria can be used to better understand social policy decisions that are likely to influence economic inequality, especially taxation policy. Building on similar foundations, Skilling and McLay (2015) find that the New Zealand public considers the rich more deserving of wealth-related outcomes than the poor are of social assistance. They also find an association between attitudes toward redistribution and judgments about the deservingness of both groups (rich and poor).

Social policy scholars presumably attend to determinants of public opinion because the M-R theorem implies that policy outputs are likely to be consistent with the preferences of the middle-income voter, and therefore aligned with representation. However, Wlezien (2017) offers a valuable note of caution, arguing that evidence of a relationship between attitudes and policy decisions does not necessarily mean that policymakers respond to middle-income preferences in all domains. He offers an alternative strategy for assessing preference-policy congruence more directly as differences across groups, and further suggests that research on policy outcomes should accommodate other factors highlighted by the macro approach, including political parties and institutions (Wlezien, 2017).

Policy Process Approach

Applications using the policy process approach turn to a variety of frameworks to explain how the interactions between policy actors, events, and contexts yield

policy outcomes, often at the policy subsystem level (Weible, 2018). In one of only two examples of policy process applications in our sample, Flavin and Franko (2017) turn to political agenda-setting theory to explore the impacts of economic inequality on redistribution. They find that government attentiveness varies by the gap in priorities between rich and poor, with state bill introductions less likely for issues more heavily prioritized by the poor than the rich, suggesting implications of economic inequality for political representation, and in turn, redistributive policy. De Wispelaere (2016), in turn, draws on the policy transfer literature and three cases to show how policy learning and emulation has yielded three different varieties of (partial) basic income schemes in three cases, Brazil, Alaska, and Iran.

Governance Approach

The governance approach examines the relationship between institutional and administrative trends, such as decentralization and privatization, and the inter-jurisdictional distribution of resources.[35] United States social policy is characterized by a long-standing tradition of cooperative federalism. Bruch et al. (2018) use three broad categories of state discretion, including financial, rulemaking, and administration, to assess the relationship between decentralization and safety net generosity. They find that the decentralization of U.S. social policy programs since the 1990s and growth of state-level discretion has resulted in more cross-state inequality in service provision. They also find that overall, cross-state inequality is consistent over time, but that the changes associated with the Personal Responsibility and Work Opportunities Reconciliation Act of 1996 yielded greater cross-state inequality in related programming. Kim and Warner (2018) have identified similar results of state decentralization to the local level. They examine the response of cities and counties to fiscal stress introduced by the Great Recession and find evidence that devolution of responsibility, reductions of state assistance, and constraints on local revenue-raising authority have resulted in spatial inequalities in service provision.

Some international scholars have also turned to governance explanations. For example, Arlotti and Aguilar-Hendrickson (2018) report evidence that decentralization and institutional fragmentation associated with "multilevel governance" in Southern Europe has yielded substantial territorial inequalities in long-term care provision. Similarly, Li, Wang, and Zheng (2017) examine local government decentralization in China, finding evidence that the resulting interjurisdictional competition yields higher intraurban fiscal disparities.

Discussion and Conclusion

Several observations emerge from this review essay. First, policy-oriented scholars from a variety of research perspectives have produced a rich body of important work, with balanced attention paid to economic inequality and related policy trends, effects of policy-related conditions on economic inequality, and determinants of redistributive social policy decisions. To be sure, varying theoretical

traditions and related epistemologies complicate efforts to integrate and highlight findings. Furthermore, our sample of policy-oriented scholarship is only a sliver of the broader literature addressing related research questions. Even in the face of these limitations, however, several common trends, emerging interests, and gaps emerge from this review.

Substantively, the policy-oriented publications in our sample include a variety of social policy types, including social insurance, social investment, and taxation policy. However, they focus heavily on the bottom and middle of economic distribution(s), presumably due to the strong interest in poverty and the (related) ongoing influence of the M-R model's median voter hypothesis. There are fewer attempts to understand the implications of the growing concentration at the top of the income and wealth distributions. Relatedly, the policy-oriented literature in our sample primarily focuses on income and earnings distributions, paying less attention to wealth accumulation.

Geographically, the literature maintains an ongoing interest in cross-country and U.S. cross-state variation in economic inequality and redistributive policy among affluent countries. There are stark differences between Europe and the United States, although some of the differences may be related to variation in the research traditions applied to those regions. However, few applications to countries outside of OECD countries emerged from our search. As Gao, Yang, and Li (2013) note, "Relatively little has been done to examine the features of developing welfare states, despite the growing research on some Latin American and East Asian countries in recent decades" (p. 744).

Theoretically, the selection of policy-oriented contributions represents a wide variety of research questions and approaches, at least in part due to the broad search criteria used to select the sample of articles. Most of the contributions build on or refine well-established theoretical traditions and related methodological approaches. The welfare states and political economy literatures are well-represented in our sample, but they are interspersed with selected applications drawing on policy analysis, policy process, and public administration traditions, suggesting opportunities for theoretical and methodological hybridization. Methodological approaches similarly vary, from single case studies to cross-country time series analyses.

One emerging area of interest relates to how we define and categorize social policy, especially as it relates to economic inequality. Recent efforts by Gornick and Smeeding (2018) to classify redistributive policy instruments offer new opportunities for ongoing research into the impacts and determinants of policy and policy change, as suggested by Wilson's (2017) research into politics of the minimum wage. Similarly, scholars have more frequently distinguished between pre- and post-fiscal inequality, yielding more accurate assessment of economic inequality and the compression influence of redistributive and other social policies. Moreover, U.S. scholars have begun to examine the association between inequality and bundles of redistributive policies (e.g., Bruch et al., 2018; Hatch & Rigby, 2015), moving away from more traditional forms of policy analysis that examine the impacts of single policies or policy areas. Relatedly, European researchers have expanded the concept of social policy, paying increasing attention to education policy

(e.g., Busemeyer & Garritzmann, 2017; Di Stasio, 2017) as an important form of social policy, likely due to the transition to the influence of theories of human capital development and related expansion of the social investment approach. Our initial search also revealed a strong interest among policy scholars in two areas that were mostly beyond the scope of this essay: (i) inequality in other policy areas, including health and environment; and (ii) consideration of other dimensions or measures of inequality (e.g., gender, age, citizenship). Targeting those policy areas and dimensions may provide additional insight into the associations between economic inequality and related policy decisions.

As noted, there are important differences between research traditions. However, there are also signs of emerging complementarities between them. For example, exploration of the Matthew effect (e.g., Pavolini & Van Lancker, 2018) dovetails closely with efforts to use policy analysis to identify heterogeneous treatment effects of human capital development programs (e.g., Schoenberg, Cornelissen, Dustmann, & Raute, 2018). Labor unions are receiving attention on multiple fronts. While they have long been considered an important force in redistributive politics by comparative scholars (Brady & Lee, 2014; Moller, Huber, Stephens, Bradley, & Nielsen, 2003), economists have found new evidence of unionization's mitigating effects on economic inequality (Farber et al., 2018). Finally, comparative scholars are also attentive to other forms of inequality (e.g., non-monetary inequality), aligning with Piketty's (2018) recent suggestion that "multi-dimensional" inequality has contributed to the political cleavages being observed throughout the world.

Future policy-oriented research on economic inequality will confront several methodological challenges. First, how inequality is measured matters. There is now broad consensus on rising income inequality as measured by the Gini coefficient. Yet, many studies from the welfare state and market forces traditions use multiple indicators of economic resources and inequality, as well as distinct approaches for describing redistributive policies and regimes. An in-depth review of the use of these definitions and indicators is beyond the scope of this review but may be an important future direction of research for the field. Furthermore, scholars treat economic inequality as both the independent and dependent variable, depending on their theoretical orientation and research interests. New approaches are needed to address endogeneity in much of the research on economic inequality. Finally, as comparable data become available, researchers may find it fruitful to look more closely at the relationships between policy and wealth inequality.

We would be remiss if we did not note and speculate on the surprising absence of policy process studies in our sample.[36] Three observations may offer an explanation. First, by definition, studies that model economic inequality as the dependent variable are excluded from the policy process literature, since the policy process typically focus on the "how" and "why" of policy change. Second, most of the major policy process theories were developed to explain nonincremental change, and some are focused exclusively on subsystem dynamics. In contrast, several social policy trends, including the recent "retrenchment," have been shown to be subject to incremental, macro-level forces (e.g., Hacker, 2005). Finally, Jorgensen (2017) argues that some policy process theories, such as the Advocacy Coalition Framework, implicitly

model pluralist assumptions, thereby modeling out a host of normative concerns. Regardless of our conjectures about why, we argue that there is a missed opportunity to introduce a meso-level approach to a body of literature that currently focuses heavily on the macro and micro levels.

Finally, despite our efforts to position these contributions in the broader disciplinary-specific literatures (i.e., economics, sociology, political science), this review offers only a partial view of discipline-specific publications tackling similar, or related, research questions. Many of the contributions in our sample are closely connected to, or derived from, the broader literature on economic inequality. Whether and how to best differentiate policy-oriented literature from other discipline-specific contributions with respect to research on economic inequality remains an unresolved question.

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Notes

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1. A Web of Science topic search for English-language articles focused on ("economic inequality" OR "income inequality" OR "wealth inequality") in the "Economics," "Sociology," "Political Science," and "Public Administration" categories between 2000 and 2017 reveals that annual publications have steadily increased from 91 in 2000 to 492 in 2017, for a total of 4,144 articles.
2. For the purpose of this essay, social policy scholarship includes research aimed at understanding traditional redistribution by the state (i.e., government transfers and direct taxes), as well as predistributional policy (i.e., those that shape earnings and benefits) and policy affecting private redistribution (i.e., interhousehold or intergenerational transfers). See Gornick and Smeeding (2018) for a review of these categories.
3. Our overall approach is intended to highlight the contributions of the policy-oriented literature, while offering an introduction that acknowledges the multi-disciplinary nature of the topic.
4. In the interest of maintaining our policy-oriented focus, we do not explicitly pose explicit questions about the associations between economic inequality and political behavior.
5. Social policy scholars also turn to other indicators of inequality, such as consumption, service access and use, health and education outcomes, political participation, happiness/well-being, and other non-pecuniary measures.
6. Some scholars are primarily interested in inequality across subgroups. See Jasso and Kotz (2008) for a review of the distinction between inequality between persons and inequality between subgroups.
7. See McCall and Percheski (2010) for an early review of explanations for income inequality, focusing on the spheres of family formation, changes in top compensation practices, and social policies and political institutions.

8. The income (wealth or consumption) share is calculated as the proportion of the income (wealth or consumption) attained by the top X% of the population.
9. The Gini coefficient is a standard measure of statistical dispersion that ranges from 0 to 1. A value of 1 represents perfect inequality, while value of 0 represents perfect equality.
10. Ratio measures compare income or wealth in different percentile groups. A standard measure is the 90/10 income ratio of incomes at the top (90th percentile) and bottom (10th percentile) of the income distribution.
11. See Gornick and Jäntii (2013) for a comprehensive discussion of inequality measures.
12. Relative poverty is measured as the share of individuals who are below a selected income (or wealth) percentile, sometimes calculated with reference to the mean or median. Relative poverty rises when inequality increases and declines when inequality decreases. In contrast, absolute poverty measures are typically determined by a comparison of household income with a pre-determined threshold that accounts for household size.
13. See Smeeding (2016) and Brady (2009) for further discussion of various poverty measurement approaches.
14. Several recent discipline-specific reviews of wealth inequality are worth noting. For example, Killewald, Pfeffer, and Schachner (2017) offer a review of approaches to wealth measurement and trends, and a discussion of determinants of wealth accumulation and social stratification. Scheve and Stasavage (2017) review recent empirical work on connections between wealth inequality and democracy. Piketty (2014a) provides an accompaniment to the well-known Piketty (2014b) treatise on wealth and capital inequality.
15. See Gornick and Smeeding (2018) for a review of trends in poverty, inequality, and redistributive institutions in high-income countries.
16. See Piketty and Saez (2014) for a comprehensive comparison of historic changes to income and wealth inequality in Europe and the United States.
17. See Alvaredo, Atkinson, Piketty, and Saez (2013) for a review of the growth of the top 1 percent of the income distribution in the United States.
18. Pontusson and Weisstaner (2018) measure changes in redistribution as the percentage change in the pre-fiscal and post-fiscal Gini coefficients of income inequality.
19. See Guzman et al. (2013) for a review of the U.S. welfare system and related changes.
20. The research traditions identified in this literature review are not unlike the "liberal economic," "structural," and "institutionalized power resources" categories used by Brady (2009) to describe the poverty research landscape, visualized in Brady's (2009) "fractal map of poverty literature" (p. 170). In the categories that emerge from this review, however, the structural and political explanations are more tightly entangled in the welfare state literature.
21. The policy-oriented literature also includes a small selection of articles in the "critical" tradition, which examine inequality-oriented policy from a discourse, problematizing, or interpretive perspective.
22. See Gornick and Smeeding (2018) for a review of research related to these categories of redistributive policy.
23. See Kenworthy (2011) for a review of the concept and related debate.
24. See Ahlquist (2017) for an interdisciplinary review of scholarship related to (de)unionization and economic disparities.
25. See Davis and Kim (2015) for a review of the causes and consequences of financialization.
26. Interestingly, a recent working paper by Farber, Herbst, Kuzienko, and Naida (2018) offers new evidence that unionization also has an equalizing effect on the income distribution, which will likely inspire new dialogue about the dominant explanation for economic inequality.
27. In contrast, the welfare states literature tends to subsume these policy types in the broader classifications associated with welfare generosity.
28. See also Martin and Prasad (2014) for a review of sociological research related to tax policy.
29. Pontusson and Weisstaner (2018) make a similar distinction between the first two approaches, but do not note a separate policy process or governance approach.

30. Some scholarship in these broader categories also seeks to understand the direct impacts of economic inequality on redistributive policy. These explorations, of course, are plagued by endogeneity challenges if we presume that economic inequality is both a determinant and result of redistributive policy.
31. See Erikson (2015) for a review of recent debates about the relevance of the M-R model in the U.S. context, and a related discussion of political inequalities between rich and poor.
32. See Svallfors (2012) for more comprehensive discussions of public attitudes toward European welfare reforms.
33. In contrast, Mettler's (2018) recent book highlights antagonism toward U.S. redistributive policy among those with the highest usage rates, isolating ideologically based identity and group affiliation as factors.
34. See Gift and Wibbels (2014) for a review of comparative research focused on education policy, and an entreaty for political scientists to devote more attention to education policy.
35. While the treatment of economic inequality is somewhat different from the rest of this review, we include these contributions in the interest of acknowledging the potential for management-related decisions to influence redistributive outcomes.
36. Despite the inclusion of five *Policy Studies Journal* articles in our targeted sample, only two of the articles in our sample (De Wispelaere, 2016; Flavin & Franko, 2017) apply major policy process theories.

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Weathering the Storm: Social Policy and the Great Recession

Cory Maks-Solomon and Robert P. Stoker

This review discusses recent challenges to the welfare state arising from the Great Recession (GR). The GR was a significant event for social policy analysts, as it tested the responsiveness of welfare systems in the midst of a recent trend toward austerity politics in advanced economies. Social policy changes were part of the toolkit advanced democracies used to respond to the GR, and the welfare state mitigated the consequences of the GR. However, a stark limitation of the social safety net in the United States was the failure to assist immigrant households. The nexus of immigration and social policy is likely to be a significant controversy as we consider the meaning of social citizenship.

KEY WORDS: social policy, welfare, Great Recession, unemployment, immigration

本文探讨了福利国家近期因经济大衰退而面临的挑战。经济大衰退对社会政策分析师而言是一个极为重要的事件，因为它检验了福利体系在由保罗·皮尔逊提出的“长期紧缩”中的响应性。社会政策变化是先进民主用于回应经济大衰退所用的部分工具，同时福利国家缓解了经济大衰退造成的结果。然而，美国社会安全网中的巨大限制则是没有成功协助移民家庭。如果我们考虑社会公民的意义，那么移民和社会政策之间的复杂关系很可能是一个显著的矛盾。

关键词: 社会政策, 福利, 经济大衰退, 失业, 移民

Esta revisión analiza los desafíos recientes al estado de bienestar que se derivan de la Gran Recesión. La Gran Recesión fue un evento importante para los analistas de política social, ya que probó la capacidad de respuesta de los sistemas de bienestar social en medio de lo que Paul Pierson (2001) llamó "austeridad permanente". a la Gran Recesión, y el estado de bienestar mitigó las consecuencias de la Gran Recesión. Sin embargo, una gran limitación de la red de seguridad social en los Estados Unidos fue el hecho de no ayudar a las familias inmigrantes. El nexo de la inmigración y la política social es probable que sea una controversia significativa, ya que consideramos el significado de la ciudadanía social

PALABRAS CLAVE: política social, bienestar, gran recesión, desempleo, inmigración

Longstanding concerns about the crisis of the welfare state (Béland, Howard, & Morgan, 2014; Castles, 2004; Huber & Stephens, 2001; Pierson, 1996, 2001) were accelerated and amplified by the Great Recession (GR). As tax revenues declined and demand for social assistance grew, policymakers across the globe struggled to cope with the most severe economic downturn since the Great Depression. Initially,

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in the United States and in other advanced democracies, governments responded to the crisis by expanding social policy benefits to stimulate economic recovery and ease privation. However, as government deficits increased and debt mounted, many nations turned to austerity.

The GR was a significant event for social policy analysts, as it tested the responsiveness of welfare systems in the midst of what Pierson (2001) called "permanent austerity." However, in the United States, austerity and welfare retrenchment have been uneven. Waddan (2014) notes that while welfare cash assistance was cut back with budget constraints, time-limited benefits, and work requirements, other elements of the welfare state have expanded. Recent expansions include more generous food assistance, medical assistance, and cash transfers provided through the tax system. As Pierson (2001) observed, welfare systems are being restructured, not dismantled.

We review the recent social policy literature focusing on elements of welfare state policymaking and politics that were illuminated by the GR. First, we examine policy responsiveness. How did governments use social policy to respond to the GR? Then we assess the outcomes of their responses. Did social policy help to mitigate the consequences of the GR? How did the responsiveness of social programs vary? Did responses provide advantages to particular groups? We then discuss policy feedback, describing the political consequences of policy responses to the GR. How did policy responses to the GR affect electoral politics and public opinion? Finally, we focus on the implications of the GR: is it likely to have lasting or transitory effects on social policy?

Following the lead of Guzman, Pirog, and Seefeldt (2013), we focus primarily on policies in the United States that provide income support as tax credits or cash and in-kind assistance since other review articles in the *Policy Studies Journal Yearbook* focus on health and education. While a comprehensive review is not possible, we include research in economics, history, policy studies, political science, and sociology from academics, foundations, government institutions, and think tanks. Although our review primarily focuses on U.S. national policies, we are attentive to state-level variation and, when possible, strive to place the United States in comparative perspective.

The Great Recession

The GR was a global economic crisis. Declines in gross domestic product (GDP) indicate that the GR was the most severe economic downturn since the Great Depression. Although the crisis was global in scope, the severity of the downturn and the rate of recovery did vary across and within nations. Initially, advanced economies experienced similar trends, as GDP declined in 2008 and 2009 and then started to recover in 2010. However, national economic trends then diverged. Restrepo-Echavarria and Arias (2017) explain that the United States and European countries with strong economies (such as Germany) followed similar paths, and GDP growth resumed in 2010. However, as a result of the debt crises that followed the GR, in countries such as Greece, Spain, and Portugal, the European Central

Bank established fiscal consolidation programs. This imposed austerity plunged many of these nations into a second economic crisis. Figure 1 illustrates the divergent GDP trends in selected nations: While the recovery that began in 2010 continued in the United States, United Kingdom, and Germany, in Spain and Italy GDP declined again beginning in 2011. In some nations, GDP growth did not return until 2015.

While the recession in the United States officially lasted from December 2007 to June 2009, the recovery took much longer. The discrepancy arises from the fact that unemployment rebounded more slowly than GDP (Bitler & Hoynes, 2016; Restrepo-Echavarria & Arias, 2017). The civilian unemployment rate in the U.S. rose from 5 percent in 2008 to nearly 10 percent in 2010; it wasn't until mid-2017 that unemployment returned to pre-recession levels (Restrepo-Echavarria & Arias, 2017). However, there was subnational variation in the depth and duration of unemployment (Kilgour, 2015; Thiede & Monnat, 2016). Unemployment rates during the GR were higher in the South and West as well as in Rust Belt states (Thiede & Monnat, 2016). Across Europe, national unemployment rates also varied, as did the rate at which employment recovered following the recession (Restrepo-Echavarria & Arias, 2017).

Policy Responses

Advanced democracies used a variety of policy tools to respond to the GR.[1] In both the United States and the European Union, the initial policy response was to enact stimulus programs and expand the welfare state. Blinder (2013, p. 26) described the U.S. policy response as "multifaceted and massive." The federal

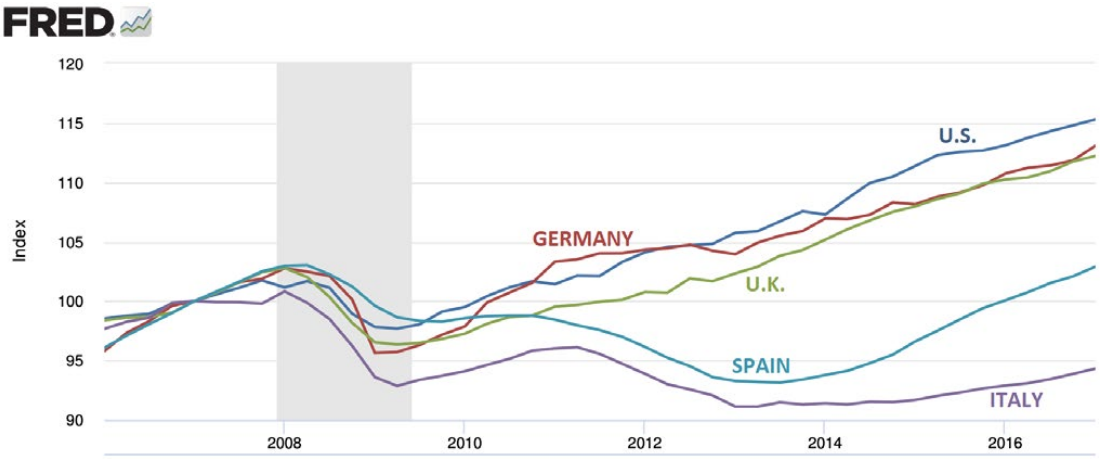

Figure 1. Indexed Real GDP in Selected Nations (2006–17).
Notes: Seasonally adjusted real GDP is presented on the *y*-axis for selected countries. GDP is indexed such that GDP = 100 in January 2007 for each country. The shaded region indicates the Great Recession in the United States. The graph was created using the Federal Reserve Bank of St. Louis's graph editor using data from Eurostat and the U.S. Bureau of Economic Analysis. (Further information on data sources are available at this link: https://fred.stlouisfed.org/graph/?g = mmG5 [accessed December 11, 2018].) This graph reproduces the information presented by Restrepo-Echavarria and Arias (2017).

government bailed out several industries, engaged in stimulus spending, reduced taxes, and temporarily increased the generosity of social programs.

The initial U.S. legislative response was The Economic Stimulus Act of 2008 (ESA). The ESA provided tax rebates to individuals to generate consumer spending and business tax breaks to spur investment; the total value of the stimulus was approximately 1 percent of GDP (Blinder, 2013). Congress then enacted the Troubled Assets Relief Program (TARP). TARP provided $700 billion in spending authority to the Treasury Department—though this amount was subsequently reduced to $475 billion—to stabilize the banking industry, stimulate credit markets, stabilize the automobile industry, stabilize American International Group (a key financial institution), and stabilize housing markets (Treasury Department, 2016).[2] In 2009, Congress enacted the American Recovery and Reinvestment Act (ARRA, popularly known as "the stimulus") to provide tax cuts, social spending, revenue sharing with state and local governments, and public expenditures equal to roughly 5 percent of GDP, "the largest discretionary stimulus bill among developed economies" (McCarty, 2012, p. 218).

The initial policy response in Europe was similar: Governments bailed out their finance industry, engaged in stimulus spending, and expanded welfare generosity. Between 2008 and 2009, many European nations extended welfare benefits or created new programs (van Kersbergen, Vis, & Hemerijck, 2014). At the beginning of the GR, many countries provided one-time payments to stimulate family budgets and alleviate child poverty (Chzhen, 2017; Marchal, Marx, & Van Mechelen, 2014). However, Cameron (2012) reports that the fiscal stimulus in Europe was more limited than that undertaken in the United States. A coordinated stimulus (valued at approximately 1.5 percent of E.U. GDP) was approved by the European Council in 2008. However, the limited fiscal capacity of E.U. institutions constrained the scope of the stimulus, leaving additional measures to encourage economic recovery to individual member states. As a result, policy responses varied; while some European nations began to recover in 2009, others "remained mired in recession" (Cameron, 2012, pp. 91–92).

Social Policy Changes in the United States

Social policy changes were part of the toolkit advanced democracies used to respond to the GR. In the United States, as demand for social assistance increased, spending on social safety net programs grew from $1.6 trillion in 2007 to $2.1 trillion in 2010 (Moffitt, 2013). As unemployment increased, the ARRA deferred Temporary Assistance for Needy Families (TANF) work requirements and increased funds for state TANF block grants. State governments were also granted broad exemptions from work requirements related to the Supplemental Nutrition Assistance Program (SNAP, popularly known as food stamps). Other ARRA provisions increased the generosity of SNAP benefits and provided one-time cash payments to Supplemental Security Income (SSI) recipients. In addition, the ARRA made the Earned Income Tax Credit (EITC) and the Child Tax Credit (CTC) more generous.

Social insurance programs were also altered by the ARRA. One-time cash payments were provided to tens of millions of Old Age, Survivors, and Disability Insurance (OASDI, popularly known as Social Security) recipients. However, the most important changes to social insurance benefits occurred in the Unemployment Insurance (UI) program. The UI program is a counter-cyclical policy that offsets income loss for workers who are unemployed through no fault of their own. Eligibility and benefits are a function of prior earnings (Bitler & Hoynes, 2016). The UI program is jointly administered by the federal and state governments. Regular UI benefits are "forward-funded" by dedicated state taxes. That is, state UI programs accumulate reserves during good economic times to finance benefits during economic downturns (Kilgour, 2015; Vroman & Woodbury, 2014). In addition, during severe economic downturns, Congress may elect to expand the UI program by offering "emergency" benefits (Bitler & Hoynes, 2016).

During the GR, with many states facing serious fiscal problems and high unemployment, the federal government temporarily re-organized UI programs (Kilgour, 2015). Congress extended the duration of benefit payments, increased the generosity of benefits, and provided a limited exclusion of benefit payments from federal taxation. Beyond this, the ARRA financed 100 percent of the costs of the extended benefits with federal general revenues, making it more attractive for states to opt in (Bitler & Hoynes, 2016). In addition, an emergency UI program was created and fully financed by the federal government. The Emergency Unemployment Compensation Program temporarily distributed additional unemployment assistance to people who had exhausted regular state benefits, with the duration of emergency benefits linked to state unemployment rates (Labor Department, 2013). The combined emergency and extended unemployment benefits provided a total of 99 weeks of coverage. Spending on UI increased dramatically during the recession: "Aggregate spending between 2007 and 2010 increased from $34 billion to $142 billion" making it the most important legislative response to the GR (Moffitt, 2013, p. 152).

Although employment was slow to rebound, institutional gridlock prevented additional stimulus programs or unemployment relief. As a result of the Budget Control Act of 2011 and continuing disagreements about budgetary priorities between President Obama and Congressional Republicans, automatic spending cuts (sequestration) occurred. Spending cuts were applied to Medicare as well as TANF, SNAP, and other means-tested programs. Rather than providing additional stimulus to accelerate the recovery and reduce unemployment, the federal government decreased spending, and prolonged the GR.

Pro-cyclical State Policies

While the U.S. federal government initially pushed economic stimulus and enhanced social assistance, state and local governments were often heading in the opposite direction. A Brookings Institution report (Gordon, 2012) observed that state revenues "plunged" during the GR. State responses to economic downturns

are significant because states provide extensive social policy benefits in areas such as health, education, and welfare, and state and local governments are significant sources of employment. Although, in general, state-level spending on public welfare decreases during recessions, changes were uneven across social programs; during the GR, state-level TANF spending deceased, but Medicaid spending increased (Ewalt & Jennings, 2014). The ARRA did provide financial assistance to states, including $145 billion in intergovernmental transfers, plus additional spending to spur infrastructure projects. But, even that was insufficient to offset lost state revenue. In response to budgetary shortfalls, states cut spending, raised taxes, and reduced state and local government employment (Campbell & Sances, 2013; Gordon, 2012; Rigby & Hatch, 2017).

Rigby and Hatch (2017) analyzed state policy choices in response to the GR and observed that in addition to having fewer resources and increased demands from safety net programs, many states were institutionally constrained by balanced budget requirements. But these balanced budget requirements can also be an *opportunity* for politicians. During periods of recession, Democrats cannot get the spending increases they want, and Republicans cannot get the tax cuts they want; both parties must call for pro-cyclical budget-balancing proposals. However, during recessions, "Republicans were more likely to opportunistically shift their policy platform—increasing calls for spending cuts—while maintaining their previous calls for tax cuts on the wealthy" but Democrats did not opportunistically call for tax hikes (Rigby & Hatch, 2017, p. 600). While both parties find themselves constrained by balanced budget requirements during budget shortfalls, recessions are more of an opportunity for austerity-minded Republicans than they are for Democrats, who are unable to defend against Republican calls to reduce social spending.

Did Social Policies Work?

Social policies helped to mitigate the consequences of the GR. Several analysts examined the aggregate effects of U.S. social policies on poverty and privation during the GR and concluded that social programs reduced poverty, though the effects varied across programs and groups (Bitler & Hoynes, 2016; Bitler, Hoynes, & Kuka, 2017; Moffitt, 2013; Wimer & Smeeding, 2017). Although the literature overwhelmingly concludes that the social safety net was responsive to the economic crisis and delivered needed support to poor and near-poor families, the safety net failed to deliver significant benefits to immigrant households.

Evaluating the Safety Net

Moffitt (2013) reviewed American social policy responsiveness to the GR, including social insurance programs, means-tested transfer programs, and taxes. Moffitt concluded that the social safety net responded favorably. The UI program was the most responsive social insurance program, since only slight changes in the established trajectory of OASDI and Medicare were evident. Among means-tested transfer and tax programs, SNAP and EITC stood out as the most responsive. (TANF,

SSI, and housing assistance showed little responsiveness.) Moffitt also examined the distribution of benefits across a number of recipient characteristics, such as poverty status, disability status, age, employment, and family type. Although all groups received increased transfers of one sort or another during the GR, different social programs served recipients with different characteristics. UI and SNAP benefits primarily assisted non-working families. However, the EITC provided benefits to low-income working families, especially those near the poverty line. Finally, Moffitt (2013) observed the distributive consequences of the safety net among needy families: The social safety net was not highly progressive among poor families. Families in deep poverty benefited most from UI and SNAP. However, families near the poverty line received larger income transfers from the EITC than poorer families received from UI and SNAP.

Research by Bitler and Hoynes (2016) showed that SNAP and UI benefits were key countercyclical programs during recessions. While their research also suggests that welfare cash assistance is countercyclical, the 1996 federal welfare reform marginalized the importance of cash assistance (TANF) in the social safety net, reducing its reach and ability to protect families from poverty (Bitler & Hoynes, 2016). Accounting for near-cash assistance and tax credits, Bitler and Hoynes conclude that the safety net substantially reduced poverty and privation during the GR.

Wimer and Smeeding (2017) examined the effects of policy responses to the GR on child poverty in the United States. Their analysis shows that child poverty rates in the United States did not increase significantly during the GR, though they initially were and remained "unconscionably high" (Wimer & Smeeding, 2017, p. 315). They attributed this limited success to SNAP and refundable tax credits (the EITC and the refundable portion of the CTC). They note that the generosity of these policies had been enhanced since 2000, and was further enhanced in response to the GR.

Bitler et al. (2017) used state-level data to analyze the robustness of the social safety net in relation to the income distribution and selected household characteristics. Focusing on social insurance (OASDI and UI) and means-tested tax (EITC and CTC) and transfer programs (including SNAP, SSI, TANF, energy assistance, housing assistance, and school meals), Bitler et al. (2017) found that the social safety net mitigated poverty during the GR, as losses in private income were offset by the social safety net. The most robust elements of the safety net were means-tested tax benefits (such as EITC) and SNAP. However, the effectiveness of the safety net varied across groups. In particular, Bitler et al. observed that the safety net was limited for immigrant households; although immigrants were more likely to experience economic distress, their distress was not effectively relieved by the safety net.

Across Europe, social spending also led to a reduction in poverty. Chzhen (2017) analyzed child poverty across 30 European nations during the beginning of the GR. Chzhen found that the group of children with the highest risk of poverty were those in households with adults with low work intensity. Social spending was particularly important in reducing child poverty among these types of families. Like in the United States, migrant households in Europe had higher rates of child poverty during the GR, even after controlling for other factors.

Immigrants and the Welfare State

In the United States, federal policy has treated immigrants as a distinct class of social policy beneficiaries since the 1970s, which can explain the inability of the safety net to protect them from poverty. Status as an immigrant is disqualifying for some social policy benefits and limiting for others. Fox (2016) explains that between 1935 (when the Social Security Act was passed) and 1971, no federal restrictions existed on noncitizen receipt of federal social policy benefits. Immigrants could receive social security, unemployment insurance, old age assistance, and means-tested welfare, even if they were undocumented. Although in some cases states were empowered to restrict immigrant access to federal benefits, few did so because state poor laws often required states to provide assistance to immigrants residing in the state and restricting access to federal benefits would have states providing assistance without the advantage of cost-sharing with the federal government.

At present, immigration status has a complex relationship to U.S. social policy. Social insurance programs (Social Security, Medicare, and UI) are open to any lawful resident of the United States that has an earnings record that qualifies them for benefits. The principal difference between immigrants and citizens for social insurance programs is that immigrants must verify their status as lawful workers when claiming benefits. Immigrant eligibility for tax benefits varies. Workers who are paying taxes in the United States can claim the CTC, regardless of immigration status. However, the EITC is not available to undocumented immigrants; eligibility requires a valid social security number for parents and children (Internal Revenue Service, 2018). Beyond this, immigrants face multiple restrictions relating to means-tested programs, where legal status is an important distinction among immigrants.

The federal government began to restrict access to means-tested benefits by undocumented immigrants during the 1970s under the guise of reducing the "incentives" for immigration to the United States. Fox (2016) notes that this was a significant policy shift, as it made national citizenship, rather than state or local "settlement," the basis for welfare eligibility. Social policy was being refashioned as a tool to control immigration. Presently, undocumented immigrants are prohibited from receiving most means-tested federal benefits. However, there are several exceptions and ambiguities. First, children of undocumented immigrants born in the United States are birthright citizens who are eligible for means-tested benefits. Second, the boundaries of the welfare state are ambiguous; there are some benefits that immigrants are qualified to receive, regardless of immigration status, such as public education (including free and reduced school lunches) and emergency medical treatment. Third, states are able (in limited circumstances) to override federal restrictions or may use their own resources to provide benefits to immigrants, even undocumented immigrants.

Legal immigrants are also subject to eligibility restrictions. The 1996 federal welfare reform, the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA), increased restrictions on access to federal means-tested benefits *among legal immigrants*. According to the Congressional Research Service, current rules distinguish several immigrant subpopulations and vary from one program to another

(Siskin, 2016). Legal permanent residents (LPRs) with a substantial work history are eligible for SNAP, TANF, SSI, and Medicaid. LPRs are also generally eligible if they have served in the U.S. military or are special status migrants (such as asylees or refugees). Otherwise, LPRs face eligibility limitations (although these restrictions are relaxed in selected programs for children, aged people, and the disabled).

States influence U.S. social policies for immigrants by making decisions about immigrant eligibility for health-care assistance, unemployment benefits, workers compensation, and in-state higher education tuition. Consequently, the degree to which public policies are favorable to or hostile to immigrants varies by state (Wills & Commins, 2018). Reese, Ramirez, and Estrada-Correa (2013) examined the tendency for U.S. states to restore immigrant eligibility for means-tested benefits in the wake of the restrictions imposed by the PRWORA. They observe that states made quick and extensive use of their authority, with most states reversing at least one of the restrictions imposed by the PRWORA within two years. These findings are consistent with the "power in numbers" hypothesis, which views state policies as reflecting the demands of immigrant populations, as well as the "contact hypothesis," which suggests that immigrants are more likely to be socially accepted when they are present in larger numbers.

Social rights in many European nations also reflect immigration status: "generous welfare states that receive a lot of unwanted [humanitarian and family] immigration differentiate social rights in a way that leads to a high poverty gap between immigrants and natives" (Hooijer & Picot, 2015, p. 1881). Social rights in the European Union are "intensely contested" in part because of the principle of freedom of movement by EU citizens (Hjorth, 2016, p. 3). This freedom reflects a broad legal doctrine that has implications for EU social policy: EU citizens are free to establish residency in any member state, suggesting the possibility that people may relocate to take advantage of relatively generous social benefits.

Policy Feedback

The GR, and policy responses to the GR, altered the distribution of political power in the United States and Europe. The initial political response was muted and conventional (Bartels, 2013, 2014). Bermeo and Bartels (2014) observed that in the United States and Europe, incumbent officials were thrust out of office by voters venting their dissatisfaction about the recession. In the 2008 election in the United States, Democrats won control of the White House and briefly enjoyed unified control of national government. However, political fortunes changed quickly, reflecting in part the public's reaction to policies adopted in response to the GR (Bermeo & Bartels, 2014). Social programs, bailouts, and stimulus projects enacted to respond to the GR were portrayed by conservative leaders in the United States as out-of-control government spending (McCarty, 2012). In the 2010 election, Republicans won a majority in the House of Representatives.

Kriesi (2014) observes that the political consequences of the GR in Europe also changed over time. Initially, voters turned to mainstream opposition parties to punish incumbents. However, if mainstream parties were unable to address their

concerns, voters turned to populist parties. This destabilized Western European party politics to the benefit of new parties and radical parties on both the left and right of the ideological spectrum. The slow recovery accelerated the continuing shift in Western European nations from mainstream to fringe parties. Although fringe parties generally grew more popular during the GR, "The populist radical right and new parties are the ones who benefit the most from increases in misery" (Hernández & Kriesi, 2016, p. 218).

In both the United States and Europe, the GR resulted in an increased salience of immigration as some in the public turned against the welfare state and populist parties gained support. Although its strength increased as a result of the GR, the link between welfare and immigration is not new. Social rights are an example of policy feedback: immigration attitudes are affected by and affect public policies regarding immigrant access to the welfare state.

Preferences for Social Spending

In the wake of the GR, there was increased support among the American public for reducing the deficit by cutting government spending (Bartels, 2013; Blinder, 2013). Research by Brooks and Manza (2013) shows that: on average, "Americans gravitated toward lower support for government responsibility for social and economic problems" (p. 729). Brooks and Manza attribute this change to partisan polarization: Strong Democrats reacted to the GR by expressing more support for government intervention, while strong Republicans moved more sharply in the opposite direction. McCarty (2012, p. 202) observed little evidence of bipartisan cooperation in U.S. governance processes following the GR: "the result has been greater partisan divisions on economic policies and priorities." But this polarization was asymmetric; on average, Republican politicians moved further from the center than Democrats (Mann & Ornstein, 2012).

Opinions about the deservingness of beneficiaries connected the desire for austerity with preferences about social policy. In the United States, the austerity agenda was advanced by the Tea Party movement. Skocpol and Williamson (2012, p. 56) report that Tea Party members emphasize deservingness in their evaluation of social policies: They "favor generous social benefits for Americans who 'earn' them; yet, in an era of rising federal deficits, they are very concerned about being stuck with the tax tab to pay for 'unearned' entitlements handed out to unworthy categories of people." And, despite their skepticism about government power, Tea Party members want to actively "police disfavored groups with whom they do *not* identify" (Skocpol & Williamson, 2012, p. 57). In particular, this means immigrants: "when it comes to controlling immigration, Tea Partiers endorse a heavy-handed government response" (Skocpol & Williamson, 2012, p. 58).

A similar political response took place in the United Kingdom as the Conservative Party rose to power in 2010. Taylor-Gooby (2016) suggests that the Conservative Party viewed the GR as an opportunity to shrink the welfare state in a way that was advantageous to the party's core supporters. The U.K. austerity

agenda targeted out-groups for social spending cuts, making the welfare state a divisive political force. Immigrants are one such out-group, since "the mass public view immigration with suspicion and fear competition for jobs, housing, and educational opportunities" (Taylor-Gooby, 2016, p. 723).

Social Rights and Policy Feedback

Perceptions of group deservingness are a longstanding foundation of public opinion about social policy in both the United States and Europe (Aarøe & Petersen, 2014; Campbell & Sances, 2014; Schneider & Ingram, 2005; Skocpol, 1992). Immigrants in the United States and Europe are more likely than natives to be poor, but foreign-born populations are less likely to receive social policy benefits (Barrett & Maître, 2013; Bitler et al., 2017; Fox, 2018; Nowrasteh & Orr, 2018). However, since immigrants, and especially undocumented immigrants, are socially constructed as "undeserving" (Schneider, Ingram, & Deleon, 2014, p. 111), attitudes toward immigration are reflected in opinions about welfare policy and frequently reinforce public policies that restrict welfare access for immigrants.

In the United States, attitudes toward immigration spill over into attitudes toward social spending. Garand, Ping, and Davis (2017) observed a strong relationship between support for immigration and support for welfare in the United States. Similarly, Hussey and Pearson-Merkowitz (2013) found that negative views of undocumented immigrants are associated with lower levels of support for welfare spending in the United States. However, more generous welfare state policies are associated with higher levels of public support for immigration: Rather than contributing to fears that generous welfare benefits may attract immigrants, social policies that reduce poverty and inequality are associated with more favorable attitudes toward immigration (Artiles & Meardi, 2014). Related research has observed that people living in nations with more comprehensive welfare states have more positive views of outsiders (Crepaz & Damron, 2009).

The structure of the welfare state also has consequences for public preferences toward incorporating immigrants into the welfare state. Van Der Waal, De Koster, and Van Oorschot (2013) examined the relationship between welfare chauvinism and Esping-Andersen's (1990) classification of welfare regimes (see also Römer, 2017). They discovered that people living in liberal and conservative welfare regimes are more likely to exhibit chauvinistic attitudes. However, individuals in social-democratic regimes are more likely to favor extending welfare benefits to immigrants. The authors interpret this as a consequence of the extent to which social-democratic regimes mitigate income inequality: "higher levels of income inequality go hand in hand with higher levels of welfare chauvinism" (Van Der Waal et al., 2013, p. 177).

Attitudes about welfare policy are also related to political ideology and party affiliation; conservatives and Republicans generally express lower levels of support for social policy spending (Campbell & Sances, 2014). Likewise, in both the United States and Europe, conservatives express greater skepticism over immigration and more-negative views of immigrants (Pew Research Center, 2018a, 2018b).

Furthermore, there is a partisan and ideological divide over the use of deservingness heuristics; conservatives and Republicans are more likely to rely upon group heuristics to develop social policy preferences (Lawrence, Stoker, & Wolman, 2013).

Finally, perceptions of deservingness have consequences for policy outcomes. Research by Rose and Baumgartner (2013) indicates that governments adjust social spending to reflect social construction of the poor. However, it should be noted that in both the United States and Europe, public perceptions of deservingness are conditioned by welfare state design. Recipients of benefits from programs that have a contributory component (usually a dedicated tax that is paid to qualify for benefits) are more likely to be viewed as deserving (Campbell & Sances, 2014; Ennser-Jedenastik, 2018; Hasenfeld & Rafferty, 1989; Skocpol, 1992).

Future U.S. Social Policy Development

The social policy literature indicates that the GR amplified and accelerated many pre-existing social policy trends. What were the implications of the GR for the financial status of the U.S. welfare state? What did the GR tell us about the link between work requirements and means-tested benefits?

Social Insurance Financing

In the United States and Europe, public spending during the GR led to an increase in national debt which persists to this day, constraining the ability of governments to respond to future economic crises by increasing spending. However, the GR even had implications for the fiscal health of social insurance programs that are funded by dedicated taxes. The OASDI program is a "pay-as-you-go" program that relies upon current revenues from dedicated payroll taxes to finance current program expenses (Huston, 2018). Social Security is the largest federal social program, in terms of federal outlays and participants. The GR reduced payroll tax revenues, accelerating the OASDI program's anticipated financial crisis—when the program's total expenditures are expected to exceed its revenues (Munnell, 2017).

Furthermore, the GR affected the likelihood that Americans claimed Old Age (OA) and Disability (DI) benefits. OA benefits can be claimed as early as age 62, though there is a lifelong reduction in benefits for people who claim benefits before their normal, or full, retirement age (Huston, 2018). During the recession, 64 percent of involuntary retirees claimed OA benefits (Seligman, 2014). DI applications also increased during the GR (Mueller, Rothstein, & von Wachter, 2015), but denial rates increased as well since the Social Security Administration increased its oversight of Administrative Law Judges (Center on Budget and Policy Priorities, 2018).

The loss of tax revenue—a result of higher unemployment and lower levels of labor force participation during the GR—has made OASDI's long-term financing problem worse. Although the increase in OASDI participation stressed the program's finances, the surge in OA and DI claims during the GR was slight and

temporary (Johnson, Smith, & Haaga, 2013). However, the most recent Social Security Administration (2018) forecast predicts that the OASDI program's financial crisis will now occur in 2034, seven years earlier than was expected prior to the GR.

The social policy literature also suggests that a moral hazard may be embedded in federal financing of the UI program. Vroman and Woodbury (2014, p. 266) argue that states may be reluctant to provide adequate financing for unemployment benefits: The "distaste for payroll taxes and concerns about work disincentives" seem to dominate state-level policymaking. Beyond this, since 2010 several states have reduced the duration of unemployment benefits provided by state programs. This indicates the expectation among state policymakers that Congress will again step in to provide federally financed benefits when the next economic downturn arrives and state resources are again strained.

Work Requirements

The GR revealed uncertainty about the effects of work requirements (or work activation, as such policies are often referred to in Europe). Federal welfare reform, the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA), created work requirements linked to TANF cash assistance and SNAP benefits (for some participants). The PRWORA also reoriented the U.S. welfare system away from providing cash assistance as an alternative to work toward a system that provides means-tested assistance to complement work (Stoker & Wilson, 2005). Although a Brookings Institution report suggested that the TANF program is *more* response to recessions (including the GR) than the AFDC program was (Haskins, Albert, & Howard, 2014), reviews of the effectiveness of the safety net during the GR did not identify TANF as an important source of support for needy families (Bitler & Hoynes, 2016; Bitler et al., 2017; Moffitt, 2013; Wimer & Smeeding, 2017).

When Rueda (2012) examined the relationship between work and welfare in several OECD nations (including the United States), he observed that a link between welfare assistance and work requirements can increase the likelihood of poverty during spells of unemployment, since access to benefits is contingent on work. Although Congress suspended work requirements for TANF and SNAP during the GR, the suspensions of work requirements were temporary. Since the GR has ended, work requirements have been re-imposed. Beyond this, the Trump administration is currently advocating expanded SNAP work requirements as well as the creation of work requirements for Medicaid and federal housing assistance (The Council of Economic Advisers, 2018). The administration's report states that since unemployment is low, it is a good time to implement work requirements for means-tested benefits. Even if welfare-to-work policies have merit in good economic times, the experience of the GR suggests that the welfare programs that are oriented toward promoting and supporting work cannot seamlessly change gears when the economy takes a bad turn.

Conclusion

The GR tested welfare state responsiveness during the era of "permanent austerity" (Pierson, 2001). In advanced democracies worldwide, welfare states stood ready to cushion the blow of the recession. The initial policy response expanded welfare generosity, as social policy was used by policymakers as part of the toolkit to effectively respond to the GR. However, there were bumps in the road to recovery.

In the United States, federal efforts to stimulate recovery from the GR were offset by pro-cyclical state policies. In addition, the literature suggests that U.S. social policies varied in their effectiveness; unemployment benefits (UI), food benefits (SNAP), and tax credits (EITC and CTC) were the most robust elements of the safety net. However, as national political fortunes changed and leaders with different concerns and ideas were empowered in Congress, austerity was imposed. In Europe, fiscal consolidation programs imposed by the European Central Bank pushed some nations into a second crisis, prolonging the economic misery. Yet, despite these limitations and difficulties, the literature concluded welfare systems were effective: Poverty—and child poverty in particular—were lower than they otherwise would have been in the absence of social programs.

However, the GR also revealed the failure of safety nets to meet the needs of immigrant households (Bitler et al., 2017; Chzhen, 2017). Especially in the United States, this limitation is not accidental (Fox, 2016). Immigrant restrictions reflect public opinion about the deservingness of social policy beneficiaries and, particularly, the view that immigrants do not deserve access to the safety net. These views were amplified by the GR. Commenting on the relationship between welfare policy and immigration, William Niskanen said: "build a wall around the welfare state, not around the country" (quoted in Nowrasteh & Cole, 2013). Federal policymakers have been building that wall for a half-century, resulting in significant limitations on welfare eligibility for immigrants. However, states' policy decisions have mitigated or reversed some federal decisions (Reese et al., 2013). This implies that the American welfare state is becoming even more fragmented, as state-level variation in immigrant access to safety net programs grows.

In Sweden, the September 2018 election led to a new political consensus to restrict immigration, due to concerns over the capacity of the welfare state to care for the growing population of humanitarian migrants (Gessen, 2018; Sanandaji, 2018). Meanwhile, in the United States, federal restrictions on immigrant access to the safety net are expanding. In the Fall of 2018, the Trump administration proposed to "revoke legal resident status" for immigrants who have accessed means-tested social benefits (Shear & Nixon, 2018). Reflecting upon the differences between the United States and Sweden, Masha Gessen (2018) observed: "In a sense, the [United States'] message is the opposite of Sweden's: where Sweden, at least nominally, requires that immigrants be guaranteed a standard of living comparable to that of Swedes, the United States is pushing its immigrants into a new underclass."

Advanced democracies must confront the implications of immigration policy decisions in light of welfare state protections. Reactions to the GR suggest that the

nexus of immigration and social policy is likely to be a growing source of controversy, as we continue to debate the meaning of social citizenship and contest the boundaries of social inclusion.

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Notes

1. Policy responses were not limited to the social policy domain or to domestic policies. For information on the coordination of international monetary and trade policies during the GR, see Helleiner (2012) or Drezner (2014). For information about the activities, policies, and programs of the U.S. Federal Reserve, see Blinder (2013) or Rich (2013).
2. It may be inappropriate to describe TARP as "government spending." Under the authority TARP provided, the Treasury Department acquired assets in several troubled industries and enterprises. As the economy recovered, the value of these assets increased and they were sold to investors, yielding a net gain of $7.9 billion (Treasury Department, 2016).

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Reconceptualizing the Policy Subsystem: Integration with Complexity Theory and Social Network Analysis

Zachary A. McGee and Bryan D. Jones

The concept of the policy subsystem is an essential building block for several of the basic frameworks of policy process studies. Over time issues have become more complex, crossing subsystem boundaries, and so subsystems have escalated in their complexity as well. It is increasingly insufficient to study just one policy subsystem and so scholars have turned to studying boundary-spanning regimes or policy networks. In this essay, we review the major contributions to developing the concept of a policy subsystem and trace its evolution into broader conceptualizations like issue and policy networks. We argue that the future for theories of the policy process is in more explicit integration of complexity theory and more effective modeling of subsystems with the utilization of social network analysis. In closing, we discuss the enduring nature of the concept of policy subsystems and highlight studies that continue using it in innovative ways.

KEY WORDS: subsystems, policy process, complex systems, governance, social networks, information processing, complexity theory, policy network

政策子系统这一概念对政策过程研究的几个基本框架而言是一个关键性组成要素。随着时间推移，问题通过穿越子系统界限而变得更为复杂，因此子系统也一定会更为复杂。仅研究一种政策子系统已变得越来越不足，因此学者转向研究政策跨界体制或政策网络。笔者在本文中评论了对发展政策子系统概念的主要贡献，并追踪了政策子系统进入例如问题和政策网络等更广的概念化的演变过程。笔者主张，政策过程理论的未来将更明确地融入复杂性理论，并用社会网络分析进行更有效的子系统建模。笔者在文末探讨了政策子系统概念的持续性质，并强调了继续用创新方法使用子系统的相关研究。

关键词: 子系统, 政策过程, 复杂系统, 治理, 社会网络, 信息处理, 复杂性理论, 政策网络

El concepto del subsistema de políticas es un componente esencial para varios de los marcos básicos de los estudios de procesos de políticas. Con el tiempo, los problemas se han vuelto más complejos, cruzando los límites de los subsistemas, por lo que los subsistemas también deben ser más complejos. Es cada vez más insuficiente estudiar solo un subsistema de políticas, por lo que los académicos se han volcado a estudiar regímenes que abarcan límites o redes de políticas. En este ensayo, revisamos las principales contribuciones al desarrollo del concepto de un subsistema de políticas y rastreamos su evolución en conceptualizaciones más amplias como redes de políticas y problemas. Argumentamos que el futuro de las teorías del proceso de políticas está en una integración más explícita de la teoría de la complejidad y

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en un modelado más eficaz de los subsistemas con la utilización del análisis de redes sociales. Para concluir, discutimos la naturaleza duradera del concepto de subsistemas de políticas y destacamos los estudios que continúan usándolo de manera innovadora.

PALABRAS CLAVE: Subsistemas, proceso de política, sistemas complejos, gobernanza; redes sociales, procesamiento de información, teoría de la complejidad, red de políticas

Major frameworks for understanding policy processes continue to rely on the concept of the policy subsystem (Baumgartner & Jones, 1993; Jones & Baumgartner, 2005; Sabatier, 1986; Sabatier & Jenkins-Smith, 1993), yet the concept is sorely in need of updating in light of current developments in the policymaking process and in conceptual advances in the field. Issues have become more complex as governments address more problems and these problems interact with one another. We point to ways of addressing this gap that nevertheless leave subsystems as the key organizational core of the study of policy processes.

The classic definition of subsystems focuses on the formal institutions of government and the actors they attracted. Freeman and Stevens (1987, p. 10) describe Freeman's classic definition of subsystems (or his preferred term "subgovernments") as placing "a primary emphasis upon their members and the institutions and organizations in the various part of the larger political system from which they come." Yet it may be that issues develop and policy arrangements then follow them. In recent years, policy scholars have approached the subsystem problem by instead thinking first about issues and second about the actors drawn to them. Looking at the scholarship over the past few decades underscores that the concept of a subsystem provides a useful framework for thinking about issues as the unit-of-analysis by generating analytic leverage to examine patterns of influence by different actors. While this perspective may seem commonplace today, it was revolutionary when first introduced and scholars spent years refining subsystems theory in search of a generalizable theory of actor influence.[1]

Subsystems in contemporary politics have grown into incredibly complex webs of interaction with more linkages across issues (and often actors as well) than ever before (Jones, Theriault, & Whyman, 2019). Heclo (1978) first noted this development, and introduced the concept of issue networks to describe these changes. Yet the basis for most policymaking remains firmly lodged within policy-centered subsystems. What has changed is the complexity of linkages to outside agencies, interest groups, congressional committees, and other subsystems. These developments have had consequences for policymaking and the scholarship studying these subsystems has been innovative in dealing with this evolution in turn.

A robust literature on policy networks, building on Heclo and his contemporaries, utilizes advances in social network analysis methodology to tackle this complexity. But methodology cannot answer all calls, and therefore we argue, in addition to the contributions already made by network scholars, that policy subsystems ought to be reconceptualized within a complex systems framework. That is, we suggest treating the entire policy process, and its subsystems, as a complex system and discuss the integration of complexity theory into leading policy process theories. Positioning an issue-centered approach to policy subsystems within a complex

systems perspective allows for a consistent approach to policy subsystems across time, allowing us to ascertain what has changed and what has not. In fact, some scholars argue that complex systems are synonymous with networks and the parallel development of literatures on networks and complex systems will benefit from cross-fertilization (Morçöl, 2012). Developments both theoretically, with complex systems theory, and methodologically, with recent advancements in social network analysis, have allowed for scholars to continue using subsystems as the central basis for studying the policy process.

In this essay, we start by briefly tracing the evolution of the subsystem, as a concept, through the policy process literature. We then highlight its integration into the leading theories of the policy process with an emphasis on Punctuated Equilibrium Theory (PET) and the Advocacy Coalition Framework (ACF). Then, we turn to the details of complex systems and complexity theory highlighting its many advantages and how a few theories of the policy process already integrate some aspects into their foundations. We next turn to the developments made by policy networks scholars in advancing the concept of subsystems, particularly focusing on how their advances have made it easier to both visualize and analyze the complex linkages that overlay subsystems. We close the essay optimistically with a discussion of scholars who continue advancing subsystems in new ways by gathering new data and coloring our understanding of the policy process through a subsystems lens. In sum, we posit that the future of policy process theories is in more explicit integration of complexity theory and more effective modeling with the utilization of social network analysis.

Issues, Not Actors

The concept of subsystems was originally introduced when Griffith (1939) observed that certain policy problems brought together groups of men from across different branches of government, agencies, and interest groups. They were united in concern about a specific issue and the way it should be handled on the national policy stage. "Subsystem" has not always been the term used to describe this phenomenon (Freeman & Stevens, 1987). In some cases, the term subgovernment has been used and as the concept developed it gained other names such as iron triangle, issue network, etc. These terms sometimes applied to specific types of subsystems, but other times authors just had preferred terminology. Tracing the history of the concept will illuminate the checkered path of word choice and how that has contributed to the development and refinement of the subsystem as a concept, especially in understanding how open subsystems are to exogeneous influence.

One of the first, and now classic, studies of subsystems was conducted by Maas (1951), who studied the river development subsystem. He observed that subsystems tended to be closed off from any additional actors and found that decision making related to the policy area was highly centralized within the subsystem. This idea of subsystems existing as a closed-off and autonomous entity was critical and persisted in the scholarship for years to come. In fact, this idea became the foundation for the iron triangle concept. The iron triangle is essentially a map of a subsystem; each corner designates a different type of actor in the subsystem and each has a different role

in monitoring and altering policy for the subsystem (Bernstein, 1955). The corners were classically defined as administrative, congressional, and industrial. This iron triangle contained only a few actors and maintained exclusive autonomy over the policy area in which it governed.

A few years later, Redford (1960) published his study of the civil aviation subsystem and found it to be slightly more open than previous subsystems examined. But, he maintained that decision making regarding the policy area was certainly still centralized. Redford (1969), reflecting on his previous work, highlighted that iron triangles (and subsystems more generally) provide stability and tend to favor organized interests, but he argued that policy changes made by subsystems were often small-scale ones. Policy changes are minor, Redford argued, because subsystems must interact with macropolitical institutions to produce large-scale changes. Moreover, he notes that macropolitical institutions tend to delegate policymaking responsibilities to subsystems because the macropolitical institutions can only handle so many issues at a time.

Redford (1969) also joined the debate about how open subsystems were and he was considerably skeptical of how democratic the policy process really was if it were based solely on pluralistic interest group interaction centered on subsystems. He argued that the American system is democratic only insofar as different interests are represented in subsystems and those subsystems allow for some access to interests that are not dominant (still conditional upon macropolitical intervention). That is, he thought that subsystems provided continuous access and superior opportunities for influence to aggregated interests, via interest groups, and therefore subsystems were mostly closed and provided stability for policymaking. Lowi (1964, 1969) concurred and argued that subsystems were closed and that they were closed to a dangerous fault leaving them susceptible to capture by special interests. Fear of capture is an idea that stretches back to our origins in democracy and modern policy scholars have attempted to identify instances of such capture for decades (e.g., Carpenter & Moss, 2014; Huntington, 1952; Peltzman, 1976; Stigler, 1971). Like the notion of iron triangles, the notion of capture in almost every instance is an unwarranted characterization (Carrigan & Coglianese, 2016). Moreover, Congress took steps in the Administrative Procedures Act of 1946 to establish procedures for policy action that provided regularized access for citizens. The more appropriate questions concern whether specialized interests can unduly influence policy through attentiveness to the process and expertise provided during the rulemaking process. Nevertheless, Lowi certainly thought such influence occurred and Redford highlighted the undue influence of specialized publics, including the industries regulated.

Schattschneider (1957, 1960) disagreed with Lowi's interpretation. He saw subsystems as venues for battle. For Schattschneider, politics could be conceived of as a street fight where bringing in additional actors on your side could make all the difference in the conflict. Most issues, he argued, were private. That is, the issues were being discussed only among a subset of the Washington elite and the status quo was being quietly maintained with significant resources being spent to keep it that way. But, Schattschneider argued that issues could be socialized; that is, they could become public issues that everyone in the country was discussing and the

scope of the conflict was thus expanded. Herein lies Schattschneider's disagreement with Lowi; for Schattschneider, expanded conflicts were an opportunity for the public usually via political parties to penetrate closed subsystems. Schattschneider's notion of conflict expansion and Redford's are two sides of the same coin.

As scholars debated the openness of subsystems, it also became clear that the iron triangle concept might be insufficient as the only way to understand subsystems. Heclo (1978) argued that "the iron triangle concept is not so much wrong as it is disastrously incomplete." To address this insufficiency, he introduces the concept of *issue networks*, which defined succinctly are loose collections of actors all concerned about the same issue. These networks are notably more open than iron triangles. Heclo never believed that subsystems could be as closed as what previous scholars had posited and he even theorized about the inclusion of additional actors into subsystems politics. Political party elites, intellectuals, and certain members of the media were now all to be considered in subsystem politics. Moreover, issue networks were one more intellectual tool in the debate about how open or closed subsystems were.

Integration into Modern Theories of the Policy Process

Leading theories of the policy process today rely heavily on notions about subsystems as the unit of analysis. Punctuated Equilibrium Theory was the first theory to combine previous advances in agenda-setting studies with the classical concept of subsystems (Baumgartner & Jones, 1993). Integrating subsystems, Baumgartner and Jones also contribute to the cornucopia of terminology. That is, they conceptualize subsystems labeled as policy monopolies, which are subsystems controlled by a set of policy actors who all favor one policy image and path for policy development for the subsystem.

Generally, Punctuated Equilibrium Theory argues that policy change is disjoint and episodic where long periods of stability and incremental change are interrupted by periods of rapid and significant changes (i.e., punctuations). It is a bottom-up theory that relies heavily on subsystems to understand policy change. Baumgartner and Jones (1993) posit that, most of the time, subsystems are controlled by policy monopolies of interested policy actors buttressed by powerful ideas. These policy monopolies rely on negative feedback systems to enact incremental changes to the policy area and maintain a positive policy image. Policy entrepreneurs, who shop policy problems and solutions, look for ways to penetrate these policy monopolies and disrupt the policy image. If the policy image begins to change, the subsystem may be subject to positive feedback, usually via increased public attention and/or media coverage. These positive feedback processes build on themselves and eventually lead to the destruction of the policy monopoly. The destruction of the policy monopoly leads to a punctuation and rapid and significant policy changes to the policy area and that subsystem. After the policy changes occur, the subsystem returns to a state of equilibrium and a new policy monopoly forms. It would be impossible to conceive of PET without the concept of a subsystem.

Punctuated Equilibrium Theory has since been expanded into a full theory of government information processing (Jones & Baumgartner, 2005). That is, Jones and Baumgartner identify the subsystem dynamics involved in actors searching for policy problems and policy solutions and expand and apply it across a variety of contexts, known as the *general punctuation thesis*. Moreover, they have worked to develop a more intricate theory to understand types of search that can be utilized by elites based on individual subsystem contexts (Baumgartner & Jones, 2015). Each of these developments requires thinking about the dynamics both within and outside of subsystems. It has become clear from this line of research that the integration of diverse viewpoints within subsystems, which can be done through both formal requirements and informal norms, improve the specification of the problem-space. More diverse viewpoints highlight different ways of framing an issue. This more precisely defined problem-space allows policymakers to anticipate objections to a regulation made within the confines of a policy subsystem and address them before regulations are issued (Baumgartner & Jones, 2015).

Punctuated Equilibrium Theory is not the only theory of the policy process that has benefitted greatly from a foundation based in subsystems. The Advocacy Coalition Framework (ACF) also examines policy change with subsystems as its venue (Jenkins-Smith, Nohrstedt, Weible, & Sabatier, 2014; Sabatier, 1986; Sabatier & Jenkins-Smith, 1993). ACF examines the actors within a subsystem, who form into what are known as advocacy coalitions. These advocacy coalitions are formed around shared belief systems and operate at the subsystem level. Within the subsystem, advocacy coalitions are made up of diverse sets of actors and their coordination reduces transaction and decision costs among actors and allows for resource sharing. Of course, coordination within coalitions varies from minimal communication and information sharing to full-fledged multi-actor campaigns.

Recent work on the Advocacy Coalition Framework has addressed the dynamic components of policy subsystem development. Not all subsystems are mature (i.e., longstanding and with easily identifiable policy area(s), key actors, and boundaries) and instead some are just emerging, termed *nascent subsystems*, with little history of policy outputs (Ingold, Fischer, & Cairney, 2017; Sabatier & Jenkins-Smith, 1999). Initial propositions about these nascent subsystems suggest that they are characterized by nebulous and fluctuating belief systems (Sabatier & Jenkins-Smith, 1999). Stritch (2015) examines a nascent policy subsystem and finds that, when advocacy communities are dichotomized, communities form quickly and there are lower-level forms of collaboration despite eschewing the ten-year window generally suggested for work utilizing the ACF.[2] Ingold et al. (2017), in more recent work, point out that studying only mature subsystems has left scholars blind to how subsystems form and lead to advocacy coalitions. That is, they seek to understand "how actors begin to agree with each other to support the same policy design, before they decide to cooperate regularly to secure shared policy beliefs and preferences" (Ingold et al., 2017, p. 443). They find that, when dealing with nascent subsystems, actors will rely more on former contacts than shared policy beliefs (or ideologies) because they struggle to identify their allies and opponents. They also validate claims that belief systems in nascent subsystems are not yet well defined.

Additional work on different types of subsystems and how their structures impact the propositions laid out by ACF scholars remains to be done and will be a fruitful path for future subsystems-focused research on the Advocacy Coalition Framework. Moreover, both PET and ACF focus on dynamics *within* subsystems. This perspective, while exceptionally productive for understanding some policy changes, is also limiting. Most importantly, it limits our utility to speak to cross-subsystem dynamics caused by boundary-spanning issues. This difficulty is one that underscores the necessity of integrating complexity theory and social network analysis into the study of subsystems.

Integrating Complexity Theory

The policy subsystem as a concept has proven fruitful over the years by allowing scholars from a variety of disciplines to think more clearly about how, and who is responsible for, policy changes. The same statement could be said about the leading theories of the policy process, built using subsystems as their foundations that have been adopted by a substantial number of scholars. We argue that the next chapter in the metaphorical book on subsystems should address the shift of scholarly focus from individual parts of the policy process to a thirty-thousand-foot view of the interactions of individual subsystems, which are complex systems in their own right. One way to accomplish this lofty goal is to conceptualize the policy process as a complex system as well and begin to integrate complexity theory into how we understand subsystems and those theories that rely on them.

Put simply, a complex system is a large collection of simpler components and that system's behavior is difficult to explain, predict, or engineer (de Marchi & Page, 2014; Mitchell, 2009; Page, 2011). It is not, however, merely the presence of many different components in a given system that make it complex. That is, if the policy process were made up of many organizations all governed by the same rules the description of their interactions would be simple (Morçöl, 2012). A complex system cannot be understood simply by breaking the system down into its component parts because the components are interdependent and the system is prone to nonlinear behavior caused by feedback loops and local interactions that scale-up to system-level behavior (Cairney, 2012; Morçöl, 2012). Because of these attributes of complex systems, they are difficult to control or understand and are sometimes characterized as being "between ordered equilibrium regimes and pure randomness" (de Marchi & Page, 2014, p. 2). The nonlinearity of interactions within the system lies at the heart of complexity theory and the coevolution of different components, and the feedback loops among them, can help to characterize these interactions in more meaningful ways (Morçöl, 2012). Nonlinearity here does not only mean the negation of linearity in the interactions among component parts of a complex system, but it also means that the system will move around in a particular pattern that can be characterized by plotting different aspects of the system (Morçöl, 2012). As Morçöl (2012, p. 34) puts it "whether there is a pattern in data or not depends on how you look at it and how you analyze it." Put another way, characterizing meaningful patterns in complex systems is easier said than done, but it is possible, especially with attention

to the coevolution of component parts of the system and the pervading feedback loops therein.

An example may be useful in clarifying why complex systems are distinct and the proper conceptualization for subsystems and the policy process moving forward. In the U.S. context, take the institution of Congress alone. Each chamber of Congress is governed by its own distinct rules and subunits. Each chamber has a different number of committees and subcommittees and the jurisdiction therein is different too (Baumgartner, Jones, & MacLeod, 2000). Even the rules that govern the members are brought about in different ways with the Senate's rules continuing from one Congress to the next and the House's rules being adopted anew at the start of each Congress. Watching bills move through the legislative process (certainly a mere subset of activity within the larger policy process) requires characterizing complex interactions between the two chambers.[3] Zooming out from Congress alone to the traditional conceptualizations of subsystems is not even necessary to understand why complexity theory is the clear next step for studying the policy process. Subsystems, which are already complex systems made up of members of Congress, interest groups, bureaucrats, and many others, interact and their nonlinear interactions characterize the larger policy process, which is also a complex system. In other words, subsystems remain the key units of interest and complexity theory, instead of shying away from the nonlinear interactions among subsystems by confining them to error terms, embraces the nonlinearity and attempts to characterize it (Morçöl, 2012). Interestingly, the behaviors discussed in complexity theory that complex systems exhibit are already theorized about in modern policy process studies, such as punctuated equilibria behavior (Baumgartner & Jones, 1993), path dependence (Pierson, 2000), and local (instead of centralized) actors interacting to cause system-level behavior (Cairney, 2012; Ostrom, 1998).

At the broadest level, "complexity theory identifies instability and disorder in politics and policy making, and links them to the behavior of complex systems" (Cairney, 2012, p. 346). More specifically, the goal of complexity theory is to identify types of systemic output that occur when actors follow the same sets of basic overarching rules and then evaluate how sensitive the system is to rule changes (i.e., how much do rules need to be changed to produce significant shifts in systemic outputs?) (Cairney, 2012). One way to plot changes and patterns, explored in more detail by Morçöl, is plotting return maps (also known as phase diagrams) that generate patterns to allow for the definition of different phases of change in complex systems across time. These plotted system patterns may seem random, but substantive theory can be developed to characterize what might be causing these systematic shifts in subsystem interactions.

From this exposition it is hopefully easy to see how subsystems might be ideal candidates for complexity theory development while keeping the policy subsystem central to policy process studies. Subsystem actors, from diverse branches of government and groups governed by different rules, interact to shift public policy in a given issue area. And, increasingly these issue areas span multiple subsystems. What will be difficult is identifying the overarching sets of rules that these diverse sets of actors all follow and developing consistent theories for characterizing shifts in these complex systems.

Complexity Theory: Hiding in Plain Sight

We are not starting from scratch on this journey of uniting complex systems and complexity theory with policy process theories. As Jochim and May (2010) point out, policy process scholars do discuss the interdependence of subsystems when attempting to identify disruptions in their subsystem-of-interest or when studying spillovers of policymaking activities.[4] In an effort to start scaling up scholars' level of analysis beyond subsystems Jochim and May (2010, p. 308) argue that the focus should shift to boundary-spanning policy regimes, which can be understood as "governing arrangements that span multiple subsystems." These boundary-spanning policy regimes allow scholars to study more complex problems and to integrate elements of multiple subsystems working toward common policy goals (Jochim & May, 2010; May & Jochim, 2013). May, Jochim, and Sapotichne (2011) adopt a boundary-spanning policy regime perspective when studying United States homeland security policy following the terrorist attacks of September 2001. They identify eight subsystems and find that each subsystem's actors pursued homeland security policy agendas reflective of their particular concerns and historic ways of doing business (i.e., path dependence). The policy regime failed to unite around a shared purpose that was well understood across subsystems. Therefore, in conducting this study, the authors quickly encountered multiple attributes of complex systems. In addition to path dependence, the authors also found that it can be extremely difficult for a centralized actor (like the Department of Homeland Security) to produce predictable behavior when diverse sets of actors interact and are driven by multiple independent (and interdependent) goals. While May and his colleagues do not explicitly utilize the language of complex systems in their studies, they are in fact studying a complex system. In fact, Cairney (2012, p. 348) observes that it is common for public policy scholars to "highlight complex system characteristics without necessarily using the language of complexity." Similar studies have been applied to other policy areas as well, especially climate change, which easily lends itself to an international conceptualization of interdependent policy regimes (Henstra, 2017; Keohane & Victor, 2011).

By deploying a complex systems perspective, we are able to trace processes through time as an evolutionary process that is prone both to incremental adjustments but also rapid punctuated policy changes when positive feedback related to an issue previously contained within one isolated subsystem spills over into others. This spillover can happen through changes in the external environment or through deliberate legal intervention. Mandating that agricultural run-off be monitored for harmful chemicals would link agricultural and environmental subsystems, for example.

Jones et al. (2019) utilize a complex systems framework to study and explain what they term "the Great Broadening," which refers to government getting larger, not by doing more of what it already was doing, but by getting involved in new issues where it had only limited presence before. Using an issue-centered analytic perspective and relying on the U.S. Policy Agendas Project, these authors trace changes in this broadening from World War II to the present. Their approach clearly

delineates a period during the late 1950s through the late 1970s in which the process of broadening accelerated. This accelerated broadening fostered spillovers among subsystems, often caused by the fast pace of statutory development. Statutes became more complex, in part because adding new issues meant more spillovers among issues. As new issues accessed the policymaking agenda, the system changed structurally. Subsystems were destroyed, modified, and constructed as this intense period of policy activity proceeded. As the intensity subsided, more complex administrative state remained, with increased patterns of issue networking and more complex interchanges among subsystems.

The trace of subsystem development, change, and even destruction through modern U.S. political history seems to have occurred in bursts, with both creation and destruction occurring within the same time frame. As we focus on the development of subsystems as a major component of policy process theories, we should attend to the likelihood that policy spillovers from one subsystem to another during the creation (and destruction) period occur quickly and simultaneously. This possibility is best viewed through the lens of complex systems and complexity theory.

Expanding Concepts: Policy Networks

One way to allow for the interdependence of issues, and actors, to begin playing a role in our analyses of subsystems is to adopt a social network perspective. In fact, Morçöl (2012) sees networks and complex systems as one in the same and uses the terms interchangeably throughout his book. He declares, "Systems are networks, and networks are systems" (Morçöl, 2012, p. 50) and goes on to note that the literatures on policy networks and complexity theory developed in parallel and will benefit from conceptual and methodological cross-fertilization. We echo his sentiment precisely. Inferential models of social networks directly account for the interdependence in complex systems and while network theories are broader today than when Hugh Heclo was sketching his initial set of attributes for issue networks, his pathbreaking study still informs the work done in this area. Let's first take a closer look at Heclo's issue networks and then delve into why networks provide a compelling framework for integrating complexity theory and studying policy change and governance.

Heclo (1978) was frustrated by the way scholars pursued studies of subsystems, "looking for the few who are powerful, we tend to overlook the many whose webs of influence provoke and guide the exercise of power." Observing that American politics was becoming increasingly technical and specialized at all levels, and the ever-important presence of interest groups in subsystems, Heclo wanted to provide scholars with a more granular way of thinking about influence within subsystems. Issue networks, and policy networks more broadly, are not meant to replace subgovernments or iron triangles conceptually. Instead, issue networks should be seen as a structure that overlays onto the once stable political reference points with new forces that complicate calculations and predictability (Heclo, 1978). Put another way, the scholarly focus on a few predetermined actors is insufficient for picking

up the vast number of sources of influence that ultimately lead to policy change. Networks, with their ability to map actors based on their relationships, provide a new way to theorize about and model many actors and analyze their influence—conditional on their connections to one another. And, complexity theory is ready-made for postulating about the general patterns that might emerge when large and diverse sets of actors pursue interdependent goals across multiple subsystems. Herein lies the ideal next generation of subsystems scholarship.

Theoretically a network perspective is clearly advantageous, but in practice it is more difficult to implement. Heclo (1978) knew immediately that it would be difficult to identify issue networks. He provides some guidance to scholars arguing that issue networks are defined by some aspect of public policy or a policy problem with actors having specialized knowledge (Heclo, 1978). He goes on to provide a variety of attributes that issue networks should have. A few of the key attributes are that (i) the network contains a large number of actors with variable degrees of mutual commitment or dependence on each other, (ii) actors may enter or exit the network at any time, (iii) actors may be powerful interest groups or individuals (with specialized knowledge) who are internal or external to government, (iv) direct material interests are often secondary to intellectual or emotional commitment, and (v) the network may operate at many levels from local planning to the White House. The large number of loosely connected actors and the explicit requirement that actors have specialized knowledge help differentiate issue networks from other types of policy networks studied by scholars today (Leifeld & Schneider, 2012; Rhodes, 2008).

What are these various policy networks that modern scholars study then? R.A.W. Rhodes (1990, 2008) has noted frequently that "policy network" is a term often used very vaguely. In a special issue of the *Policy Studies Journal*, scholars utilize R.A.W. Rhodes's (1997) conceptualization of policy networks as "meso-" level concepts that bridge the causal relationships between micro and macro political institutions and actors (Lubell, Scholz, Berardo, & Robins, 2012). Identifying networks as a method for meso-level analysis is ideal for studying subsystem politics because, true to Heclo's original theory, individuals, groups, and institutions can all be active players in subsystems and feedback from their policy decisions will dynamically interact with all actors in the subsystem and the structure of their relations will impact how feedback effects come to be. Of course, there are many ways to interpret and classify a policy network and Rhodes addresses this issue as well. Rhodes (2008) argues that policy networks vary along a continuum according to the closeness of the actors' relationships (see also Marsh & Rhodes, 1992). He suggests that policy communities and issue networks bookend the spectrum from closest to loosest relationships, respectively.

Building on Heclo: Modern Theoretical Policy Networks and Interdependent Subsystems

It is clear that the initial contribution from Heclo (1978), after interdisciplinary work (especially from sociology, economics, and political science), spurred a vast

literature for thinking about subsystem-induced policy changes in a much broader way. The question that remains now is where has the scholarship on policy networks and subsystems gone in recent years? To answer this question, we must confront both theoretical and methodological developments.[5] Rhodes has served scholars well on the theoretical front by sketching a typology and spectrum for policy networks. In practice, the choice between theoretical approaches applied to policy networks mainly depends on what aspect of the network a scholar seeks to highlight.

Our focus here is scholars who, noting the literature's increasing focus on complex systems, choose to focus on the exchange of resources among subsystem members. Frequently, this means drawing on polycentric governance theory (Ostrom, 2010) or other related theories (e.g., network governance or the ecology of games framework), which have all coalesced under a general label of the study of collaborative governance regimes (CGRs) (Scott & Thomas, 2017).[6] Put briefly, these theories highlight patterns of collective action within broader systems involving networks of actors, institutions, and policy issues that frequently overlap (Lubell, 2013; Scott & Thomas, 2017). Of course, scholars have also utilized networks to extend ACF theory, especially with respect to the composition of coalitions and the costs of coordination therein (Fischer & Sciarini, 2016; Henry, Lubell, & McCoy, 2011; Parsons, 2018). Subsystems in a network perspective easily serve any of these theories because of their ability to represent multiple independent centers of decision making and the interactions between public and private actors—even across different stages of the policy process (Hayes & Scott, 2018; O'Toole, 1997; Ostrom, Tiebout, & Warren, 1961). And, importantly, recent advances in social network analysis make it increasingly practical to map these complex systems and advocacy coalitions.

Recent work on CGRs in particular has begun to address a longstanding question raised by Elinor Ostrom (1998) in her presidential address to the American Political Science Association: which institutional features lead to cooperation in the face of collective action problems? Some scholars argue that preference similarity shapes policy networks (Ingold & Fischer, 2014), but preference similarity does not explain all tie formation among actors. In fact, Leifeld and Schneider (2012) find that the effect of preference similarity is absorbed by institutional, relational, and social opportunity structures in policy networks. In particular, the authors highlight that it is costly to make contacts in policy networks (drawing from the work of North, 1990) and that the type of information (i.e., political or technical) being exchanged in these networks will impact whether or not preference similarity predicts tie formation or not (Leifeld & Schneider, 2012).[7] In this same vein, Fischer, Ingold, and Ivanova (2017) recently reported findings indicating that the separation of technical and political information is useful for understanding what drives information exchange in policy networks. They find that technical information exchange is driven by scientific expertise whereas political information exchange is driven by ideology and public authority (Fischer et al., 2017). Both types of information exchange benefit from existing collaboration among actors, which is consistent with previous findings. Of course, as Elinor Ostrom would likely stress, the scale of these interactions matters as well. Hamilton and Lubell (2018) take this caveat to task and

argue that spatial and institutional variance within networks (i.e., scale-dependent transaction costs) will impact collaboration too. They find support for their theory and discover that policy forums meant to encourage collaboration on a shared policy issue can be effective, but that collaboration is conditional on the spatial scale of actors and the institutional roles of those attending the policy forum (Hamilton & Lubell, 2018). As scholars ponder further integration of complexity theory into the study of subsystems then these issues of scale will be critical to future scholarship.

If we are to accept that networks are an effective way to study subsystems and complex systems via polycentric governance theory (or other related theories) then it seems appropriate to capitalize on all that social network analysis has to offer. Ingold and Leifeld (2014) do just this by conceptualizing power in two ways: (i) formal power derived from institutional roles (vertical integration) and (ii) structural power derived from network configurations (horizontal integration). They use the analytic leverage gained from being able to map connections among actors to try and understand how structural positioning in the subsystem's web of influence can allow actors to impact the development of policy outcomes. They find that actors in adversarial policy networks can gain influence by occupying structural holes in subsystems or by gaining formal authority or access (Ingold & Leifeld, 2014). Ulibarri and Scott (2017) extend this research agenda and examine a variety of network terms (i.e., configurations of actors connected to one another) linked to polycentric governance hypotheses about the impact of network structures on collaboration in subsystems (see also Scott & Thomas, 2017). They find that patterns of individual-level collaboration can impact more general levels of collaboration, such as more two-way communication and fewer dominating actors in high-collaboration networks (Ulibarri & Scott, 2017). Much research remains to be done in this area, such as Ulibarri and Scott's suggestion that similar studies be conducted longitudinally. Key to each of these studies is that they take Heclo's point. That is, singular disconnected subsystems are no longer sufficient for understanding policy change. Scholars must map multiple subsystems and characterize the complexity that comes with this increase in scale.

This essay began by asserting that subsystems are so critical because they focus on issues and not actors. Much of the network scholarship covered thus far fails to utilize issues, instead of actors, as the unit-of-analysis. Shaffer (2018), pioneering a different approach entirely, comes closer by studying policy networks where the relational links are laws connecting implementing actors or agencies. That is, he views laws, and consequently the policy issues therein, as networks of institutional relationships. He extracts implementing networks to create an original dataset consisting of all enacted U.S. legislation passed from 1990 to 2016 and then deploys this dataset to study patterns of complexity in American enacted legislation.[8] In contrast with the existing literature, Shaffer demonstrates that the complexity of formal institutions is primarily driven by the issues and policy areas under consideration. The key point here is that the nature of the issue dictates the institutional structure that governs its implementation. While Shaffer did not start out from a policy subsystems perspective, he ends up with exactly that and he demonstrates an effective application of an issues-focused subsystems study along the way.

Methodological Advances: Increasingly Flexible Network Models

Subsystem studies from a policy network perspective, and especially the work on CGRs and polycentric governance, has exploded in recent years thanks, in part, to the rapid development of social network analysis methodology over the past decade or two. We will provide a brief overview of the most popular model used in policy network studies and will argue that these developments make work on complex systems and policy networks very appealing for future research. Classic social network studies are notable for their heavy reliance on descriptive statistics instead of inferential methodology. The workhorse for modern quantitative analyses of networks is the Exponential Random Graph Model (ERGM), which has been extended in a variety of ways since Robins, Lewis, and Wang (2012) highlighted it in the *PSJ* special issue.[9]

Classically, the ERGM assumes that networks are the product of a stochastic process, where the presence or absence of ties is influenced by local social processes (Robins, Pattison, Kalish, & Lusher, 2007). Actors in the network are assumed to be fixed and the possible networks and their probability of forming ties in the model are represented by a probability distribution on the set of all possible networks with the same number of actors (Cranmer, Leifeld, McClurg, & Rolfe, 2017; Robins et al., 2007). Monte Carlo Markov chain maximum likelihood estimation (MCMC-MLE) is used to simulate a large number of possible networks and produces statistics, which can then be used to evaluate the probability that the observed network occurred by chance (Robins, 2011).[10] The true power of the ERGM lies in the specification of the endogenous network terms that can represent important social and power dynamics (e.g., reciprocity, mutuality, or transitivity).[11] But, the ERGM is flexible as well and allows for the inclusion of exogenous covariates too. Recent work already detailed here is increasingly tying these endogenous network terms to arguments and hypotheses put forward in leading theories of the policy process like ACF or polycentric governance theory. Furthermore, there is nothing stopping scholars from using issues as the unit-of-analysis in their social networks and applying ERGMs still. But where has this model gone in recent years that makes subsystems and complex systems research from a social networks perspective so promising? The key advancement has been flexibility in nearly every aspect of the model, from allowing valued connections between actors, to integrating temporal aspects, and even to accounting for unobserved heterogeneity.

The original ERGM was designed for binary networks, that is, networks where there either is a connection between two actors or there is not. Many networks, however, have continuous-valued connections between actors, such as Scott's (2016) examination of the varying strength among a regional network of organizations involved in collaborative groups. In response to this binary-connection problem, Desmarais and Cranmer (2012b) developed the Generalized Exponential Random Graph Model (GERGM) to allow for continuous or integer-valued connections. They were not alone in tackling this problem. Krivitsky (2012) also developed support for integer-valued connections but takes a different approach for addressing the computational challenges of a model with infinite possible values for the connections

between actors. These advancements have proven useful and the model continues to be improved. For example, Wilson, Denny, Bhamidi, Cranmer, and Desmarais (2017) developed a more flexible model specification for the GERGM that allows for the use of nonlinear network statics and Box-Steffensmeier, Christenson, and Morgan (2018) developed the Frailty-ERGM, which addresses the problem of unobserved heterogeneity and avoids the need for MCMC-MLE (and the potential for degeneration that comes with it).

To this point we have said nothing of temporal variation in networks. Time is a critical issue for the study of policy change and therefore it is important to be able to model time appropriately within the Exponential Random Graph Model family.[12] Robins and Pattison (2001), followed by Hanneke, Fu, and Xing (2010), proposed the explicit inclusion of time via discrete steps (i.e., Temporal ERGM, TERGM) and Snijders (2006) proposed a continuous-time model of network dynamics. The discrete model has been bootstrapped to assess uncertainty and continues to be improved and added to (Desmarais & Cranmer, 2010, 2012a). Campbell (2018) provides an excellent example of an extension of the TERGM proposing the ego-TERGM to assess latent roles in longitudinal networks. And, Falzon, Quintanec, Dunna, and Robins (2018) recently introduced three temporal equivalents to common positional network measures that incorporate both time and sequence.

Naturally these models are not without their methodological critics (Block, Koskinen, Hollway, Steglich, & Stadtfeld, 2018). And, like any other statistical methodologies utilized, a model cannot correct for bad measurement. Hayes and Scott (2018) take this reality to task by comparing traditional survey instruments to Twitter interactions (and hyperlinks) for constructing policy networks. They point out that there is likely a cap in size for mapping a policy network via survey instruments because as the network size increase so does the number of possible ties, which increases the burden on the survey respondent's recall (Hayes & Scott, 2018, p. 328). This point is particularly concerning for the mapping of complex systems, which can be exceptionally large. They conclude that there is a small correlation between surveys and online interactions, which indicates that these online interactions can complement survey measures but are likely measuring a different aspect of the policy network (Hayes & Scott, 2018). These statistical and measurement critiques remind us that a networks perspective, while advantageous for advancing the study of subsystems and complex systems, does not provide a silver-bullet solution. Policy networks can help scholars test longstanding theories of the policy process and better understand overlapping subsystems, but these networks must be created and analyzed with great care to avoid invalid inferences.

Conclusion: The Endurance of Subsystems

Subsystems, as a concept, have come a long way from the simple, yet powerful, observation that policy problems organize actors from across branches of government, agencies, and interest groups according to the issue under consideration. The concept of the policy subsystem and the mechanisms developed around it have provided for rich theoretical advancement in the study of the policy process. In this

essay, we have traced the concept's history, illuminated the first theories of policy subsystems, and highlighted recent work utilizing modern policy process theories built using subsystems. We then argued that scholars should begin thinking more broadly about subsystems by adopting a complex systems approach. In arguing for this change, we encourage scholars to consider more general studies where they examine more than a single subsystem as applied to a single theory of the policy process and instead integrate these modern theories more explicitly with elements of complexity theory. We then highlighted one prominent way scholars have already started utilizing complex systems to study subsystems by looking at the burgeoning scholarship on policy networks. And, given Morçöl's (2012) argument that networks and complex systems are essentially synonymous, we also highlighted advances in social network analysis methodology that has produced more flexible models and made studying these complex systems more reliable for drawing inferences.

From our brief history of the concept, we see that the standard story of subsystems development has been that regulatory subsystems started out fairly open during the period of initial creation during the New Deal, then closed into iron triangles in the 1950s as regulated interests "captured" government mechanisms, only to open up again as policymaking became more complex after the burst of policymaking activity that Jones et al. (2019) term the Great Broadening. But as we have shown here, this story has never been fully accepted. Few if any regulatory subsystems conformed to the classic closed "capture" model, and public administrators were not and never have been simple tools of interests. On the other hand, there seems little doubt that the multiple overlapping statutory requirements imposed on policymaking during the 1960s and 1970s added complexity and eroded boundaries among previously more isolated subsystems. And now, in contemporary studies of the policy process, we almost require that multiple subsystems or networks are studied to learn about how policy change occurs across diverse sets of actors (e.g., May et al., 2011).

Nodes of a network in policy studies are likely to correspond to policy whirlpools in which various actors coalesce around a policy objective. The more isolated the nodes, the more independent the subsystem. The more connections that can be mapped among nodes, the more porous the subsystem. Shaffer's (2018) use of laws to address the legal structures constructed to deal with policy issues, for example, is a breakthrough in the use of datasets to isolate such subsystems. It doubtlessly will be possible in the future to integrate different datasets assessing the actions of participants within formal implementing structures, hence mapping informal networks on top of the legal structures that in principle can be isolated from a study of statutes and rules. This is but one example of future mappings of complex systems across multiple subsystems that seek to redefine how we think about theories of the policy process and policy change more generally.

Much work remains to be done in the explicit integration of complexity theory with the study of subsystems. But, most importantly for this essay, we predict that the trend of impressive scholarship utilizing subsystems as their foundation will likely continue for many years as scholars utilize complex system conceptualizations, advances in social network analysis methodology, and new datasets to study just how government produces public policies.

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Notes

1. For clarity, note that a subsystem is a concept. But the subsystem has been utilized to produce what can be called subsystem theories. When we refer to subsystems theories, we are referring to the propositions about how actors within subsystems operate to enact policy changes and how subsystems interact with outside actors.
2. Advocacy communities are defined as a group of "advocates [who] share ideological beliefs, but do not engage in coordinated activity" (Stritch, 2015, p. 438). They are, in essence, less effectively organized advocacy coalitions.
3. Note that some interactions among component parts of a complex system may be linear. Complex systems need not be made up entirely of nonlinear interactions, but complex systems are defined, in part, by an inability to break the system down into just its component parts and their sets of linear interactions (Cilliers, 1998; Morçöl, 2012).
4. Michael Jones and Hank Jenkins-Smith (2009) provide an exception to this pattern by considering "trans-subsystem" change among subsystems linked by overlapping issues and interests.
5. Certainly, there is not sufficient space for a full literature review of this burgeoning field within this subsystems-focused essay. Therefore, we direct interested readers to recent work by Knoke and Kostiuchenko (2018) for a recent review of policy networks.
6. On a broader level, some scholars debate whether policy networks and governance networks are synonymous or distinct types of networks (Bevir & Richards, 2009; Blanco, Lowndes, & Pratchett, 2011). Ultimately, this debate boils down to disagreements about which types of actors are appropriate to include in a given network, which is critical when mapping complex systems. The debate remains unresolved and outside of the scope of this paper, but see Knoke and Kostiuchenko (2018) for a more detailed review of this debate.
7. Their argument is consistent with developments made in the agenda-setting literature in recent years highlighting the cost of searching for policy information and the role that political or professional bias can have in the use of that information for policy outcomes (Baumgartner & Jones, 2015; Jones & Baumgartner, 2005).
8. Shaffer (2018) uses a strategy that leverages both case-specific knowledge regarding the Congress' internal legal drafting standards and a neural network-based named entity extraction procedure drawn from computational linguistics.
9. The Exponential Random Graph Model is not the only tool available for network inference. Many models exist and are utilized regularly in scholarship across numerous disciplines. See Cranmer et al. (2017) or Silk et al. (2017) for reviews of other prominent models for network inference.
10. A full technical detailing of this complex model is not possible here. There are many comprehensive ERGM reviews and we refer readers to Robins et al. (2007) or Cranmer and Desmarais (2011) for particularly useful ones.
11. Endogenous network terms specify the way that sets of actors relate to one another. That is, whether they are connected in the network. If connections are directed, these terms can also specify asymmetric connections. Cranmer et al. (2017) provide an example of reciprocity and transitivity in their Figure 1.
12. Due to our focus on ERGMs, this manuscript excludes the stochastic actor-oriented model, another class of models used to study network change over time. See Snijders, van de Bunt, and Steglich (2010) for an overview of these models.

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Understanding the Field of Public Affairs through the Lens of Ranked Ph.D. Programs in the United States

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The goal of this article is to understand the multidisciplinary field of public affairs. Based on data and text mining on the profiles and publications of all faculty members from a list of research-oriented U.S. public affairs programs, we describe the landscape of public affairs schools and scholars, identify 15 topics in public affairs research and discuss their trends of change between 1986 and 2015, and show the clustering and hiring networks of public affairs schools. Our results suggest a broader approach to understanding the field of public affairs than the public administration focus in the literature. Although public administration is highly visible in the field, which is evidenced by the journals most favored by public affair scholars, various specific policy areas (such as health, social, urban, environmental, global, and education policies) show strong representations based on our topical analysis of public affairs research.

KEY WORDS: public affairs, policy schools, text mining, topical analysis

本文目的是理解公共事务的多学科领域。针对以研究为导向的一系列美国公共事务计划的所有教职工简介及出版物，笔者进行了数据和文本挖掘，并描述了公共事务学校和学者概况，识别了*15*个公共事务研究主题，并探讨了*1986–15*年间这些主题的变化趋势，还展示了公共事务学校的集群网络和招聘网络。研究结果提出了一项相比起文献对公共管理的关注更为广泛的研究方法，用于理解公共事务领域。尽管公共管理在该领域是无法忽视的，这一点在公共事务学者最为推崇的相关期刊中有所证明，但基于笔者对公共事务研究的主题分析，不同的特定政策领域（例如卫生、社会、城市、环境、全球和教育政策）也展示了很强的代表性。

关键词：公共事务，政策学校，文本挖掘，话题分析

El objetivo de este artículo es comprender el campo multidisciplinario de los asuntos públicos. Sobre la base de datos y minería de textos en los perfiles y publicaciones de todos los miembros de la facultad de una lista de programas de asuntos públicos de EE. UU. Orientados a la investigación, describimos el panorama de las escuelas y académicos de asuntos públicos, identificamos 15 temas en la investigación de asuntos públicos y discutimos sus tendencias de cambiar entre 1986 y 2015, y mostrar las redes de agrupación y contratación de escuelas de asuntos públicos. Nuestros resultados sugieren un enfoque más amplio para comprender el campo de los asuntos públicos que el enfoque de la administración pública en la literatura. Si bien la administración pública es muy visible en el campo, como lo demuestran las revistas más favorecidas por los estudiosos de asuntos públicos, varias áreas de políticas

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específicas (como las políticas de salud, sociales, urbanas, ambientales, globales y educativas) muestran representaciones sólidas basadas en nuestra Análisis tópico de la investigación en asuntos públicos.

PALABRAS CLAVE: asuntos públicos, escuelas de políticas, minería de textos, análisis de temas

Introduction

Public affairs is a multidisciplinary field that covers a variety of topics related to public interest. Several social science fields, such as economics, psychology, political science, and sociology, often involve research that has public policy implications, but the field is best defined through the research and teaching in public affairs programs or schools. Public affairs schools have diverse concentrations. Some of the notable ones, such as at the Universities of Chicago and Michigan, are heavily economics-based. More often observed are those programs focusing primarily on public administration and management, such as at the Universities of Georgia and Kansas. Different from most of other public affairs programs, Indiana University Bloomington has a large and diverse faculty that includes a distinguishable number of environmental scientists. Therefore, even with an exclusive focus on public affairs schools, it is still quite difficult to understand the multidisciplinary field of public affairs.

Efforts have been made to understand a narrower version of public affairs, i.e., public administration, mostly through the lens of publications at major public administration journals (Lan & Anders, 2000; Miller & Jaja, 2005; Ni, Sugimoto, & Robbin, 2017). There are also a small number of studies trying to profile public affairs programs either through faculty/staff/student publications in major public administration journals (Douglas, 1996; Legge & Devore, 1987) or degrees offered (Koven, Goetzke, & Brennan, 2008). To our best knowledge, no research has examined the broader multidisciplinary field of public affairs that include not only public administration research, but also various other specific policy areas studied by scholars from public affairs programs. This article fills this gap.

We aim to understand the landscape of both public affairs schools and the multidisciplinary field of public affairs from a scientometric approach. This approach has both advantages and disadvantages. As summarized by Ni et al. (2017), "the value of scientometric methods is that they are relatively neutral: they provide lists of topics and authors without any bias. The limitation, however, is that scientometrics provides the *what* but not the *why*" (p. 497). Relying on data and text mining on the profiles and publications of all faculty members from a list of research-oriented public affairs schools, we describe the landscape of U.S. public affairs schools and scholars, identify the major topics in public affairs research and their trends of change between 1985 and 2015, and show the clustering and hiring networks of public affairs schools.

This research distinguishes itself from earlier field studies at least in three ways. First, we adopt a broader scope on public affairs beyond public administration. We examine all kinds of publication outlets by faculty in public affairs schools, not just

public administration journals. Since public affairs schools are so diverse and those more policy analysis-oriented programs may naturally seek outlets beyond public administration journals, it is important to extend the scope for a better and more complete understanding of the multidisciplinary public affairs field. Second, using methods in big data/text mining, we provide an unbiased identification of topics in the field of public affairs, and based on that we show how different topics have evolved in public affairs research over the years. This approach has advantages over earlier topic identification efforts (Bingham & Bowen, 1994; Lan & Anders, 2000; Miller & Jaja, 2005) in terms of objectivity. Third, this research, to our best knowledge, is the only one that studies the clustering of U.S. public affairs schools based on research topics and hiring networks among them. This direction of efforts provides insights into the paradigm and interconnectedness of public affairs schools.

The article is organized as follows. After this introduction section, the methodology section justifies the list of public affairs schools in our sample, introduces the steps in faculty information collection, and explains methods for data analysis. The following section presents the results. The last section summarizes the research and discusses its limitations. Given its exploratory nature and similar to earlier field studies based on data mining (Koven et al., 2008; Ni et al., 2017), this article does not include a separate literature review. We have noted how this new study is distinct from earlier ones in the introduction.

Methodology

For a comprehensive examination of the landscape of public affairs schools in the United States, we start with a list of National Research Council (NRC) ranked programs in the field of Public Affairs, Public Policy, and Public Administration. With manual screening, we retrieved the information of the faculty in each of the departments hosting these programs, including their title; gender; graduating program and university; and, most importantly, publication records. Data collection were between January and March 2016. In this section, we introduce how we collect and analyze the data.

Selection of Policy Schools

The dataset includes 46 public policy, public administration, and public affairs schools/departments (hereafter policy schools) in the United States based on the list of NRC ranked Ph.D. programs (National Research Council, 2011). We rely on the NRC ranking instead of other rankings of public affairs (e.g., the ranking of master's programs in public affairs by *U.S. News and World Report*) because of our interests in faculty research and hiring networks. In the original listing, under the broad field Social and Behavioral Sciences and the field of Public Affairs, Public Policy, and Public Administration, there are 54 programs in 47 U.S. universities. Since the latest ranking was released in 2010, we validated the list based on the current information and generated an up-to-date list of schools that focus on policy research (Table

A1 in the Appendix). Specifically, we excluded (i) Florida International University's Social Welfare program in the School of Social Work; (ii) Johns Hopkins University's Health Policy and Management program in the Bloomberg School of Public Health; (iii) Northeastern University's Law Policy and Society program in the School of Law; (iv) University of Pennsylvania's Social Welfare program in the Wharton School; (v) University of Arkansas' Public Policy program, which is an interdisciplinary program without dedicated faculty members. We also replaced University of Arizona's Management program in Eller College of Management with its School of Government & Public Policy. It is worth noting that the NRC ranking is at the program level. For example, there are two ranked programs from Indiana University, one for public policy and the other for public affairs. However, this study focuses on formal academic units instead of programs. We therefore merged programs to the school level for (i) Indiana University; (ii) University of California at Irvine; (iii) University of Texas at Dallas. To account for a joint Ph.D. program by Georgia State University and Georgia Tech listed in the NRC ranking, we added Georgia State University's Department of Public Management and Policy in the Andrew Young School of Policy Studies (the policy school at Georgia Tech is already in NRC's list.)

Finally, we note that the final list is a mixture of schools, colleges, and departments. While it seems inconsistent at first sight, we argue that it is more reasonable to focus on the smallest academic units that aim at policy research. For instance, the Steven J. Green School of International & Public Affairs at Florida International University consists of eight departments. Only one of them, the Department of Public Administration, explicitly states its mission as providing a professional education in public sector and nonprofit management. The others, such as Religious Studies and History, have much less or even little connection with policy studies. Inclusion of such academic units would inevitably bring in noise.

Faculty Information Collection

For each of the 46 policy schools, we retrieved information for full-time faculty members, including their names, titles (full, associate, or assistant professors), graduating institutions and programs, and publication records from school and personal websites, as well as their LinkedIn profiles and CVs (if any). By full-time faculty members, we refer to those with titles full, associate, and assistant professors. Visiting, adjunct, teaching, or emeritus professors were excluded from the dataset.

Gender information was inferred by two software packages using first names: Sex Machine (Elmas, 2013) and Gender (Blevins & Mullen, 2015). Both Sex Machine and Gender give gender information with some extent of uncertainty. Specifically, the former only gives description (e.g., "mostly female" vs. "female"), whereas the latter one gives explicit probability (e.g., 95 percent of being female). For Sex Machine, we used the result only if it is certain about the gender; for Gender, we set the confidence level at 95 percent. If the desired confidence was not achieved, we marked this name as gender unknown, which was then searched manually. We performed manual search under two situations: (i) neither program gave certain gender information; (ii) two programs gave different answers to the same first name.

With both names and current affiliations as query keywords, we were then able to retrieve their author IDs using Scopus author search application programming interfaces (APIs). Scopus maintains researchers' publication profiles with unique identifiers for each author. However, due to name ambiguity and affiliation changes, there may exist more than one author ID for the same researcher, which were later merged into one. Among the results returned by the API, we manually excluded those who were clearly not a faculty member in our school list. With author IDs, we retrieved publication information for each author, along with their Scopus IDs, titles, publication types (journal/trade journal/book series/conference), dates, citation counts, and publication venues, etc. Abstract texts were then collected via abstract retrieval API.

Research Topics

Research topics were extracted from the abstracts of faculty publications from the sampled policy schools as mentioned above using latent Dirichlet allocation (LDA; Blei, Ng, & Jordan, 2003). LDA is a widely used topic modeling algorithm that aims at identifying latent topics of each document. Specifically, it takes a collection of documents as inputs, and generates two probabilistic distributions: (i) Each latent topic is represented as a multinomial distribution over words. Those words that have high probabilities associated with a topic are representative keywords for that topic. If a topic, for example, is composed of top keywords, including "urban," "city," "region," "planning," etc., we can interpret it as urban planning/policy. (ii) Each document is represented as a multinomial distribution over topics.

While it is possible to select the number of topics by quantitative measures (e.g., perplexity), such an approach often fails to produce human interpretable results (Chang, Gerrish, Wang, & Blei, 2009). Instead, we tested different numbers of topics k from 8 to 20 and picked 15, which produced the most interpretable and reasonable set of topics. In addition, there are two Dirichlet hyperparameters, α and β, that control the sparsity of document and topic representations. Lower values of the hyperparameters lead to more decisive associations between document-topic and topic-word distributions. In this article, we fit an LDA model with $\alpha = \frac{1}{k} = 0.05$ and $\beta = \frac{10}{V} = 2.7 \times 10^{-4}$ (Gerow, Hu, Boyd-Graber, Blei, & Evans, 2018). Detailed topic modeling results (i.e., the first probability distribution mentioned in the paragraph above) are listed in Table A2 in the Appendix. Note that interpretations were added manually based on the top keywords.

Clustering Policy Schools

Another interesting question relates to the possible groupings of policy schools, if there is any, so that schools that are similar to each other are placed in the same group. We applied hierarchical clustering based on the research profile of each school. A policy school is represented by the average topic distributions of all papers with at least one author from that school. Hence, the distances between

clusters can be interpreted as the difference of research focuses between two schools. Specifically, we used agglomerative clustering with Ward's criterion (Ward, 1963), which aims at minimizing the sum of squared differences (i.e., variance) within clusters. Iteratively, we group individual schools into clusters until there is only one cluster that contains all the schools. The number of clusters is determined by a distance threshold—if distance between two clusters is above the threshold, we consider the merge invalid.

Hiring Network Analysis

A hiring network G was built for policy schools within the 46 institutions. Specifically, we manually inspected each faculty member's Ph.D. program and determined if they graduated from related programs instead of just the university. For example, a faculty member in the policy school at UC Irvine with a Ph.D. degree in history from the University of Pennsylvania would not be included in the network since her program was not public administration, public affairs, or public policy. In G, each node is a policy school. There will be an edge from u to v if u hires a Ph.D. graduate from v. The direction can be conceptualized as endorsement or recognition, because schools producing faculty to other schools are acknowledged as being able to produce competitive researchers (Hanneman, 2001). The weight of an edge is the number of Ph.D. graduates from the target node hired by the source node. Therefore, G is directed and weighted. The colors shown in Figure 10 indicate to which cluster each policy school belongs by maximizing modularity (Newman, 2006). Modularity is the fraction of edges within network communities minus the expected fraction of such edge. It is commonly used in quantifying the goodness of community structure in networks (Newman, 2006; Newman & Girvan, 2004). The higher it is, the more clear-cut the corresponding communities are. Policy schools clustered into the same community have tighter connection with each other and weaker with those in other communities, with respect to faculty hiring.

It is noteworthy that among all valid Ph.D. programs, there is a joint program in Public Policy by Georgia Tech and Georgia State. The weight from the source policy school will be split evenly to Georgia Tech and Georgia State (i.e., each gets 0.5.) Furthermore, four programs were only counted as *half* policy programs: (i) Public Policy and Economics; (ii) Statistics and Public Policy; (iii) Social and Decision Sciences and Public Policy from Carnegie Mellon; and (iv) Public Policy, Political Science from Indiana at Bloomington. Hiring a Ph.D. from such program was only counted as a 0.5 weight.

To find possible patterns, we compared the hiring network with three random graph models (Newman, 2003): Erdős-Rényi models (i) $G_{n,m}$; (ii) $G_{n,p}$; and (iii) the configuration model. The first two random graph models assumed that each edge in a network was added independently, and often lead to a tree-like structure. The configuration model, on the other hand, is more realistic by forcing nodes to have a given degree sequence, mimicking the degree distribution of a given network. The comparison between random graph models and a real-world network is used to

test if the real-world network presents patterns that can hardly be generated just by chance.

Results

School Size

Among the 46 policy schools, we collected a total number of 1,065 full-time core faculty members, including 539 full, 277 associate, and 249 assistant professors (Table 1). Here we define senior faculty members to be those who are tenured (i.e., full and associate professors), and junior faculty members to be those on tenure-track positions (i.e., assistant professors). As a result, there are 816 senior (77 percent) and 249 junior (23 percent) faculty members, indicating a significant imbalance between professorship rankings. With respect to gender distributions, there are significantly more male (66 percent) than female (34 percent) faculty members. Controlling for seniority, such a huge imbalance disappeared when we only look at junior faculty (47 percent female vs. 53 percent male). This, to some extent, coincides with the general phenomenon of *leaky pipeline* in the scientific community (Shen, 2013). While a significant number of young female researchers enter the academy, male researchers still dominate senior positions (Etzkowitz, Kemelgor, Neuschatz, Uzzi, & Alonzo, 1994).

Looking at individual schools, we found significant inequality in school sizes, as represented by the number of full-time faculty members ($Gini = 0.45$; Figure 1). While departments are understandably smaller than schools, inequality still holds when we consider departments and schools separately ($Gini = 0.46$ for schools only; $Gini = 0.41$ for departments only).

Productivity

We limited our analysis to journal articles published up to the year 2015. Further, we only kept articles with abstracts available. In sum, we retrieved 16,834 papers by 995 out of 1,065 faculty members across all 46 institutions.[1]

Here we use the number of papers per year as a proxy for productivity. The number of papers grows steadily over time, with an average increasing rate of 21.2 papers per year (Figure 2A). Specifically, papers published in the past decade (i.e., 2006–15) account for 56 percent of all the papers since the 1960s. The peak of 1,176 papers was attained in 2015. The inequality of productivity, breaking into individual schools, is consistent with the sizes of schools. Intuitively, productivity of an institution will usually be higher if the institution has more faculty members. This is evidenced by their strong linear relationship (Figure 3). Such inequality persists when we control for seniority, gender, or both (all $Gini > 0.5$).

We note that the following time-trend analyses exclude earlier years (1962–85) due to the small number of papers in the annual record during that time period. The growing number of papers jumped from 135 in 1985 to 178 in 1986. The larger

Table 1. Faculty Composition

	Junior	Senior	Total
Female	117	248	365
Male	132	568	700
Total	249	816	1065

numbers of papers make statistical analysis results more reliable. We therefore focus on the 30-year time period between 1986 and 2015 for trend analyses thereafter.

At a more fine-grained level, seniority and gender both exert notable influence on the skewness of productivity. While the ratio between the numbers of senior and junior faculty members is 3.3 to 1, the senior group has 15,640 papers, 11.7 times as many publications as the junior group (1,333). This implies that senior members have accumulated much more time and resources than the newcomers so that they have dominated in the number of publications. Such imbalance between senior and junior members is consistent when we control for gender. Considering gender disparity, the number of publications by female is 4,239, merely one third of that by male (12,203), although the ratio between female and male populations is approximately 0.52. When we take a closer look into the evolving productivity for each gender, it is interesting to witness a gradually growing share of female-authored publications (Figure 4; from 8 percent to 35 percent). It is also clear that cross-gender collaboration is rare across time.

Finally, we show the top 15 popular journals with respect to the number of publications by policy school faculty members in Figure 5. The Lorenz curve along with $Gini = 0.52$ implies common preferences of journals. *Public Administration Review* (*PAR*), one of the best-known journals in public administration, tops the list of journals for policy scholars and contains 1.8 percent of the 16,834 papers. It is followed by another well-respected public administration journal: *Journal of Public Administration Research and Theory* (*JPART*). The top 15 journals contain 12.5 percent (i.e., 2,104) papers, whereas the remaining 87.5 percent were published in the other 3,131 journals.

Topics

Belonging to a highly multidisciplinary area, faculty members from different policy schools have various research interests. Based on a LDA analysis of faculty publications, we identify 15 topics in public affairs research, including (i) 10.73 percent policy development; (ii) 8.91 percent policy analysis; (iii) 8.89 percent public management; (iv) 8.75 percent health policy; (v) 8.15 percent public economics & finance; (vi) 6.64 percent social policy; (vii) 6.52 percent environmental management; (viii) 5.92 percent urban policy; (ix) 5.91 percent political system; (x) 5.91 percent public opinion; (xi) 5.45 percent environmental & energy policy; (xii) 5.18 percent global policy; (xiii) 4.99 percent education policy; (xiv) 4.88 percent health management; and (xv) 3.15 percent criminal justice (Table A2). The percentage ahead of each topic represents the proportion of the topic among all topics, showing the extent to which

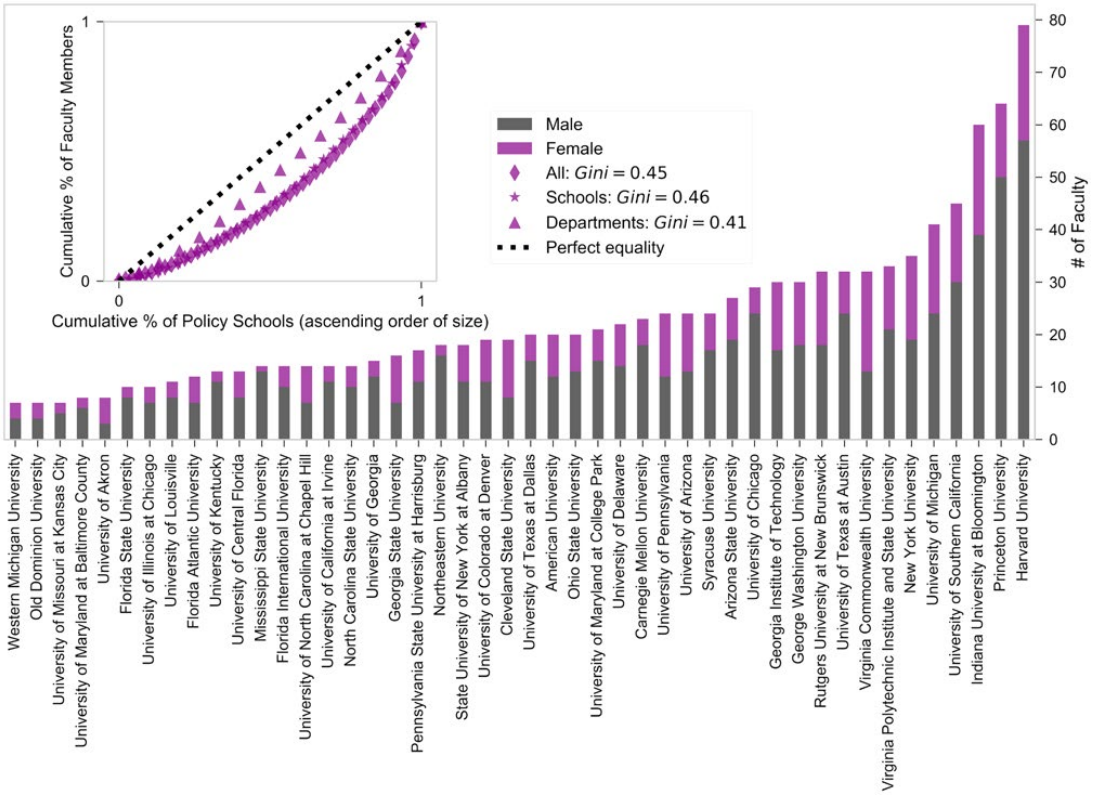

Figure 1. Sizes of Policy Schools. Schools are Ordered by the Number of Full-Time Faculty Members in the Dataset.
Note: Inset figure is the corresponding Lorenz curve.

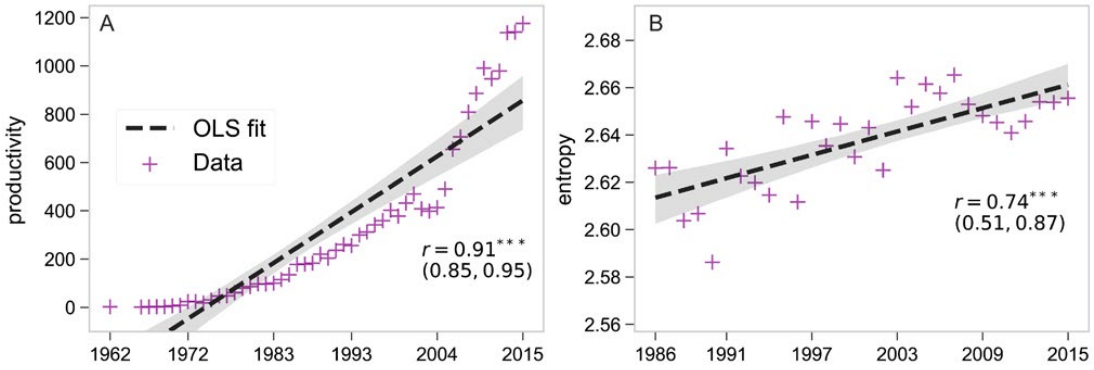

Figure 2. Productivity (A) and Topical Diversity (B) Over Time.

policy scholars have been interested in the topic. A first glimpse of the topic composition shows that policy researchers have broad interests. Using Shannon Entropy (Shannon, 1948) as an index of multidisciplinarity (higher value of entropy means a more even distribution, and thus more multidisciplinarity [Zuo & Zhao, 2018]), we observe consistent high entropy values across time (Figure 2B), with some small increase from early years. This provides empirical evidence on the multidisciplinarity of policy scholars. Such evolution coincides with the increasing rate of productivity

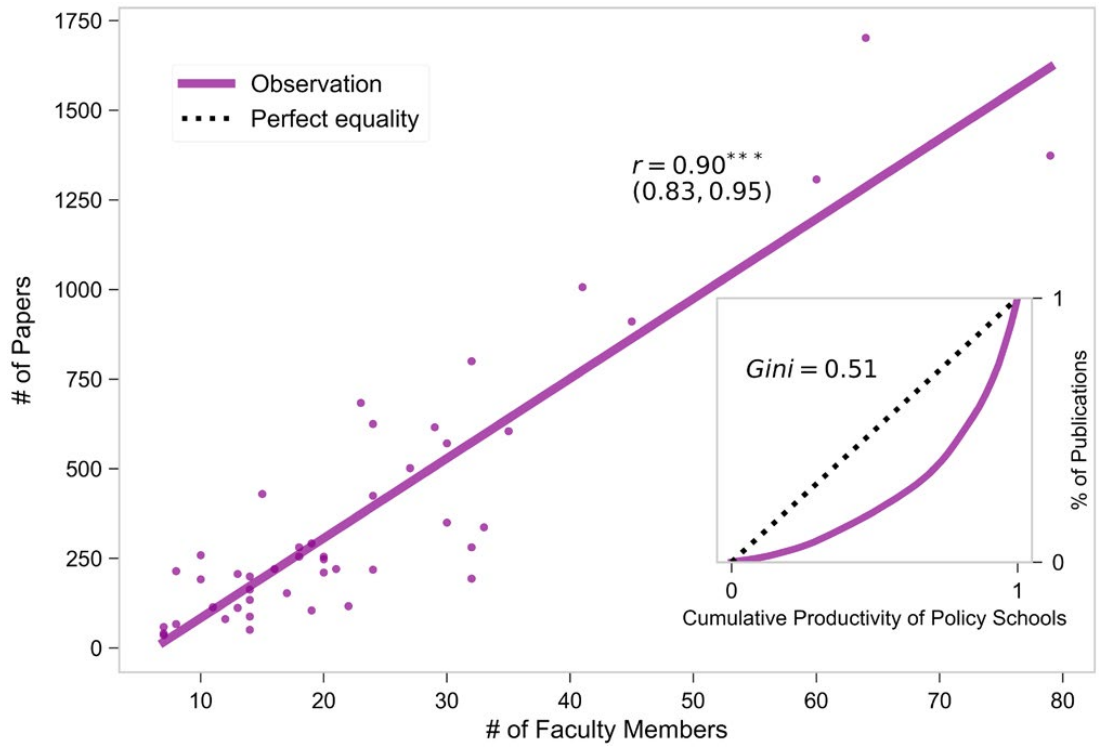

Figure 3. Relationship Between Institution Size and Productivity.
Note: Inset figure shows the Lorenz curve for productivity inequality across the 46 policy schools. Here we overuse Lorenz curve, where some papers may be counted more than once due to multi-authorship.

(Figure 2A). After all, it is likely that topics derived from more publications tend to be more diverse.

Individual topics exhibit various temporal trends. For each year from 1986 to 2015, we calculated the average topic proportions in all the papers published, as a proxy for topical prevalence (Figure 6). Specifically, there have been growing research interests in topics, such as public management, social policy, public opinions, and environmental and energy policy. By contrast, research in policy analysis, public economics and finance, environmental management, and political system shows declined importance among policy scholars. For the rest of the topics, the changes in their proportional importance during this 30-year time period are not significant and typically present some fluctuations. Regardless of the trends, in 2015, the most popular research topics are policy development and public management, both accounting for over 10 percent among 15 topics.

Research Impact

Despite its limitations, citations count is the most popular metric to quantify research impact. Here we retrieved annual citations up to 2015 for all the 16,834 papers. The citation distribution is highly skewed (Figure 7). The mean and median numbers of citations are 31 and 9, 90 and 300 times less than the highest citation

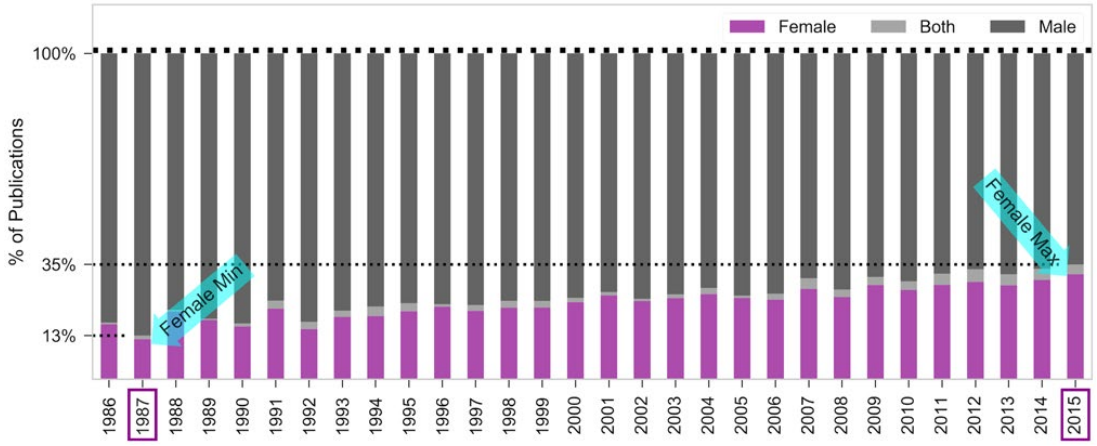

Figure 4. Annual Share of Publication Portion Between Female and Male.
Note: The lowest (except zero) and highest relative productivity of female faculty members are highlighted, as shown by two light dotted horizontal lines, respectively.

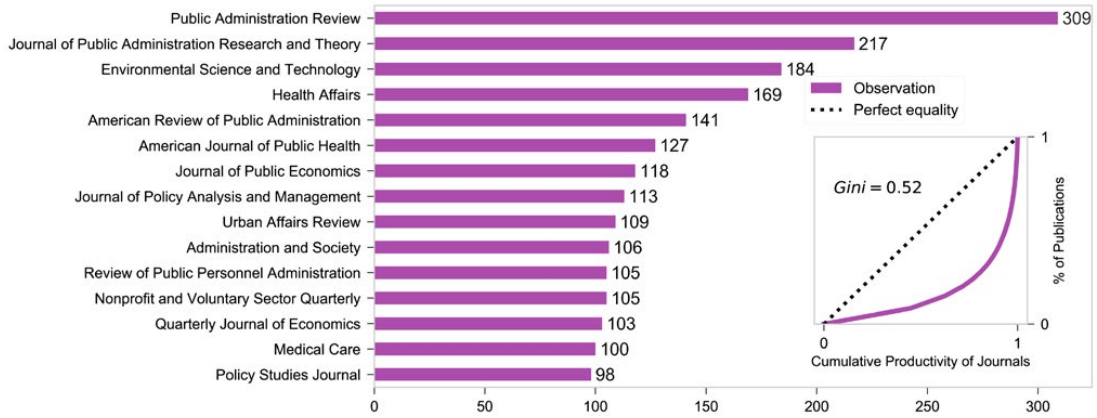

Figure 5. Top 15 Journals with Respect to the Number of Papers by Policy School Faculty Members.

count 2,713, respectively. Of all papers, 11.7 percent (i.e., 1,977) did not receive any citations, whereas 0.1 percent (i.e., 17) receive at least 1,000 citations. We define annual citation counts to be the total number of citations in that year, which contain citations to papers published before that. For the policy community, annual citation counts have increased rapidly to 6×10^4. This, obviously, is largely correlated with the cumulative number of published papers in each year ($r=0.97\in[0.95,0.98]$).

Based on the topic modeling results, we allocated each paper's citation counts proportional to their topic distributions (Figure 8). A paper with 150 citations, for example, with a uniform topic distribution (i.e., a paper whose topic probability is 1/15 for all the 15 topics), will correspondingly have a uniform topical impact distribution, with 10 citations distributed to each of the 15 topics. Topical citation is then the sum of proportional citations across all papers. It is reasonable to say that a topic with more citation counts is more *attractive* than those with lower citations.

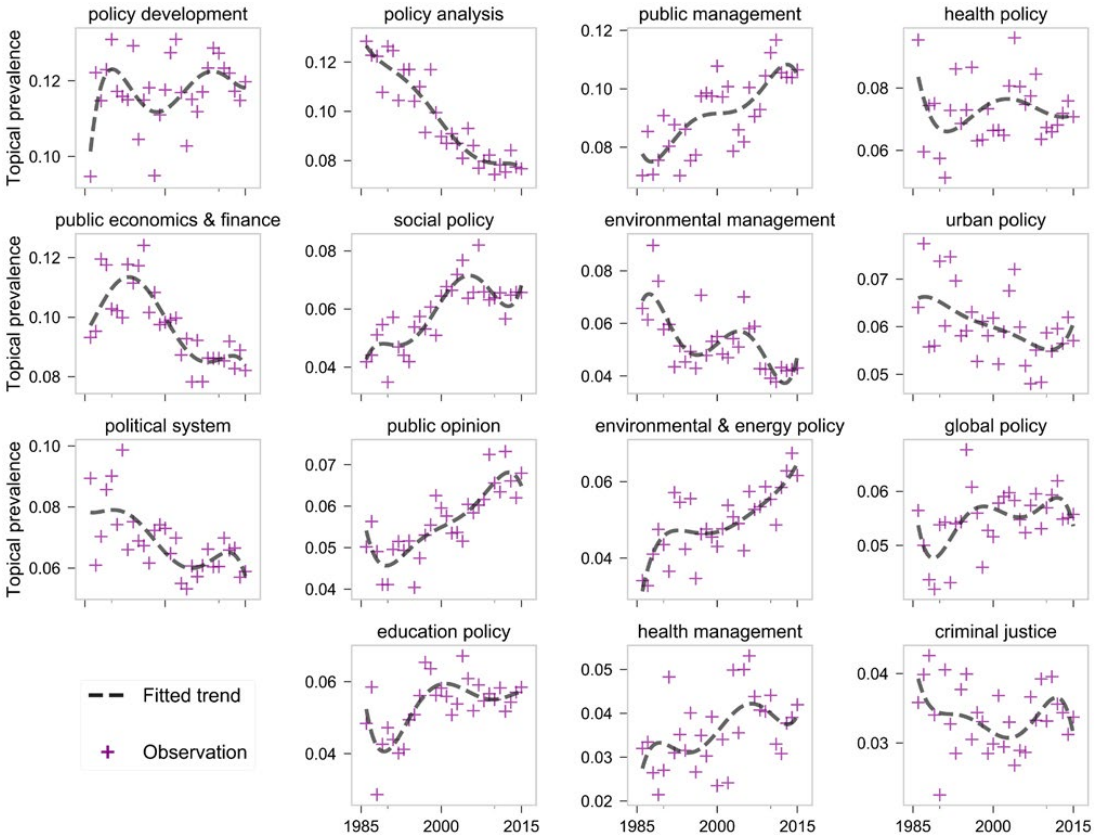

Figure 6. Prevalence of Topics Over Time.
Note: The trend is fitted by a polynomial interpolation with degree of 5.

A higher level of attractiveness of a topic could be a result of a higher proportion of the topic among all policy topics, or a greater impact when holding proportions constant, or both. As shown in Figure 8, policy analysis, policy development, and public economics & finance are the three most attractive topics. Two of them have actually experienced a substantial decline among policy scholars' research interests, as discussed earlier, but still maintain substantial proportions (around 8 percent in recent years, as shown in Figure 6), higher than most of other topics. At the other end, criminal justice is the least attractive topic. Indeed, only a few policy schools explicitly have a criminal justice concentration.

Clustering of Policy Schools

Figure 9 shows a complete dendrogram. See Tables A3 and A4 in the Appendix for lists of policy schools in each cluster when $k=3$ and $k=4$. A dendrogram is a useful tool to visualize the hierarchical clustering process and help determine the number of clusters. Specifically, vertical lines show which schools (or clusters at the higher level) are parts of the cluster merge indicated by horizontal lines, whose heights are the distances between schools (or clusters). For example, the vertical lines above the two schools on the right end—Levin College of Urban Affairs at Cleveland

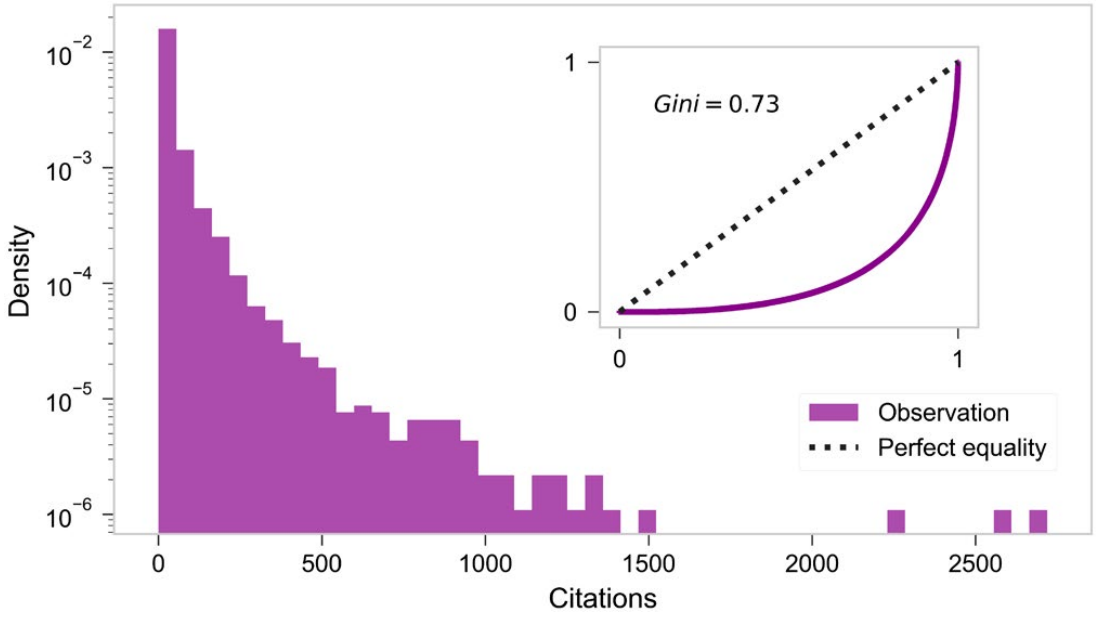

Figure 7. Distribution of Citation Counts at Paper Level.

State University and School of Public Policy & Administration at University of Delaware—indicate that these two policy schools are merged into the same cluster at a topical distance (measured by Euclidean distance) of less than 0.10 (i.e., the height value of the corresponding horizontal line). These two programs both have a strong focus on urban policy. As another example, University of Michigan's Ford School of Public Policy is most similar to University of Chicago's Harris School of Public Policy in terms of research topics. Faculty in these two programs overall have strong backgrounds in economic analysis. One notable observation from the dendrogram is that Indiana University Bloomington's School of Public and Environmental Affairs (SPEA), one of the best-known programs in the nation, is not merged into a cluster until a topical distance of 0.45. It shows that SPEA does not closely resemble any other policy schools in the nation. Overall, the policy schools can be divided into two broad clusters. Those on the left side of the dendrogram lean more toward public administration/management, and those on the right side are focused more on public policy analysis.

Hiring Networks

Figure 10 shows the hiring networks among policy schools. It is perhaps no surprise for policy scholars to see that policy schools in Syracuse, Georgia, Indiana, and University of Southern California supply the largest numbers of Ph.D. graduates who are on the faculty of all 46 policy schools considered in this research. Examples of strong hiring relationships include: Indiana and Georgia have observable reciprocal hires; American University hires Syracuse graduates heavily; Arizona State has substantial numbers of Georgia and Syracuse graduates on it faculty; University of

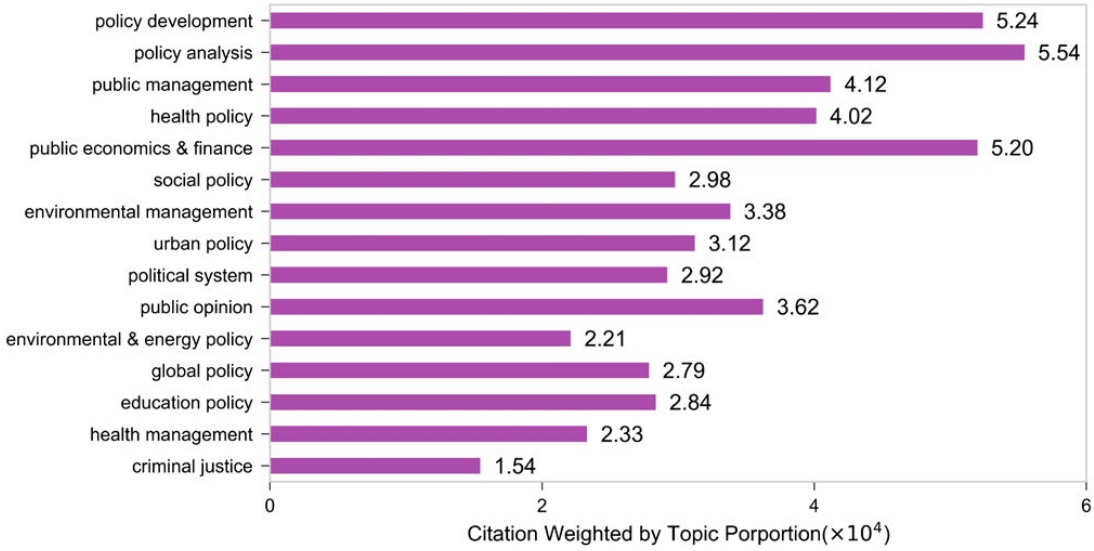

Figure 8. Topical Citations Distribution.
Note: For each topic, we aggregate citations from all the papers, proportional to their topic distributions. For example, a topic will receive 10 percent of a paper's citations if it has a 10 percent in this topic. The sum of such citations proportional to topic distributions is topical citation. Note that the scale is 10^4 on the x axis.

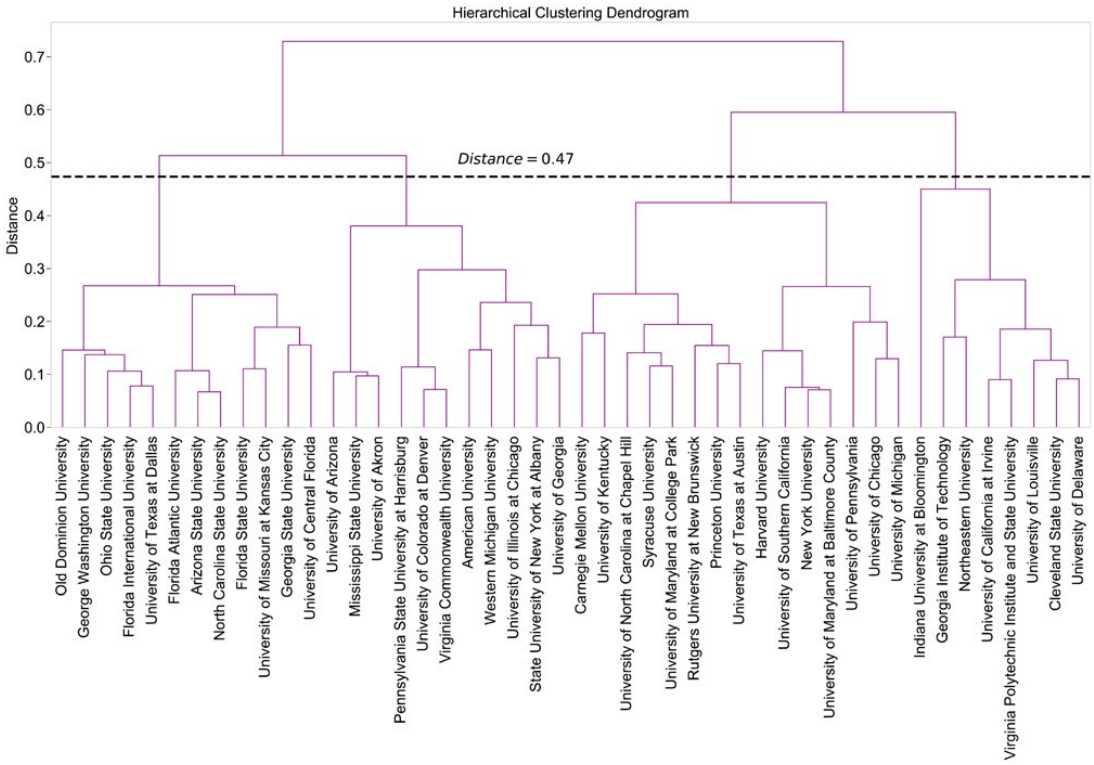

Figure 9. Hierarchical Clustering Dendogram of 46 Policy Schools.
Note: The black dashed line indicates the distance cutoff where we can obtain a four-cluster grouping.

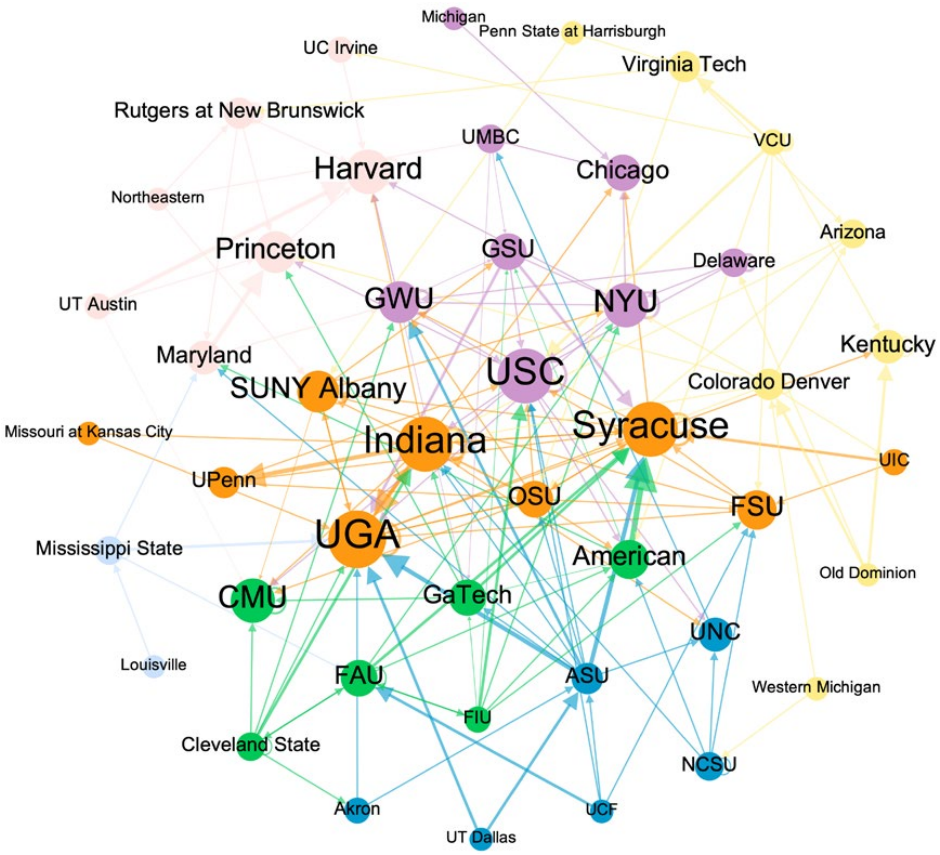

Figure 10. Hiring Network Between Policy Schools.
Note: Node size is proportional to the number of incoming edges (i.e., the number of Ph.D. hired by others); edge width is proportional to the number of Ph.D. flows.

Texas at Dallas has more than one faculty member who obtained their policy Ph.D. degree from Georgia and Arizona State; and graduates from two Ivy League policy schools—Harvard and Princeton—are favored by two state flagship universities, Maryland and University of Texas at Austin.

We calculated the following three network statistics (Table 2): (i) Percentage of self-loops. Self-loops quantify the extent to which schools hire their own graduates, also known as inbreeding. (ii) Modularity. The higher the modularity, the better the network can be clustered into well-separated subgroups. (iii) Reciprocity (the ratio between the number of reciprocal edges and the total number of edges). Self-loops do not count as mutual edge. Reciprocity implicitly contains information on mutual acknowledgement (Burris, 2004).

The same network statistics mentioned above are then calculated for 1,000 runs of random graph generations (Figure 11). All random graphs present lower rates

Table 2. Hiring Network Statistics

# of Nodes	# of Edges	% of Self-Loops	Modularity	Reciprocity (w/o Self-Loops)
46	176	0.12	0.34	0.04

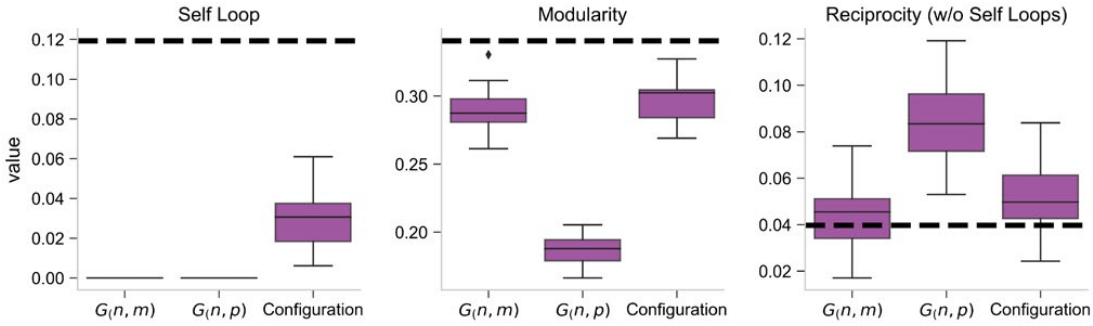

Figure 11. Comparison Between Self-Loop Rate, Modularity, and Reciprocity Between Random Graphs and the Empirical Hiring Network. The Dashed Line is the Value for the Empirical Hiring Network.

of self-loops, indicating that a policy school is more likely to hire Ph.D. graduates from itself as compared to by chance, though this may not be beneficial for productivity (Horta, Veloso, & Grediaga, 2010). With respect to topological structures, the empirical hiring network has a higher modularity compared to all random graphs and hence manifests a clear subcommunity structure. This may imply the existence of hiring circles within groups of policy schools. Different communities based on hiring circles are shown in Figure 10 with different colors. Not surprisingly, these differentiated communities to some extent mirror the topical clusters identified earlier. Reciprocity values in random graphs are slightly higher than the real dataset, showing that mutual acknowledgement is observed less than purely by chance. Although hiring decisions are not planned ahead, comparing the network statistics of the hiring network against randomly generated networks suggests that such bottom-up emergent behavior drives the clear-cut hiring structure within the policy school communities.

Summary and Limitations

In this research, we explored the landscape of the public affairs field through the lens of ranked Ph.D. policy schools in the United States. We summarized the faculty profiles of these policy schools, and more importantly, identified the focuses and topics of the multidisciplinary field of public affairs through faculty publications. Interestingly, though adopting a much broader scope than earlier studies that focus exclusively on publications in public administration journals, we found that publication administration journals, *PAR* and *JPART* in particular, are still the most popular outlets among public affairs scholars. It shows that public administration has been the most visible representation in the broader field of public affairs.

We identified 15 research topics in public affairs using a popular topic modeling algorithm. Different from adopting subjectively defined subfields in public administration or public affairs in the literature (Bingham & Bowen, 1994; Lan & Anders, 2000; Miller & Jaja, 2005), we let the publication text data speak for themselves, and therefore, the topics are more objectively derived. In addition, LDA allows each

publication to simultaneously represent different topics in proportion to their relevance. The "one publication, one topic" approach in the past studies (Bingham & Bowen, 1994; Lan & Anders, 2000; Miller & Jaja, 2005) failed to take into account the interdisciplinary nature of public affairs research. For the topical results, it is no surprise to see that some of these topics overlap with the subfields of public administration discussed, for instance, in Lan and Anders (2000), as public administration is the key focus of a large number of policy schools and a key representation of the public affairs field as just discussed. These overlaps include policy development, policy analysis, public management, political system, and public opinion. New from our results are those specific policy areas that better define public policy schools than public administration departments, such as health policy, health management, environmental & energy policy, environment management, urban policy, global policy, and education policy. These area-specific policy topics justify our efforts to understand policy schools not simply from the perspective of public administration research.

Our work in clustering policy schools based on the research topics of faculty publications provides information on what policy schools are similar (or dissimilar) to each other. At the highest level, there is a distinction between the more public policy-oriented schools and the more public-administration-oriented schools. At the lower levels, schools are clustered based more on specific topic areas. It is perhaps to no one's surprise seeing that the clustering results to a large extent echoes the communities observed in the hiring network patterns we also identified. After all, schools are more likely to hire graduates from other schools with similar research concentrations. It however should be noted that our clustering and hiring network analyses are not intended to encourage schools to hire or collaborate more with similar schools. On the contrary, diversity is increasingly important especially in interdisciplinary research, such as public affairs. We simply present the patterns here and leave the interpretation part to policy school experts.

Although this research has advantages over earlier studies in terms of objectivity and neutrality, it has its own limitations, primarily in data quality. First, although it is ideal to consider all faculty publications for analysis, we cannot include those not digitally documented in Scopus. The publication record for earlier years is particularly biased when the digitalization practice in research was not as common as today. Second, we can only take into account faculty members who were affiliated with a policy school when our data were collected, i.e., between January and March 2016. Due to the interdisciplinary nature of the public affairs field, it is indeed common to see faculty moves between policy schools and other departments. Those public affairs scholars who had moved out of policy schools (including retirements and deaths) before our data collection period are not considered. Practically, there was no way we could find the faculty information of policy schools by year. Third, we only use the sample of NRC-ranked policy schools offering Ph.D. degrees because of our interests in hiring networks and to a lesser extent in faculty research. Although it is reasonable to assume higher research productivity by faculty from policy schools with Ph.D. programs, it certainly can be the case that non-Ph.D. policy schools are equally or even more active in faculty research. With these limitations in mind, it is

our hope that this research helps us better understand the characteristics of policy schools and the multidisciplinary field of public affairs.

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Dr. Kang Zhao is an associate professor of business analytics and Henry B. Tippie Research Fellow, with a joint appointment in informatics, at the University of Iowa. His current research focuses on data science and social computing, especially the mining, predictive modeling, and simulation of social, business, and scholarly networks.

Note

1. We cannot find any record for the rest in Scopus. They may have publications, but these are not reflected by our dataset because: (i) they wrote books/book chapters which were not included; (ii) they were not indexed by Scopus; and (iii) we could not match them due to name matching problems. Further, it may be the case where policy researchers publish professional articles or reports that are not indexed by bibliographic databases such as Elsevier.

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APPENDIX A1: List of Schools

Table A1. List of Policy Schools based on NRC Ranked Programs

University	Institution
American University	School of Public Affairs: Department of Public Administration & Policy
Arizona State University	School of Public Affairs
Carnegie Mellon University	School of Public Policy & Management
Cleveland State University	Maxine Goodman Levin College of Urban Affairs
Florida Atlantic University	School of Public Administration
Florida International University	Steven J. Green School of International & Public Affairs: Department of Public Administration
Florida State University	Askew School of Public Administration and Policy
George Washington University	Trachtenberg School of Public Policy and Public Administration
Georgia Institute of Technology	School of Public Policy
Georgia State University	Andrew Young School of Policy Studies: Department of Public Management and Policy
Harvard University	The Kennedy School of Government
Indiana University at Bloomington	School of Public and Environmental Affairs
Mississippi State University	Department of Political Science and Public Administration

University	Institution
New York University	Robert F. Wagner Graduate School of Public Service
North Carolina State University	Department of Public Administration
Northeastern University	School of Public Policy and Urban Affairs
Ohio State University	John Glenn College of Public Affairs
Old Dominion University	Strome College of Business: School of Public Service
Pennsylvania State University at Harrisburg	School of Public Affairs
Princeton University	Woodrow Wilson School of Public and International Affairs
Rutgers University at New Brunswick	Edward J. Bloustein School of Planning and Public Policy
State University of New York at Albany	Rockefeller College of Public Affairs & Policy: Department of Public Administration & Policy
Syracuse University	Maxwell School of Citizenship and Public Affairs: Department of Public Administration & International Affairs
University of Akron	Department of Public Administration and Urban Studies
University of Arizona	School of Government & Public Policy
University of California at Irvine	School of Social Ecology: Department of Planning, Policy and Design
University of Central Florida	College of Health and Public Affairs: School of Public Administration
University of Chicago	The Harris School of Public Policy Studies
University of Colorado at Denver	School of Public Affairs
University of Delaware	School of Public Policy and Administration
University of Georgia	School of Public and International Affairs: Department of Public Administration and Policy
University of Illinois at Chicago	College of Urban Planning and Public Affairs: Department of Public Administration
University of Kentucky	Martin School of Public Policy & Administration
University of Louisville	Department of Urban and Public Affairs
University of Maryland at Baltimore County	School of Public Policy
University of Maryland at College Park	School of Public Policy
University of Michigan	Gerald R. Ford School of Public Policy
University of Missouri at Kansas City	Henry W. Bloch School of Management: Department of Public Affairs
University of North Carolina at Chapel Hill	Department of Public Policy
University of Pennsylvania	School of Social Policy and Practice
University of Southern California	Sol Price School of Public Policy
University of Texas at Austin	Lyndon B. Johnson School of Public Affairs
University of Texas at Dallas	School of Economic, Political & Policy Sciences
Virginia Commonwealth University	L. Douglas Wilder School of Government and Public Affairs
Virginia Polytechnic Institute and State University	The School of Public and International Affairs
Western Michigan University	School of Public Affairs and Administration

APPENDIX A2: Topic Modeling Results

Table A2. Interpretation and Top Words of LDA Topics

Interpretation	Proportion	Top Keywords
Policy development	0.1073	0.0122*policy + 0.0111*social + 0.0093*development + 0.0092*process + 0.0085*knowledge
Policy analysis	0.0891	0.0433*model + 0.0208*data + 0.0146*estimate + 0.0118*analysis + 0.0112*measure
Public management	0.0889	0.0327*public + 0.0182*organization + 0.0173*government + 0.0166*service + 0.0163*management
Health policy	0.0875	0.0469*health + 0.0408*care + 0.0201*cost + 0.0188*patient + 0.0179*hospital
Public economics & finance	0.0815	0.0209*market + 0.0142*price + 0.0139*tax + 0.0136*economic + 0.0133*cost
Social policy	0.0664	0.0399*child + 0.0211*age + 0.0174*family + 0.0173*health + 0.0149*woman
Environmental management	0.0652	0.013*concentration + 0.0075*high + 0.0071*increase + 0.0067*water + 0.0065*temperature
Urban policy	0.0592	0.0266*city + 0.0225*urban + 0.0179*area + 0.0166*housing + 0.0135*neighborhood
Political system	0.0591	0.0508*state + 0.0452*policy + 0.0214*public + 0.0212*political + 0.0182*government
Public opinion	0.0591	0.0202*social + 0.0161*survey + 0.0136*group + 0.0102*individual + 0.01*attitude
Environmental & energy policy	0.0545	0.0254*environmental + 0.0173*energy + 0.0158*risk + 0.0157*climate + 0.0133*policy
Global policy	0.0518	0.0295*country + 0.0159*international + 0.0152*political + 0.0137*state + 0.0114*economic
Education policy	0.0499	0.0369*school + 0.0223*student + 0.0195*program + 0.0166*worker + 0.0159*work
Health management	0.0488	0.0226*patient + 0.0186*cancer + 0.0139*risk + 0.0118*rate + 0.0104*woman
Criminal justice	0.0315	0.0235*crime + 0.0203*violence + 0.0161*drug + 0.015*criminal + 0.0136*police

APPENDIX A3: Hierarchical Clustering Results (k = 3)

Table A3. Cluster Membership When k = 3

Cluster	Cluster Members
1	American University; Arizona State University; Florida Atlantic University; Florida International University; Florida State University; George Washington University; Georgia State University; Mississippi State University; North Carolina State University; Ohio State University; Old Dominion University; Pennsylvania State University at Harrisburg; State University of New York at Albany; University of Akron; University of Arizona; University of Central Florida; University of Colorado at Denver; University of Georgia; University of Illinois at Chicago; University of Missouri at Kansas City; University of Texas at Dallas; Virginia Commonwealth University; Western Michigan University
2	Carnegie Mellon University; Harvard University; New York University; Princeton University; Rutgers University at New Brunswick; Syracuse University; University of Chicago; University of Kentucky; University of Maryland at Baltimore County; University of Maryland at College Park; University of Michigan; University of North Carolina at Chapel Hill; University of Pennsylvania; University of Southern California; University of Texas at Austin
3	Cleveland State University; Georgia Institute of Technology; Indiana University at Bloomington; Northeastern University; University of California at Irvine; University of Delaware; University of Louisville; Virginia Polytechnic Institute and State University

APPENDIX A4: Hierarchical Clustering Results (k = 4)

Table A4. Cluster Membership When k = 4

Cluster	Cluster Members
1	Arizona State University; Florida Atlantic University; Florida International University; Florida State University; George Washington University; Georgia State University; North Carolina State University; Ohio State University; Old Dominion University; University of Central Florida; University of Missouri at Kansas City; University of Texas at Dallas
2	American University; Mississippi State University; Pennsylvania State University at Harrisburg; State University of New York at Albany; University of Akron; University of Arizona; University of Colorado at Denver; University of Georgia; University of Illinois at Chicago; Virginia Commonwealth University; Western Michigan University
3	Carnegie Mellon University; Harvard University; New York University; Princeton University; Rutgers University at New Brunswick; Syracuse University; University of Chicago; University of Kentucky; University of Maryland at Baltimore County; University of Maryland at College Park; University of Michigan; University of North Carolina at Chapel Hill; University of Pennsylvania; University of Southern California; University of Texas at Austin
4	Cleveland State University; Georgia Institute of Technology; Indiana University at Bloomington; Northeastern University; University of California at Irvine; University of Delaware; University of Louisville; Virginia Polytechnic Institute and State University

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Thinking in Public about Public Affairs: A Response to, and Expansion of, Zuo, Qian, and Zhao

Samuel Workman

Introduction

In "Understanding the Field of Public Affairs through the Lens of Ranked Ph.D. Programs in the United States," Zuo, Qian, and Zhao (2019) take an innovative approach to discussing the field of public affairs with attention to program, gender, and citation and hiring patterns. The essay that follows is not so much a critique of their approach as it is a plea to the academy to think more broadly about what it means to teach and research in the field of public affairs. I argue that this is increasingly important for understanding what it is we are teaching and orienting teaching and research toward problems that citizens and elected officials face together.

First, I address public affairs as an institutional label and the implications of these brick-and-mortar divisions for teaching public affairs as well as research into public problems. These tensions underly much of the empirical analysis in Zuo et al. (2019), but my aim here is to lay them bare. From there, I glimpse the contributions to the study of public affairs in its most natural home discipline—political science, where the politics that undergird public affairs is more vivid. I include a discussion of public affairs as organizational maintenance, and identification with the means (Jones, 2003) versus public affairs as addressing public problems. In this, I highlight the role of research centers and funded research. Finally, I note that a broader perspective on public affairs is imperative in teaching and training public managers as well as the field's leverage on understanding and solving important public problems.

"Public Affairs" as Institutional Label and Research Endeavor

Looking out at the vast landscape of public affairs, there are clearly two ways to understand the moniker. Each of these seeps through the analysis offered by Zuo et al. (2019), but neither is really made explicit. The first is that "public affairs"

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is largely an institutional label meant to simultaneously capture the instructional mission of the school and larger institutional imperatives for universities emphasizing community engagement, interdisciplinary foci, etc. It is also a deliberate guise for delineating public affairs from the politics that undergird it, both at the university level, and at the level of the larger problems it trains students to address. It is easy to see why this guise is necessary. Students graduating from these programs many times are not entering the academy, and instead take jobs with state and local governments, where political parties or appointees hold sway. Or alternatively, these students take jobs in sectors that demand advocacy (e.g., corporations, interest groups, or nonprofits).

The second way to understand "public affairs" is substantive. Schools of public affairs face a tension between instruction and research on the process of managing public organizations on the one hand, and instruction and research that is focused on substantive public problems. Public affairs schools are caught between these tensions between emphases on things like budgeting and personnel on the one hand, and things like education policy or emergency management on the other. It is very difficult to tool up students in each of these broader areas simultaneously, and much more difficult considering faculty tend to research in one area or the other.

Both renditions of public affairs come through in the analysis provided by Zuo et al. (2019). The mix of topics from the topic analysis are a mishmash of organizational processes (e.g., public management) and substantive issue emphases that are sometimes only loosely related to these concerns (e.g., global policy or environmental policy). Zuo et al.'s analysis paints a broader picture of public affairs than either policy schools or programs in public administration might give us in isolation. This bifurcation, I suspect, goes a long way in understanding the clustering among schools and programs of public affairs. However, it has tremendous consequences for understanding the impact of public affairs in public debates about government reform, governance, and solving public problems.

Organizational Maintenance and "Public" Policy Problems

These dueling components of instruction and research evidence a tension in public affairs between concerns about organizational maintenance and addressing policy problems with priorities attached to them by citizens, stakeholders, and elected officials. The classic understanding of public affairs, particularly public management, is the reconciliation of democratic imperatives with operation and administration of government. That is, how do public managers translate democratic stimuli into administration in institutional settings that bound their behavior in ways not faced in the private sector.

This tension is natural, and I am not here proposing that it can be eliminated, or should be. Even NASPAA, the national and global association for accrediting degrees in public administration and public policy at the masters' level reflects this duality. A key concern, however, is the degree to which instruction and research is able to integrate or synthesize these core concerns, and sometimes competing, components. To what degree does the analysis Zuo et al. present get at this core bifurcation? Is it

cognizant of it? And, to what degree would parsing these dueling concerns help us better understand diversity, hiring and citation patterns, and civic education at the highest levels of the academy? By limiting their study to public affairs schools and programs, the authors miss large portions of public affairs instruction and research that occurs in political science departments and research centers.

Public Affairs in Political Science

There is a tremendous amount of public affairs research that goes on in political science programs generally, and this research differentially impacts these more traditional understandings of public affairs. The research in political science that is properly understood as public affairs-oriented or adjacent is important for two broad reasons. First, it alters our understanding of some of the key questions addressed in the analysis at issue here. That is, we can answer questions about how public affairs in political science differs from the patterns observed here, if there are differences. And, this is ultimately an empirical question, but it gets at the broader objective of this study. Second, the research and instruction in political science that relates to public affairs is fundamental knowledge for those taking these types of jobs.

With regard to the second point above, emerging public managers operate in organizations rife with politics and questions of governance, some of which are not easily accommodated without understanding how subsystems operate, bureaucratic politics, and interest group politics. This, of course, should not be viewed as a critique of public affairs programs, but instead, should inform our collective understanding of what public affairs comprises and what research and instruction on public affairs looks like. It is worth considering what I mean by public affairs in political science, and to highlight the role of research centers and funded research.

The Role of Research Centers and Funded Research

I would proffer that funded research, by definition, is public affairs research. Whether funding emanates from bureaucratic agencies, foundations with particular issue emphases, or more generally the National Science Foundation, the impetus for research is a public concern for, or prioritization of, a problem. So, in understanding the scope of public affairs research a greater effort needs to be undertaken to assess the scope and diversity of research that is funded. This is especially true for National Science Foundation projects for which taxpayer money is the source of funding and for whom issue prioritization is heavily influenced by discussions in Congress and the executive branch.

Much of what should properly be understood as public affairs research occurs at research centers or networks of scholars organized around particular problems. Here, at the University of Oklahoma, the National Institute for Risk and Resilience brings together scholars dedicated to understanding public risks and how governing systems might best be adaptive and resilient in the face of complex public problems. Similarly, the Comparative Agendas Project brings together

scholars cross-nationally in trying to understand why and how governments prioritize some issues and not others. These are both instances of research centers or networks that have a focus on substance. In contrast, research coming out of the Center for the Study of Democratic Institutions at Vanderbilt University has coalesced around a concern for civil service reform and the management of bureaucratic agencies in particular. These are not the only exemplars, but rather ones with which I am familiar. In all cases, the research generated by these scholars is fundamentally about public affairs, whether in the management sense, or the public problem sense of the label. A more inclusive picture of the field of public affairs, if there is such a thing, would include these types of organizations. These centers bring a focus on management and public problems as public affairs, but do so in a way that is explicitly political and about political process. Many public affairs programs are attentive to this—the work on the regulatory process from the LaFollette School at the University of Wisconsin comes to mind. Answering this question empirically would go a long way in better understanding how programs deal with the bifurcation noted above, and integrate the study of politics more fundamentally. With attention to political process, and the problem focus, the type of public affairs research generated is well positioned for the changing nature of public problems.

Governance, Boundary Spanning Problems, and Public Affairs

In particular, public problems are increasingly complex in ways that defy the types of partitioning mentioned earlier. In an article appearing in this issue, McGee and Jones (2019) note that it is no longer sufficient to understand much of the job that public managers do to be confined to particular organizations or issue areas. In a world where understanding multiple subsystems address a given public problem, and doing your job may mean competing with other public organizations, politics becomes central to the day-to-day job in different ways than has been the case before.

Boundary-spanning problems present a particular challenge for governance as the partitions between organizations and between the issues they monitor become murky (Koski & Workman, 2018; May & Jochim, 2013; May, Jochim, & Sapotichne, 2011). That is, the increasing complexity of many of our most pernicious policy problems demands a greater understanding of the field of public affairs in precisely the fashion that Zuo et al. (2019) have undertaken here. Incorporating scholars and Centers working in public affairs, leaving the label aside, would go a long way in understanding many of these patterns.

Dr. Samuel Workman is an associate professor in the Department of Political Science at the University of Oklahoma. He is also a research faculty member at the Center for Risk and Crisis Management. Professor Workman's (2015) book, *The Dynamics of Bureaucracy in the U.S. Government: How Congress and Federal Agencies Process Information and Solve Problems* (Cambridge University Press) focuses on the regulatory process as generating information that shapes governmental problem solving. His work has also appeared in the *Policy Studies Journal* and the *Journal of Public Administration Research and Theory*. Dr. Workman's current research projects

examine how policy analysis in congressional bureaucracies shape both regulatory agendas and the types of information bureaucracies generate. He is also examining food security as a boundary-spanning policy problem encompassing both domestic and national security considerations.

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Thinking in Public about Public Affairs: Rejoinder

Haifeng Qian, Kang Zhao, and Zhiya Zuo

We appreciate the comments from Professor Samuel Workman on our article "Understanding the Field of Public Affairs through the Lens of Ranked Ph.D. Programs in the United States" published in this Yearbook issue (Zuo, Qian and Zhao, 2019). In the spirit of interdisciplinarity that characterizes public affairs research, we adopted a text mining approach and borrowed methods in data science in our efforts to describe the field of public affairs. The majority (two) of the three authors in our initial article (and the current rejoinder) are data scientists who have little research or teaching experience in public affairs. The other author is an urban planning professor, though trained in a public policy school. With this background, we focused primarily on what the data tell us about the field of public affairs but not much on what the results mean for the field. Workman's comment essay complements our analysis by addressing the latter. He aims to send "a plea to the academy to think more broadly about what it means to teach and research in the field of public affairs" (Workman, 2019, p. TBD). Moreover, we share Workman's concern over missed components that could have been considered as part of "public affairs" for data analysis, though we have some different thoughts on what should be included beyond the ranked public affairs Ph.D. programs we have analyzed.

While there were a number of findings in our data analysis, the one highlighted in Professor Workman's essay is the bifurcation and tension between public management and policy analysis in American public affairs schools. At the highest level of our hierarchical cluster dendrogram, American public affairs schools seemed to be divided into more public management oriented on one side and more public policy oriented on the other side. This bifurcation was also reflected in our topical analysis results. We agree with Workman that it is difficult to simultaneously train students or do research in both areas. From a different perspective, though, this bifurcation may meet the heterogenous demand by prospective students interested in different aspects of public services. Those aimed at public manager positions will naturally be more interested in public administration degrees. By contrast, those interested in consulting or policy analyst positions will be more likely to pursue public policy degrees. And even with this bifurcation, most public affairs schools appear to cover

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both areas, though not equally. For academic research that has become increasingly specialized, it is almost impossible to address organizational issues and policy problems at the same time, and doing so seems to compromise the depth of analysis on each side. Nevertheless, the bridging work by some "generalists" who have knowledge on both management and policy may be useful in translating research into public policy practice.

As a scholar affiliated with a political science department and a policy-oriented research center, Workman suggests that it would lead to a better understanding of the field of public affairs by adding the work of political science departments and research centers in data analysis. We certainly feel these connections. Here at the University of Iowa, the political science department offers a number of administration- or policy-related courses, and the multidisciplinary faculty and staff affiliated with the university's Public Policy Center conduct applied research that solves various public problems. Workman (2019, p. TBD) argues that part of research and teaching in political science provide "fundamental knowledge" for those who take public manager jobs. While this argument is very reasonable, the same argument can be made for the importance of economics departments to those who take policy analyst jobs. In fact, we have noted in our initial article that a number of other social science departments tackle public problems, such as economics, psychology, political science, and sociology. But we feel that "public affairs," which we narrowly understand as an "independent" and growing field in American universities rather than "all affairs with public interests," can be best described through activities in public affairs schools or programs. Moreover, the "fundamental knowledge" that could be provided in political science is actually not missed in the research activity of highly interdisciplinary public affairs schools. For instance, "political system" is one of the 15 topics we have identified from the publications of public affairs scholars.

Similarly, studying policy-oriented research centers or networks that typically involve research staff from various disciplines does not seem to help understand the unique identity of the public affairs field, if we accept there is such a thing. Additionally, these research centers or networks are often contingent on funding that could come and go within a short period of time, much less sustainable than public affairs schools as academic units. We recognize the broader question behind Workman's comments on what should be considered in this kind of field studies. There is no easy answer to it, especially given our focus on such an interdisciplinary field. The bottom line is that we had a clearly defined boundary, albeit not ideal, based on the ranked Ph.D. programs in public affairs. The immediate next step for us is to include the activities in other public affairs schools which do not have a ranked Ph.D. program.

We welcome more experts' thoughts on the field of public affairs based on our analysis, as Professor Workman has done in his comment essay. In the end, our initial article provided only *one* account of the landscape of public affairs research. It is our hope that public affairs scholars who have better field knowledge than us will dig deeper and/or broader into this topic. For instance, we would love to see new studies on how other disciplines (e.g., political science), research centers, or even

all kinds of funded research may have contributed to the field of public affairs, a research direction suggested by Workman.

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