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# COMPLEXITY THEORY AND PUBLIC POLICY: A NEW WAY TO PUT NEW PUBLIC MANAGEMENT AND GOVERNANCE IN PERPSPECTIVE

# KOMPLEKSLİK KURAMI VE KAMU POLİTİKALARI: YENİ KAMU İŞLETMECİLİĞİ VE YÖNETİŞİM KAVRAMLARINI YENİDEN DÜŞÜNMEK

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**ABSTRACT**

*This study is an attempt to comprehend the very nature of complexity in public policy and to underline the need for a new paradigm in public policy. The study is of the idea that complexity theory and the phenomena associated with complex systems possess a wide array of theoretical and practical tools to comprehend different dimensions of policy processes. Given the challenges of contemporary times with numerous perplexing issues, the work argues that complexity theory is equipped with the tools to grasp the complexities surrounding public policy issues. In such respect, many contemporary paradigms of public policies deal with complexities by means of subscribing to the perspectives of complexity. The study focuses on the basic problematizationhow new public management and governance schemes deal with these complexities.*

**ÖZET**

*Bu çalışma kamusal politikaların doğasındaki komplekslikleri anlamaya ve buna dayalı olarak kamusal politikalar ile ilgili karmaşıklıklara cevap verecek yeni bir paradigmaya ihtiyaç olduğu noktasını vurgulama hedefindedir. Kompleksite kuramı ve karmaşık sistemlerle ilişkili olan çeşitli olgular siyasa süreçlerinin değişik boyutlarını anlamak için bir çok kuramsal ve pratik araç sunar. Günümüz dünyasında zorlu koşullar ve gereklilikler göz önüne alındığında, yapılan çalışma ile kompleksite kuramının kamu politikaları yapımı ve uygulama süreçleri ile ilgili sorunlara hem kuramsal hemde pratik anlamda destek vererek, çözüm yolları gösterebileceği ortaya konmuştur. Bu bakımdan kamusal politikalar ile ilgili güncel paradigmalar komplekslik kuramına başvurarak var olan karmaşıklık sorunu ile mücadele etmektedir. Çalışma yeni kamu işletmeciliği uygulamalarının ve yönetişim*

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*mekanizmalarının verili karmaşıklıkları nasıl değerlendirdiğini sorunsallaştırmaktadır.*

**Keywords:** Complexity Theory, Public Policy, Governance, New Public Management, Complex Systems
**Anahtar Sözcükler:** Kompleksite Kuramı, Kamusal Politiklar, Yönetişim, Yeni Kamu İşletmeciliği, Kompleks Sistemler

## 1. INTRODUCTION

In a world characterized by complexities, questions in regard to public policy and repercussions of policy making process have started to be addressed more and more remedies within the complexity theory(Teisman and Klijn, 2008). In the middle of heated debates in relation to the making and implementation of public policies, stands the need for developing sound and clear theoretical frameworks to facilitate us in understanding the nature of challenges imposed by the hegemony of so-called Modernist era on the existing approaches to the public policy field (Klijn, 2008:300).

The Modernist Era of public policy praised the instrumental rationality governing the design and implementation of policies and called for an unquestionable trust in values such rationality, order and systematic approaches "*assuming that organizations were unified, rational actors* (Braybrooke and Lindblom, 1963 quoted by Klijn, 2005)." Yet such an over-confident claim to grasp and to embrace the social reality around was more than an enthusiastic move.

The new brave world by the end of 1980s and the beginning of 1990s put forth important challenges for the field of public policy. As Dennard, Richardson & Morçöl (2008:1)assert in relation to the challenges faced by international public bodies, the changes are more than evident: "*As the globalized landscape of public policy institutions continues to emerge becoming less vertical and morehorizontal—policy analysis begins to look more like creative problems solving across conventional borders and among more varied in formants to the policy process — a frequent democratic prescription for the public policy process in 'pre-complexity' times ....* "

Indeed, by mid-1990s, scholars working in the public policy field literature started acknowledging the complexities inherent. Parsons (1995:89 and also see for the related definitions Sapru, 2010), for example, noted that there required a more and more increasing need to develop a multi-agent complex system often with multi-levels of government due to the environmental factors that shape different contexts of policy making often characterized by variation, nonlinearities coupled with uncertainty, flux and unpredictability.

Given the complexities of our age in relation to the making and implementation of public policy, the famous definition of public policy given such as "as both actions (decisions) and inactions (indecisions) of the government" (see also Birkland, 2001; Bridgman and Davis, 2004;

Colebatch, 2002; 2006; Parsons, 1995, for related definitions in regard to the multi dimensionality), has to come to be replaced with other definitions in terms of complex systems and emergences. In such regard, from the complexity view, public policy becomes a complex system which Morçöl (2012:299) defines the term *"an* emergent*and self-organizational* complex system. *The relations among the elements (actors) of this complex system are nonlinear and its relations with its elements and with other systems are co evolutionary."*Based on Morçöl's definition, complexity perspectives added the very notions and dimensions of" interrelatedness of elements and integration as whole" to the public policy field by means of the term "complex system". Provided that the notion 'system' is embedded into the making of public policies, the term will not be solely what the legal and institutional analysis of public policy refers to, merely indicating that they are not of any instrumentality in relation to government. Moreover this does not indicate any causality between the legislation and "policy outcomes."

The existing work is an attempt to comprehend the very nature of complexity in public policy and to underline the need for a new paradigm in public policy. The study is of the idea that complexity theory and the phenomena associated with complex systems possess a wide array of theoretical and practical tools to comprehend different dimensions of policy processes. The study reiterates that if human social interactions are of the same characteristics with social complex systems, then they have commonalities with policy processes. Henceforth concepts of complexity theory might be of use and using in explaining elucidating and explicating different. In undertaking the task, the work will select two contemporary paradigms used in public policy schemes, namely, governanceand new public management (NPM) paradigms which come to shape public policy making in contemporary times to problematize how existing public schemes deal with complexity at different levels.

Given the above perspective, the first section of our work will elaborate on the fundamentals of complexity theory coupled with a sketch of terms used in the literature. Coming to deal with the inherent problems in the field of public policy, the themes of a complexity theory of public policy will be discussed within the section. The third part of the work will elaborate in brief to what extent complexity theory has to offer, if any, for the new challenges faced by public policy fields. Finally, the work will cover governance and new public management themes from the complexity perspective and elucidate how these two paradigms come to shape the making of public policies.

## 2. COMPLEXITY THEORYFUNDAMENTALS: BASIC CONCEPTUAL FRAMEWORK TOOLS

The basis of complexity theory can be traced back to the rise of Enlightenment and its by-product basis known as 'Modernity' (for a detailed discussion of the basic characteristics of modernist public policy, see Geyer,

and Rihani, 2010: 24**).**Modernity has devised its epistemological inquiry on the basis of Descartian methodology of dividing a whole into little parts for a better comprehension later to be named analytical tools, Baconian form of induction of summing up the small parts into a greater body of knowledge along with the Hobbesian way of thinking (Rosenau, 2001:119). The belief in perfect foreseeing and forecasting future, linear line of progress and eventually an absolute trust in the existence of so-called 'reality' constructed along with the objectivism constituted basic pillars of the Enlightenment thinking (See for a similar line of historical line of thought Morçöl,1997;2002).

The second half of the nineteenth century brought about immense changes to the ways with which we perceive the world around us, facilitating the humanity to model the outer world with advanced mathematical models. In the mean while, the new mathematical models of scientific thought aided the emergence of a new industrial revolution bringing a new organization of social life in the form of abstraction of labor, rampant and overwhelming increases in economic production, and advances in military technologies and finally overtaking of political power by masses from the monarchic political forms. The resultant events were the colonization of the "developing world" and struggles by and between the Northern Hemisphere located European and North American powers that had to face two world wars by the end of the first half of the 1940s (Alatlı,2011) .

The early second half of the twentieth century called for a thorough questioning of the epistemological bases of the Modernist Era thanks to the role of natural science with theorems such as General Relativity theorem, Goedel's theorem, and Fuzzy Logic, Chaos and Complex systems theory. Among these, the notion of 'complex dynamic systems' as borrowed from biology was quite influential in the making of complexity theory (Klinj, 2008; Teisman and Klinj,2008)

Accordingly, the most important reference point was asserted as co-evolution which refers to the evolution of living organisms starting from their cells along with the environment surrounding them coupled with a tendency " *to form complex organisms, further properties (not genetically determined) emerge with the differentiation of cells, and the formation of higher system levels*" (Eppel, 2009:13). A second guiding principle of complexity theory tuned out to be the principle of 'self-organization'. The natural sciences' perspective simply argued life was merely nothing but 'co-product' of internal functioning of cells and other sections of the organism reciprocated by living things interactions with the environment, which also stipulates that different successive levels of complexity have the essential properties of the smallest unit known as self-similarity along with the emergent properties particular to each other (Morçöl,2012:114; Eppel, 2009:14; see also Mittleton and Kelly, 2003).

Before getting in to the basics of complexity theory, it is essential that one define the term. While complexity is defined as *"the property of a real world system that is manifest in the inability of any one formalism being*

*adequate to capture all its properties",*(Gershenson etal, 2007:30)complexity is characterized by a number of factors "*a) a large number of similar but independent elements or agents; b) persistent movement and responses by these elements to other agents; c) adaptiveness so that the system adjusts to new situations to ensure survival; d) self-organization, in which order in the system forms spontaneously; e) local rules that apply to each agent; and f) progression in complexity so that over time the system becomes larger and more sophisticated* "(Valle,2000:4).

Borrowing from the physics and biology, complexity theory revised its understanding of the term system. Neither being "the more mechanical notion of systems that formed the sciences of cybernetics and general systems theory to describe a collection of parts that work in interactions with each other"(Eppel, 2009:13) the complex adaptive system approach required that systems have dynamic, complex and nonlinear attributes thus being a collectivity of parts both working all together yet subject to experience each other as they have come to interact with each other. In other words, systems are significantly open with a capacity to exchange information, energy and materials in the course of their both internal and external transactions (see Kaufman, 1991, 1993,1995;Prigogine and Stengers,1984; Marurela and Vrela, 1980 for natural science applications; see Luhhman, 1995 for social sciences applications).

Departing from where natural sciences kick off, social systems are complex andnonlinear. The pretext for such an argument put forth by Cilliers (1998) is grounded by the following propositions: The number of humans involved in social relations is extremely large in a setting in which human interaction is realized through dynamic exchange of information with different patterns of interactions. Accordingly the level of interaction is high with different capacities to act. In this setting patterns of interactions tend to be nonlinear and asymmetrical, which power tends to be determining the outcome of different situations. The human interactions range is generally short with the domination of proximity yet with the potential to have at times wider influence. Individuals can get to influence the other interacting parties along with themselves(see the related themes at Morçöl, 2002; 2005; 2007;2010; Buuren and Teisman, 2007; Klinj, 2008).

The human-made systems have historical backgrounds with traces subject to different interpretations. Moreover, human systems oscillate between chaos and establishment of a high level order, in such regard they are far from equilibrium. Here it essentially important to note that chaos as a term does not refer to any kind of disorganization as used in the colloquial language, rather, the term is used to refer to non-linear results that come out of societal processes (Overman, 1996). Henceforth, chaos does not come as an explanatory variable in explaining the *raison d'être* of complexity inherent in the nature of social systems (Klinj, 2008).

In order to be able to thrive as complex entities they require a flow of energy and other essential components with the external environment and other societal groups. What the society carries out comes to be the most

determining factor for the very survival of the society, thereby leaving their origins and goals of lesser importance or with no role to play at all. The open characteristic of human made system is an essential characteristic of the process in which local discourses are bestowed with the capacity to affect and influence others. The behavior of the general system is, on the other hand, not a matter of reference for individuals within the system, whereby individuals ignore the behavior of the system. In other words, humans as individuals are at the same time a part of the system, yet they are far from being able to control the general system and understanding it in its full sense (Klijn, 2007).

## 3. COMPLEXITY THEORY AND PUBLIC POLICY

Complexity theory is equipped with a wide array of tools to envisage new tools to problematize different challenges faced in the field of public policy making. By means of taking advantage of non-linearity, emergent behavior, self-organization, complex adaptive system, the theory has been in a situation to deal with the technical and instrumental rationality inherent of the Modernist Era public policy making. As noted modernist public policy making is founded on the premises that organizations were holistic and individuals within the system tended to be rationally-acting (Braybrooke and Lindblom 1963, see also, Lindblom 1959;1965). Most of these traits came to be sine quo non characteristics of modernist policy making.

Since the late 1960s and 1970s, a gradual approach to see the field of public policy making as a complexendeavor with a focus on multi agent, multi actor and multi layered process got on the way (Pressman and Wildavsky, 1983). The most concrete applications of the models in public policy field came to gametheories (Allison 1971 quoted by Klinj, 2008), garbage can models (Cohen *et al.* 1972), and multi partisan adjustment models (Lindblom 1965 quoted by Klinj, 2008). In lateral stages to come, models of complexity got to organize on governance themes along with network theories (Rhodes, 1988; Pierre and Peters, 1990; Marin and Mayntz, 1991 quoted by Klinj, 2008).

The complexity theory has a gained a new momentum of implementation in the field of public policy in the early 1990s thanks to the frameworks named as network theories of public policy making. In such regard, these kinds of work attempted to analyze the very nature of public policy making from the perspective of network theories focusing on the structures influencing the processes(Klinj, 1996; 1997; 2001; Morçöl and Waachaus, 2009; Klinj, 2001). Sociologically speaking, the context of such application was realized through the famous of work of Manuel Castells' (2000) 'Rise of Network Societies' which fundamentally argued that network types of organizations became the basic mode of policy making, which also facilitated the introduction of complexity theory.

Reformulating basic approaches to classical government and administrations' understanding, Jessop (1990) defined society and state as things as relational and radically autonomous which could not be managed

solely by hierarchical upper central nexus. In this regard, system becomes something beyond its agents that it is composed of, and it is a continuous interaction with other parts constituting itself (Morçöl, 2010). Moreover, iforganization as human social constructs can be deemed to be complex organizations, public policy field could take advantage of what the notion has to offer thanks to its links with institutional theory and the role of organizations in public policy processes

Complexity theory argues that systems evolve with each other in a non-linear fashion and systems are subject to dynamic feedbacks both in positive and in negative sense. Moreover, they co-evolve with each other with potentials to "coorganize". (Klinj and Teisman, 2008). In such regard, Eppel (2009: 16) underlines that "Many *complex systems are systems within larger complex systems, within still larger complex systems, and so on. Taken together, these nested systems constitute a system 'whole'. 'Self-similarity' means that characteristics identified at one level of the system will also be present in the whole....The dynamics of complex systems arise from each element that makes up the system being influenced by, and in turn influencing, each other constituent. The dynamism of the system can result in the 'emergence' of new patterns through 'self-organization' of the elements of the system. It is possible to influence the 'attractors' around which the system stabilizes through the positive and negative 'feedback loops' which create them."*

Given the perspective above, Morçöl (2012:10) applies the notion of dynamic systems to the public policy where he argues that "*a public policy is better conceptualized as the whole of the activities of and relations among self-conscious, purposeful, and interdependent actors.*"Be they individual or collective actors, actors involved in public policy systems have road maps by which they can do their interpretations *vis a vis* different challenges faced in the policy making in the form of principles and rules.Indeed, this required a more radical way of rethinking of public policy processes. In more concrete terms, the ways that actors come to interpret these societal processes are realized through both social construction processes and the very self-interests of actors (Morçöl,2007;2010). It is these actions that constitute a policy system. From what perspective you take in the analysis of public policy from the perspective of complexity theory, the level that complexity functions is at a holistic and systems level. Therefore, one can witness an interactive and interdependent dynamism between the parts, becoming such that despite the existence of interacting parts the whole is not reducible to theaggregation of its parts, nor able to be construed only within its parts.

If public policy is a system, it can be concluded that changes within the financial, economic and social system may lead to the public policy system. In exchange changes in public policy system will bring forth changes in external environment. Yet there have been serious problematizations in regard to which changes will be external and internal, in other words, these labels shall be socially constructed and imposed points. Mutual adaptation and influencing between the system and between actors and systems are in

inextricably linked to the notion of co-evolution. In terms of public policy systems' boundaries, these also remain to be socially constructed with the others.

As already noted in the fundamental concepts of complexity theory, public policy as systems are from the equilibrium point, rather there is acontinuous oscillation between what is called chaos and establishment of a high level of order. The far-from equilibrium may be the outcome of the impact a very minor stimuli. This very oscillation point from order to chaos is also known as bifurcation point in which chaotic and paradoxical outcomes are more than likely to come onto the stage (Klinj,2007;2008).

This novice system understanding of public policy does not subscribe the modernist era's public policy understanding of objectivity, rationalism, in particular instrumental rationality along with linear line of progress (Morçöl,2002).The most important challenge brought by complexity theory follows that the external observer is inevitably and inextricably linked to the system as a whole. Epfel (2009:16) explicates this matter such that: *"The physicist Bohm contends that there is an unbroken wholeness, and an 'enfolded order' in the universe which is completely different from the concept of order conceived of in Cartesian-based epistemologies. The existence of a different kind of order, which is nonlinear, dynamic and unpredictable, has implications for appropriate methodologies for the study of these complex."*

## 4. NEW PUBLIC MANAGEMENT AND GOVERNANCE THEMES IN PERSPECTIVE OF COMPLEXITY

Contemporary public policy making has been reconsidered within the paradigms of new public management and governance paradigms in face of growing pressure and challenges beginning as of the late of 1980s. Indeed the push for a major retrenchment and a restructuring within the public administration systems required the making of public policy be equipped with tools to deal with growing complexities.

First let us get back to the basic features of NPM paradigm and how NPM handles the policy making via different features. Primarily NPM literature puts emphasis on developing strategies to simplify the procedures by means of establishing benchmarks to answer the needs of efficiency and effectiveness in regard to the performance of governments (Buuren, Teisman, 2007, Teisman and Klinj, 2008, Klinj, 2008) Secondly, privatization and contracting out become common practices for governments along with simulation of ideas and techniques that have proven out to be successful in private sector.

A third policy-making in NPM has been to the very creation of markets and quasi markets solely to increase competition in public delivery of service provision coupled with policy implementation. Fourthly, benchmarks and performance indicators are called for the very design,

making and implementation of public policy. In such regard, NPM has a desire for the measurability for policy outcomes with concrete mechanisms whose references are taken from the private markets. Given the spectrum of different instruments used in policy designs, NPM aims to minimize complexities inherent in the making of public policy. Therefore the way that NPM deals with the challenges due to complexity is via means to make the policy processessimpler and more concrete. From this perspective, NPM underlined the need to separate responsibilities and authority within the context of policy making and implementation. NPM also attempts to realize the same thing in relation to the political system and its realization of its objectives (Klinj, 2008).

Another paradigm to treat complexities in contemporary policy making has been the overwhelming impact of governance schemes to deal with different problems facing public policy bodies (for a thorough discussion, see Dunsire 1993; Rhodes, 1997). In contrast to the NPM, governance paradigm relies on horizontal co-ordination of different parties involved in the processes. In such regard, the way that complexity is addressed by governance schemes is via improvement of organizational coordination and management capacities(Klinj, 2008). At this point governance paradigms attempt to deal with information deficits in regard to numerous parties within the public policy system. It is the contention of the approach that horizontal steering is of utmost importance in fostering societal actors involved. The expectation is such that contrasting parties involved in public policy making implementation mechanisms will resort to veto powers less and less. In such respect, the governance paradigm relies on the notion of harmonization and moderation of different interests and stakes put into question. Secondly, the essential component in action for governance schemes is information and knowledge (Klinj, 2008:318-319). In this respect governance paradigms in regard to public policy making and implementation underline the knowledge of different parties with the aim of amelioration of service outcomes and policy outcomes.) Klijn (2008: 319) notes that" *While private actors often possess knowledge of markets, societal organizations have access to the preferences of service users and citizens, and an understanding of societal trends or sector knowledge*." Lastly but not the least, governance schemes are more and more concerned with legitimacy of policy processes by means of early inclusion of societal actors. Governance schemes related policy processes have the potential to contribute to the democratic notions, therefore establishing stronger links with the politics and citizenry (Dunsire, 1993).

In many respects, increasing pressure is levied on public policy systems as they have come to face the obligation to deal with complexities surrounding them. The basic rationale for NPM has been to govern the complexity by imposing strict grip on complexity. NPM schemes of public policy realize this be means of assigning clear responsibilities and by clearly differentiation of the terrains of policy fields apart from policy implementation. In the making of policies along with their implementation, NPM puts a clear distance from governance schemes. The most important

criteria for policy outcomes happen to be the level of output reinforced with regulatory mechanisms like creation of quasi-markets and privatization practices. Managers as individual actors are to be situated as far as possible from the complex interplay of agents of the system

In contrast governance paradigms take the path to go in details with the system actors and develop more sophisticated mechanisms to include different player in the policy making and implementation. The aim becomes to control the information to share within the system interactions. Governance paradigm rather tackles with the complexity by situating of information factor. By means of creation of a common platform whereby different parties gather and negotiate, indeed governance mechanisms prefer to choose a difficult path, being perplexing at times. They are rather obliged to manufacture governing mechanisms and strategies which specifically target certain and particular groups. As Klijn(2008:319-20) carefully observes:"From this perspective, the manager attempts to move with the system and take advantages of opportunities to connect actors and ideas in the system, so that temporarily stable situations for achieving policy outcomes can be arrived at."

## 5. CONCLUDING REMARKS

Complexity theory has a great potential in terms of identifying and locating public policy as a system and serves as an essential nexus in connecting public policy to the behavior of complex systems. It rather implies that essential attention be paid to the public policy systems as whole along with network and other components interacting and combining to form a systemic behavior. As Cairney (2012: 355) reiterates the basic argument of the existing work: (Complexity theory) “represents a profoundly new way to examine politics; a paradigm shift in the social sciences that will help replace rational choice theory and shift our focus of explanation from individualistic to holistic accounts”

In such regards, it facilitates the reader and scholars to go above trees and see the whole forest. With the advent of NPM and Governance schemes complexity has also been concern for these new paradigms or approaches governing the rules of public policy making and implementation. Yet the way that NPM and governance schemes have tackled with complexity has been the opposite of the each other. Whilst NPM has attempted to minimizes the complex transactions volume within public making schemes, just on the contrary, governance schemes have attempted to control the information component within public policy making process emphasizing the need to orchestrate different stakes involved in the processes.

It is true that complexity theory has much to say on different dimensions of public policy making and implementation processes. But different public policy systems deal with complexity terms as in the cases of NPM and governance.

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