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Understanding Complex Policy Mixes: Conceptual and Empirical Challenges

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Abstract:

There is a growing disconnect in the literature between the theoretical-conceptual underpinning of policy mix studies and limited success in the development of common empirical approaches to systematically study real-world policy mixes. For applied research into policy mixes, this tension creates practical challenges, namely how to apply abstract conceptualisations of policy mix characteristics in a way that avoids conceptual stretching and how to systematically assess the constituent parts of a policy mix. Overcoming these challenges is necessary in order to produce generalizable empirical findings that have a relevance beyond a case-specific context. This chapter briefly reviews the state-of-the-art of the burgeoning theoretical and conceptual literature on policy mixes and highlights the persistent empirical challenges researchers and practitioners face when aiming to analyse and understand complex real-world policy mixes.

Keywords: policy mixes, policy design, policy measurement

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The [Energy Politics Group \(EPG\)](#) within the [Department of Humanities, Social, and Political Sciences](#) of [ETH Zurich](#) investigates questions related to the governance of technological change in the energy sector.

Understanding complex policy mixes: conceptual and empirical challenges

Introduction

A key insight of contemporary studies of public policy is that solving complex policy problems usually requires effective policy mixes, that is, bundles or portfolios of different policy instruments (Howlett and del Rio, 2015) that share a common target or goal (Kern and Howlett, 2009) and that are, ideally, complementary or synergetic (Howlett and Rayner, 2018). The interest in such policy mixes is flourishing (Capano and Howlett, 2020), also in new academic communities such as sustainability transition or environmental governance studies (Kern et al., 2019; Morrison et al., 2020) where it is acknowledged that policy mixes are needed in order to address complex policy challenges related to a combination of market and system failures (Schmidt and Sewerin, 2019). There is, however, a growing disconnect in the literature between the theoretical-conceptual underpinning of policy mix studies and limited success in the development of common empirical approaches to study real-world policy mixes systematically. This disconnect is not entirely surprising given the degree of abstraction of theoretical-conceptual policy mix work and the fundamental challenge in policy analysis to measure the dependent variable – that is, policy or policy change – in a comparable and meaningful way (Howlett and Cashore, 2009; Schaffrin et al., 2015). For applied research into policy mixes, this tension creates practical challenges, namely, how to apply abstract conceptualizations of policy mix characteristics in a way that avoids conceptual stretching and how to assess the constituent parts of a policy mix systematically. Overcoming these challenges is necessary in order to produce generalizable empirical findings that have a relevance beyond a case-specific context. Therefore, this chapter argues for a bottom-up approach for studying policy mixes, which means applying a unified and comparable understanding and assessment of design characteristics of the constituent parts of policy mixes, namely, individual policies. This chapter briefly reviews the state-of-the-art of the burgeoning theoretical and conceptual literature on policy mixes and highlights the persistent empirical challenges researchers and practitioners face when aiming to analyse and understand complex real-world policy mixes.

Conceptual and theoretical literature on policy mixes

Public policy scholars have a long-standing interest in policy mixes. This interest was initially driven by a preoccupation with general patterns and dynamics of public policy, particularly

policy change, which has been at the heart of policy analysis since its inception (Hogwood and Peters, 1982). In this context, scholars became aware of the ‘temporal legacies’ of policies, realizing that new policies are often simply added to existing ones. Without abandoning previous policies with the same or similar goals, policy mixes thus grow over time in a process called ‘layering’ (Béland, 2007; Hacker, 2004; Thelen, 2003). The resulting policy mixes are thus seen as having developed unsystematically over time and more or less at random, certainly not as a result of conscious design choices by policy-makers (Van der Heijden, 2011; Howlett and Rayner, 2007; Thelen, 2003). The layering or accumulation of policies over time is generally being seen as impeding the functionality of policy mixes and therefore as a persistent challenge for researchers interested in the effectiveness of policies as such (Adam et al., 2018; see Chapter 16 in this volume).

Interestingly, despite the prevalence of the term in the literature, ‘layering’ as an empirical phenomenon is not clearly defined (Burns et al., 2018b; Van der Heijden, 2011), making it hard to apply in empirical research and thus limiting its value as a conceptual tool to understand policy mixes. In order to make sense of what these ‘temporal legacies’ mean for the functionality of policy mixes, researchers developed abstract categorizations of how different policies can theoretically interact with each other when added to an existing policy mix. One of the most influential of these categorizations of policy interaction or of general policy mix characteristics is the distinction between the ‘consistency’, ‘coherence’, and ‘congruence’ of policy mixes: (1) ‘consistency’ refers to the ability of multiple policies to reinforce rather than undermine each other; (2) ‘coherence’ refers to the ability of multiple policies’ goals not to contradict each other; (3) ‘congruence’ refers to the ability of policies and their goals to work together in a uni-directional fashion (Howlett and Rayner, 2013; 2018). Other researchers have added to this catalogue of policy mix characteristics concepts like the ‘comprehensiveness’ or ‘credibility’ of policy mixes, the former referring to the extent to which a policy mix is believable and reliable from the perspective of its addressees, the latter to which degree a policy mix addresses all market, system and institutional failures in a policy field (Rogge and Reichardt, 2016).

Yet, while these concepts are more or less clearly defined in their abstract meaning, there is no established approach to measure them empirically (Schmidt and Sewerin, 2019). Some researchers simply assess these policy mix characteristics through qualitative research, that is, by conducting detailed case studies of specific policy mixes (Kern and Howlett, 2009; Rogge and Reichardt, 2016). While the findings of such qualitative studies are certainly interesting, comparability of data is not a given and thus the question remains if these findings are generalizable. Addressing these issues, Howlett and del Rio (2015) therefore argue that the debate about abstract characteristics of policy mixes has reached an impasse:

Although thinking about the design of policy portfolios has been at the forefront of much current research work on policy design [...], existing studies of such bundles of tools do not use consistent terminology and fail to define the dependent variable carefully enough [...]. As a result, the cumulative impact of empirical studies has not been great, theorization has lagged and understanding of the mix phenomena, despite many observations of its significance, has not improved very much over past decades [...]. (p. 1234).

Discussions about how the empirical analysis of policy mixes can be improved, particularly how to go beyond individual case studies, are ongoing and focus on developing strategies for more systematic and comparative approaches (see below). At the same time, however, there has been a subtle, yet very consequential, shift in how researchers and practitioners are framing their interest in policy mixes: rather than being preoccupied with abstract categorizations of how different policies can theoretically interact with each other in a policy mix, researchers are increasingly interested in how and why policy mixes change over time (Howlett et al., 2018; Howlett and del Rio, 2015). The latter points to a more practical take on the importance of policy mixes, in the sense that researchers are interested in developing practical strategies to improve existing mixes (e.g., Kern et al., 2017). This interest in designing policy mixes is shared by two increasingly converging research communities (Kern et al., 2019), namely, researchers interested in environmental and sustainability transitions and the role of policy mixes therein (e.g., Flanagan et al., 2011) and researchers interested in questions of policy design in general (e.g., Howlett, 2014). Here, two basic strategies that policy-makers can apply are discussed: first, policy-makers can attempt to ‘patch’ existing policy mixes by deliberately adding additional policies to a mix in a conscious attempt at ‘layering’. If successful, policy-makers can funnel away support for individual older policies, making them less important and thus gradually shift the overall focus of a policy mix. Second, policy-makers can attempt to completely remodel a policy mix by proposing a new ‘package’ of policies that is intended to replace an existing mix in its entirety (Howlett et al., 2018; Howlett and Rayner, 2013). Instead of relating to abstract policy mix characteristics like ‘consistency’, ‘coherence’ and ‘congruence’, this perspective draws on a broader body of policy design literature, such as discussions about ‘over-’ or ‘under-designing’ policies (e.g., Maor, 2012; see Chapter 10 in this volume) and general ‘design principles’ for effective policies (e.g., Howlett and Mukherjee, 2018; Peters et al., 2018; see Chapter 14 in this volume).

In addition, there is also an overlap with policy feedback literature where researchers are aiming to understand positive (or reinforcing) and negative (or undermining) feedback stemming from individual policies (Béland and Schlager, 2019; Jacobs and Weaver, 2015; see Chapter 15 in this volume). Here, recent literature has shown that the success of a policy depends on whether it receives more positive than negative feedback (Béland et al., 2020;

Moore and Jordan, 2020; Skogstad, 2020). How to design policies in such a way that they create, over time, positive 'feedback loops' that result in stronger, more effective policies is a key question for policy feedback research (Jordan and Moore, 2020; e.g., Jordan and Matt, 2014). Relatedly, another strand of research is interested in how to 'sequence' the introduction of individual policies so as to allow for stronger, more effective policies to be introduced after initial, weaker policies (e.g., Meckling et al., 2017; Pahle et al., 2018). It would make sense to link these discussions more systematically to the literature on strategies for designing better, more effective policy mixes. Likewise, thinking about the role of actors in policy design as well as in policy feedback processes (e.g. Haelg et al., 2019; Schmid et al., 2019; see Chapter 6 in this volume) could be integrated into developing strategies for 'patching' or 'packaging' policy mixes.

As this brief overview has illustrated, the interest of researchers has shifted away from theoretical considerations about how policies can interact with each other to a more practical concern with how and why policy mixes change over time and whether it is possible for policy-makers to design policy mixes in a way that they become more effective over time. In other words, there is a clear shift in focus away from theorization and conceptualization of policy mix characteristics towards wanting to better understand the temporal development of and potential drivers behind actual policy mixes. Such better understanding is needed to develop strategies for enabling better policy mix design. Yet, the fact remains that empirical applications of policy mix research struggle with producing comparable data on policy mixes. More systematic approaches are needed to go beyond individual case studies and thus facilitate comparative analyses of policy mixes. Recent empirical applications can serve as reference points and will be described in the following.

Empirical approaches for studying complex policy mixes

As Howlett and del Rio (2015) have pointed out, policy mix research has been struggling with developing systematic approaches for empirically studying policy mixes. Single-case studies of specific policy mixes have traditionally dominated policy mix research (e.g., Kern and Howlett, 2009), resulting in a multitude of idiosyncratic conceptualizations and empirical measurements of policy mixes. On a broader level, this relates to the prevalent methodological challenge in policy research regarding how to measure policy systematically and comparably (Howlett and Cashore, 2009; Knill et al., 2012; Schaffrin et al., 2015). Yet the renewed interest in questions of policy design in public policy literature can provide important reference points for overcoming this challenge. There is, for example, an emerging consensus that any policy is being composed of a combination of basic design elements

(Cashore and Howlett, 2007; Schaffrin et al., 2015) – which, in principle, can be measured in a comparable way across individual policies. The new approaches for the systematic and comparative analysis of policy mixes build on this idea of basic design elements and thus integrate policy design literature into policy mix research.¹ Crucially, these approaches follow a ‘bottom-up’ logic of aiming to understand the constituent elements of a policy mix, that is, individual policies and their design. Doing so, they are embracing the complexity of real-world policy mixes and are sceptical of simple labels intended to describe a policy mix as a whole.² Importantly, such an approach necessitates the inclusion of all policies that relate to a specific policy field or problem in a systematic analysis.

First, Schmidt and Sewerin (2019) develop their ‘bottom-up’ measurement approach for the comparable analysis of policy mixes by drawing on an understanding that any policy contains a set of general design features. These general design features of individual policies – defined as objectives, scope, integration, budget, implementation and monitoring – can be systematically assessed, using a coding scheme developed in work by Schaffrin et al. (2014; 2015). Crucially, this approach allows for aggregating the systematic assessment of individual policies at the policy mix level, producing a dataset of all policies contained in a mix as well as their design characteristics. Doing this, Schmidt and Sewerin (2019) compare policy mixes related to renewable energy across nine countries, systematically assessing 522 individual policies that are part of the countries’ policy mixes. In addition, they are interested in assessing policies’ specific design characteristics (that is, features of policy design that are important in the policy field analysed) as well as the balance of instrument types used in a mix. This latter aspect is defined as an important characteristic of the overall policy mix because a combination of different instrument types is needed to overcome the various market failures and risks related to systemic transitions in the complex socio-technical systems. In addition, different policy instrument types reveal a distinct relationship between policy-makers and policy-takers, that is, the addressees of a policy. Therefore, it is hypothesized that, for a policy mix to be effective, the use of policy instrument types should be balanced. Also, the authors point out that, in contrast to more abstract notions like ‘consistency’, ‘coherence’ or ‘congruence’ (see above), this balance can easily be measured empirically.

Second, Lesnikowski et al. (2019), in their analysis of climate change mitigation policy mixes adopted by local governments across five countries, build on the landmark studies by Hall (1993) and Cashore and Howlett (2007) that proposed a set of basic design elements that every policy contains. In Cashore and Howlett’s (2007) version, policies are broken down into three levels of abstraction and two ‘policy foci’ (aims representing what a policy intends to achieve and means defining how to achieve these aims), leading to a hierarchy of six design elements that can be assessed systematically (see Figure 13.1). As Cashore and Howlett

(2007) do not offer a practical coding scheme for these design elements, Lesnikowski et al. (2019) present their own take on how to assess these design elements, focusing on high-level goals, mid-level objectives, policy instrument types as well as settings, and calibrations of individual policies. This approach is then applied to a total of 3328 climate adaptation policies.

[Figure 13.1]

In addition to providing a systematic assessment of the design elements of individual policies, Lesnikowski et al. (2019) are also interested in the overall complexity of the policy mixes under investigation. This latter aspect draws on earlier conceptual work by Howlett and del Rio (2015) who were interested in whether multiple or single goals and instruments exist in a mix, theorizing that the higher the complexity of a mix the higher the potential for counter-productive effects between individual policies. While each of these two approaches allow for the systematic assessment of design characteristics or elements of individual policies – that is, the constituent elements of each policy mix – they do not explicitly study specific interactions between those individual policies. Instead, both approaches build on broader assumptions that the balance between policy instruments types (Schmidt and Sewerin, 2019) or the degree of complexity relating to goals and instruments (Lesnikowski et al., 2019) are impacting the overall effectiveness of a policy mix.

There are first studies that specifically focus on the interaction between individual elements of a policy mix (e.g., Trencher and Van Der Heijden, 2019), yet they can only systematically analyse or model the interaction between two or three individual policies due to the increasing complexity of such an undertaking. Further research is therefore needed in order to improve the understanding of the specific interactions between individual elements of a policy mix. Importantly, in order to analyse interactions between policies, a systematic empirical assessment is needed. Despite their limitations, these new approaches for systematically assessing policy mixes represent an important development in policy mix research as they allow researchers to move away from single-case studies towards large(r)-n comparative work. Crucially, such empirical applications have the potential to be scaled up significantly in the future with the advent of more sophisticated approaches for computerized text analysis (Grimmer and Stewart, 2013; Wilkerson and Casas, 2017). While, so far, researchers applying data science methods in the social sciences have not focused specifically on assessing policy design characteristics (Brady, 2019), there are some first applications going in this direction. For example, Hurka and Haag (2020) have recently used computational linguistics to quantify the ‘complexity’ of policy proposals in the European Union, understood

as a function of their size and the number of references to other policies. This is not yet a computerized assessment of the design characteristics of individual policies that are part of more complex policy mixes, but at least a first step. In any case, at least some components of systematic approaches assessing policy design characteristics can be partly automated, as demonstrated by Lesnikowski et al. (2019).

Conclusion

This chapter has provided an overview of conceptual and theoretical developments in the literature on policy mixes and of emerging systematic approaches towards the empirical assessment of such policy mixes. Crucially, while much of the earlier literature on policy mixes has been concerned with conceptual-theoretical considerations about how policies can theoretically interact with each other, the focus of newer contributions has shifted towards the more practical question of how real-world policy mixes actually change over time. Based on improved empirical knowledge about policy mixes, researchers are beginning to investigate why those mixes change and whether it is possible to develop strategies for designing policy mixes in a way that they become more effective.

This shift of focus is driven by the growing interest in questions of policy mixes and their design in other scientific communities, such as sustainability transition or environmental governance studies as well as policy feedback and general policy design literature (Béland and Schlager, 2019; e.g., Howlett and Mukherjee, 2018). Going beyond single-case studies that have traditionally dominated the field, new empirical approaches for the systematic assessment of policy mixes have been developed (Lesnikowski et al., 2019; Schmidt and Sewerin, 2019). While these approaches have primarily been used for the comparison of a large number of policies across several countries' policy mixes, they can also serve as a reference point for the qualitative analysis of specific cases (e.g., Burns et al., 2018a). Crucially, these approaches build their assessment of policy mixes 'bottom-up', that is, they start with a systematic assessment of the design characteristics of individual policies, the constituent elements of any policy mix.

Such a focus on empirical analyses that produce comparable data is very much needed in policy mix research, as the field had reached an impasse due to inconsistent terminology and idiosyncratic measurement approaches that made generalizing from specific findings of individual studies problematic (Howlett and del Rio, 2015). The new focus of the literature on developing strategies for designing more effective policy mixes offers, however, a number of starting points for both academic and applied researchers interested in broad questions regarding the design of effective policy mixes.

Notes

¹ While researchers in the field of comparative policy analysis regularly compare policy approaches across countries or policy fields, they do not consider the policy mix as a whole but rather focus only on a set of selected policies (e.g., Liefferink et al., 2009). Similarly, established approaches like the measurement of policy 'stringency' (e.g., Knill et al., 2012) across cases are not directly transferable to the study of complex policy mixes as they are tailored towards measuring one policy instrument type only, namely, regulatory policy instruments.

² 'Top-down' approaches, on the other hand, would start from a categorization of how individual policies can interact with each other and focus on only a selection of policies in a mix in order to better deduce the strategic intent of policy-makers (e.g., Ossenbrink et al., 2019).

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