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The Knowns and Unknowns of Policy Instrument Analysis: Policy Tools and the Current Research Agenda on Policy Mixes

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Abstract

Policies are made and pursue their goals through policy instruments. Furthermore, policy instruments have become a relevant topic in many policy fields due to their theoretical and empirical relevance. The study of this field dates back to Lowi and others who developed many typologies and theories in classic works by authors such as Hood, Salamon, Linder and Peters, Peters and van Nispen, Schneider and Ingram, Lascomes and Le Galès, among others. This is important work that is linked closely to current research on policy design but, despite much effort, many fundamental issues remain unknown or understudied with respect to the topic. It is time to take inventory of the knowns and unknowns about policy tools. The current article examines four clusters of basic issues in the field which require further research.

Keywords

public administration and public policy, political science, social sciences, government and representation, legal studies, comparative politics, public administration and nonprofit management, management, political behavior

Introduction

Policy tools, or the techniques through which governments generate, evaluate, and implement policy options, have been the subject of research throughout the history of the policy sciences. The study of the field dates back to Lowi and others who developed many typologies and theories on the subject in the period 1950–1980 as well as works such as Hood (1983), Salamon (2002), Linder and Peters (1989), Peters and van Nispen (1998), Schneider and Ingram (1990), and Lascoumes and Le Galès (2007) in the era since then. Central to all these studies is the need for a clearer understanding not only of individual policy instruments but how these are arrayed in a mix or bundle and how they relate to each other when combined, what impact this combination has on the effectiveness of policies when enacted, and how these packages or portfolios evolve and change over time (Gunningham et al., 1998; Rogge & Reichardt, 2016).

This work is important for policy scholars interested in explaining policy dynamics as well for those adopting a policy design perspective (Howlett, 2019a). In fact, it can now be argued convincingly that an instrument-based approach can better enlighten the nature of policy dynamics, from a prescriptive point of view, and assist policymakers in taking more effective decisions than can a purely input-based approach (Capano, Pritoni, & Vicentini, 2019).

Despite much effort, however, many fundamental issues remain unknown or understudied and there are key elements concerning individual policy tools and policy mixes which require further investigation.

It is time to take inventory of what is known and unknown about policy tools. This article presents a survey of informed thinking about policymaking, policy processes, the manner in which tool choices are made, and the ways that tool bundles evolve over time. Based on the most recent reviews of the literature (Acciai & Capano, 2018; Howlett, 2019a; Vargas & Restrepo, 2019) and the combined 50-year experience of the authors in dealing with the subject, it examines four clusters of basic issues in the field which still require additional research. The current level of knowledge about each of these issues is set out and serves as the basis for a multipronged research agenda into the subject.

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The Emergence and Consolidation of Policy Instrument Research

There are many ways to study public policy which, given its processual nature, has always involved consideration of policy dynamics and change. This has most commonly been approached through an "input" lens, in which actors and their interactions in the policy process have been at the core of studies in the discipline (Araral et al., 2013; Capano, 2020). The most commonly adopted theoretical frameworks—from the advocacy coalition framework to the punctuated equilibrium theory and from the multiple stream approach to the narrative policy framework (Weible & Sabatier, 2017)—all examine the dynamics of actors in attempting to make sense of policymaking.

However, there has been a parallel stream in policy studies that has been more focused on the examination of the outputs of policymaking, analyzing in detail the content of adopted decisions (Salamon, 1981). These are conceptualized as deploying policy instruments to attain policy goals, with scholars working backwards from outputs to inputs in assessing policymaking not as an open-ended struggle between ideas or interests but rather as a process of choosing or selecting specific kinds of tools expected to address policy aims. This stream has its roots in the work of authors such as Salamon, Doern, and Vedung (Eliadis et al., 2005; Howlett, 2014; Howlett et al., 2014; Phidd & Doern, 1983; Salamon, 1981; Vedung, 1998), although Theodore Lowi's (1972, 1985) theoretical work can be considered the precursor to these efforts.

This work has recently added an additional degree of complexity as there is now a shared scholarly view that in every field sets of adopted policy instruments are adopted which have a mixed nature and feature different patterns and trajectories of change over time (Bressers & O'Toole, 2005; Del Río, 2010; Grabosky, 1995; Gunningham & Sinclair, 1999; Howlett, 2005; Justen et al., 2013b; Leplay & Thoyer, 2011). This makes the historical study of public policy instruments based on examinations of single tool uses problematic and has led to a reconsideration of the policy instrument approach, linking it more closely to studies of governance and policy and program design, for example (Howlett, 2011, 2019a).

These instrument mixes, often somewhat mislabelled as "policy mixes," "feature the use of combinations of different kinds of policy tools (market-based, hierarchical, network and others) whose exact configuration changes from location to location" (Rayner et al., 2017, p. 473). Such instrument mixes are complex, given the nature of the tools involved and how they relate to each other. They include both instruments oriented toward policymaking and affecting activities such as agenda-setting or formulation (Jordan & Turnpenny, 2015) as well as more "classical" implementation-oriented tools, from the use of government agencies to financial subsidies and other means to affect policy change on the ground (Hood, 1983; Salamon, 2002).

Both these kinds of tools are commonly deployed in a mix, bundle, or portfolio which creates *interactive effects* among them (Boonekamp, 2006; Justen et al., 2013a, 2013b; Yi & Feiock, 2012). These can be *complementary* or *supplementary* but can also feature *counterproductive effects* among policy instruments, as well as *synergies* (Lecuyer & Bibas, 2012; Philibert, 2011) when two or more tools, taken together, are more effective than when deployed alone.

Tools in an instrument mix, for example, can be considered to be *consistent* or complementary when they work together to support a policy strategy (Kern & Howlett, 2009; Rogge & Reichardt, 2016), but there is a wide consensus in the policy design literature that not all tools are inherently complementary (Boonekamp, 2006; Del Río et al., 2011; Grabosky, 1995; Gunningham et al., 1998; Gunningham & Sinclair, 1999; Howlett, 2017; Tinbergen, 1952) and that some generate counterproductive responses in policy targets (Schneider & Ingram, 1990, 2005). Counterproductive effects, for example, may be manifest when command and control regulation is used alongside voluntary compliance (Grabosky, 1995).

Complementary effects, however, occur, for example, when command and control regulation minimizing undesirable modes of behavior are employed alongside financial incentives to promote more desirable ones (Hou & Brewer, 2010). However, they can also be neutral or overlapping as in the case of renewable energy and building energy efficiency standards (Del Río, 2010; Rosenow et al., 2007). Furthermore, some combinations of tools may be superior in reinforcing or *supplementing* an arrangement (Hou & Brewer, 2010). Such arrangements may be unnecessarily duplicate in one context, for example, when a problem is not very severe, but may be advantageous in another when the level of severity increases (Braathen, 2007; Braathen & Croci, 2005). A key principle of current policy design thinking, therefore, is to maximize complementary effects and minimize conflicting ones, while mixes are developed (Daugbjerg, 2009).

But the level of existing knowledge with respect to how such policy mixes are designed is limited. While many studies try to conceptually grasp how policy instruments are chosen or formulated by policymakers, there is very little empirical research on the subject (Taylor et al., 2012, 2013) nor any systematic empirically informed analysis about how designs have developed over time.[1]

Studying Policy Tools: Knowns and Unknowns

Because of these recent moves toward the study of policy tools in policy mixes and a new or renewed emphasis on their role in policy design, the findings of an earlier era of instruments studies are less relevant and secure. This new focus on policy instrument mixes underlines the need to pay more attention to

the actual way in which policies achieve expected results as well as the nature of the interactions of tools within mixes. And the lacunas within the instrument literature today around these issues are pronounced. More research is needed to order the complex world of mixes and above all to disentangle how different factors drive the design of good or bad policy mixes.

What is Known

In general, policy instruments have been the topic of continuous research and analysis and past policy instrument studies have focused on the following issues and questions, with some progress having been made on most of them:

1. What are the basic kinds of tools, making distinctions such as those mooted between "procedural" and "substantive" tools or between "implementation" and "non-implementation"-oriented tools (Howlett, 2000; Jordan & Turnpenny, 2015).
2. Why and how policymakers choose particular instruments rather than others, and whether and how they change previous choices (Capano & Lippi, 2017). This was the basis of extensive work conducted by authors such as Salamon (1989, 2002), Hood (1983), Linder and Peters (1989, 1998), among others.
3. Why and how governance modes change over time and how instrument choices change with them. This was noted by Le Galès (2011) and integrated into the literature by Capano et al. (2015).
4. How policy actors aggregate around specific policy instruments to form "instrument constituencies" promoting certain kinds of tools, often regardless of the nature of the problem to which they might be applied. This idea was developed by Voß and Simons (2014) and extended by the case studies conducted by Béland and Howlett (2016).
5. What political and policy effects are achieved by adopting specific policy instruments and how instrument deployment alters the space of politics, creating new configurations of actors benefiting (or not) from these efforts (Borras & Edquist, 2013; Bressers & Klok, 1988; Campbell et al., 2004; Edler et al., 2016; Jordan & Matt, 2014; May et al., 2005).
6. And, taken together, whether and how policy instruments can be considered as institutions and thus as bearers of social and political values, identities, and worldviews which in turn affect support and conflict regarding their choice (Lascoumes & Le Galès, 2004, 2007).

What is Unknown and Remains to be Revealed

The knowledge about specific tools and their impacts generated in this research has created the basis for an improved understanding of the nature of policy instrument choice and enhanced the notion that it is possible to design public policy in a sophisticated way.

However, the pattern of research on policy instruments has developed in a very uncoordinated way and is uneven. Despite the richness of the literature, there are still many analytical "black holes," theoretical lacunas, and an excess of descriptivism. If the policy instruments approach is to proceed toward an effective process of the accumulation of scientific knowledge, these gaps must be addressed.

In particular, there is a need to deepen knowledge of many relevant dimensions of the policy instrument approach to address unresolved questions around policy instrument mixes such as why policymakers choose some instruments over others in the context of an existing or desired mix, whether and how specific policy instruments operating in a mix directly impact policy performance, how the characteristics and the effects of policy mixes can be studied, and how policy instruments truly work when delivering their outcomes.

Table 1 outlines a list of 14 issues based on the most recent reviews of the literature (Acciai & Capano, 2018; Howlett, 2019a; Vargas & Restrepo, 2019) and on our own long-lasting research activities around public policy and policy instruments and divides them into four clusters. As these four clusters show, while much is known about many policy tools, much remains to be understood.

These clusters are defined by the following: (a) problems with understanding instrument and mix dynamics, (b) underexamined behavioral issues around policy tools in general and more specifically, (c) measurement and methodological issues, and (d) a variety of issues related to how policy implementation affects tool deployment and use and, subsequently, policy success or failure.

Problems With Understanding Patterns of Instrument and Mix Deployment and Dynamics Over Time

The first category of problems deals with missing empirical studies that, consequently, create or reinforce theoretical shortcomings (in terms of under-theorization and even over-theorization) about important aspects of policy mix design and evolution. Despite the very large amount of work which has been done recently on policy tools and mixes, several large gaps remain.

Temporality Issues (Sequencing, Trajectories, and Critical Junctures)

There is clearly a temporal aspect which is a constitutive dimension of policy instrument research but which has been poorly served by existing research. We know that time makes a difference in how instrument choices and patterns evolve and that the temporal sequencing of policy elements is a crucial component of policy mix design and evolution (Justen et al., 2013a, 2013b; Taeihagh et al., 2013). Policy instruments

Table 1. Research Agenda Items in Policy Instruments Research by Cluster: Design Issues and Gaps in Knowledge.

Problems with understanding patterns of instrument and mix deployment and dynamics over time	1. Temporality issues around tool adoptions and mix sequencing, trajectories, and critical junctures.
	2. Sectorial and national variations and patterns/styles in tool use and mixes including links of tool choices to national traditions in administration and implementation.
	3. Policy sector convergence and intersections and their impact on policy mix coherence.
	4. Links of tools choices to ideational paradigms and paradigm changes
Under-examined behavioral issues	5. Identifying types of targets and what motivates targets ("policy-taker" behavior and compliance issues)
	6. Decision-makers ("policy makers") behavior in designing, discovering, and deciding upon tools in mixes
	7. Describing and measuring the mechanisms which tools activate to attain their effects and impacts
Measurement and methodological issues	8. Defining and measuring the types of tools found in policy mixes
	9. Measuring performance and effectiveness of tool deployment and mixes
Implementation issues	10. Understanding the volatility of tools and mixes—predicting risks of failure and perverse outcomes
	11. Understanding government capacity and its impact on tool choices and use
	12. Multilevel governance dimensions of tool choice and program creation
	13. Calibrations (substantial and procedural)—what they are and how they are selected
	14. Better describing procedural tools, how they relate to mixes, and how they are implemented

can become highly institutionalized and/or generate positive/negative feedbacks over time which significantly affect the operation and reform of policy portfolios. The policy solutions—a set of adopted policy instruments—present at a given point in time may enshrine problems as well as specific tools that actors must eventually confront in the next decision-making moment.

Thus, negative and positive feedback around policy instruments inform the policy debate, and policymakers can proceed to alter a policy mix in several ways; for example, they can proceed by layering, conversion, or drift in addition to fully replacing a mix (Thelen, 2004).

However, if we know something about these general modes and types of policy instrument design, we are missing reliable empirical knowledge about the micro-components of these different kinds of processes. There is a need to consider the effect of policy formulation processes on the character and effectiveness of complex policy mixes (Feindt & Flynn, 2009; Kay, 2007; Larsen et al., 2006).

That is, none of the terms cited above—layering, drift, conversion, or replacement, is clearly enough defined or consistently employed by various authors working in the field and, in some studies, are used without an appropriate understanding of the underlying concepts or methods necessary to analyze and evaluate their impact upon a policy mix.

Layering, for example, is thought to be the most commonly adopted process but layering can be done in different ways. That is, policy instruments can be assembled through processes such as packaging, patching, stretching, and bricolage (Capano, 2018; Howlett & Rayner, 2013) which range in terms of coverage and deliberativeness. And layering can lead to policy instruments mixed in a consistent, counterproductive, or a tense way (Capano, 2019). This is the case, for example, when existing mixes are developed unsystematically through processes of policy layering (Carter, 2012; Howlett & Rayner, 2007; Organisation for Economic Co-operation and Development [OECD], 1996; Thelen, 2004; Van der Heijden, 2011). And the same is true of the need to better operationalize concepts such as packaging and patching, as well tense layering, in terms of what they mean for instrument-based content.

There are thus many empirical gaps in our knowledge of policy tools and mixes when the temporal dimension is considered. Notwithstanding the problems raised above, also we know very little about whether and how the speed of the sequence can make a difference in terms of choosing one instrument or another and in terms of change or persistence of the adopted set of policy instruments. Furthermore, another under-investigated dimension of the temporal dimension is the composition of the sequence itself: what are the events of the sequence? Can the sequence be conceptualized only as a diachronic shift from the less to the more mandatory tools as proposed by Bemelmans-Videc et al. (1998). Or can the sequence develop in different ways (thus also through a dialectical process in which the event progression can be reversible)? What are the relationships between actors in the different events of the sequence itself?

Better Understanding Sectorial and National Variations and Patterns/Styles in Tool Use Including Links to National Traditions in Administration and Implementation

What causes stability and change in mixes and tool choices over time is another key temporal issue. Sectoral variation in instrument choices, for example, is one of the most obvious problems in policy instrument studies which current research has described but failed to address theoretically or analytically. We have a deep knowledge of the list of substantial and procedural policy instruments put into place in different fields, especially in fields such as the environment, climate change, innovation policy, as well as in social and education policy (Capano, 2019; Hannaway & Woodroffe, 2003; Jensen et al., 2018). But while much is known about instruments in different policy sectors, this knowledge is either very descriptive or so specialized on a specific policy field that the empirical richness does not lead to theoretical generalizations about the impact of sectoral particularities on the development of mixes and tool choices and their reform or change.

That is, a key point which has not been systematically addressed to date has to do with the persistence of specific patterns of instrument preferences and adoptions either by sector or jurisdictionally, or both. The insights of Freeman (1985) concerning development and persistence of sectoral policy styles and patterns of instrument deployment in particular have been under-investigated. If different types of policy instruments are adopted in different policy sectors according it to the characteristics of the policy issues, then what is it about these issues that determine this pattern and how does this affect propensities for change? Can we expect to, for example, have more incentive-driven or cooperative-based instruments in environmental policy (Bouwma et al., 2015) than in education policy (Hannaway & Woodroffe, 2003)? In these, or other directions, how likely are these systems to change over time?

Similarly, we do not know much about why and how national mix variations develop from a comparative perspective. If different regimes express a preference for particular types of mixes and tools—for example, a U.S. preference for regulation or a Korean preference for "guided competition" in the area of industrial policy and tool choices—then how are these variations in policy styles linked to factors such as national administrative traditions or to the characteristics of bureaucratic and other political institutions?

That is, we know that policy styles exist and that national traditions in administration and implementation are crucial determinants of instrument preferences. There is, in fact, a stimulating empirical literature, built up on the seminal lessons of Richardson (1982), showing that there are national policy styles of formulation (Howlett & Tosun, 2018) and of implementation (Tosun & Treib, 2018) and that these different ways of designing and implementing policies are related to the types of politico-administrative regimes found in different jurisdictions (Pollitt & Bouckaert, 2011). But what is the meso- and micro-level mechanism which links these macro-level phenomenon to policy mixes and specific tool choices?

Here, the most intuitive hypothesis is that the institutionalization of policy/implementation styles as well as the characteristics of politico-administrative regimes should create permanent effects and path dependency in terms of instrument adoption. However, we also know that new instruments have also been adopted in countries, for example which usually eschew market-based regulation. How much of this is a consequence, for example, of the diffusion of New Public Management or other general administrative and governance reform efforts or of different methods of implementation or formulation?

All in all, this means that "comparative policy instruments research" is quite undeveloped and consequently there is often a mismatch between empiricism and conceptualization and between the descriptive nature of instruments and the typologies offered by the literature, as well an under-theorization of the causes of the variations between sectors and countries. All of which undermines efforts at effective policy design.

Sectoral Convergence and Intersection and Its Impact on Policy Instrument Mix Coherence

A related item refers to change processes that occur in mixes or bundles of policy instruments when activities in otherwise distinct subsystems transcend old boundaries and affect the structure or behavior of other subsystems (Dery, 1999; Djelic & Quack, 2007; Kay, 2006; Lynggaard, 2001). Instances such as those, for example, occurred when Internet-based computing collided with existing telecommunications regimes and when long-established natural resource policy actors found it necessary to deal with Aboriginal land claims (Gehring & Oberthur, 2000; Grant & MacNamara, 1995; Hoberg & Morawaski, 1997; R. Marion, 1999; Rayner et al., 2001; Rosendal, 2001).

This particular process of policy mix change has received almost no treatment at all in the literature. But a large research agenda exists here. Thus, for example, sectoral interactions can occur in specific issues without any permanent change in the mixes of tools used in each sector (subsystem intersection) or they can be more long term in nature and involve some gain and/or loss of tools in a new multisectoral or cross-sectoral mix (subsystem convergence) (Deeg, 2007; May et al., 2007). What is the impact of such changes? Which tools remain and which are removed? How does this vary between intersection and convergence? These are all key questions requiring more research.

Links of Tools Choices to Ideational Paradigms and Paradigm Changes

Policy paradigms, belief systems, and ideas matter when policy instruments are developed and also are at play in

policy and policy mix change (Hogan & Howlett, 2015). Their precise impact on policy tool choices and deployments, however, are little known. Paradigms provide general guidance to policymakers because their normative and cognitive dimensions structure the goals they pursue. But, as Hall (1993) noted, they also affect considerations of the appropriate tools and tool calibrations considered necessary for achieving those goals. The ideational turn in political science and public policy has generated new attention to how paradigms, beliefs, and ideas can drive the choice of policy instruments but without providing much insight into these specific processes and outcomes.

To date, studies have been quite ambiguous and not definitive. When policymaking is analyzed from a micro-perspective, different ideas, frames, and belief systems are usually seen as competing and confronting each other with respect to instrument choices. In addition, this variety of ideational drivers can be one of the causes of initiating change or institutionalizing a policy mix without it being clear what will occur and why. For example, over time, new paradigms/ideas/frames can and do emerge, but the older ones and the tool mixes associated with them may not be dissolved (Lieberman, 2002; Oliver & Pemberton, 2004). This can lead to obvious conflicts and confrontations affecting tool choices if different instruments pursuing different goals are in place. Thus, very discordant policy mixes can be generated by the layering of different paradigms/frames over time or by an agreement between different actors holding different cognitive and normative beliefs with respect to policy problems and the instruments chosen to deal with them.

All in all, we lack a solid understanding of the role of these ideational structures when policy instruments are at stake; this is disappointing if we recall the high hopes which accompanied the "ideational turn" in public policy annalysis (Schmidt, 2008, 2011).

Under-Examined Behavioral Issues

A second major cluster of issues is related to the behavior of policymakers and policy-takers. This has a temporal aspect as well but mainly concerns the different modes possible for designing policy and choosing instruments and the different types of designs which can emerge in terms of instrument content. Within that general rubric, key questions remain about the behavior of policy makers and how that behaviour intersects with that of policy takers or targets. Despite some work on this by Schneider and Ingram (1994) and those who followed in their footsteps (Schneider & Sidney, 2009), this remains a key set of issues which existing research has failed to address systematically.

Identifying Types of Targets and What Motivates Targets (Policy Takers' Behavior and Compliance)

Most of the concerns raised above, when they have been examined, have been analyzed in the case of, and from the viewpoint of, policymakers. But there is a large second area of concern which also exists: which is related to the behavior of policy "takers."

Here, the idea commonly found in the policy literature is that the only real issue in policy tool choices is around the issue of compliance and that compliance is merely a matter of "getting incentives (and disincentives)' right" (Howlett, 2018). This not only ignores aspects involved in the social and political construction of targets highlighted by Schneider and Ingram (1990) but also minimizes the complex behaviors which go into compliance, most notably considerations of legitimacy, trust, and other social and individual behavioral characteristics (Bamberg & Möser, 2007; Howlett, 2019a; Thomas et al., 2016).

Not the least of the problem with this view is that it often has a notion of policy-takers as static targets who do not try, or at least do not try very hard, to evade policies or even to profit from them (Braithwaite, 2003; Howlett, 2019a; J. Marion & Muehlegger, 2007). Such activities on the part of policy takers, however, are key in determining the success of eliminating various government initiatives ranging from tobacco control to bus fare evasion (Delbosc & Currie, 2016; Kulick et al., 2016) and these behaviors should be "designed for." That is, adverse or malicious, mendacious, and/or Machiavellian behavior on the part of policy-takers is a critical subject but one often glossed over in studies of policy compliance and "target behavior" (Howlett, 2018).

Just as much as willing compliance, determined noncompliance and gaming should be taken into account in designing policies, along with many other such policy target behaviors, such as free ridership, fraud, and misrepresentation (Harring, 2016). As it stands, these are often thought of as purely "implementation" issues and left up to administrators to deal with rather than forming an essential component of policy formulation and instrument design considerations (Doig & Johnson, 2001; Kuhn & Siciliani, 2013).

How Decision-Makers ("Policy Makers") Design/Discover/Decide Upon Tools in Mixes

Policy instrument choices are a part of policy formulation, and at a time when policymakers are often tasked with developing innovative solutions to increasingly complex policy problems, the need for intelligent choices of tools and a better understanding of the policy formulation processes they involve has never been greater.

In general, a means-ends understanding of policy formulation permeates the existing research on policy instrument selection (Colebatch, 2018). This instrumental orientation is significant in that policy formulators operating in accordance with its strictures are expected to base their actions on analyses which are logical, knowledge, and evidence-based (Bhatta, 2002). Conceptually, an instrument design process is often said to begin with an assessment of the abilities of different policy tools to affect policy outputs and outcomes and considerations of the availability of the resources

required to allow a policy to operate as intended. As Linder and Peters (1991) noted, this involves a series of choices, which emphasize "not only the potential for generating new mixtures of conventional solutions, but also the importance of giving careful attention to tradeoffs among design criteria when considering instrument choices" (p. 130).

But policymaking does not always necessarily lend itself to or result in purely instrumental thinking about policy issues, including instrument choices. As discussed above, understanding how the use of specific kinds of instruments affects target group behavior and compliance with government aims (Weaver, 2015) is often lacking. Many constraints on tool use originate both in the limits of existing knowledge and which may promote other more `interest-driven' policy processes in prevailing government norms and governance structures (Torgerson, 1986). And a more "rational" process also requires both analytical and evidentiary capacity on the part of the government as well as the intention to exercise it which may or may not be present in any given formulation situation (Howlett, 2015).

Describing and Delimiting the Mechanisms Which Tools Activate to Attain Their Effects and Impacts

These points highlight another lacuna, which concerns a lack of knowledge around the mechanisms which policy tools activate in order to have an impact on the ground (Capano et al., 2019; Capano & Howlett, 2019; Pawson, 2013). How precisely policy instruments/mixes encourage or structure policy targets' behavior and whether and how this can be harnessed to achieve expected results is a major research gap.

A key analytical point is how the adopted solution can be a genuine driver of a pursued outcome, that is, capable of activating the *proper mechanisms and thus the causal chain* needed to accomplish a goal.

Measurement and Methodological Issues

A third cluster of issues involves a set of methodological concerns around measuring and operationalizing policy tools and tool interactions in mixes. Difficulties associated with the effort to measure variation in mixes involves consideration and assessment of what are the relevant dimensions of policy instruments and instrument mixes which allow them to be distinguished and which are needed to further understanding of their evolution and change.

Defining and Measuring the Types of Tools Found in Policy Mixes

The recent literature on the subject has shown some significant efforts in measuring policy mixes which can be considered a partial success. Thus, we can now measure the "density" or number of policy instruments enacted in a policy mix and the "intensity" or grade of significance/stringency assigned to each instrument (T. Schmidt & Sewerin, 2018).

But research on these measures is uneven. The research on policy density is fairly clear and involves counting the number of distinct tools involved in a mix. Intensity, however, is less well-developed. Starting from the use of expert panels or media coverage, there has now been a convergence toward measuring policy intensity in terms of the level of coercion involved in tools and their calibrations (Knill et al., 2012). This focus on intensity has allowed measuring the development of policy dynamics in terms of balance among different policy instruments as well as change in intensity (T. Schmidt & Sewerin, 2018) and thus helps assess the amount of resources, effort, and activities invested in the adopted instruments (Schaffrin et al., 2015).

But these advances beg questions about how many tools there *should* be and how the components of a policy mix (goals, instruments, context) should be measured or related to each other, including the requisite grade of consistency, coherence, and congruency needed for policy success (Howlett & Rayner, 2017; Rogge et al., 2017).

Empirical research has not yet sufficiently developed with regard to measuring these characteristics, and there is still a certain disagreement about the definition of these concepts especially regarding the semantical difference between terms such as consistency and coherence (Rogge & Reichardt, 2016).

More conceptual and empirical research on the effects of the level of coherence, consistency, and congruency on the output and the outcomes of policy tool deployment would be quite welcome. As discussed above, there is a need to understand whether and how the interaction between goals and instruments, old instruments, and newly adopted instruments and different policy mixes operates in different policy sectors and countries.

Measuring Performance and Effectiveness of Tool Deployment and Mixes

Governments design policies to reach specific goals, that is, to change the quality of the performance of the addressed policies. Thus, governments reform education policy because they want more well-educated citizens and more citizens with degrees; they intervene in environmental policy because they want to pursue, for example, decreased pollution and better water quality.

While the link between policy instruments and their outcomes is indirect and limited (Koontz & Thomas, 2012) since policy performance is co-driven by many other factors, it remains the case that the main method through which governments can steer their policy systems is by adopting specific sets of policy tools that address the behavior of specific targets. However, we do not know much about the linkage

between policy instruments and policy outcomes, although some recent research has shown that some policy instruments and some types of instrument mixes are associated with better performance than others (Capano et al., 2019).

Implementation Issues around Policy Tools

A fourth set of issues is related largely to the administrative details and considerations which go into this same process of putting policy tools into practice or administering policy mixes. These are quite wide-ranging in themselves but cover many essential questions whose answers should drive design and choice considerations. Many of these points are placed at the critical interface between policy design and implementation which has been a subject of much interest in instrument studies since their inception.

Understanding and Avoiding the Volatility of Tools and Mixes—Predicting Risks of Failure and Perverse Outcomes

As noted above, most instrument studies to date have focussed almost exclusively on the "good" side of policy formulation, that is, dealing with concerns around ensuring that knowledge is marshaled toward developing the best feasible policy in any given context. This approach operates under the assumption of well-intentioned governments and accommodating policy targets. Such work has looked at issues around how policies evolve over time and focused upon understanding how such policies can be made more robust and resilient but without carefully examining or allowing for the possibility that government intentions may not be solely oriented toward the creation of public value, or that policy targets and policy-makers may indulge in various forms of "misconduct" from fraud to gamesmanship, undermining government intentions of whatever kind.

While self-interested, corrupt, or clientelistic policymaking has been the subject of many studies in administrative and regulatory law and development administration, even the best of policy intentions can be perverted in implementation, and the need to design policies to be resilient against conscious and determined efforts on the part of policy makers and targets to undermine them is pressing.

These aspects of policymaking and policy design constitute the degree of "*volatility*," found in a policy area, that is, the likelihood or propensity of certain instruments and certain design situations to lead to unstable policy mixes. This is due to the deployment of instruments and tools which by their nature inherently involve a high risk of failure. This can be contrasted with more stable tools and more benign mixes in which designs are likely to approximate the image often set out in the literature. The exact causes and contours of such volatility, however, are not well understood.

Understanding Government Capacity and Its Impact on Tool Choices and Use

The process of selecting policy instruments, as well that of assessing the effects of the adopted choices, depends on the resources and capacities at the disposal of governments. Regarding resources, Christopher Hood (1983) has shown us that policy instruments use four main ones in designing and delivering policy: nodality, authority, funding, and organization (NATO). At the same time, we know that these resources are not sufficient reason to choose specific kinds of instruments, because it is necessary to have specific policy capacities—analytical, organizational, and systemic competences and individual, operational, and political capabilities (Wu et al., 2017)—to decide best which of the four resources at governments' disposal can be used to design new policies or support new instrument-based interventions.

However, there are at least three significant empirical gaps when discussing resources and capacities that require more research. First, we do not know whether governments are sufficiently aware of their weaknesses and strengths in policy capacities. Second, there is insufficient empirical evidence on whether and how the characteristics of the actual stock of resources and capacities at governments' disposal influence the choice of policy instruments and eventually their implementation. And third, most research to date has focussed on state resources and capacities and has paid less attention to civil society capabilities and competences, such as those of nongovernmental organizations (NGOs), think tanks, pressure groups, lobbyists, and others active in the policy process, which are also important to the operation and success and failure of specific policy mixes especially those involving high levels of collaboration or co-production.

Multilevel Governance Dimensions of Tool Choice and Program Creation

Related to these capacity issues, policymaking very often has a multilevel governance (MLG) arrangement as many policy areas are codetermined or cogoverned by local, state, national, or international orders of government. But different levels of government are likely to have some common but also different goals and instrument preferences and reconciling them involves the use of the overt political calculus of intragovernmental or intergovernmental bargaining and decision-making which may or may not lead to efficient or effective instrument choices and policy designs (Bolleyer & Borzel, 2010; Kaiser et al., 2012).

We know that the design of MLG arrangements is crucial, but how the arrangement of MLG impacts tool choice and system selection remains to be understood. For example, in the EU MLG, there are some policy fields in which higher levels cannot establish the instruments to be used but can only propose policy guidelines and goals. In other cases, MLG can be highly vertical wherein higher levels can

impose the instruments to be adopted by lower orders of government; however, their effectiveness still depends on the implementation styles of the lower levels. Neither of these kinds of processes are well understood, including their impact on the capacity needs of different levels of participating governments.

Calibrations (Substantial or Procedural Ones)—What They are and How They are Selected

Calibrations are those contextual actions and decisions through which policymakers adjust the actual setting of policy instruments with respect to the target of interest. We know these kinds of calibrations are the order of the day in policymaking, especially in the implementation stage when policies need to be delivered in an effective way (Hall, 1993; Ostrom, 2003).

These calibrations involve key actions in policy delivery such as increasing the number of policemen if there is a risk of a riot, increasing the number of beds in hospitals if there is an unexpected disease in the population, or altering some rules of subsidy distributions against poverty when earlier ones fail. Calibrations thus represent a huge set of instrument-based decisions that are put into place when policymakers consider precisely how a policy will be implemented.

There is a wealth of empirical evidence about various kinds of calibrations, some of which involve routine adjustments of ongoing policies, pressures, practices, but little of it helps us understand what kinds of regularities or patterns exist when policymakers calibrate policies.

Procedural Tools and How They Relate to Mixes

Policies have a both *substantive* element that comprises of the technical arrangements of alternatives that can potentially resolve the policy problem at hand and a *procedural* component that entails all the processes and activities necessary to coordinate the activities of policy actors in charge of formulating, making decisions, and administering the alternatives (Howlett, 2011).

Procedural implementation tools are an important part of government activities aimed at altering policy interaction within policy sub-systems (Klijn et al., 1995). That is, policy actors are arrayed in various kinds of policy communities, and just as substantive tools can alter or affect the actions and behavior of citizens toward government goals, so too can instruments affect and alter other aspects of policymaking behavior, including goal-setting itself (Knoke, 1987, 1993, 2004). As an essential component of modern governance, the range of procedural policy instruments comprises at least half the toolbox from which governments select specific tools expected to resolve policy problems (Howlett, 2000, 2019b).

These two kinds of policy instruments, however, have not received equal treatment from students of the subject. Procedurally oriented implementation tools have received much less attention than substantive ones, even though several procedural techniques, such as the use of specialized investigatory commissions and government reorganizations, are quite old and well-used and have been the objects of study in fields such as public administration, public management, and organizational behavior (Schneider & Sidney, 2009). More and better work on this subject is essential if instrument studies are to progress.

Conclusion: A Call for Increased and Improved Analysis of Policy Tools and Policy Mixes

Policy instruments are a highly promising topic of research in public policy, not only for those interested in policymaking and policy processes as a whole but also for those interested in policy design (Howlett, 2019b).

Although much is known about individual types of tools and how they are combined in mixes, there remains a great deal of room for substantial improvement in our knowledge. There are still many lacunas and gaps that need to be filled, and in this article, we have focussed on those issues which are crucial in moving policy instrument research forward.

As we have shown, there is much we already know, but much that remains to be studied, some of which needs more empirical research while other topics require more theoretical clarity and scholarly agreement.

Policy instruments research has much to offer for improving our understanding on how policies develop and could be better designed. Once the work set out above has been done, this approach to studying and understanding public policymaking will have been placed on much firmer ground and will help generate many useful insights for both scholars and practitioners in the field.

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Note

1. There are some theoretical and empirical studies that focus on the dimensions of policy design, whereby the political capacity/will of governments and their technical capacities are taken into consideration (Capano, 2018; Howlett et al., 2015; Howlett & Mukherjee, 2018). These studies, however, should be considered only the beginning of a potentially relevant research stream.

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