Are wicked problems really so wicked? Perceptions of policy problems

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ABSTRACT
The concept of wicked problems has become widely used in policy analysis. The popularity of the concept has led to its overuse, and has produced significant conceptual stretching. This paper investigates the extent to which this stretching has led to the application of the concept to issues which are not ‘wicked’ in any meaningful sense. Based on a survey of policy experts, we find that few, if any, policy problems are perceived to have all the attributes of wicked problems. Although the concept does not appear useful in categorizing problems in a strict manner, the presence or absence of certain attributes can still be used in understanding the problems and in designing solutions for them.

KEYWORDS
Public policy; wicked problems; elite survey; intractable policy

Introduction
When policymakers are faced with the need to make policy, they tend to define the issues they confront in functional terms—health care, defense, etc. Alternatively, they may define those issues in terms of the instruments that may be used to address them—"This is a regulatory problem". While those descriptions are useful in some ways, for attempting to make effective interventions understanding policies in more analytic terms appears necessary (see Peters & Hoornbeek, 2005; Hoornbeek, 2015).

Although the functional classifications may be useful for identifying the actors involved in the policy area, there may be a great deal of internal variation within each of the functional categories that limits their utility—e.g. the differences between a kindergarten and a research university in education. Likewise, there can be considerable variation within the instrumental categories—e.g. anti-trust regulation versus food safety regulation in local restaurants. Again, while the instrumental category may say some useful things about the actors and the issues involved, a more analytic classification may enable policymakers to construct more effective policy prescriptions.

The problems that confront contemporary policymakers have always been challenging, but there is some agreement that the problems have become more complex and even more challenging (see Room, 2011; Steffen, 2011). Some of that complexity is political, given the mobilization of a wider range of interests that make decision-making more contentious. And some of the complexity is more substantive, involving more scientific content and less certain internal dynamics. While established public programs
such as public pensions or education have established methodologies for intervention and dominant assumptions about their dynamics, many emerging policy problems do not have that agreement about methodologies or the interactions among variables in the policy domain.

Even if policy issues have been addressed for some time, the internal complexity of those issues may have become more apparent, or the opening of policy areas to a wider array of political actors may have resulted in somewhat different conceptualizations. For example, governments have been involved with making agriculture policy for decades, now this area has been transformed into ‘food policy’. Rather than merely looking at the production of food products, this policy area is now concerned with issues of sustainability, the possible use of genetically-modified organisms, biofuels, and obesity, to name but a few of the emerging dimensions (Pritchard, 2016). These new dimensions of the policy area introduce internal conflicts and trade-offs and demonstrate political as well as technical complexity.

The complexity of contemporary programs has been associated with the revival of the idea of ‘wicked problems’. This concept comes from the systems theory and planning literature (Churchman, 1967; Rittel & Webber, 1973) and was developed in order to describe the emergence of a set of issues, such as poverty that at that time (and still today) appeared to defy the capacity of governments to govern effectively. At approximately the same time Herbert Simon (1973) was discussing the concept of ‘ill-structured’ policy problems facing decision-makers, and the inherent difficulties associated with those problems. While Simon was particularly concerned about the capacity for problem-solving through artificial intelligence, his characteristics of problems can be used in a more general way to consider the nature of policy problems.

Policy problems such as food security have been described as wicked problems, and indeed other scholars have developed the concept of ‘super wicked problems’ to describe climate change and other extremely vexing contemporary policy problems (Levin et al. 2012). And other scholars have also emphasized the complexity of policy problems as a more generic manner in which to describe policy problems that do not fit readily into the usual linear conceptions of policy, policymaking, and governance (Duit & Galaz, 2008; Klijn, 2008).

The general point of this literature is that policy problems are difficult to understand and even more difficult to ‘solve’. The remainder of this article will focus on the concept of wicked problems. We will argue that the concept of wicked problems has been stretched – beyond all recognition in some instances—and that if it is to be useful it should be utilized in a more precise manner. To help make this argument we will focus on the results of an expert survey that asks to what extent problems often discussed as ‘wicked’ or ‘super wicked’ can actually be characterized in that manner. And we should also consider the extent to which some problems often considered ‘tame’ may have some of the characteristics ascribed to wicked problems. We will close with a discussion of the implications of those findings for the design of policy interventions that may be able to cope with wicked problems.

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1 Solve is put in quotations here because few policy problems are ever really solved. They may be ameliorated but remain on the agenda for future discussion, action and often disappointment (See Carter, 2012; Hogwood & Peters, 1984).

2 On concept stretching see Sartori, (1970) and Geering (1993).
The nature of wicked problems

As noted above, the concept of wicked problems was developed to describe the emerging social and environmental problems of the 1970’s. The large-scale social policy interventions of the Great Society in the United States had ameliorated the living conditions of millions of Americans but the underlying problem of poverty appeared to persist. Rittel and Webber argued that governments had solved most of the easy problems that confronted them, and were then left with a large number of difficult, wicked problems. If that was true for the 1970s, then the problems that governments in the early 21st-century face are even more daunting.

They used ten characteristics to describe these problems to differentiate them from the more tractable problems that governments presumably had dealt with successfully (see Termeer, Dewulf, & Biesbroek, this issue). These characteristics (see Appendix) have some common features. First, they emphasize that many problems we now face are poorly defined, and linked to other problems. In addition, solutions for those problems also are not readily apparent and are linked with the very actors who are the cause of the problems. And finally, it appears impossible to know, ex ante, what would constitute a good solution.

Although each of the characteristics is important in itself, the general argument underlying them is that an increasing number of problems confronting government, and society, are not capable of being solved effectively, or certainly not capable of being solved through the processes that governments have typically used for finding solutions (see Turnbull and Hoppe, this issue). While policy analysis as a craft is premised on the capacity to design solutions based on an understanding of problems, the nature of these problems is that design is assumed to be impossible.

With the contemporary revival of the interest in wicked problems, Levin, Cashore, Bernstein, and Auld (2012) advanced the concept of ‘super wicked problems’ (see Appendix 1). These problems have the basic characteristics of wicked problems but have additional characteristics that make them even more troublesome of the public sector. Perhaps the most important of these problems is that time is running out on the capacity to solve them. In particular, these problems are characterized by the existence of a tipping point which, once reached, there will have been a fundamental shift in the nature of the issue and perhaps no capacity for solution.

Other definitions of difficult policy problems

At least two other approaches to policy problems have addressed some of the same issues as the wicked problems approach. First, Herbert Simon (1973) differentiated between well-structured and ill-structured problems (this was generic and not just for the public sector). Ill-structured problems, which would be the analogs of wicked problems, were defined to some extent as the opposite of well-structured problems. Those well-structured, or ‘tame’ problems are most simply defined as those in which there is a clear definition of the problem and some ability to apply available information to make policy decisions about the problem. 3

3For a more complete definition see Simon (1973) and Fernandes and Simon (1999).
The second, and increasingly important, alternative, or complement, to the wicked problems approach, is the study of complexity in policy issues, and in systems more generally (Berkes, Colding, & Folke, 2003; Room, 2011). Complex problems are different from simply complicated problems. The latter variety of problems may have a number of moving parts such as actors, but the relationships among them are linear and largely predictable. Indeed, at a certain point, all policy problems are complicated, with multiple interests and usually multiple veto-points at which decisions must be made.

Complex problems, on the other hand, involve a number of actors but they also have more uncertain and non-linear connections among the variables comprising the policy area. Although discussed as a wicked or super-wicked problem, environmental change may perhaps be better understood as complex (see also Kirschke et al, 2019). It does involve non-linear relationships and tipping points at which the underlying relationships among the variables will alter. Further, these systems may be highly geared, so that a small change in one variable may produce much larger changes in other conditions—e.g. the classic case of the butterfly potentially causing a hurricane.

FUNKE (1991), described complex problems using six attributes:

1. **Intransparency**—multiple variables are involved, and often only the symptoms, not the causes are visible to the problem-solver. The large number of variables means the problem-solver must focus on only a subset, and can, of course, choose incorrectly.

2. **Polytely**—The presence of multiple and possibly conflicting goals. To be successful in addressing a complex problem a solution will have to satisfy multiple actors with different and probably conflicting goals.

3. **Situational Complexity**—there are complex patterns of interaction among variables, and hence low predictability.

4. **Connectivity of Variables**—Changes in one variable can have multiple connections with other relevant variables, making predictions of consequences from even small changes difficult.

5. **Dynamic Developments**—The policymaking situation is prone to rapid and unpredictable changes, placing decision-makers under considerable pressure.

6. **Time-delayed Effects**—the timing of the effects of interactions is unpredictable, and often delayed.

Perhaps the most important difference between the approach of complex problems and the wicked problems conceptualization is that, although difficult, the thinking about wicked problems, albeit probably not super-wicked problems, is essentially linear. Although we may have difficulties in arriving at a definitive idea of what the problem is, and in defining the complete set of possible solutions, the dynamics within the policy area are largely assumed to be linear and thus ultimately more tractable.  

While the above discussions of difficult policy problems focus on the technical nature of the issues, the politics surrounding an issue can also complicate those issues. The conception of a wicked problems can be contrasted, with that of ‘intractable policy disputes’ discussed by Schon and Rein (1994) (see also Susskind & Field, 1996).

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4One indication is that the methods that have been proposed for resolving wicked problems (Roberts, 2000). depend upon rather conventional mechanisms. For an exception see Verweij, 2011).
A problem here is considered intractable much less because of its technical characteristics and the uncertain interactions of variables than because of the political preferences, and associated policy frames, of the actors involved. The tamest problems, from the perspective of the wicked problems literature, could be intractable from a more political perspective. Likewise, Steven Ney (2009) has discussed “messy problems:’ from a more cultural perspective, stressing the extent to which different understandings of a problem pose significant challenges to the possibilities of resolving the issue.

Fad, fashion, and wicked problems

While it has been important for students of public policy to understand the difficulties associated with contemporary policymaking, there has been a tendency to describe any difficult problem as a wicked problem, often with seeming disregard for the components of the concept as originally articulated. For example, one OECD document characterized trade liberalization in agriculture as wicked primarily because it involved a number of actors and took a long time to resolve (Batie & Schweickhardt, 2010). In another example, tourism policy was described as ‘wicked’ and the Australian government describes ongoing aboriginal disadvantages as wicked (Australian Public Service Commission, 2012). While there is little doubt that both of those policy areas do pose challenges, it is difficult to see how they actually match the range of criteria proposed by Rittel and Webber.

While adherence to academic fad and fashion is hardly new, that still does not mean that we can advance the study of policy problems by abusing a concept simply because it is popular. Rather, we will do better if we are careful in how we use concepts and attempt to ensure that those problems we call wicked really are. Rather than simply being a way to say a problem is challenging, saying that something is a wicked problem should have greater meaning. It should be seen to be difficult in a particular way.

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We should also note that just as many problems described as wicked may not have all the attributes ascribed to wickedness, so to may problems described as tame possess some of those attributes. Most of the policy problems are indicated to exhibit at least some wicked tendencies (Newman & Head, 2017). For example, as implied in the discussion of ‘intractable policy problems’ many if not most policy issues have alternative frames that can be applied to them, so that one of the fundamental attributes of wickedness may be relatively widespread. Likewise, the notion that it is difficult to select solutions ex ante also may be widely diffused among policy areas, indicated in part by the increasing interest in experimental forms of governance (Sabel & Zeitlin, 2012).

Methods & operationalization

As shown above, the original conceptualization of wicked problems contained 10 elements, all of which are assumed to be independent of one another. Having this extensive list of

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5 For example, pension reform has few if any of the characteristic of a wicked problem mentioned above, but still reforms have been slow and difficult. See Bonoli and Shinkawa (2006). This difference in goals and policy frames would, however, be compatible with the notion of polity mentioned above.

6 In practice, that may not be true given that having one of those characteristics appears, ceteris paribus, that an issue will have one or more of the others.
attributes means that relatively few problems actually will fit the full definition. In the terms of concept formation this concept is high intensiveness, and hence has low extension. Although relatively few policy problems will have all the attributes, a number of policy problems may have some of them, and the presence or absence of certain attributes can be useful for understanding those policy issues and the ways of addressing them.

While it is important to identify policy issues that may correspond to the complete definition of wickedness, it is also useful to understand the frequency with which the various attributes of a wicked problems are perceived to appear in a range of policy problems. That is true especially for those that are commonly described as being wicked, but is also important for seemingly mundane policy problems that governments have addressed for centuries. For example, governments have been engaged in providing education for a very long time, but the methodology for effective education, and even the underlying dynamics of education still appear highly contested.

But how can we know how wicked any particular problems are? One way is to code the problems using the list of attributes of types of problems. This evaluative exercise would provide an interesting description of the issues, but the validity of the findings would depend upon the accuracy and the knowledge of the coder or coders. And given the emphasis in this research project on the wickedness of the issues facing policymakers, there may well be some tendency among the coders to identify too many wicked problems.

Another way of understanding the extent to which any issue is indeed a wicked problem is to ask experts in the field how they evaluate policy problems. This exercise will provide a broader array of expertise in understanding the policy problems, and if enough experts are involved it could help to reduce the bias that may result from a smaller number of coders. This is especially true if the group selected is diverse and has no common and obvious identification with any of the problem areas or with the various concepts used in policy analysis.

But then the question becomes which experts to ask? On the one hand, we could ask policymakers and professional policy analysts who must cope with these policy problems on a regular basis and may have experience in making policies that are intended to resolve policy issues. Research of this type has yielded some interesting results concerning policy design (Linder & Peters, 1989) and has demonstrated some of the diversity that exists within the practitioner community. That said, it is often difficult to reach a broad community of practitioners with interests in a range of policies, so that the results may be biased.

The present study focuses instead on academic experts in policy studies. Although they generally do not have practical experience in making policies to address these problems, these academics have substantial level of knowledge about policy, and often have some knowledge about multiple policy areas. Further, they may be more adept in thinking about policy issues in conceptual terms than are individuals who are more concerned with the practical problems of policy.

The survey

The data for our analysis comes from an independent survey designed and conducted by the authors using a sample of academic public policy researchers. We chose to survey academic researchers to evaluate our question for two reasons. First, we chose to evaluate perceptions of policy problems on different dimensions because measuring the characteristics directly is not
possible. Secondly, we chose policy researchers as our subjects given the advantage they have over other possible groups in terms of expertise, see section above. Subjects for the survey were selected from the program for the 2015 International Public Policy Association conference in Milan. An invitation was sent to 1,150 policy scholars between 25 June 2016 and 12 August 2016, stating the purpose of the survey and inviting scholars to participate. Out of the 1,150 scholars that were initially invited, 302 took the survey. This gives us a response rate of 26%. The response rate is similar to rates reported by other surveys of academics on their policy views (Klein & Stern, 2005). Of these 302 respondents, approximately 65% of respondents finished every module in the survey. Because of the descriptive nature of our analysis, we analyzed the responses from respondents regardless of whether they completed the entire survey, so the size of the sample varies a small amount by the problem evaluated.

The sample of respondents includes policy scholars from a diverse set of demographic backgrounds. Additionally, our sample contains scholars with a variety of different public policy interests. Respondents’ scholarly expertise ranges from education and health policy to tourism and security policy. The modal area of policy expertise among scholars in our sample is Environmental policy. The majority of the respondents were in their 30’s or 40’s, although scholars’ experience working in their field ranged from 2 to 50 years. Additionally, the sample has a healthy balance of scholars from North America, Europe, and Latin America (See Table 1). This diversity ensures a variety of scholarly perspectives on policy problems.

The survey began by asking scholars basic demographic questions about their age, gender, and country of residence. Scholars were then randomly presented with one of six public policy problems – climate change, food policy, health care policy, income inequality, obesity, or poverty. We chose these six policies because they are representative of the major policy problems faced by the modern governments that scholars have identified as wicked. We then asked scholars to evaluate the problem across the 10 characteristics of wicked problems outlined by Rittel and Weber (1973), as well as the characteristics associated with ‘super-wicked’ problems (see appendix). Scholars evaluated the statement associated with each characteristic on a five-point scale as being ‘Not descriptive at all,’ ‘Not very descriptive,’ ‘Somewhat descriptive,’ ‘Descriptive,’ or ‘Fully descriptive’ of each specific policy problem. After evaluating the first problem, scholars were randomly presented with a new problem until they had evaluated each of the six problems. While we only report data here averaged over different groups of academics, we did conduct multivariate analysis to evaluate whether certain variables correlated with responses. First, among the two issues where there were enough scholars to look at group differences – i.e. climate change, health care, and obesity – we found no significant differences between scholars who specialized in the relevant field versus the rest of the sample. Further, we also ran regression analyses of years of expertise, age, and respondent’s political orientation. Across all of the issues evaluated by scholars, there was no significant correlation between the aforementioned characteristics and subject’s responses.

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7 We used the program from the 2015 conference because it was the most recent conference at the time that we fielded our survey.
8 There were no mean statistical differences in evaluations between subjects that finished the survey and those that did not and the size of the differences was infinitesimal. Further, how long subjects spent on the survey was also substantively and statistically unrelated to the .
9 For the remaining groups there were less than 5 scholars who expertise was in that field.
Results

The responses from the survey suggest that scholars’ perceptions of policy problems vary across both the characteristics of wicked problems – i.e. how descriptive the specific characteristics are of each problem – and across the specific policy problems being considered. The data indicate that respondents’ perceptions of dimensions do not significantly correlate across problems nor within problem. However, average individual evaluations of the dimensions tend to be similar across problems. In other words, individuals who view one policy problem to be wicked tend to view other problems as wicked. Generally, the responses suggest that scholars believe that policymakers do possess the capacity to solve almost all of the major problems analyzed in the survey. Table 2 displays scholars evaluations pooled from the 6 problems analyzed. The only policy problem that was generally viewed as a wicked problem by the majority of the sample was climate change, for which scholars viewed most of the characteristics as descriptive of the problem. In terms of the characteristics themselves, only 2 of the 14 were consistently viewed as descriptive of the policy problems. ‘This problem might be the symptom of another problem’ and ‘There are multiple explanations for the emergence of this problem’ were viewed as descriptive of all 6 policy problems in our survey. The rest of the characteristics were evaluated as not descriptive of the 6 policy problems or uniquely descriptive of one or two problems.

Climate change

The characteristics of wicked problems were evaluated as more descriptive of climate change than any of the other problems evaluated in the survey (See Table 3). Approximately 54% of scholars identified climate change as the most wicked problem.
out of the six – i.e. it had the highest average score across the six dimensions for all 6 problems. However, answers did vary considerably across the different characteristics. For example, almost half (45%) of scholars thought ‘the same actors causing the problem seem to solve it’ was not descriptive at all of climate change. Also, around 40% of the sample thought ‘This problem is difficult to define’ was not descriptive of climate change. However, because wicked problems – and especially super-wicked problems – are partially defined by the fact that time for solving the problem is running out – i.e. the inability to solve by trial and error – climate change scored extremely high on some characteristics. For example, almost 90% of the sample thought ‘Time for addressing this problem is running out’ was at least ‘somewhat descriptive’ of climate change. Additionally, approximately 88% of respondents thought that, because of the short time frame for finding a solution, policy makers overvalue reaching agreements in the short-run to finding the correct policy.

Climate change was one of the few problems in the survey that scholars possessed great uncertainty about our ability to address with public policy. For example, almost 60% of scholars agreed that ‘This problem has no clear solution and perhaps not even a set of possible solutions.’ Additionally, the majority of scholars – around 70% of our sample – agreed that there is no clear set of criteria for evaluating the performance of climate change policy. In general, scholars’ evaluation of climate change suggests that the problem does indeed meet the basic criteria associated with a wicked problem.

| Characteristic                                                                 | Not Descriptive at all | Not very Descriptive | Somewhat Descriptive | Descriptive | Fully Descriptive |
|--------------------------------------------------------------------------------|------------------------|----------------------|----------------------|-------------|-------------------|
| This problem is difficult to define.                                           | 16.09%                 | 22.64%               | 24.22%               | 21.97%      | 11.07%            |
| There is no way of knowing what an acceptable solution would be.               | 15.93%                 | 32.05%               | 24.17%               | 20.51%      | 7.32%             |
| Solutions may be evaluated more on normative than empirical criteria.          | 10.82%                 | 23.88%               | 28.17%               | 25.93%      | 11.19%            |
| There is no immediate or ultimate test for solutions to this problem.          | 11.96%                 | 26.68%               | 25.13%               | 22.87%      | 13.34%            |
| Solutions to this problem tend to have effects that may not be reversible or forgivable. | 10.95%                 | 25.26%               | 27.03%               | 25.44%      | 11.31%            |
| This problem has no clear solution, and perhaps not even a set of possible solutions. | 15.45%                 | 30.35%               | 24.02%               | 19.73%      | 10.42%            |
| This problem is unique.                                                         | 20.27%                 | 29.06%               | 22.75%               | 17.20%      | 10.70%            |
| This problem might be the symptom of another problem.                           | 7.69%                  | 14.39%               | 25.84%               | 31.75%      | 20.31%            |
| There are multiple explanations for the emergence of this problem.              | 35.15%                 | 11.34%               | 23.09%               | 35.67%      | 24.74%            |
| The planner (policymaker) has no right to be wrong.                             | 18.5%                  | 27.91%               | 27.29%               | 18.33%      | 7.91%             |
| Time for addressing this problem is running it out.                             | 11.7%                  | 23.63%               | 25.68%               | 21.93%      | 17.01%            |
| There is no central authority for addressing this problem.                      | 10.28%                 | 22.51%               | 23.04%               | 24.64%      | 19.50%            |
| The same actors causing the problem seem to solve it.                           | 20.77%                 | 30.14%               | 24.84%               | 16.08%      | 8.14%             |
| The future is discounted radically so that reaching agreements in the short term is valued too much by decision-makers. | 8.45%                  | 22.18%               | 28.00%               | 28.43%      | 71.29%            |
Table 3. Climate change policy.

| Characteristic                                                                 | Not Descriptive at all | Not very Descriptive | Somewhat Descriptive | Descriptive | Fully Descriptive |
|--------------------------------------------------------------------------------|------------------------|----------------------|-----------------------|-------------|-------------------|
| This problem is difficult to define. (n = 187)                                 | 13.73%                 | 31.86%               | 19.61%                | 19.12%      | 15.69%            |
| There is no way of knowing what an acceptable solution would be. (n = 188)     | 16.10%                 | 30.73%               | 21.95%                | 18.54%      | 12.68%            |
| Solutions may be evaluated more on normative than empirical criteria. (n = 188) | 9.76%                  | 24.88%               | 30.24%                | 26.34%      | 8.78%             |
| There is no immediate or ultimate test for solutions to this problem. (n = 188) | 10.24%                 | 20.49%               | 20.00%                | 26.83%      | 22.44%            |
| Solutions to this problem tend to have effects that may not be reversible or forgivable. (n = 186) | 5.45%                  | 13.86%               | 24.26%                | 34.16%      | 22.44%            |
| This problem has no clear solution, and perhaps not even a set of possible solutions. (n = 188) | 15.12%                 | 23.90%               | 22.93%                | 21.95%      | 16.10%            |
| This problem is unique. (n = 186)                                              | 13.30%                 | 15.76%               | 20.69%                | 28.08%      | 22.17%            |
| This problem might be the symptom of another problem. (n = 186)                | 8.42%                  | 11.39%               | 20.30%                | 31.19%      | 28.71%            |
| There are multiple explanations for the emergence of this problem. (n = 188)     | 3.90%                  | 12.20%               | 14.15%                | 38.05%      | 31.71%            |
| The planner (policymaker) has no right to be wrong. (n = 185)                  | 15.92%                 | 21.39%               | 34.33%                | 14.93%      | 13.43%            |
| Time for addressing this problem is running it out. (n = 187)                  | 3.92%                  | 6.37%                | 11.27%                | 32.35%      | 46.08%            |
| There is no central authority for addressing this problem. (n = 189)           | 4.85%                  | 6.80%                | 16.02%                | 26.70%      | 45.63%            |
| The same actors causing the problem seem to solve it. (n = 188)                | 19.61%                 | 25.49%               | 25.00%                | 17.65%      | 12.25%            |
| The future is discounted radically so that reaching agreements in the short term is valued too much by decision-makers. (n = 188) | 6.37%                  | 6.37%                | 23.04%                | 28.43%      | 35.78%            |

**Food policy**

Scholars viewed the dimensions of wicked and super-wicked problems, on average, as only ‘somewhat descriptive’ of food policy (See Table 4). One theme that emerged from the responses on food policy is the inability to understand the causes of the problem. For instance, around 90% of scholars agreed that ‘There are multiple explanations for the emergence of this problem’ and another 80% thought that problems related to providing enough food might be the symptom of some antecedent problem. However, despite this, scholars’ responses suggest that solving the problem is less complicated. Only about 30% of scholars agreed that there is no stopping rule for evaluating food policy. Approximately half of the sample disagreed that there is no clear solution to solving problems associated with feeding a growing population. Generally, scholars’ evaluation of food policy suggests that, not only are there tractable solutions available for policy makers to address the problem, but that we possess a clear set of criteria for evaluating these policies. In general, the characteristics of wicked problems do not seem to describe the problem of provisioning and regulating food.

**Health care**

The next category that scholars evaluated was health care policy. Specifically, scholars were asked to evaluate the problem posed by the growing share of revenue being used
to provision health care by modern governments. On average, the characteristics of wicked problems were evaluated as not being very descriptive of this problem (See Table 5). The only problem where the characteristics of wicked problems were evaluated as less descriptive was Obesity. Across the characteristics associated with solving the problem – e.g. ‘The problem has no clear solution,’ ‘There is no way of knowing what an acceptable solution would be’ – more than half of the respondents disagreed that these statements are descriptive of health care policy. Moreover, scholars seem to agree that a clear set of empirical criteria exist for evaluating health care policy. Additionally, scholars viewed the urgency related to addressing climate change and food policy as largely non-existent for health care policy. The remaining characteristics were generally viewed as either ‘somewhat descriptive’ or ‘not very descriptive’ of health care policy.

**Income inequality**

As with Food Policy, scholars tended to have much more uncertainty about the causes of income inequality than about how we should address inequality (See Table 6). A sizeable majority (approximately 90%) of respondents agreed that ‘This problem might be the symptom of another problem’ and ‘There are multiple explanations for the emergence of this problem.’ However, despite this uncertainty, a majority of scholars
agreed that policymakers do indeed have the capacity to ‘solve’ income inequality. For example, approximately 60% of the respondents disagreed that the problem is unique and that ‘there are no clear solutions and no set of criteria for evaluating solutions’. Scholars’ evaluations fit with the empirical literature on income inequality that suggests that, while there are multiple causes of income inequality, a clear set of solutions exists for addressing the problem. Scholars’ evaluation of income inequality suggests the problem does not match the basic characteristics of wicked problems.

**Obesity**

The 14 characteristics of wicked and super-wicked problems were viewed as less descriptive of obesity than any of the other 5 policy problems (See Table 7). The average rating of the descriptiveness across the characteristics was 2.64, which falls in between ‘not very descriptive’ and ‘somewhat descriptive.’ One dimension that was viewed as highly descriptive of obesity – but not so much of other problems – was ‘There is no central authority for addressing the problem.’ Almost 60% of respondents rated this statement as descriptive of the problem of obesity. This might relate to the

| Characteristic                                                                 | Not Descriptive at all | Not very Descriptive | Somewhat Descriptive | Descriptive | Fully Descriptive |
|--------------------------------------------------------------------------------|------------------------|----------------------|----------------------|-------------|-------------------|
| This problem is difficult to define.                                            | 13.30%                 | 30.05%               | 24.63%               | 23.15%      | 8.87%             |
| (n = 183)                                                                        |                        |                      |                      |             |                   |
| There is no way of knowing what an acceptable solution would be.                | 13.30%                 | 43.35%               | 19.21%               | 19.70%      | 4.43%             |
| (n = 183)                                                                        |                        |                      |                      |             |                   |
| Solutions may be evaluated more on normative than empirical criteria.            | 7.43%                  | 23.27%               | 32.18%               | 27.72%      | 9.41%             |
| (n = 182)                                                                        |                        |                      |                      |             |                   |
| There is no immediate or ultimate test for solutions to this problem. (n = 182) | 9.41%                  | 36.63%               | 23.76%               | 21.78%      | 8.42%             |
| Solutions to this problem tend to have effects that may not be reversible or forgivable. (n = 182) | 6.50%                  | 30.00%               | 31.00%               | 26.50%      | 6.00%             |
| This problem has no clear solution, and perhaps not even a set of possible solutions. (n = 181) | 8.96%                  | 39.30%               | 24.38%               | 21.89%      | 5.47%             |
| This problem is unique. (n = 181)                                                | 23.38%                 | 45.77%               | 18.41%               | 9.45%       | 2.99%             |
| This problem might be the symptom of another problem. (n = 181)                  | 5.47%                  | 18.91%               | 27.36%               | 35.32%      | 12.94%            |
| There are multiple explanations for the emergence of this problem. (n = 180)      | 3.00%                  | 13.00%               | 16.50%               | 43.50%      | 24.00%            |
| The planner (policymaker) has no right to be wrong. (n = 179)                    | 21.72%                 | 26.26%               | 26.77%               | 20.20%      | 5.05%             |
| Time for addressing this problem is running out. (n = 181)                       | 15.92%                 | 33.83%               | 28.36%               | 15.42%      | 6.47%             |
| There is no central authority for addressing this problem. (n = 182)             | 19.31%                 | 35.15%               | 22.77%               | 13.86%      | 8.91%             |
| The same actors causing the problem seem to solve it. (n = 182)                   | 21.39%                 | 39.30%               | 24.88%               | 10.95%      | 3.48%             |
| The future is discounted radically so that reaching agreements in the short term is valued too much by decision-makers. (n = 182) | 9.45%                  | 20.90%               | 31.84%               | 23.38%      | 14.43%            |
fact that most policymakers view directly regulating individual choice of food as out of the scope of acceptable policy-making tools. However, across the characteristics related to solving the problem – with the exception of identifying the proper authority to do so – a vast majority of scholars disagreed that we lack the ability to develop solutions for addressing obesity or that we lack the ability to evaluate these solutions. Almost 70% of scholars disagreed that ‘This problem has no clear solution, and perhaps not even a set of possible solutions.’ Moreover, approximately 60% of scholars disagreed that ‘There is no immediate or ultimate test for solutions to this problem.’ In general, scholars disagreed that policymakers lack the capacity to effectively address climate change. As such, Obesity does not meet the basic criteria to be considered a wicked problem.

**Poverty**

Other than climate change, scholars consistently evaluated poverty as the most wicked of the 6 problems (See Table 8). However, the patterns of scholars’ evaluation of poverty were quite similar to evaluations of income inequality. Scholars generally viewed
poverty as being symptomatic of some larger problem. Only about 5% of scholars disagreed with the statement that ‘there are multiple explanations for the emergence of this problem.’ However, the majority of scholars rejected the notion that the problem of poverty is unique and agreed that there are clear tractable solutions for policymakers to address poverty. Additionally, most scholars disagreed that there are no set of criteria for evaluating solutions to poverty. However, unlike income inequality, scholars tended to agree that solutions to poverty ‘are not true or false, but good or bad.’ In this sense, scholars believe solutions are typically evaluated based on normative rather than empirical criteria. This might be related to the fact that developing objective measurements of absolute poverty is quite challenging. The policy experts generally viewed the characteristics of wicked and super-wicked problems as not being very descriptive of poverty.

**The characteristics of wicked problems**

Although the majority of the problems evaluated by scholars were not viewed as meeting the basic criteria of a wicked problem, there was considerable variation between the descriptiveness of the specific characteristics. Aggregated across the different problems in the sample, there are sizeable differences in the extent to which the characteristics are viewed as descriptive of the six policy problems evaluated here. For
example, ‘The policymaker has no right to be wrong’ was rarely viewed as descriptive of any of the six policy problems. Additionally, the majority of scholars disagreed that the 6 problems were in any way unique, or that ‘the same actors causing the problem seem to solve it.’ The average scholar responded that these characteristics were ‘not descriptive’ of any of the six problems evaluated.

The characteristics related to the emergence and cause of the problem were consistently identified as characteristic of all of the policy problems. For example, over 70% of scholars answered that ‘This problem might be the symptom of another problem’ was at least ‘somewhat descriptive’ of all six policy problems. Similarly, a majority of scholars agreed that ‘There are multiple explanations for the emergence of this problem’ was descriptive of each of the six problems. However, the most surprising finding from the survey is that, despite the complexity related to the cause and emergence of these problems, scholars rejected the notion that this hinders our ability to address these problems with policy.

With the exception of the problem of climate change, scholars typically disagreed that we lack the capacity to solve any of the remaining 5 problems. This attribute – identified by several of the characteristics of wicked problems – was typically evaluated as not descriptive of the policy problems evaluated. For example, a near majority for each of the problems disagreed that ‘This problem has no clear solution, and perhaps not even a set of solutions.’ Additionally, scholars typically disagreed that ‘There is no immediate or ultimate test for solutions to this problem’ for almost every problem in

| Characteristic                                                                 | Not Descriptive at all | Not very Descriptive | Somewhat Descriptive | Descriptive | Fully Descriptive |
|--------------------------------------------------------------------------------|------------------------|----------------------|----------------------|-------------|------------------|
| This problem is difficult to define. (n = 195)                                  | 16.51%                 | 24.77%               | 22.94%               | 24.77%      | 11.01%           |
| There is no way of knowing what an acceptable solution would be. (n = 193)    | 17.13%                 | 35.65%               | 22.69%               | 18.98%      | 5.56%            |
| Solutions may be evaluated more on normative than empirical criteria. (n = 193)| 5.09%                  | 18.06%               | 30.09%               | 33.33%      | 13.43%           |
| There is no immediate or ultimate test for solutions to this problem. (n = 193)| 8.80%                  | 31.02%               | 24.54%               | 25.46%      | 10.19%           |
| Solutions to this problem tend to have effects that may not be reversible or forgivable. (n = 192) | 9.39%                  | 27.70%               | 28.64%               | 25.82%      | 8.45%            |
| This problem has no clear solution, and perhaps not even a set of possible solutions. (n = 193) | 16.67%                 | 30.56%               | 20.83%               | 21.30%      | 10.65%           |
| This problem is unique. (n = 190)                                            | 30.19%                 | 34.43%               | 20.28%               | 10.85%      | 4.25%            |
| This problem might be the symptom of another problem. (n = 190)               | 2.82%                  | 7.51%                | 18.31%               | 38.97%      | 32.39%           |
| There are multiple explanations for the emergence of this problem. (n = 193)   | 1.39%                  | 3.24%                | 14.35%               | 39.35%      | 41.67%           |
| The planner (policymaker) has no right to be wrong. (n = 189)                | 20.00%                 | 30.95%               | 28.10%               | 15.71%      | 5.24%            |
| Time for addressing this problem is running out. (n = 193)                    | 13.49%                 | 26.05%               | 35.35%               | 18.60%      | 6.51%            |
| There is no central authority for addressing this problem. (n = 191)          | 11.21%                 | 23.36%               | 26.17%               | 22.90%      | 16.36%           |
| The same actors causing the problem seem to solve it. (n = 192)               | 28.50%                 | 28.50%               | 24.30%               | 13.55%      | 5.14%            |
| The future is discounted radically so that reaching agreements in the short term is valued too much by decision-makers. (n = 194) | 6.51%                  | 17.21%               | 33.49%               | 26.51%      | 16.28%           |
the sample. On the dimension most characteristic of wicked problems – i.e. the ability to formulate tractable policy responses – scholars rejected that this was characteristic of the problems evaluated in our survey.

**Discussion**

The above findings place the utility of the concept of ‘wicked problems’ into some doubt. Beginning with a set of policy issues that have been discussed frequently as being wicked or even ‘super wicked’, we asked a group of policy experts to what extent the characteristics associated with the concept of wickedness actually applied to those problems. If we adopt a ‘classical conceptualization’ approach (Sartori, 1970) then none of those problems fits the concept. As noted above, only climate change comes close to meeting the criteria, and that fit is far from encouraging. Does that mean that all is lost in using this concept in a meaningful, social-scientific manner?

We do think that we can still use the idea of wicked problems fruitfully in research on public policy. First, although apparently few policies, if any, will exhibit all of the characteristics associated with wicked problems, this remains a useful checklist to understand the aspects of a problem that may make resolving a problem more difficult. In addition, with further analysis of these responses, we may be able to identify the existence of ‘syndromes’, or patterns of interrelated attributes. That is, some of the attributes may vary together so that we can better predict how problems may be addressed or perhaps resolved, even if they are more difficult than those problems that are considered somehow simpler.

Also, some of the attributes appear more likely to be descriptive of policy problems in general. The attribute that one problem may be linked with other problems is widely mentioned by our respondents, and this may also be a characteristic of many less difficult policy problems. For example, some relatively familiar health problems can be seen as symptomatic of broader social policy problems, as well as having the health dimension. Therefore, policy approaches such as: ‘health in all policies’ (Leppo, et al., 2013) that relate health concerns to other policy areas may be seen as effective strategies for what might be considered in some instances to be ‘wicked problems’.

In addition, with further examination of policies we may find that many presumably ‘tame’ problems can be characterized with the same attributes as the presumed wicked problems. Again, although this may appear to undermine the utility of the wicked problem concept, it may in fact help improve the understanding of policy problems considered more generally. That is, while we have developed other taxonomies or typologies of policy problems (Peters & Hoornbeek, 2005; Peter 2017; Hoppe, 2010) having this set of connected criteria may provide another useful lens into the nature of policy problems (see also Kirschke et al, this issue).

The analysis of the data from this survey has also been done in terms of ‘classical categorization’, and is in Sartori’s terms rather intensive, having ten (or fourteen in super-wicked criteria ads included) attributes. If, however, we adopt a somewhat less restrictive version of categorization and think of this in terms of ‘family resemblance’ or ‘radial’ categorization (Collier & Mahon, 1993) the utility of the concept may be even greater. That is, if we develop means of categorizing problems as wicked or not, or perhaps even some varieties of wickedness (e.g. types of dogs in
the family resemblance example of Collier and Mahon) then we may be able to use
the concept effectively without worrying excessively that the problems studied are
not examples of an Ideal Type of problem.

Conclusion

The concept of wicked problems has, after some years of languishing in the shadows of
policy analysis, returned to a central position in this field of inquiry. Although it is
a popular concept, it has been stretched extensively, and applied to cases for which it
may not really be suitable. That said, even the stretched concept has some utility in
alerting researchers, and policymakers, to the difficult challenges that confront them.
And it appears that the problems will only become more wicked and more intense, so
that we will continue to think about the ways of addressing these issues.

But as we think about those problems, it is important to think about them carefully.
While emphasizing the stretching of the concept of wicked problems may appear
pedantic, it also has real consequences for policymaking. If a problem can be labelled
as wicked, then it may be kept off the policymaking agenda. What politician wants to
spend time and money on problems that may be insuperable? While in reality govern-
ments should be addressing these difficult issues with the greatest vigor, the very
labelling of a problem in a certain manner may limit and prevent action.

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**Appendix**

Characteristics of Wicked Problems

1) Wicked problems are difficult to define. There is no definite formulation.
2) Wicked problems have no stopping rule.
3) Solutions to wicked problems are not true or false, but good or bad.
4) There is no immediate or ultimate test for solutions.
5) All attempts to solutions have effects that may not be reversible or forgettable.
6) These problems have no clear solution, and perhaps not even a set of possible solutions.
7) Every wicked problem is essentially unique.
8) Every wicked problem may be a symptom of another problem.
9) There are multiple explanations for the wicked problem.
10) The planner (policymaker) has no right to be wrong.

Characteristics of Super-Wicked Problems

1) Time is running out.
2) There is no central authority, or only a weak central authority, to manage the problem.
3) The same actors causing the problem seem to solve it.
4) The future is discounted radically so that contemporary solutions become less valuable.