A Dual System Approach to the Policy Process Analysis

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Abstract

The goal of the paper is to present and discuss the preliminary conceptual framework of Dual System Approach (DSA), which is a research method to be utilized in the studies of policy process. DSA is supposed to help researchers explore and understand the course and results of policy processes taking place in a political system.

In the paper it is argued that the dialogue between contemporary theoretical approaches toward policy process may benefit from a common methodological approach, and that such an approach could be based on the combination of complexity theory, systems theory and cybernetics.

The method is conceptualized on the theoretical basis presented by David Easton (Easton 1979) and on two models of system identification ("black box" and "white box" models). Within the method, the analysis of interactions between different actors in the political system is combined with the analysis of their institutional and organizational setting and ends with the analysis of influence. The method is designed in a manner to utilize both qualitative and quantitative data. In the paper, the introductory design of the validation procedure will also be presented.

Introduction – the complexity of policy process phenomena

Policy analysis is not only expected to help understand and explain the past and present nature of policy processes, but to predict the directions of their potential evolution as well. However, the growing complexity of policy processes, especially in liberal democratic regimes, poses major analytical problems to the research community.

Firstly, policy areas are always substantially complex. Problems present in the public sphere are multi-faceted, cross-disciplinary, and difficult to comprehend for individuals (Lindblom 1959; Ackoff 1974). The more we know about the problems themselves, the more complex they appear in the context of other problems. This means, that each of the issues on the agenda is inevitably coupled by other issues. In this sense, e.g. solving healthcare problems is strongly dependent on the capability to harmonize them with other, e.g. environmental and education problems.

Secondly, each of the ongoing policy processes is complex as well. Coping with public issues involves multi-channel communication between pluralized members of a political community (Duverger 1967). The political goals and interests of constantly interacting actors penetrate their struggle for power, which takes place on the formally and informally institutionalized rules (Deutsch 1966; Easton 1979, 1990). The rules are often mutually inconsistent or conflicting with the logic of action and behavior of the actors involved in the policy process (Lindblom, Woodhouse 1968).

Thus, the policy process analysis follows distinct paths, and the growing number of approaches and theories seems to be a clear evidence of the ambiguity the researchers face (Sabatier 2007). Along with the fact that the research community acknowledges the complexity of policy processes, the more general question emerges however: is there a way the scholars advocating different theoretical standpoints could test the same hypotheses, even though they preclude different approaches at various steps of the research projects – from research questions, through the choice of data sources, data collection methods, to data interpretation procedures? The goal of the paper is to show some of the possible clues for a positive answer to this question.

Especially in recent years, more and more attention has been paid to the development of methods that would give a comprehensive insight into complex phenomena, but a relatively small number of them regards policy processes (Geyer 2015; Richards, Doyle 2000). Complexity theory suggests

that complex political process take place at different levels of a political system, and this has consequences at all levels of political action, including organizational, institutional, national/state and international (Cairney 2012; Alter, Meunier 2009; Duit, Galaz 2008; Judge, Earnshaw 1994).

At the same time, it is still debated, whether complexity should be analyzed as a highly complicated or as an emergent phenomenon (Bailey 1994), and thus what kind of complexity-directed theory the researcher should start with to approach the policy processes adequately. This points to another field of practical decisions within the research design. Namely, should the policy process be treated as a "whole", with its nonlinearity, and threshold effects, or should it be divided into different stages or parts, taking place at different levels of political system that involve different political actors (Byrne 1998; Jervis 1998).

One of the main issues in that respect is how to combine the knowledge about structural factors of the policy process with the internal dynamics of the policy process under study. However, there has been no specific analytical method in policy oriented studies that would make it possible to combine the analysis of interactions between different political actors – individual, collective or organizational – within the political process, and the analysis of their structural environment, basing on the initial assumption about the potentially equal importance of both in the policy process.

Theories of policy process and two system identification models

In a number of theoretical approaches to policy process very similar elements seem to be present, although their role and significance differs between the frameworks. Each of the theories defines policy process differently, and – what is more important – presents the actors within the policy process in a specific way. The actors are to possess a varying degree of capabilities to influence the policy process, as also the structural features of the environment seem to constrain them differently. One of the best known classifications of policy process theories, by Sabatier, provides a general introduction to the problems discussed here (Sabatier 2007).

In his first review of policy process theories (the next review revealed an even more complex set of theories), Sabatier divided seven theoretical frameworks into two separate groups. According to Sabatier, the first group of frameworks is supposed to help explain "policy change within a given political system or set of institutional arrangements". In other words, the first group of theories is aimed at providing the best explanation possible of the factors shaping the types and dynamics of actions within a particular political system. The second group of frameworks is supposed to "provide explanations of variation across a large number of political systems" (Sabatier 2007: 10), which precludes that one can differentiate the features and functions of these systems.

In particular, in the first group stages heuristic presupposes a step-by-step, rational decision making structure of the policy process. This feature makes the approach especially vulnerable to criticisms of empirically oriented researchers, as it is extremely difficult to find any political system in which this type of linear logic is followed. *Institutional rational choice* is focused on the structural factors, that are to affect the behavior of the rational individuals, who are motivated by material selfinterest. This approach gives a more actor oriented view on the nature of policy process. In this view, actors are supposed to define the goals and intended outcomes of the policy process, although they are constrained by different institutional designs. In the multiple streams framework, the role of actors seems to be even more significant. This approach argues for the combination of three types of joint mechanisms: problem stream, policy stream, and politics stream that could be creatively joined by policy entrepreneurs. The entrepreneurs have the possibility of influencing the policy, by utilizing "windows of opportunity". On the other hand, a punctuated equilibrium framework (PE), shows how in some systems, after long periods of incremental changes, major changes actually happen. It is due to the numerous actions of political actors who exploit multiple "policy venues" and contribute to the of emergence of new "policy images". Finally, the *advocacy coalition framework* (ACF), gives an insight in the policy process as a result of the interaction of actors involved in the policy process, and shows the importance of belief systems of both - decision makers and stakeholders in the political system.

In the second group of frameworks presented by Sabatier, the theories seek for the explanations of policy process based on factors impacting the political system understood as a whole. *Policy diffusion framework* argues that the differences in policy adoption paths stem from the characteristics of the political system, and from the variety of diffusion processes, including the activity of policy networks. This policy network aspect makes it more actor-oriented than the *funnel and other frameworks in large-N comparative studies*. The latter presents the variety of policy

outcomes mostly as effects of the combination of more general structural factors, such as socioeconomic conditions, public opinion and political institutions.

The classification of theories presented by Sabatier seems to be coherent with the most basic presumptions of the systems theory, and of different system identification models in particular. The first group of policy process theories could be described as the ones consistent with the "white box" model of system identification, and the second group as the ones that could be perceived as the ones that follow a "black box" model (see Figure 1).

Figure 1. Representation of a system in a "black box" and a "white box" convention



It is best to present both of these models starting from the simplest one. In the "black box" model, system is perceived as an indivisible unit, which transforms inputs into outputs, and all influence that comes from the environment to the system is transformed by the system, which – in turn – influences the environment. The feedback loop mechanism helps to understand the internal logic of the system, without observing what is exactly happening in it. In this model it is possible to draw conclusions regarding the system function from the very observation of the impact it performs vis a vis environment at different moments of the policy process.

On the other hand, in the "white box" model, the system is defined as a set of interrelated elements. Each of the elements is identified, and together they are organized or configured in a certain way. This makes it possible to analyze both the structural conditions and the role of interactions of agents within the policy process.

At different points of time, different elements play different roles and their mutual dependence varies. For instance, the system may consist of other elements (e.g. stakeholders) organized

horizontally and/or vertically. System A may be an element of a larger class (e.g. a network), and thus remain interconnected, with other elements (horizontal dimension). However, system A may be also a part of system B (e.g. political system), and thus constitute a subsystem of the latter (the vertical dimension).

In the classification of Sabatier, the "black box" model seems to be more applicable to the comparative studies focused on the questions that are to reveal the set of variables important for the overall operation of the systems under study (*policy diffusion framework* and *funnel and other frameworks in large-N comparative studies*). Conversely, the "white box" model seems more suitable for all the inquiries that focus on the dynamics of interactions between individuals, groups and organizations as well the inner system conditions that shape them (*institutional rational choice, multiple streams framework, punctuated equilibrium framework, advocacy coalition framework*). From this point of view, the *stages heuristic* – should be treated as a mixed model approacc. Although it precludes the cycle of phases, none of them can be definitely demarcated of the other, because of their complexity on various levels.

Various methodological approaches to complex phenomena

In contemporary empirical studies of political processes numerous qualitative, quantitative, as well as multi-method approaches are used. This often leads to the lack of scientific dialogue between researchers of different methodological backgrounds, as the methods seem to direct the inquiries to different conclusions (Steffensmeier, Brady, Collier 2008).

It is sometimes argued that qualitative methods are best suited for exploratory inferences within the boundaries of the system (or phenomena) under study (Denzin, Lincoln 2011; Yanow 2003). These can rely on different types of data, such as text, image, film, and audio-recordings. In the theory-driven studies, collecting data, systematizing and coding it from the point of view of research questions and hypotheses, enables the researchers to trace the processes taking place within the system, interpret the particular interactions and, in effect, understand the complexity of political phenomena. Case studies seem to be the best example of such methods. In case studies, it is relatively easy to trace the influence of actors, and their role in the policy process. The nature of the relations and communication between actors are essential parts of the study that aims at showing the specifics and internal dynamics of the phenomena. The interpretative nature of the case study methods does not help to compare thousands of cases though. Statistical methods are more feasible in this regard. The latter helps receive insights into the correlation of many objects (units of observations), based on quantitative datasets. However, they treat the units of observations as possessing certain traits and characteristics (variables) that are important only in the context of their potential correlation with the traits and characteristics of other units of observations (Agresti, Finlay 2007). It is the number of observations and a set of particular variables that gives researchers the opportunity to explain complex political processes. Such a standpoint is present e.g. in the comparative studies regarding the quality of governance (Kaufmann, Kraay, Mastruzzi 2005).

On the other hand, social network analysis (SNA) gives an opportunity for the researchers to analyze the structural features of the system under study (Emirbayer, Goodwin 1994; Rogers, Lawrence 1981). It utilizes the idea of relationships (connections/ties/edges) as a key to understand the causes and consequences of the patterns of relationships between social actors (nodes) (Freeman 2004). Some of the clue concepts in regard to complexity of the network are: "multiplexity", which stands for the number of different ties between actors and "centrality" that refers to the importance or influence of particular actors within the network under study (Hanneman, Riddle 2011).

Contemporary social network analysis is of value for the analysis of complex policy processes, although it does not help much in exploring the dynamics of mutual interactions between particular actors (Mønsted 1995). Its main focus is to study the structural features of the network, especially when the power and policy structures are considered (Dowding 1995; Marsh, Rhodes 1992; Maoz, Somer-Topcu 2010). However, there are also attempts to make the network analysis methods more comparative (Serdült, Hirshi 2004).

A strong impulse for complexity-oriented studies of policy processes comes from the scholars notifying that the plurality of methodological approaches poses significant challenges (Ahmed, Sil 2012; Poteete, Ostrom 2005). A growing interest among the mixed-method oriented scholars is regards the best strategies of integrating quantitative, qualitative and social network analysis (Bazeley 2009; Chi 1997; Coviello 2005; Edwards 2010, Scott 2011). According to these researchers, inquiries may be more reliable and accurate, if different perspectives in one research design are utilized. In the past years a strong movement of researchers aimed at developing multi-

method research approaches (MMR) (Creswell 2013; Teddlie, Tashakkori 2009). One of the most promising ones is the Comparative Configurational Method (Ragin, Rihoux 2009). In the method, it is assumed that the in-depth study of a number of cases may help to identify the clue determinants of the wider process. Thus, the method presupposes a high level of knowledge on each of the many cases studied and relies on the interpretative competence of the researcher. One of the shortcomings of this approach stems from the fact, that the cross-case nature of the studies does not help reveal the internal causal logic of the policy process (Kuehn, Rohlfing 2009). It is still debated, e.g. what type of logic (e.g. Boolean or fuzzy sets) is best suited for the analysis, and thus this category of methods becomes pluralized itself.

Specific approach to policy process comes from the general systems theory and cybernetics (von Bertallanfy 1950; Wiener 1965). Although these methods differ in the ways the systems should be understood (Nettl 1966; Oliga 1988). A growing attention is being paid here to the analysis of the organization of the decision making process (March, Olsen, 2005; Wildavsky 1966, Pietraś 2000). One of the most advanced types of analyses of interactionist and structural aspects of the systems are the designs utilizing the analysis of System Dynamics and Soft Systems Methods (Lane, Oliva 1998). Other types of methods are derived from systems analysis, which has been developed for practical purposes, starting from Lindblom and Woodhouse (Lindblom, Woodhouse 1968). The system is here analyzed as a means or instrument that is supposed to bring the desired goals to the decision makers (objectives). The systems complexity is perceived as one of the major constrains to rational decision making, which should be accounted for in at various phases of policy making.

Theoretical sources of the proposed methodological approach

The variety of theoretical approaches to policy process shows that there is a significant disagreement on what the analysis of policy process should primarily take into consideration in order to make the research fruitful. Should these be the general features of the system as a whole (e.g. type of political regime, economic structure, type of political culture), particular actions of political actors and their coalitions, maybe along with their structural/institutional conditions or all these combined (Altmann, Koch 1998)?

The proposed approach aims at addressing this problem from the perspective of systems theory. Within the approach the complexity of the policy process is not taken for granted, but is perceived as a specific feature of political life, a defining concept, and one of the central problem in the research design.

The proposed method is based on one of the most recognized works of political systems theory, in particular David Easton's *The Analysis of Political Life* (1976). Easton's approach has been considered of great value on the theoretical level, however it received little attention at an operational level, neither was it adopted to policy process analysis as a basis for specific, coherent system-based methodological approach.

Easton treated the political system primarily as an open and adaptive system – a "black box" – which transforms the inputs from the environment of the political system (demands and supports) into outputs (decisions and actions) when the values for a society are to be allocated. The feedback loop between the system as a whole and its environment is supposed to help the system keep its stability and integrity. On the other hand, although Easton rarely analyzed the problem of voluntary action, he also assumed that all political interactions in a society form a system of behavior, and thus form a system in its "white box" sense (Easton 1976: 19, 21). This very distinction seems to be the most promising direction for further research of analysis of complex political processes, as it helps to switch the analysis of the processes taking place at different levels of inquiry (Åström and Eykhoff 1971; Backlund 2000; Hall, Fagen 1956; Ljung 1987).

In his work, Easton assumed that there is a constant exchange of information and energy within the system under study and between the system and its environment, which makes the political phenomena dynamic and complex. The exchange between different political actors is predominantly based on the stimuli-response or feedback loop mechanism. Hence, it is also assumed there that the events within the system are based on communication. The power and influence of actors could be analyzed there in the context of systems traits, such as systems integrity, authority and legitimacy. However, at the same time, Easton treated members of the system as quasi-autonomous, as they may have influence not only on the particular decisions, but on the very structure of decision making process as well. The actors are to possess the capability of learning and changing the functioning of the system purposefully, which in effect could pose impact on the structure and operation of the system as a whole.

The theory of David Easton helps to describe and explain not only what is happening in the system, but how it is happening as well. It is also coherent enough to help to seek for the particular procedures of analysis, as Easton presents his ideas systematically. The theory seems to be universal enough to make the dialogue between policy process theoretical frameworks possible, as it operates on a high level of abstraction. Finally, the categories used in the theory are possible to implement in the analyses of policy process, as the idea of feedback loop presupposes the information and energy exchange between different parts of the society, regardless of the type of the regime under study.

In this theory, political power and influence could not be treated as a prerequisite of a particular actor (individual person, political organization or institution). It should be rather perceived as a derivative of the role the actor plays in the political environment. In this meaning, some of the actors are perceived as more and some as less influential, due to the conditions of the environment and their own capabilities and at the same time. Political influence in that sense is a constant, dynamic, reciprocal and non-linear process taking place between actors that is based on communication within a particular structural framework, which is coherent with other cybernetic approaches (Deutsch 1966, Wiener 1965).

The building blocks of DSA

It is assumed, that the complex policy process is a series of interrelated events taking place on various levels of a political system simultaneously, involving different political actors, formal rules, and informal patterns of behavior. The political actor is in that context every entity – e.g. individual, organizational or institutional – executing influence within policy process (Crozier, Friedberg 1982).

System identification models stand on different assumptions, and each of them gives an opportunity to reflect on different aspects of the policy process: the nature of policy change ("black box") and the determinants of interaction between various actors within a policy process ("white box"). Consequently, different research hypotheses in the policy process research could be tested. For this reason the features of both, the "white box" and "black box" model, at different moments will be utilized.

In the method, two models of system identification should be combined in order to develop a set of procedures for the analysis of policy process in a single political system. In that way the method seems to be more applicable to the theories categorized as white box model frameworks, although it is possible to account for the plurality and differences of political systems if the analysis of the policy process focuses on the global level.

At the same time, different types of analyses should be implemented in the method, as the policy process is inherently dynamic and all actions within the process are constrained in various ways. Thus, structural aspects of the policy process should be analyzed along with the interaction of the actors. In consequence, the preliminary research matrix might look like the one presented in Table 1. The significance and role of the building blocks of the method are described below.

	Black box phase	White box phase	Conclusions
Structural analysis			
Analysis of interactions			
Analysis of influence			

Table 1. The DSA research matrix - three types and three phases of analysis

The black box phase. The main question to be answered throughout this phase is: what is the function of the process – "what is being changed". The political process should be treated as occurring in a "black box", which means that the analysis should focus on the inputs and outputs (e.g. official numerical datasets regarding social and economic problems of the society along with the official documents generated by public institutions).

The white box phase. The main question to be answered throughout this phase is: how is it happening – "who/what is doing what and why"? The analysis of the process as a "white box" will be primarily based on the datasets regarding communication between actors throughout the process.

At the same time it is assumed that both structural analysis and analysis of interactions may be treated as starting points of a linear, one time linear research project or as elements of the cycle in the research design focused at testing various hypotheses at different points of time and different points of departure.





The **structural analysis** is supposed to enable the discovery of the multi-dimensionality of relations between actors within the political process of different levels (See: Freeman 2004; Scott, Carrington 2011). The formal and informal relations between the actors should be treated as basic aspects of the organizational and institutional setting of a process under study.

The **analysis of interactions** is supposed to unveil the dynamics of behavior between the political actors in the particular policy process. This could be achieved by inducing the actions and reactions of actors that should be traced on the basis of analysis of events in the chronological perspective (Mazur 1976).

The **analysis of influence** is supposed to integrate the structural analysis with the analysis of interactions in each of the two phases. In order to comprehend the relative meaning of events for the final result of the analysis , the dynamics of interactions presented in the context of e.g. regime, political and procedural variables (Axelrod 1976; Hmelo-Silver, Pfeffer 2004).

Validation procedure – healthcare policy process in the parliamentary subsystem

If the method is to be of value, it should be tested and proved applicable and useful. It should also give a clear knowledge on the accuracy and reliability of the conclusions. DSA is based on systems

theory and cybernetics, which together argue that similar processes take place at different levels of the political systems. That is why, it seems sufficient that the analysis is narrowed to one group of processes within one type of institution within the political system. In the validation procedure it is assumed that the processes taking place within democratic parliament could be a feasible source of knowledge on the strengths and weaknesses of DSA.

The goal of the research project aimed at validation of DSA is to explore and describe the healthcare policy process in the parliamentary system of government. It is intended to determine the scope of influence on the healthcare reform (Archer 1982; Emirbayer, Mische, 1998) of different actors in Poland. *Political influence* is defined as the capability of an actor to execute change in policy. *Political structure* is understood in its formal and procedural sense, and each actor is treated as semi-autonomous. It is assumed that parliamentary structure makes all decisions interdependent.

In particular, the project aims at grasping the determinants that inform and/or disturb acotrs' capability for influencing the decision making process, by studying the dynamics of 1) the involvement of actors in political networks, 2) engagement in the political discourse in different moments in time. In the method, also relation of interests assigned to particular actors by researcher will be determined (here: convergent/conflictual).

The "black box" phase: The policy process of the legislative healthcare system reform will be analyzed from the point of view of inputs (e.g. drafts of projects of legal acts) and outputs (e.g. implemented legal act). The nature and/or scope of changes will be analyzed, in each step of the process (e.g. all documents generated and submitted for reading in the parliamentary standing committee).

The "white box" phase: The policy process will be analyzed from the point of view of the dynamics of interactions – the arguments presented in the debates by government, opposition deputies, lobbies, other stakeholders will be traces and their relative meaning for different actors will by analyzed). The mutual relationships, the scope of involvement in the process and character of actions and reactions will be in the center of analysis.

Structural analysis: The set of structural variables are: regime variables (e.g. relations between legislative and executive branch); political variables (e.g. party affiliation and government-

opposition division in parliament), and procedural variables (e.g. Sejm internal regulations, standing committee regulations, legislative procedure).

In Figure 3 a network of actors and the traits of their structural environment are visualized. Each of the circles represent one political actor – here, an individual (Deputy, Stakeholder), whose structural situation is shown by particular formal and informal characteristics (here: governing/opposition party, leader, backbencher).





Analysis of interactions: Each event taking place in a particular point of time will be interpreted. The events will be coded within an integrated, qualitative framework, which will show its relative meaning (e.g. positive/negative – "+", "-") and strength (strong, modest, weak – "3", "2", "1") (Mazur 1976). The event may be also coded as having a neutral or no meaning ("0") (See: Figure 4 below).

In Figure 4 the dynamics of interactions between two actors in the parliamentary debate are presented (e.g. Stakeholders: S, Pro and S, Con – see Figure 3). Basing on the analysis of the meaning of specific facts for the policy process (throughout expert interpretation, supported by automated data processing), the researcher should be able to draw conclusions on the nature of the relations between actors and incorporate this knowledge to the interpretation of the relative meaning of particular behavior of actors in the context of the process under study). For example,

the interaction presented in the Figure 3 (between S, Pro and S, Con) may be determined as an unstable one (see Figure 4), if one stakeholder (e.g. S, Pro) presents arguments in line with his/her political interest and the intensity will be interpreted as growing (see events: 2, 4, 6, 8, 10, 12, 14, 16), and the other stakeholder (here: S, Con) presents the opposite views (see events 3, 5, 7, 9, 11, 13, 15). From the researchers' point of view, this could be a hint that this relation may change into an open conflict.

Figure 4. The projected view of the action-reaction dynamics between two actors, as the example of positive and negative behavior in the political process



The final part of the project will be focused on drawing conclusions. The main question to be answered throughout this phase is "what is happening throughout the process – "who/what influenced what and in what way". In the final phase, the interpretation of the relative character and scope of influence with the specific project-driven criteria will be comprehended and conclusions will be drawn (e.g. understanding the scope/character of policy change vs. the role of particular stakeholders in the process of regulation). As well different logics of action and patterns of conditioned behavior will be revealed.

Summary

The proposed method is aimed at helping policy process researchers conduct empirical studies, by providing a conceptual framework that integrates two models of system identification – "black box" and "white box" models in one research designs.

It is assumed that the proposed method will help analyze interactions of different actors and impact of different factors in complex political systems, by enabling researchers to systematize and reflect on the behavioral and structural aspects of struggle for power and substance of decision making processes in the democratic political system. It is intended that the method will also help better conceptualize and operationalize research designs, validate the logics the researchers apply to inquiries in the comparative studies and test the accuracy of conclusions drawn from the analysis of complex political phenomena.

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