

Knowing the Future: Theories of Time in Policy Analysis

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The article gives a comparative and critical overview on theories of time in policy analysis. It is based on two central assumptions: First, the various ways time is conceptualized in policy analysis are closely related to underlying understandings of politics and political action. Theories of time are also always political theories. Debating time is thus not only of analytic value. It also has large implications on how power, rationality, and collectivity are related to each other. Secondly, theories of time as political theories can be highly influential in practice. When they find their way into policymaking, they may realign the time horizons and temporal orders of political action.

Keywords: *policy analysis, time, temporal order, rationality, evidence-based policy*

1. Introduction

How can we know the future? In his seminal article “Tiresias, or our knowledge of future events” Schütz (1959) introduces us to the intricacies of this question. Tiresias, the blind prophet of Thebes, is able to predict the things to come with great certainty. Being unable to either make them happen

or to prevent them, however, he remains “an impotent onlooker of the future” (71). Like many prophets he is hesitant about sharing his wisdom and cryptic when finally revealing it. In advising Odysseus that his journey would be successful if, and only if, he and his men refrained from eating the cattle of Helios on Thrinacia, Tiresias remains silent about the final outcome of events.¹ Schütz wonders

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¹ Forced to stay on the island by unfavorably winds, Odysseus’ men slaughter the cattle and are subsequently all killed by a thunderstorm sent by Zeus. Odysseus himself is punished when Calypso on Ogygia keeps him from returning to Ithaca for seven more years.

whether Tiresias' knowledge about the future is in fact fragmentary and selective. How does this "mechanism of selection" work? Does the seer experience the future as an ongoing stream of events with an open horizon? Does that mean that the prophecy is always also a kind of prognosis anticipating what follows beyond this horizon? Or is Tiresias capable of selecting and seeing certain events as if they had already happened? "Neither assumption however explains what motivates Tiresias to select this and that particular moment [...] Moreover, neither assumption explains why Tiresias' knowledge of the future, as in the case of his forecast of Odysseus' homecoming, is either fragmentary or heterogeneous..." (1959, 75). In taking the mythical figure of Tiresias as a starting point, Schütz applies these questions to the mortals of the lifeworld (1959, 77). How do we form anticipations of future events? Why are they relevant to us? In which ways do they determine our plans, projects, and motives? Answers to these questions are of fundamental importance. They provide insights into the problems and dilemmas of predicting the future. As Schütz, in criticizing Weber, had already made clear, anticipating a future in which one's own acts are already accomplished is the very moment that defines action and distinguishes it from mere behavior (Schütz 1974).

This article focuses on theories of time in policy analysis. It is being argued that existing concepts can be compared in terms of how they answer (implicitly or explicitly) Schütz' questions on knowing the future. Firstly, approaches analyzing policymaking in terms of cycles, sequences, or temporalities emphasize the influence of a "preorganized" stock of

knowledge and norms (1959, 77, 76) as constraint and resource of political action. Secondly, conceptions of policy as a stream of events are concerned with the relevance structures and temporal selections of policymaking as it is confronted with ambiguity in every moment of action. A third group of theories analyzes the cultural and communicative construction of time in policy processes and inquires on how, in turn, these collectively validated understandings realign the time horizons of past, present, and future.

In giving a critical overview on these various theories and concepts, the article is based on two central assumptions: The various ways time is conceptualized are closely related to underlying understandings of politics and political action. Theories of time are also always political theories. Debating time is thus not only of analytic value but it also has large implications on how power, rationality, and collectivity are related to each other. Moreover and probably less obvious, theories of time as political theories can be highly influential in practice. When they find their way into policymaking and become what Helga Nowotny has once called "chronotechnologies", they may realign the time horizons of political action. Just like Tiresias in his answer to Odysseus, they reveal only a fragment of how we can know the future and, as a consequence, may therefore determine the actual experience of and the decisions upon future events. Thus, theories of time are not only political theories but also a form of political practice. Tiresias, it turns out, is all but an "impotent onlooker". This communicative dimension of knowing the future is something Schütz might have underestimated.

The article is structured as follows: Section 2 gives a brief overview on concepts of time in policy analysis and, more specifically, the concept of “political time” as a common denominator in current debates. Each of Sections, 3, 4, and 5, focuses on a specific group of theories: Policymaking as it is both embedded in and structured by cycles, sequences, and temporal rules (Section 3: Policymaking in Time), policymaking as contingent, selective, and manipulative action upon political events (Section 4: Policymaking by Time) and time as historically changing and context-dependent cultural construction that is structuring and being restructured by policymaking (Section 5: Times of Policymaking). Section 6 argues that theorizing time is of practical relevance. Especially theories of policymaking *in time* have become most influential. In order to rationalize policymaking multiple chronotechnologies have been established (“synchronizing the past”, “extending the present”, and “colonizing the future”). The consequences are highly problematic. Section 7 summarizes the results and ends with a plea for a (self-) critical reflection on the “proper times” of politics—and a more creative exploration of the multiple ways of knowing the future in both theory and practice.

2. Political Time in Policy Analysis

Lamenting the lack of studies on time in policy analysis and political science has become a regular topos in research literature. Over the past two decades, however, the picture has changed (Howlett and Goetz 2014; Schedler and Santiso 1998; Straßheim and Ulbricht

2015). Time has entered a prominent place on the research agenda:

This is especially true for research on time and democracy. Since Juan Linz’ dictum that “time and timing are [...] the essence of the democratic process” (Linz 1998, 34), studies have multiplied. Presidential and parliamentary systems can be systematically distinguished by their temporal structure, that is, “the timetables of democratic politics, its time budgets, its point of initiation and termination, its pace, its sequences, and its cycles” (Schedler and Santiso 1998, 8). Mandates, terms, tenures and time budgets of government, the rhythms of legislations, the role of filibusters and the time horizons embedded in decision-making procedures, the procedural pulse of parliamentary speeches, and the time investments of parliamentarians—all these temporal factors seem to significantly determine the character of democratic government (Palonen 2014; Riescher 1994; Scheurman 2001; Skowronek 2008). Autocracies, in contrast, tend to operate in a mode of timelessness (Lechner 1995; Wright 2008).

In policy analysis, the insight that “policymakers are heirs before they are choosers” (Rose 1990, 263) has been fruitful for numerous studies on the legacy of institutional structures and on path dependency (Pierson 2004). Beyond the linear concepts of stochastic analysis, models on multiple streams, historical narratives, or punctuated equilibriums have furthered the understanding of different modes of change (Howlett and Rayner 2006; Zahariadis 2003). Public management studies are highlighting the role of administrative memory (or loss thereof), the cyclical dynamics of fashions

of modernization, and the analytical value of “timeships” that navigate the past by floating on combinations of approaches (Aucoin 1990; Pollitt 2008; Thomson and Perry 2006). Especially in the context of studies on the European Union, temporal qualities such as timing, sequencing, speed, and duration are conceptualized as resources and restraints of political action, leading to important insights about problems of synchronization and desynchronization in multilevel systems (Goetz 2012; Goetz and Mayer-Sahling 2009). In diverse fields such as science, technology, and society studies (STS) or comparative public policy, the notion of “timescapes” has been introduced to analyze the “political role time plays in debates and justifications of technoscientific and societal choices, in the proclamation of urgent problems but also in requests for citizens’ compliance with certain decisions—always in the name of a specific future that has to be achieved (Felt et al. 2014, 5; Straßheim 2015; Tucker 2014).

Finally, in a broader effort to temporally redefine the modernization process, several authors have begun to analyze forces of acceleration and deceleration (Rosa 2015; Scheurman 2001). Following their assumptions, acceleration in terms of technology, social change and pace of life constitute a basic principle of modernity (Rosa 2015, 23). Very much in line with some of the research on democratic temporalities cited above these authors diagnose a fundamental dilemma of democratic systems associated with the acceleration-induced dynamics of society: “The aggregation and articulation of collective interests and their implementation in democratic decision making has been and

remains time intensive. For this reason democratic politics is very much exposed to the danger of desynchronization in the face of more acceleratable social and economic developments” (Rosa 2015, 254). While there are good reasons to argue that the proponents of the paradigm of acceleration might underestimate the learning capacity of democracies (Merkel and Schäfer 2015), the transformation of time structures under the conditions of a post-national constellation seems to pose serious problems for policymaking. More than 50 years ago, Schütz has already pointed to the economic, social, and political dynamics that seem to be more relevant to us than ever while, at the same time, being less and less in our control (Schütz 1976 [1959]). It is thus for good reasons that the problems and dilemmas of time are currently at the center of policy debates.

If we were to define the common vantage point of these various approaches and concepts, it most certainly is the focus on “political time”, that is, “the very diverse range of rules, norms, conventions, and understandings that serve as a resource and constraint for political institutions and actors regardless of their spatio-temporal location and affect many aspects of political and policymaking behavior, such as the timing of decision making and the processes of attempting to make public policies” (Howlett and Goetz 2014, 478; Skowronek 2008). Recent theories of time in policy analysis more or less systematically distinguish between a proto-sociological view on time in policymaking and the distinctive characteristics of *political time* as a variable in its own right. While political action like every social action has a temporal dimension, the analysis of political time

refers to a more specific aspect: In this perspective, time is analyzed as medium, motive, and momentum of actions related to collectively binding decisions.

Analyzing political time thus focuses on the various norms, conventions, and meanings determining the rhythms and cycles of governing, forming a resource by opening up opportunity windows or setting deadlines, thereby influencing both the “space of experience” and the “horizon of expectations” (Koselleck 1979) in political action. While only few authors would explicitly agree, theorizing time is not only an analytical endeavor but also always a political act in itself. The lack of “utopian impetus” and the focus on a “merely formal chronos which is neutral to meaning” in a majority of concepts could lead to the paradoxical situation that we know more and more about time while knowing less and less about the future (Graeber 2015; Nassehi 1994).

The following three sections are ordering the complex landscape of research on time according to the underlying concepts of political action. It turns out that different groups of theories can be distinguished by how they are answering the questions posed by Schütz.

3. Policymaking in Time

A first group of theories is mainly concerned with *policymaking in time*, focusing on the multiple ways of policy preferences and actions, their preconditions, and outcomes structured by cycles, sequences, or rules of temporality. In Schütz’ words, our knowledge of events to come is preorganized by typifications (1959, 80),

standard assumptions derived from the past and applied to the future, determining what seems to be relevant and worth of attention in order to reach our goals. Albeit differing greatly in respect to how types are conceptualized and what exactly the mechanisms of determination are, theories of this group basically converge in this working consensus.

Of course, one of the most influential standard assumptions in *both* policy analysis and policymaking has always been the policy cycle. This concept seems to have virtually been around forever (Fischer et al. 2015; Howard 2005; Howlett and Ramesh 1995; May and Wildavsky 1978). The idea of a circular nature of things is the symbol of the cycle as representation of the eternal rhythm of human and nonhuman nature makes it the prototypical typification of temporal relations (Elias 1984). Accordingly, for its proponents it is less a prescription of a predetermined number of steps or a strict set of procedures but an idea structuring our attention (or, as Schütz would have said: our “system of relevances”) by drawing it to “beginnings, middles, and endings that may lead to new beginnings” (May and Wildavsky 1978, 10). All different versions of the policy cycle incorporate this idea by proposing that policymaking proceeds in stages; that it involves some kind of rational problem solving; that the stages differ from each other in terms of actors, processes, and institutions; and that one policy subsequently leads by some sort of feedback to another policy (Howard 2005, 6). Despite the fierce criticism of the “phase heuristic” and its unrealistically rational or even technocratic approach, its lack of causal theory, its inaccuracy given the multilevel character of policymaking,

and its top-down bias proponents do not easily let go of “a useful friend” (Sabatier and Weible 2014). Regardless of all efforts to capture the temporal complexities of the policy process, the very thought of a stage based, cyclical mechanism which informs and rationalizes policymaking, strengthens its “evidence-base” and enhances its “policy analytical capacity” cannot be underestimated in its influence on both policy analysis and policymaking up to this day (Howard 2005; Howlett 2009; Straßheim and Kettunen 2014). We are returning to this subject in Section 6.

A further set of theories in this group emphasizes the embeddedness of policymaking in some sort of structured sequencing (Howlett and Goetz 2014; Howlett and Rayner 2006). Theories of path dependency draw on institutional mechanisms that lead to a “lock-in” of policymaking on a specific trajectory that cannot be easily left without high costs, loss of legitimacy, or deviating from the ordering force of narratives (Abbott 1992). Although the beginning of the trajectory may be contingent or even random and its results may be suboptimal, following the path—even if it is a “crooked path” meandering between different constellations of actors, ideas, and interests—is a rational strategy until a “turning point” or “critical juncture” is reached (Djelic and Quack 2005; Mahoney 2000; Pierson 2004). These moments of contingency have been highlighted in process models, identifying causal mechanisms such as “bandwagon effects” or “social cascades” that can explain why at some tipping point temporal dynamics go in a completely different direction (Baumgartner and Jones 2002; Gersick 1991). While these models do not deny the contingency of social processes, they

are based on the assumption that even the most revolutionary punctuations of former trajectories follow a certain causal logic. Proponents emphasize the superiority of this model in comparison to path dependency or other sequential approaches as it shows that “continuities across temporal cases can be traced in part to enduring problems, while more or less contingent solutions to those problems are seen as reflecting and regenerating the historical individuality of each period” (Haydu 1998, 354).

How do we know our future? Theories of *policymaking in time* answer this question by arguing that political action is embedded in institutions or structures of meaning, following suboptimal trajectories or quickly changing at certain turning points depending on the context or period of time. Still, political action is both driven by and capable of rational problem solving. Thus, in order to know the future it needs to be anticipated based on evidence and information.

4. Policymaking by Time

A second group of theories conceptualizes politics as “organized anarchy” (Cohen, March, and Olsen 1972; Kingdon 1984; Zahariadis 2003; Zohlnhöfer, Herweg, and Rüb 2015). Rational problem solving is seen as the exception, not as a norm. Policymaking is characterized by unstable participation in decision making, high turnovers of political or administrative actors, and a considerable influence of nongovernmental organizations such as unions or civil society groups. Preferences and problems are not well articulated, not least because of often-opaque decision-

making procedures. Instead of problem solving, the best actors can do is using trial-and-error procedures. Choice is made not on a rational basis but as spontaneous selection from a fluid and incalculable stream of events. Sometimes, this strategy of “temporal sorting” means searching a problem for an already available solution. Time is scarce and so is attention.

In contrast to the first group of theories, rationality is bounded because of limited cognitive and organizational resources (Kahneman 2011; Simon 1982). More importantly, problems, solutions, and politics flow more or less independently of each other like streams of events, regardless of the policy agenda or the strategies of actors. Sometimes, an opportunity window opens up and can be used to couple problems, solutions, and/or politics. It all comes down to the right timing. The capability of political action depends on different zones of attentions, much like Schütz has described them: “There is a relatively small kernel that is clear, distinct and consistent in itself. This kernel is surrounded by zones of various gradations of vagueness, obscurity, and ambiguity. There follow zones of things just taken for granted, blind beliefs, bare suppositions, mere guesswork [...]. And finally, there are regions of our complete ignorance” (1959, 78). Ambiguity and ignorance are high.

Under these circumstances, the main mode of political action is temporal manipulation (Zahariadis 2003, 14–16; 2015). The presentations of problems as being urgent, the use of symbols such as a burning flag to raise awareness, “salami tactics” to enable sequential decision making, or the acceleration of procedures help to focus debates and move them into a desired direction. In

his analysis of deadlines, Zahariadis has shown that delimiting time horizons tends to dramatically change the temporal rhythm of the policy process. Deadlines are not politically neutral. Instead, they are “political devices” changing the long-term orientation of policymakers while accelerating decision making. By inducing an artificial termination, they reduce political conflicts, facilitate a more innovative and uninhibited policy style—but may also lead to a decrease in participation and to less democratic dynamics of exclusion (Zahariadis 2015).

For all these reasons, theories of *policymaking by time* tend to be skeptical about knowing the future. Under conditions of ambiguity, knowledge about the future may change at every moment. Policymakers carry on in an incremental fashion, aiming at taking their opportunities for both attention and action as the policy stream goes on.

5. Times of Policymaking

A third group of theories of time is inspired by pragmatist interpretations of time and the sociology of knowledge and culture (Berger and Luckmann 1967; Elias 1984; Nowotny 1994). It builds on William James’ (1890) distinction between “knowledge about” and “knowledge of acquaintance”, a basic difference also for Schütz who makes use of it in his constitutional theory of social reality (1959, 78). In modern societies, much knowledge is derived not from immediate observation but through highly objectified, shared systems of sense-making imposed on us by others in societal interactions (Schütz 1976; Srubar 1988).

Time, it turns out, has itself become such an institutionalized “ordering force” (Adam 2004; Felt et al. 2014): Time frames work as social “filters” and “lenses”. Produced and reproduced in political, economic, or scientific interactions, they allow us to order certain events, to describe causalities by distinguishing between causes and effects, to experience surprises against a background of routines and regularities, and to develop complex descriptions of the past and the future. These time frames transcend the calculative measurements derived from clock time or astronomical events. They manifest themselves in culturally variable understandings of societies as cyclical or linear, as determined by a certain “telos”, by critical moments or turning points. The resulting temporal arrangements composed of multiple time frames, temporal rules, and procedures have been described as temporal orders or “timescapes” (Adam 2004; Howlett and Goetz 2014). Analyzing policy in terms of temporal orders or timescapes requires investigating how multiple frames of experiencing and enacting time are embedded into discursive and institutional structures, leading to specific temporal features that determine the relevance and meaning of past, present, and future and thus define the scope of collective action. Temporal orders vary depending on the level and context of policies (Goetz 2012; Meyer-Sahling and Goetz 2009; Tucker 2014).

The result of such complex temporal orders is not one historical time but, as Koselleck has already pointed out following the German philosopher Herder, “many forms of time superimposed one upon the other” (Koselleck 2004, 2). Research following this line of inquiry

asks for the multiple ways these temporal orders are constituted, maintained, and changed. Politics and time are mutually intertwined: “This also highlights the political role time plays in debates and justifications of technoscientific and societal choices, in the proclamation of urgent problems but also in requests for citizens’ compliance with certain decisions—always in the name of a specific future that has to be achieved” (Felt et al. 2014, 5).

Studies analyzing the multiple times of policymaking have shown that imposing “knowledge of acquaintance” on the policy process actually has the potential to change time frames and temporal orders. In their research on obesity as a social phenomenon, Felt and colleagues demonstrate how the use of specific statistical agglomerates has helped to render linear trajectories of worldwide obesity dynamics as objective, constituting a health phenomenon that makes certain political measures appear more acceptable in public (Felt et al. 2014). The ever-growing complexity of modeling techniques and the sensitivity of computer-based simulations for irregularities and unexpected dynamics on different levels of societies in a long-term perspective have changed the conditions of both policy formulation and decision making in the present. Paradoxically and for reasons still subject to current research, the enhancement of simulation techniques and other foresight methods, however, does not seem to result in an increase in capacities for action. On the contrary, policymakers and citizens alike are experiencing a so far unknown change in the tempo of modern life, an acceleration of political and socio-technical dynamics, making

policies—and the conduct of modern life in general—even more problematic (Adam 2003; Nowotny 1994; Rosa 2015).

Research on the multiple times of policymaking thus shows that political action, torn between contingent and potentially colliding orders of time, is strongly influenced by science-based temporal discourses in order to frame certain trajectories as fixed and inevitable. An alternative way, however, would be to “question the taken-for-granted assumptions about time and to consider ways of addressing the temporal issue of contemporary societies” (Felt et al. 2014, 17).

6. Theorizing Time in Practice: Past, Present, and Future

Especially the last two groups of theories point to the possibility that communicating the future has actually the potential to alter it. Theorizing time might change the time horizons of policymakers and have long-term consequences by providing justifications and imposing relevances. So far, one of the most influential theories of time in political practice has been the policy cycle (Howard 2005). It basically promises that policymaking as a rational process of problem solving will be improved if information is inserted at the right time and the policy cycle comes to its full loop. Evidence-based policymaking has been the most prominent expression of this theory (Nutley and Webb 2000; Office 1999; Straßheim and Kettunen 2014). Proponents have suggested strengthening the “policy analytic capacities” by adopting certain informational solutions at every stage of the process (Howlett

2009). Analyzing the past and forecasting the future is done by specific “chronotechnologies” (Nowotny 1994) such as benchmarking, experiments, and scenario techniques. Based on selected studies on the role of evidence in policymaking, it can be shown that these instruments change the collective experience of time by (a) synchronizing the past, (b) extending the present, and (c) colonizing the future. Based on very specific theories of time, science, and expertise help to both establish and affirm seemingly unquestionable temporal orders.

A. Synchronizing the past

In the last two decades, benchmarking, rankings, scorecards, and monitoring devices have become standard tools of policymaking (Hood 2007; Papaioannou, Rush, and Bessant 2006). Based on comparisons of selected performance indicators, these instruments transform the sequentiality of individual trial-and-error into the synchronicity of standardized observations. They are already common practice on the local, national, and transnational level. Evidence-based comparisons establish and reproduce “classification situations”, that is, counting, ranking, measuring, and scoring “on various metrics of varying degrees of sophistication, automation, and opacity” (Fourcade and Healy 2013). Benchmarking tends to obscure the specific contexts and conditions that influence decisions in the present in order to find new ways of optimization in the future. “Thus this technique [...] may in practice become a way of absorbing or assuming away critical contextual differences which are crucial to understanding why a particular

program or activity works reasonably well at one place or time but not at the other. It aggregates results but not rationales” (Pollitt 2008, 12). In their study on obesity, Felt and colleagues show that the “obesity epidemic” has become an international issue in politics as soon as comparative indicators suggested that developments observed in countries such as the United States form an epidemiological trajectory that could in principle be transposed into other national contexts, “and thus reveal how obesity will rise and spread” (Felt et al. 2014, 8). More importantly, based on biomedical models these epidemiological trajectories have also been downscaled to the level of individual life cycles: Being overweight in childhood is framed as an indicator of future health problems and, in turn, an issue of responsibility toward the collective. In the case of obesity, synchronizing the past of both collectives and individuals is done by imposing “a specific version of obesity that is mainly performed through numbers. [...] But a closer analysis of our two sets of materials has revealed how beneath the seeming consensus of what obesity is lies a complex multiplicity of different stories and accounts that constitutes multiple versions of this seemingly singular object” (Felt et al. 2014, 15). Downscaling evidence-based comparisons has consequences: With the spread of health measurements, credit classifications, or other techniques of analyzing behavior based on big data, the temporal order of synchronized pasts has become both a universal and highly individualized phenomenon (Fourcade and Healy 2013; Pasquale 2015).

B. Extending the present

A combination of complex problems and evidence-based policies has caused what Helga Nowotny describes as the “extended present” (Nowotny 1994; Pollitt 2008, 61). For decades, societal progress seemed to promise an open horizon, fuelling social expectations and aspirations with ideas of continuous growth, technological advancement, and social wellbeing. While it may never have been uncontroversial, this time frame of an open-ended and, in principle, better future has finally lost its appeal. Confronted with problems such as global warming, food insecurities, toxic waste, or financial risks, the future has become a dark place, characterized by discontinuities, unexpected events, and large-scale effects disturbing whatever kind of equilibrium may have existed before. It is, however, not alone this dystopian vision but the more recent refinement and invention of “chronotechnologies” that is putting enormous pressure on the present. Calculative and computational methods of modeling the unexpected have gained in relevance. While former models were based on linear extrapolations, new simulative evidence points to future large-scale irregularities and deviations resulting from the synthetic interaction of small events (Gramelsberger 2010; Nowotny 1989, 63). With the potential to predict future catastrophes, the pressure to develop solutions in the present increases. Solutions need to be found now: “The future has become more realistic, not least because the horizon of planning has been extended. [...] The invocation of the future in the name of which political action was justified for a long time had to be reduced and at least partly transferred

to the present” (Nowotny 1994, 50). The temporal order of an extended present has large consequences for policymaking, resulting in a constant renewal, evaluation, and redesign of policy processes. Policy cycles are multiplied, repeated, paralleled (Nowotny 1989, 56). A direct expression of this cyclical character of the extended present is the new randomized controlled trials (RCT) movement (Munro 2014; Pearce and Raman 2014). RCTs and experimental designs are seen as the “gold standard” of an evidence-based policy. With the multiplication of randomized experiments at institutes such as the Abdul Latif Jameel Poverty Action Lab (J-PAL) at MIT, multiple policy interventions can be tested and retested at the same time all over the world, providing policymakers with direct information on causal relations that can be used as “rule of thumb” in the further development of behavior changing policies (Berndt 2015; Straßheim and Korinek 2016). The extended present can therefore also be characterized by a dynamic that only seemingly creates a contradiction, namely the shrinking of time horizons “that is, by the breaking down of series of actions and experiences into ever smaller sequences with shrinking windows of attention” (Rosa 2015, 124). Extending and shrinking of time—it all happens in the name of better evidence and a better future.

C. Colonizing the future

The idea that the future is open to “exploration and exploitation, calculation, and control” forms the core of a third temporal order (Adam and Groves 2007, 2). It is both a counteraction to and a consequence of an extended

present. With the shrinking of time horizons and the increasing pressure to provide solutions for problems yet to come, policymakers and experts alike seek to “colonize the future” (Giddens 1995, 5). The rise of scenario techniques and forecasts of foresight exercises and integrated assessments of possible futures can be interpreted differently. While some see it as new possibility to explore alternatives and new trajectories of action, others criticize it as a political quest to occupy temporal territory with the help of experts by defining “global trends” and determining the debates about the future (Andersson and Rindzeviciute 2015; Schulz 2016). Indeed, the analysis of the German debate on the energy transformation (“Energiewende”) makes it clear that forecasts of the future are closely tied to the political, social, and economic constellations in the present. Scenarios represent the deep normative and cultural values as they are embedded in foresight practices and modeling techniques (Aykut 2015, 129). Evidence on future developments has become part of a political struggle on how to realign the collective “space of experience” with the “horizon of expectations” under the conditions of an extended present (Koselleck 2004). This struggle is not yet decided. In the case of the German energy transformation, it changed the discourse on the future in an unexpected way: “What some regretted as a progressive ‘scientization’ of the ecological movement through increasing reliance on expert knowledge has indeed led to an opening up of energy futures the West German energy debate. The future became political in the sense that social movements used the instrument of scenarios to engage in energy controversies. Alongside the

occupation of construction sites, mass demonstrations, and the blocking of nuclear transports, scenarios emerged as a part of the contentious repertoire used by the antinuclear movement to make its voice heard and influence German energy policy” (Aykut 2015, 120). Other studies are more skeptical, arguing that their findings show that instruments such as integrated assessment modeling (IAM) in climate policy are still dominated by a closed circle of “expert arbiters”. To be able to politically and ethically explore scenarios without refraining to some sort of scientifically proven rationale, the authors suggest to find ways of “deliberating beyond evidence”: “The challenge is to produce ideas on possible futures without relying on a validating scientific counterfactual and, instead, to take up a position of deliberation without evidence (as opposed to justification through evidence)” (Vecchione 2012, 18). Indeed, deliberation beyond evidence might present one of the greatest challenges for policymaking if it is to explore the political and ethical dimensions of different trajectories into the future without colonizing it.

7. Outlook

This article has focused on theories of time in policy analysis. Existing concepts were compared in terms of how they answer Schütz’ questions on knowing the future. Table 1 gives an overview of the results.

It could be shown that the various ways time is conceptualized are closely related to underlying understandings of politics and political action. Theories of time are also always political theories with

practical implications. When they become chrono-technologies, they may change or reaffirm existing temporal orders. Today, one of the most influential theories is that of rational and evidence-based problem solving. In their science-based fiction “The collapse of Western Civilization”, Oreskes and Conway “imagine a future historian looking back on the past that is our present and (possible) future” (Oreskes and Conway 2014, ix). What their protagonist describes in his fictitious account of how things were before the “fall” are the fatal consequences of a highly rationalized and “reductionist” epistemic culture that dominated Western science. This culture was built on the premise “that it was worse to fool oneself into believing in something that did not exist than not to believe in something that did” (2014, 17). Indeed, it is a well-known insight that in striving for rationality and objectivity, political actions can have highly irrational consequences (Elster 2015). When listening to the prophet, it is well advised to keep in mind that he will always only provide fragments of the future. In a similar vein, Schütz reminds us that scientific prediction can provide not much more than a certainty taken for granted “until further notice” (1959, 83). Every action, however, has the potential to question these certainties “by way of fantasizing. It is, to use Dewey’s pregnant description of deliberation, *a dramatic rehearsal in imagination*” (1959, 84). It seems that both policymakers and (social) scientists alike need to choose between two alternative knowledge-ways by either aiming at foreseeing the future based on seemingly certain evidence or by continuously re-imagining it in search for new options.

Table 1: Theories of Time

Theories of time	Basic concepts	Political action as...	How do we know the future?
Polymaking in time	Cycles, sequences, and temporal structures	Rational problem solving	We anticipate it based on evidence and past knowledge
Polymaking by time	Ambiguity, opportunity, and policy streams	Temporal sorting and manipulation	We don't, but we carry on anyway
Times of polymaking	Time frames, temporal orders, and timescapes	Deliberation and discursive powering	We collectively rehearse and re-imagine it

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